Swedish Energy Agency

Article 6 in the Paris Agreement as an ambition mechanism

Options and recommendations

Final report
Zurich, 19 June 2019

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Editorial Information

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Report - Ambition Raising_final

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Swedish Energy Agency

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Content

Executive Summary

Ambition raising is core to the Paris Agreement. Parties agreed "to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" and to limit global temperature increase to "well below" 2°C (Article 2). Parties' current Nationally Determined Contributions (NDCs), however, fall significantly short to achieve these objectives. Therefore, the provisions in the Paris Agreement that aim at increasing ambition over time are key to reach its long-term goals. This report analyses what countries can do in the design and implementation of international carbon market mechanisms under Article 6 of the Paris Agreement to foster higher ambition in mitigation. The paper identifies and discusses options on how to operationalize both the Article 6.2 and 6.4 mechanisms in the context of the Paris Agreement so that they may contribute to ambition raising. The paper builds upon an earlier study undertaken for the German Environment Agency (UBA), as well as other recent literature. The paper also takes into account the Katowice Climate Package, adopted in late 2018 to implement the Paris Agreement, as well as the draft negotiating texts on Article 6, which could not be finalized in Katowice.

Article 6 may help in ambition raising but also provides perverse incentives against it

While Article 6 is explicitly introduced as a means for increasing ambition, in practice there are various challenges and perverse incentives that may run counter to this purpose. The possibility to purchase international carbon market units could lower the cost of mitigating climate change and thereby help acquiring countries to adopt more ambitious mitigation targets. The prospect of Article 6 transfers, however, could also incentivize host countries to set less ambitious mitigation targets, in order to be able to "sell" (transfer) a larger quantity of mitigation outcomes. In addition, there is a risk that acquiring countries may pursue less mitigation domestically which could lead to "locking in" emission intensive technologies and delaying the necessary rapid decarbonization of their economies.

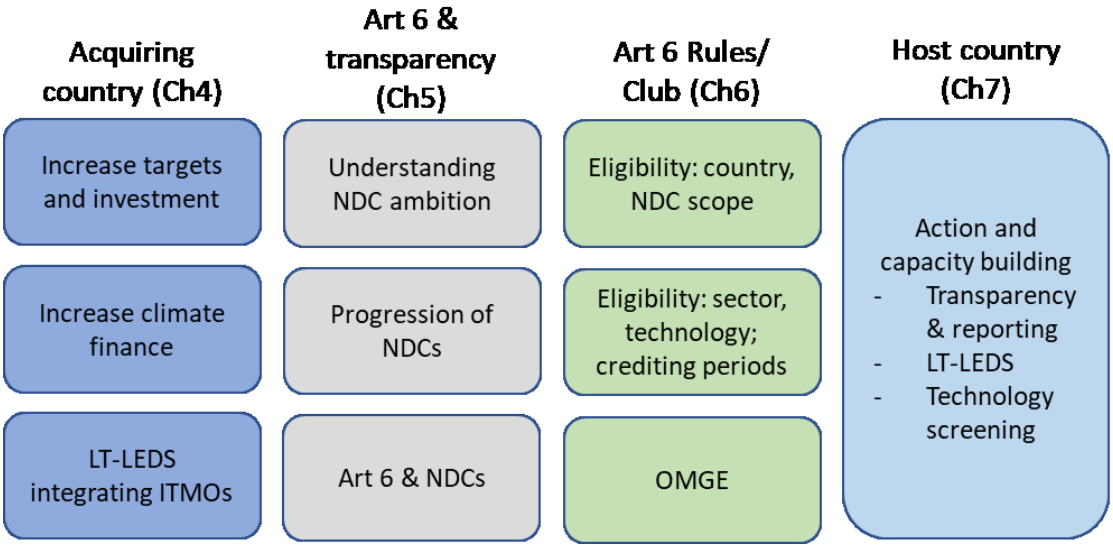
A general condition for whether Article 6 cooperative approaches can be said to *raise* ambition is whether participation in them results in *lower global GHG emissions* than would have occurred in the absence of participation. We recommend that countries seek to raise ambition through Article 6 using a combination of three types of approaches: First, countries can *directly raise ambition* by either adopting more ambitious NDCs as part of engaging in Article 6 or by implementing provisions for overall mitigation in global emissions (OMGE) so that a fraction of the achieved emission reductions are not used by any country for NDCs compliance. Second, countries could *foster raising ambition* through a range of actions, including requirements for countries to provide relevant information or to implement certain measures in order to

participate in Article 6 cooperation. And third, as a prerequisite for raising ambition, countries should ensure that environmental integrity is ensured in any Article 6 activities.

The first two approaches will lead to lower global emissions compared to a scenario where such approaches are not adopted. The third approach ensures lower global emissions than would occur *in the absence of any Article 6 participation*. The third approach is necessary because some countries may have unambitious NDC targets (i.e., set *above* "business-as-usual" emissions), which could allow them to transfer away "hot air" emission reductions. The first two approaches alone would only reduce the number of "hot air" transfers, and therefore could fail to actually raise ambition associated with Article 6 participation.

Interventions to raise ambition from all three approaches are discussed in this paper in four broad categories (described in chapters 4 to 7 and shown in Figure 1). Each of these is explained in more detail in the following paragraphs of this summary, as well as in the chapters of the main report as indicated.

Figure 1: Overview of intervention areas to increase ambition presented in this report



Source: Authors.
Abbreviations: LT-LEDS: Long-Term Low Emission Development Strategies, ITMO: Internationally Transferred Mitigation Outcomes, NDC: Nationally Determined Contribution, OMGE: Overall Mitigation in Global Emissions

Acquiring countries are well positioned to use Article 6 for ambition raising (Chapter 4)

An important rationale for acquiring countries to engage with carbon markets is to take advantage of lower cost mitigation opportunities in host countries, in order to reduce the overall costs of compliance (i.e. assuming that marginal abatement costs are lower in the host country). In addition, engaging in cooperative approaches between developed and developing countries could potentially foster the diffusion of low carbon technologies. Demand for ITMOs is determined by the ambition level of potential acquiring countries and from their policy decisions on how to meet their goals (i.e. the balance between domestic action and international cooperation). Supply, on the other hand, depends not just on what mitigation opportunities are available in potential host countries (i.e. as was the case under the CDM), but also the ambition level of those countries' NDCs (i.e. since this will determine which mitigation activities are necessary to meet the host country's goals) and which mitigation actions the countries wish to prioritize for use under Article 6. For markets to lead to higher ambition, some of the "gains from trading" would need to essentially be "reinvested" in incremental mitigation. Interventions for *individual acquiring countries* to increase ambition by going beyond their original NDCs as part of engaging in carbon markets are presented in Table 1 . Actions that could be taken by a group of acquiring countries are discussed below, because these generally involve a "club" or group of countries enforcing rules on the use of Article 6 that go beyond what is agreed at a UNFCCC level.

Table 1. Ambition-raising actions by the acquiring countries (chapter 4)

Actions	Advantages (+) and Disadvantages (-)
Increasing NDC goal and government purchase of additional ITMOs	+ transparent demonstration of increased ambition - increased pressure on government budgets where additional ITMOS are procured directly by government
Increasing NDC goal and strengthening domestic carbon pricing with offsets	+ transparent demonstration of increased ambition - emissions impact of change in domestic policies may vary
Broadening scope of NDC	+ relatively easy to implement, as long as GHG inventories are comprehensive - impact on ambition level could be positive or negative (depending on BAU emissions in the included sector)
Directly investing in low-carbon technologies	+ creates more mitigation in the acquiring country directly - would likely only increase mitigation by a fraction of the ITMOs actually transferred - difficult to ensure that mitigation investments are beyond the acquiring country's NDCs
Voluntary cancelation of ITMOs	+ transparent demonstration of increased ambition - no formal process for recognizing this voluntary cancelation in the Biennial Transparency Reports (BTRs), since the ITMOs would not be used for compliance
Transformational non-market approaches using climate finance	+ facilitates investment in high-impact mitigation interventions in the host country that would be difficult to integrate into carbon markets - may be difficult to ensure that mitigation activities go beyond the host country's NDCs
Long-term strategies linking ITMO purchases to higher ambition	+ could reduce risk of «carbon lock-in» and clarify how purchasing ITMOs would still support long-term domestic decarbonization - limited short-term impact

Comprehensive reporting and transparency are the backbone of ambition raising (Chapter 5)

The requirements for upfront information, transparency, reporting and review as agreed in the Katowice Climate Package have important implications for ambition raising using Article 6 cooperation. Given the lack of agreement on the detailed rules for Article 6 implementation, these provisions become even more important. The analysis identifies possible "further development of the rules" in the context of Article 6 that would facilitate increased transparency of ambition levels in NDCs and support ambition raising through the use of Article 6. While these suggestions could be part of a multilateral agreement on the rules for Article 6 implementation, they could also be taken up by a group of countries as part of a "club" (see discussion below). Table 3 provides an overview of suggestions for further development of international rules in the context of Article 6.

Table 2: Overview of proposals for further developments of the rules in context of Article 6

Elements of the Paris Agreement	Relevant provisions in the Katowice Climate Package	Suggested further developments of the rules in context of Article 6*
NDCs	Information on the intention to use Article 6	Require Parties to include, amongst others, information on the quantified amount to be transferred or acquired
	Information on the NDC planning process	Require Parties using Article 6 to provide a Long-Term Low Emission Development Strategy (LT-LEDS)
Accounting	Accounting in accordance with methodologies and common metrics	Require sound and consistent accounting framework, including definition of ITMOs, avoidance of double counting etc.
Reporting requirements	National inventory reports (NIR)	Minimum NIR quality, e.g. higher tier applied in the inventory for sectors with Article 6 activities
	Tracking NDC progress in biennial transparency reports (BTRs)	Ask for specific information on how Article 6 has allowed the Party to increase ambition
Review	No review of self-determined application of flexibility[1]	Limit flexibilities for Parties that are making use of Article 6
	Members with knowledge on Article 6 in technical expert review (TER) teams	Dedicated Article 6 TERs
	Multilateral consideration of progress	Opportunity to raise questions about use and impact of Article 6
Global Stocktake	Ex-post assessment of collective progress	Include information on the use of Article 6 and how it has helped Parties to increase ambition
Compliance mechanism	Different triggers allow the committee to consider non-compliance cases	No proposal, but considerations on how some triggers may allow the committee to discuss Article 6 related issues

* Most of the suggestions could be part of a multilateral agreement on the rules for Article 6 implementation or taken up by a club.

Article 6 approaches should be designed and implemented to foster ambition raising (Chapter 6)

Since the Katowice Climate Package did not include rules on Article 6 and the international negotiations are ongoing, there are still important opportunities to agree on international rules for Article 6 that can contribute to ambition raising. We present recommendations in two broad groups. First, we present options for designing guidance and rules for Article 6 so that the use of the mechanisms will increase ambition. Second, we discuss how the Article 6.4 mechanism (and possibly Article 6.2 approaches) may increase ambition by contributing to OMGE (Table 3).

[1] "Flexibility" refers here to the context of the Enhanced Transparency Frameworks (ETF) modalities, procedures and guidelines.

Table 3. Options for designing Article 6 rules to increase ambition and overall mitigation in global emissions

Approach to ambition raising	Options to maintain or raise ambition with Article 6
Options for designing Article 6 to contribute to ambition raising	- Ensuring environmental integrity in international transfers
	- Defining eligibility criteria for Article 6 mechanisms ▪ Requiring ambitious or (progressively) decreasing crediting baselines ▪ Requiring reporting on how use of Article 6 mechanisms fosters ambition raising ▪ Requiring ambitious and quantified NDC targets ▪ Requiring economy-wide NDC targets, or adjustments for transfers outside of the NDC ▪ Requiring host countries to have long-term low emission development strategies (LT-LEDS) ▪ Restricting eligibility of technologies or mitigation activities ▪ Restricting crediting periods ▪ Requiring inclusion of emissions targeted by Article 6 activity into future NDC
Operationalizing overall mitigation in global emissions	- Different approaches to implement an overall mitigation in global emissions ▪ Applying adjustments by host countries for all mitigation outcomes, while cancelling or withholding the transfer of a fraction of the mitigation outcomes ▪ Requiring that more than one mitigation outcome be acquired for every adjustment applied by an acquiring country ▪ For mitigation outcomes outside the coverage of NDCs, reducing baselines, crediting periods, or eligibility of activities
	- Incentivizing OMGE ▪ Establish a central reporting platform for net global emission reductions achieved (i.e. not counted towards any NDC)

Source: Authors

Designing Article 6 to ensure environmental integrity is a prerequisite to prevent an actual decrease in ambition levels (i.e. increases in net emissions). Defining eligibility criteria may also help ensure that Article 6 action is implemented in such a way as to foster host country ambition raising (e.g. through the use of ambitious baselines or short crediting baselines that facilitate host countries ratcheting-up ambition after a few years). Of course, ideally Article 6 mechanisms would be as open for participation by Parties as possible. However, the need to prevent dilution of ambition levels and fostering the ability of ambition raising with Article 6 may require eligibility restrictions. If not at the CMA[2] level, these may also be implemented on the level of clubs or individual countries.

[2] Conference of the Parties serving as a Meeting of the Parties to the Paris Agreement.

Ensuring that any use of international transfers results in OMGE could raise ambition as a direct consequence of Article 6 cooperation. As defined here, OMGE would mean that a portion of the emission reductions achieved by host countries is not used by any country to achieve its NDC (i.e., neither by host countries nor acquiring countries). OMGE could be implemented in different ways. For emission reductions achieved at sources within the coverage of host country NDCs, OMGE could be accomplished if (1) host countries agree to not transfer a portion of mitigation outcomes for which they apply adjustments, or (2) acquiring countries agree to acquire more than one mitigation outcome for every adjustment they apply towards NDC achievement. For practical reasons, we recommend the first option, since this would "lock in" a net global emission reduction prior to any transfer. However, implementing this approach requires host countries to apply adjustments for mitigation outcomes that are not transferred; this may require further clarification of how and when corresponding adjustments could be applied, since Decision 18/CMA.1 currently indicates that corresponding adjustments will only be applied when mitigation outcomes are "first transferred/transferred" (paragraph 77(d)(ii)). Although OMGE is formally associated with Article 6.4, it could in principle be applied under Article 6.2 as well.

Host countries can take action to raise ambition and will need support to maximize the impact of these activities (Chapter 7)

Host countries can take action to raise ambition over the longer term by integrating Article 6 mechanisms, and the various ambition-raising interventions presented here, into their national climate policies and strategies. This may include enhancing their transparency and reporting systems and developing long-term low emission development strategies that include the role of Article 6 in these long-term goals. They could also identify the most important technology areas that need support and incentives from carbon markets to contribute to long-term transformation to a low carbon economy. In some developing countries, many of these actions will require significant capacity building efforts. Setting up a system for reporting through Biennial Transparency Reports (BTRs), for example, will already require significant investments in institutional, regulatory, technical and administrative capacity simply to comply with the Paris Agreement rules. Going beyond this to show how Article 6 cooperation will support NDC implementation and long-term decarbonization will require additional resources in programs such as the Capacity Building Initiative for Transparency (CBIT) and the LEDS Global Partnership (LEDS-GP).

Climate clubs as a strategy for ambition raising through Article 6

While it may be politically difficult to implement some of the interventions presented in this paper at the UNFCCC/CMA level, given the complexities of the negotiations, almost all of the interventions could be implemented by a group of countries as a "club" (or even on the level of individual countries). For example, it might be politically very difficult to agree at the CMA level on some of the proposed eligibility criteria for Article 6 participation, such as an assessment of NDC ambition. Instead, a club of countries could decide on a list of eligibility criteria and only buy from host countries that fulfil those criteria. Such a club approach has already existed under the Kyoto framework, where, for instance, the European Union decided to restrict the eligibility of certain CDM project types (e.g. CERs from some industrial gas projects and later all projects not in LDCs) for compliance use under its emission trading scheme. The concept of climate clubs has been widely discussed in the literature as both an alternative and complement to the UNFCCC negotiations. The underlying concept is that a group of like-minded countries with common interests can cooperate on mitigation more effectively than trying to introduce more stringent rules within the UNFCCC, given the diverging interests of many Parties. Clubs can only be effective if they can provide exclusive benefits to members, which makes participation worthwhile. In the case of Article 6 cooperation, the benefits of participating in an "ambition raising club" would be the opportunity to create a larger and more liquid market to sell mitigation outcomes, to assure quality and reduce (legal, reputational) risks, with these leading possibly to a price premium. For host countries in particular, the attractiveness of the club will depend whether it provides sufficient demand for ITMOs relative to demand from non-club Parties. In addition, if these clubs are also used to provide additional capacity building support for increased transparency, development of LT-LEDS and identifying the specific roles of different sectors and technologies in Article 6 cooperation, they will be more likely to attract potential host countries, even if the club has additional eligibility requirements and rules for Article 6 cooperation.

Ambition raising and Article 6 – a call to action

Ambition is fundamental to the implementation of Article 6 of the Paris Agreement, not only because of the Article 6.1 states that such cooperation should "allow…for higher ambition", but also because of the global context - the massive gap between current collective global pledges to mitigation and what is necessary to prevent catastrophic impacts of climate change. Ambition in the context of Article 6 means not only ensuring that such cooperation does not increase global emissions (i.e. reducing risks to environmental integrity), but also adopting policies and rules that result in more global emission reductions than are counted towards achieving countries' NDCs and pursuing measures that encourage the adoption of more stringent

NDCs, in current and/or future NDC cycles. All three of these dimensions of ambition are necessary for Article 6 cooperation to make a definitive contribution to the long-term goals of the Paris Agreement.

This paper presents actions that individual host countries and acquiring countries could take, and – perhaps more importantly – how these countries could advance the level of ambition through the design of Article 6 rules and related rules and practices in particular for reporting and transparency. Given the urgency of increased global climate action, the challenges in the international negotiations, and the real risks that Article 6 cooperation could create perverse incentives to weaken ambition, we would argue that almost all of these interventions should be pursued in parallel, at whatever level is currently possible (i.e. UNFCCC/ CMA rules and practice, climate clubs and individual country actions). Implementation on a UNFCCC/CMA level may in general be preferred, since then the intervention applies equally to all Parties and there is no risk of "free riders" who could weaken the environmental integrity of the cooperative mechanisms. Given the "bottom-up" nature of the Paris Agreement and the complexities of the negotiations, however, it may be difficult to implement some of the interventions presented in the paper at the CMA level. Complementary to this, almost all the interventions could be implemented by a group of countries as a "club" (or even on the level of individual countries). For example, it might be very difficult to agree at the CMA level on eligibility criteria for Article 6 participation. Instead, a club of countries could decide on a list of eligibility criteria and only buy from host countries that fulfil those criteria. Where even marshalling a critical mass of countries around specific interventions is not possible, individual countries – both host countries and acquiring countries - could take up these actions as part of their Article 6 cooperation strategies. In fact, pursuing ambitious outcomes under Article 6 cooperation is arguably an indispensable part of any ambitious national climate action strategy, for any country that wishes to include international cooperation as part of their suite of climate policies.

As the IPCC 1.5 Special Report has highlighted, the need for raising ambition in all aspects of national and international climate action is urgent, and the rules for implementing voluntary cooperation under Article 6 are no exception. Only a dramatic change in approach from previous cooperation mechanisms, with explicit guidance and rules to increase ambition, will ensure that carbon markets can reach their full potential to support solutions to the climate challenge, and avoid the potential to weaken the Paris Agreement. By acting in cooperation at multiple levels – from the UNFCCC negotiations to a range of collaboration by groups or "clubs" of countries – both potential acquiring countries and host countries can ensure that Article 6 cooperation becomes a model for ambitious global climate action.

1. Introduction

Ambition raising is core to the Paris Agreement. Parties have agreed to contribute to reaching the objectives of the Paris Agreement "to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century" and to limit global temperature increase to "well below" 2°C (Article 2). Parties' current Nationally Determined Contributions (NDCs), however, are not ambitious enough to achieve these objectives (UNEP 2018; CAT 2018b; IPCC 2018). Moreover, recent IPCC synthesis (de Coninck et al. 2018) has demonstrated that even 2°C in temperature increase could have catastrophic impacts in comparison to 1.5°C, and certainly beyond anything experienced in human history. In that context, the provisions in the Paris Agreement that aim at increasing ambition over time are key to its effectiveness in reaching its long-term goals. This report analyses what countries can do in the design and implementation of cooperative action under Article 6 to foster higher ambition in mitigation.

The Paris Agreement introduces in its Article 6 approaches for using international carbon market mechanisms, which Parties may use with the aim of increasing ambition. Article 6.1 specifically mentions that such voluntary cooperation is to "allow for higher ambition", meaning that ambition raising is a guiding principle for the design and operation of Article 6. This is a considerable change from the Kyoto Protocol, where the flexibility mechanisms were mainly aimed at helping those developed country Parties with absolute GHG emission targets to reduce their costs of compliance. Moreover, all Parties are required to take mitigation action under the Paris Agreement, which means that host countries must consider their own mitigation pledges when transferring mitigation outcomes.

The use of Article 6 could affect ambition in different ways. By lowering the cost of mitigation climate change, international carbon market mechanisms could help countries that acquire carbon market units to adopt more ambitious NDCs. For host countries, however, the possibility to sell carbon market units could create incentives to set mitigation targets at less ambitious levels, or to define their scope narrowly, in order to accrue more benefits from transferring units internationally (Howard 2018; Schneider, Fuessler, et al. 2017; Schneider and La Hoz Theuer 2019; Spalding-Fecher et al. 2017; Warnecke et al. 2018; Carbone, Helm, and Rutherford 2009; Green 2017; Holtsmark and Sommervoll 2012; Helm 2003). In the worst case, this might even cause a "race to the bottom" among countries.

The engagement in international carbon market mechanisms could also affect ambition in other ways. Carbon market mechanisms could be implemented such that part of the mitigation is not used by any country to achieve its NDC but is a net benefit to the atmosphere. Indeed, the new crediting mechanism under Article 6.4 shall aim to achieve an "Overall mitigation in

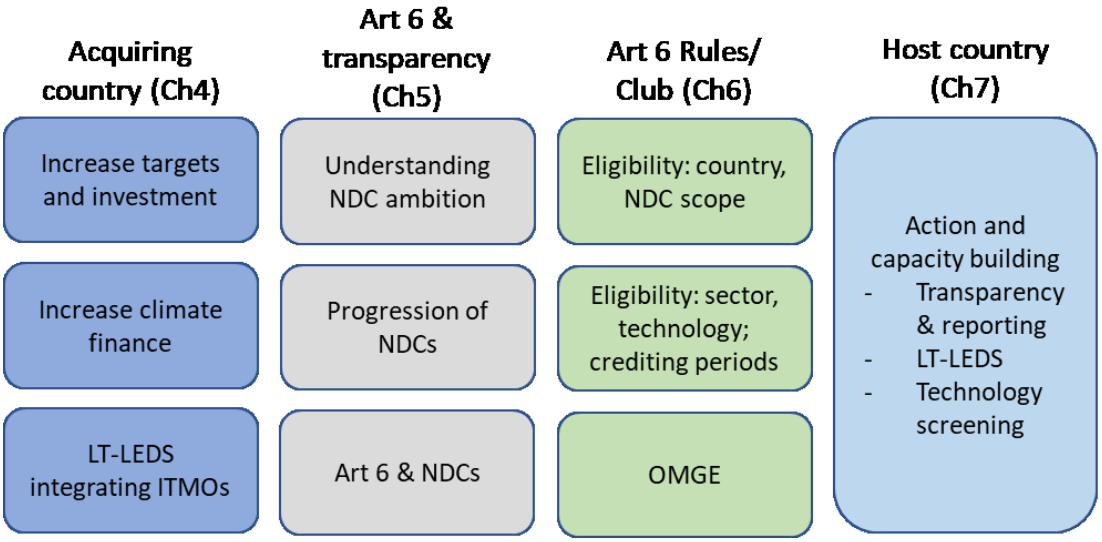
global emissions", the meaning of which is discussed controversially among Parties. Carbon market mechanisms could also help raise awareness about climate change, help identify mitigation potential and costs, or create data, which could help in mitigating climate change (Spalding-Fecher et al. 2012). On the other hand, crediting mechanisms could also create perverse incentives for countries not to adopt mitigation policies as this could limit the eligibility of activities for crediting (Spalding-Fecher 2013; Strand 2011; Liu 2015). Lastly, there are concerns that, depending on how carbon market mechanisms are implemented, market participants could favour mitigation actions that are cost-effective in the short and medium term, and neglect mitigation actions that are costlier but foster transformational change and avoid lock-in of more carbon-intensive technologies in the long-term (Schneider and La Hoz Theuer 2019).

This paper discusses key challenges and risks for increasing ambition through the cooperative approaches introduced in Article 6.2 and the new mechanism established under Article 6.4. It focusses on crediting mechanisms[3] not on other cooperative approaches such as e.g. using article 6 to link emission trading schemes. The paper identifies and discusses options on how to operationalize these two mechanisms so that they may contribute to ambition raising. The paper builds upon an earlier study undertaken for the German Environment Agency (UBA) (see Fuessler et al. 2019) and draws on other recent literature on this topic. The paper also takes into account the Katowice Climate Package, adopted in late 2018 to implement the Paris Agreement, as well as the draft negotiation texts on Article 6 which could not be finalized in Katowice.

Chapter 2 provides a short overview of the role of ambition raising in the Paris Agreement and within Article 6. Chapter 3 explains different approaches to defining ambition in the broader context of the Paris Agreement. The following chapters 4 to 7 discuss different options on how to raise ambition through Article 6 mechanisms (Figure 2).

[3] i.e. mechanisms similar e.g. to the Clean Development Mechanism or Joint Implementation under the earlier Kyoto Protocol.

Figure 2: Overview of intervention areas to increase ambition presented in this report



Source: Authors.
Abbreviations: LT-LEDS: Long-Term Low Emission Development Strategies, ITMO: Internationally Transferred Mitigation Outcomes, NDC: Nationally determined contribution, OMGE: Overall Mitigation in Global Emissions

Chapter 4 introduces actions that countries acquiring mitigation outcomes could take unilaterally to increase ambition when using Article 6 mechanisms. Given the bottom-up nature of the Paris Agreement and NDCs, transparency and reporting on progress is probably the central pillar to strengthening ambition. Chapter 5 therefore discusses relevant provisions in the Katowice Climate Package and possible further developments in the context of Article 6 that may help increasing ambition through increased transparency and reporting. Looking at the functioning of Article 6 mechanisms more closely, Chapter 6 provides options for designing the Article 6 rules and procedures so that the mechanisms may contribute to ambition raising, and also explains how these same options could be used by groups of countries ("clubs", see section 2.4) to raise ambition within their own cooperation. Chapter 7 explains what actions host countries can take to support the ambition raising through Article 6 cooperation, as well as the capacity building support that may be required for these actions. Finally, chapter 8 presents conclusions and recommendations.

2. Ambition raising in the Paris Agreement and Article 6

2.1. Role of ambition raising in the Paris Agreement

The Paris Agreement establishes a 'ratcheting' mechanism in order to increase ambition over time (Kohli 2015). Each Party shall prepare and communicate an NDC at least every five years (Articles 4.2 and 4.9). Each successive NDC is supposed to "represent a progression beyond the Party's then current NDC and reflect its highest possible ambition" (Article 4.3). Before each round of NDC submission there is a global stocktake "to assess the collective progress" towards the Agreement's long-term goals (Article 14). Parties are required to take into account the outcomes of the global stocktake when formulating their NDCs (Art. 4.9 and 14.3). The Paris Agreement also recognizes "that enhanced support for developing country Parties will allow for higher ambition in their actions" (Article 4.5).

While developed countries "should" adopt economy-wide absolute emission reduction targets, developing countries "are encouraged to move over time towards economy-wide emission reduction or limitation targets" (Article 4.4). Ambition raising could therefore be seen as not only relating to increasing the target levels of an NDC, but also to expanding the coverage (or scope) of the NDC (Fuessler et al. 2019).

2.2. Challenges in raising ambition through Article 6

Article 6.1 is often interpreted as setting out the aims of Article 6 (Marcu and Rambharos 2019; Howard 2018). The refence to "allowing for higher ambition" therefore suggests that Article 6 is explicitly introduced as a means for increasing ambition. In practice, there are various challenges and perverse incentives that may run counter to this purpose. This has to do with the fact that, in contrast to the Kyoto Protocol, all Parties are expected to contribute to mitigation of greenhouse gas emissions. The following challenges and perverse incentives exist for host countries and acquiring countries:

Host countries: Setting ambitious targets and/or expanding the scope of their NDCs may directly reduce the amount of mitigation outcomes that are beyond the NDC target and therefore can be transferred (i.e. sold) (Schneider, Fuessler, et al. 2017; CCAP 2017). Host countries that increase the ambition level of their NDCs may therefore lose the opportunity to monetize some portion of their mitigation potential through trade under Article 6. Holtsmark & Sommervoll (2012) find, for example, that the risks that countries set targets less ambitiously due to the possibility to engage in international trade of emission allowances outweighs the potential gains from such trade. Similarly, the possibility of trading provides a perverse incentive for countries to interpret NDC goals, many of which are not articulated clearly, in a way that is not ambitious (e.g. by assuming BAU scenarios that are not conservative). In addition to these

potential perverse incentives, the structure of Article 6 mechanisms may also entail a risk for the host country. Using the lowest cost mitigation options (i.e. "low-hanging fruits") for international transfers may increase the marginal cost of additional mitigation, making it costlier for a host country to reach its current NDC targets and to increase its ambition level in the future.

Acquiring countries: Assuming that marginal mitigation costs in acquiring countries are generally higher than in host countries[4], then having more cost-effective mitigation outcomes from Article 6 available may enable an acquiring country to increase the ambition of its NDC compared to a situation where no Article 6 mechanisms are used. With the same amount of financial resources, higher emission reductions would be possible. However, some acquiring countries may instead choose to reduce their investment in climate mitigation goals and use the savings from trade for other uses. In addition, there is also a risk that the acquiring country is not investing enough domestically in low carbon technologies. This could lead to the continued investment in higher carbon technologies and "carbon lock-in", making it difficult to achieve net zero greenhouse gas emissions by mid-century. This clearly shows that the design of the Article 6 must directly address these incentives if international cooperation is to contribute to ambition raising.

Other approaches to ambition raising with Article 6 mechanisms include voluntary cancellation of units (section 3.3) and the building in of overall mitigation in global emissions to Article 6 cooperation (section 6.2). Another challenge in maintaining ambition levels lies in the potential transitioning of units under the Kyoto Protocol (CERs, ERUs) into the new Article 6 mechanisms. The use of these legacy units may directly reduce net ambition levels (Schneider, Day, et al. 2017).

2.3. State of the negotiations on Article 6

The COP 24 in Katowice, Poland, brought the agreement of the "Katowice Climate Package" that guides Parties in their implementation of the Paris Agreement. The package does not, however, include an operationalization of Article 6. The Decisions on Article 6 were deferred and should be agreed by the next COP in December 2019 (Decision 8/CMA.1, para 3). While there was no agreement on Article 6 in Katowice, progress had nevertheless been made and was reflected in two sets of documents. The first set contains individual draft texts for Article 6.2, 6.4 and 6.8 that show the state of the negotiations at the end of the technical considerations by SBSTA in the first week of the COP. The other set is a proposal by the Presidency for the ministerial consultations. While these two sets of documents are the ones referred to in Decision 8/CMA.1, there are also other versions circulated during the negotiations. While there are aspects on which Parties could tentatively agree, several controversial issues remain, such

[4] This may not necessarily be the case and depends on the specific countries and sectors considered.

as avoiding double counting and the transition of CDM projects and credits (Greiner et al. 2017).

Other Decisions adopted under the Katowice Climate Package are, however, an important basis for future work on Article 6. Decision 4/CMA.1 on mitigation, for example, contains provisions that require more and relevant information on NDCs (see chapter 5.1). In addition, Decision 18/CMA.1 on the enhanced transparency framework contains several references to Article 6, including on requirements and formats for Article 6 reporting (see chapter 5.2). Particularly relevant is paragraph 77 (d) of the annex to the Decision, which requires specific information from a Party that participates "in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC". Parties are required to provide their "annual level of anthropogenic emissions", reported on a biennial basis, "an emission balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by their NDC adjusted on the basis of corresponding adjustments", and information on how double counting has been avoided. This Decision provides a framework, therefore, for accounting for Article 6 activities (including corresponding adjustments), which may inform the related provisions in the future Article 6 rules.[5]

The fact that no agreement could be reached on provisions for Article 6 is an indication of the difficult negotiations on this issue. Possible risks for undermining ambition through Article 6 were one of the difficult issues considered in the negotiations, in particular with regard to incentives to broaden the scope of NDCs, the responsibilities and obligations of Parties participating in Article 6, the operationalization of the principle of overall mitigation in global emissions, and the possible use of Kyoto units towards achieving NDCs.

2.4. Implementing ambition raising on the level of CMA, "club" and country

In chapters 4 to 7 we elaborate options on how to raise ambition in the context of Article 6 mechanisms. Many of these options may be implemented on the level of the CMA, by incorporating them into the negotiated rules for the Paris Agreement and in the actual implementation in, for example, rulings of the future Article 6.4 Supervisory Body. Implementation on a CMA level may in general be preferred, since then the intervention applies equally to all Parties and there is no risk of "free riders" who could weaken the environmental integrity of the cooperative mechanisms.

[5] This analysis assumes that Article 6.2 and Article 6.4 are both considered as cooperative approaches and that therefore paragraph 77(d) is relevant for both.

Given the "bottom-up" nature of the Paris Agreement and the complexities of the negotiations, however, it may be difficult to implement some of the interventions presented in the paper at the CMA level. Complementary to this, almost all of the interventions could be implemented by a group of countries as a "climate club" (or even on the level of individual countries). For example, it might be very difficult to agree at the CMA level on eligibility criteria for Article 6 participation. Instead, a club of countries could decide on a list of eligibility criteria and only buy from host countries that fulfil those criteria. Such a club approach has already existed under the Kyoto framework, where, for instance, the European Union decided to restrict the eligibility of certain CDM project types (e.g. CERs from large hydro projects and later all projects not in LDCs) for compliance use under its emission trading scheme.

The concept of climate clubs has been widely discussed in the literature as both an alternative and complement to the UNFCCC negotiations (see, for example, Nordhaus 2015; Brewer, Derwent, and Blachowicz 2016; Victor 2015). The underlying concept is that a group of like-minded countries with common interests can cooperate on mitigation more effectively than trying to introduce more stringent rules within the UNFCCC, given the diverging interests of many Parties (Zakkour and Heidug 2019). Clubs can only be effective if they can provide exclusive benefits to members, which makes participation worthwhile. In the case of Article 6 cooperation, the benefits of participating in an "ambition raising club" would be the opportunity to create a larger and more liquid market to sell mitigation outcomes, to assure quality and reduce (legal, reputational) risks, with these leading possibly to a price premium. For host countries, the attractiveness of the club will depend whether it provides sufficient demand for ITMOs relative to demand from non-club Parties. In addition, if these clubs are also used to provide additional capacity building support for increased transparency, development of LT-LEDS and identifying the specific roles of different sectors and technologies in Article 6 cooperation, they will be more likely to attract potential host countries, even if the club has additional eligibility requirements and rules for Article 6 cooperation.

3. Defining "ambition" and "ambition raising" in the context of Article 6

This section presents a short overview of approaches for assessing the ambition of a country's NDCs and identifies one of these approaches – i.e., comparison of NDC targets to "business-as-usual" (BAU) emissions – as most relevant in the context of Article 6. It then discusses methods that could be used to assess ambition relative to BAU emissions and recommends three different ways to think about how Article 6 could contribute to "raising ambition".

3.1. Approaches to evaluating the ambition of NDCs

Höhne et al. (2018) review eight different approaches that could be used to assess and compare the ambition of countries' mitigation targets (Table 4). The approaches are grouped according to whether they are primarily concerned with weighing ambition relative to "moral obligation" (i.e., what a country's "fair burden" might be for reducing emissions) or to "technical necessity" (i.e., what a country must do to achieve mitigation in line with global targets). These two perspectives on ambition are not mutually exclusive, and approaches under each can be combined, in principle, as a basis for evaluating and comparing ambition levels.

Table 4: Approaches for assessing the relative ambition of national mitigation targets

Approaches related mainly to moral obligation	Approaches related mainly to technical necessity
▪ Changes from a base-year, such as reductions from 1990 levels ▪ Relative changes compared to recent (emissions) trends and projections, which can indicate whether further mitigation action is required to meet the mitigation target ▪ Time and level of peaking per capita emissions ▪ Effort-sharing principles, which aim to determine "fair" emission levels, e.g. on the basis of historical responsibility, capability, equality and other principles	▪ Decarbonization indicators, such as emissions per capita, energy use per capita or emission intensity of the energy mix ▪ Globally cost-effective emission reduction / mitigation scenarios, which determine the contributions by countries based on the most cost-effective distribution of mitigation efforts to reach a certain goal ▪ Assessments of policy packages or policy menus to compare mitigation policies of a country to best-practice. For example, contributions could be regarded as less ambitious if the country did not implement policies that most of its peers have implemented ▪ Price indicators, such as energy prices and carbon prices, providing an indicator of the marginal incentive to reduce energy use and GHG emissions

Source: Höhne et al. (2018)

The approaches vary in terms of how objectively they can be applied, and in what data and assumptions they require. No approach is considered clearly better than others in comparing

mitigation efforts across countries or in calibrating ambition for individual countries. Moreover, the lack of an agreed concept of "equity" (Robiou du Pont and Meinshausen 2018) makes some of the approaches in Table 4 inevitably controversial. Though the principle of “common but differentiated responsibilities and respective capabilities” has been agreed in the context of the UNFCCC, for example, its implementation has proven difficult.

3.2. Assessing the ambition of NDCs in context of Article 6 mechanisms

One approach to defining ambition that is particularly relevant in the context of Article 6 is assessing how a country’s mitigation targets (e.g. as established in its NDC) compare to BAU emissions (in line with the “relative changes” approach in Table 4). Countries may be said to have definitively “unambitious” NDCs if they have target emissions levels at or above BAU emissions. Although BAU emissions trends are subject to uncertainty, several independent assessments suggest a significant number of NDCs are currently unambitious (den Elzen et al. 2016; CAT 2018; Meinshausen and Alexander 2016). Transparency rules agreed under the “Katowice Climate Package” require each Party to explain “how [it] considers that its NDC is fair and ambitious, in the light of its national circumstances” (see section 5.1). However, self-reported information by countries may be difficult to interpret with respect to whether NDC targets are in fact significantly below BAU. Since detailed, consistent, and objective rules for independently evaluating the ambition of NDCs are unlikely to be agreed under the UNFCCC, countries may need to develop and apply their own methods or draw on existing independent assessments of NDC ambition (e.g. if they consider this relevant for choosing partners for Article 6 cooperation).

To evaluate BAU emissions trends, several methods can be employed. The Partnership for Market Readiness, for example, identifies four basic options for estimating “baseline pathways” representing BAU emissions (World Bank Group 2015):

- **Trend extrapolation:** Emissions are projected on the basis of historical trends.
- **Augmented extrapolation:** Trend extrapolation taking into account factors that might lead to future trends that differ from those seen in the recent past.
- **Decomposition projection:** Analysis of past emissions drivers (e.g., economic activity, technology adoption, and policy measures) can be used to develop forward-looking emissions projections, based on how these underlying drivers are expected to change over time.
- **Detailed bottom-up analysis:** Using national projections of economic development to project future development of activity drivers (e.g., electricity generation demand, vehicle use and waste generation) combined with projected changes in emissions factors.

La Hoz Theuer et al. (2017) identify additional factors that should be considered in developing BAU projections for the purpose of comparing to NDC targets, including consideration of the effects of existing policies, dealing with uncertainties (e.g., by using median rather than average estimates, or applying conservative assumptions), and choosing an appropriate time period for data upon which projections are based.

One option for acquiring countries could be to use – or build upon – the approaches taken in independent assessments conducted to date. Meinshausen and Alexander (2016), for example, provide BAU emissions projections for individual countries using regional data from IPCC scenarios. These projections are made for single years: 2020, 2025 and 2030. They also develop emissions trajectories related to achieving NDC targets, based on a linear interpolation between historical emissions (or previous targets) and each country's NDC target. This approach provides a consistent way of evaluating NDC targets compared to BAU but may not capture important differences among countries within the same IPCC regions. The Climate Action Tracker assesses BAU emission trends for G20 countries and several other countries (CAT 2018a). In contrast to Meinshausen and Alexander, Climate Action Tracker takes into account country-level information when estimating BAU emissions. The CAT data includes trajectories of BAU emissions along with targeted emissions levels for target years communicated by the countries. The Climate Action Tracker projections provide more granularity into individual countries' emissions trends, but with narrower coverage than the Meinshausen and Alexander data. Care should be taken in interpreting the results from either of these analyses. As La Hoz Theuer el al. (2017) point out, whether a country's NDC target falls below BAU emissions levels can depend on which dataset is used, as well as whether more or less conservative assumptions are applied to both BAU projections and NDC target levels (i.e. identified as "high mitigation" or "low mitigation" scenarios in their analysis). Under more conservative assumptions, far more countries show a potential for generating "hot air" relative to their NDC targets.

3.3. Ways to raise ambition through Article 6

A general condition for whether Article 6 cooperative approaches can be said to *raise* ambition is whether participation in them results in *lower global GHG emissions* than would have occurred in the absence of participation. This condition would be more stringent than the standard notion of "environmental integrity" in international emissions trading, which requires only that ambition be maintained, such that international transfers do not result in an *increase* in global emissions. We recommend that countries seek to raise ambition through Article 6 using a combination of three approaches:

- *Directly raising ambition*, by adopting policies or mechanisms in the context of Article 6 cooperation that result in more global emission reductions than are counted towards achieving

countries' NDCs. This can be accomplished, for example, through voluntary cancellation of acquired ITMOs (section 4.5) or through other methods designed to achieve an "overall mitigation in global emissions" (section 6.2).

- *Fostering the raising of ambition,* by pursuing measures that encourage or facilitate the adoption of more stringent NDCs, in current and/or future NDC cycles. Such measures could involve efforts by acquiring countries to increase the ambition of their NDCs as a condition for participating in Article 6 cooperative approaches (section 4), or measures to enhance reporting and transparency that facilitate expanding the coverage and ambition of all countries' NDCs as a supplement to Article 6 cooperation (section 5).
- *Ensuring environmental integrity,* by adopting policies that avoid an increase in global emissions as a result of Article 6 cooperation.

Although the first two approaches can help to ensure that emissions outcomes from specific actions under Article 6 cooperation are lower than they *would be otherwise (*e.g. traded units have higher quality and represent additional emission reductions), they cannot guarantee lower global emissions than would occur *in the absence of any Article 6 participation*. The reason is that some countries may have unambitious NDC targets. Significant environmental integrity concerns could arise if countries with unambitious NDCs engage in transfers of emission reductions under Article 6 (Schneider and La Hoz Theuer 2019). In particular, these countries "could … appear to generate emission reductions (relative to their targets), without generating any actual emission reductions" (La Hoz Theuer et al. 2019). This possibility raises concerns similar to those raised about "hot air" transfers under the Kyoto Protocol. Acquiring countries in particular may therefore need to take steps to ensure the environmental integrity of international transfers (section 6.1.1), and at the same time may also need to evaluate whether the NDC targets of host countries are more stringent than BAU. In the remainder of this report, we discuss policy options related to all three of these components for raising ambition.

4. Ambition-raising actions by the acquiring country related to Article 6

The rationale for acquiring countries to engage with carbon markets is to take advantage of lower cost mitigation opportunities in host countries, to reduce the overall costs of compliance. Without these differences in the marginal costs of meeting NDC goals among countries, there would be no incentive for trading. How international market prices evolve, and whether there is, in fact, a global price for carbon, depends on the structure of carbon markets as well as the overall levels of demand and supply. Demand for ITMOs comes not only from the ambition level of potential acquiring countries, but also from their own policy decisions on how to meet their goals (i.e. the balance between domestic action and international cooperation). Supply, on the other hand, depends not just on what mitigation opportunities are available in potential host countries (i.e. as was the case under the CDM), but also the ambition level of those countries' NDCs (i.e. since this will determine which mitigation activities are necessary to meet the host country's goals). While studies have shown the potential for large savings in global compliance costs from trading (World Bank 2016), very few countries committed to using trading for compliance in their NDCs, and even those who did have not specified the potential volumes this could generate. It is too early, therefore, to assess how prices may evolve under Article 6 mechanisms.

For markets to lead to higher ambition, some of the "gains from trading" need to essentially be "reinvested" in incremental mitigation. This section discusses how *individual acquiring countries* could increase ambition by going beyond their original NDCs as part of engaging in carbon markets. Actions that could be taken by a group or "club" (section 2.4) of acquiring countries are discussed in chapter 6, being related to a group of countries enforcing rules on the use of Article 6 that may go beyond what is required at a UNFCCC level.

4.1. Increasing NDC goal and purchasing additional ITMOs

While carbon markets are meant to reduce overall compliance costs because of the gains from trade, converting these potential savings into additional mitigation requires deliberate policy action. In anticipation of lower overall compliance costs, the acquiring country could submit a revised NDC target for emission reductions, part of which will be met with additional ITMO purchases. Even with the implementation of corresponding adjustments, these ITMO transfers would lead to lower global emissions because of the more stringent target set by the acquiring country. Of course, even with an existing (i.e. less ambitious) NDC target, the acquiring country could purchase these additional ITMOs and "over-achieve" their NDC goals. There is no mechanism in the rules for Article 4 or Article 13 to formally recognize this over-achievement,

however. In addition, revising the NDC would set an explicit goal for additional ITMO purchases and cooperative actions through Article 6, as well as sending a signal to the market about increased demand for ITMOs. One model for increasing these purchases would be for the acquiring country government to purchase them directly. Although this would have a direct impact on increasing demand for ITMOs, government procurement would require government funding for those purchases. An alternative, discussed below, would to devolve this responsibility to entities subject to domestic carbon pricing instruments.

4.2. Increasing NDC goals and strengthening domestic carbon pricing with offsets

Many countries are implementing their NDCs through domestic carbon pricing instruments, so that the mitigation actions are implemented by entities with obligations under, for example, a carbon tax or emissions trading scheme (ETS). Part of the policy design for these mechanisms could be thinking about how to capture some of the gains from trade so that they translate into increased ambition at the national level. If the obligated entities under domestic carbon pricing instruments are able to fulfill part of their obligations through the use of lower cost international offsets, then the acquiring country government could increase the stringency of these domestic carbon pricing instruments as part of allowing offsets from Article 6 cooperation. This could include, for example, using the potential efficiency gains to justify a more ambitious (lower) ETS cap or a higher carbon tax rate (where there is also international linkage, for example via offsets) in the acquiring country (Howard 2018; Kreibich 2018).The increased ambition of the domestic mechanism could then be reflected in a revision NDC goal for the relevant sectors. As with all discussions about quantity versus price instruments, the quantitative effect on ITMO demand from increasing the ETS stringency would be more predictable than the effect from increasing the carbon tax rate. As long as it is enforced, a reduction in the ETS cap will also reduce national emission by the same amount, and so predictably allow the country to achieve a more ambitious NDC. This approach of more stringent domestic carbon pricing would essentially convert the cost savings of private entities through trading into increased ambition in national NDC goals. Not only would this allow the acquiring country to increase its overall ambition, but it would directly create demand for ITMOs from private market players (Howard 2018), which is essential to a robust international carbon market.

In addition to increasing stringency of domestic carbon pricing instruments based on allowing lower cost international offsets, this increase stringency could also be based on linking to another pricing mechanism in a host country (e.g. the expected savings in ETS compliance costs from linking with another ETS) (Kreibich 2018; Metcalf and Weisbach 2010). More importantly, raising ambition through increasing the stringency of domestic carbon pricing

instruments, and therefore creating demand, relies on reliable, tested policy tools (e.g. domestic ETS, domestic carbon taxes), where there is more certainty of the outcome of any adjustments.

4.3. Broadening scope of NDC

Although not necessarily "strengthening", improving the form (e.g. coverage, content, or target type) could also increase ambition, or at least support other ambition raising mechanisms (Kreibich 2018). The current diversity of NDC formats even among potential acquiring countries, including single versus multi-year targets, GHG goals expressed in absolute emissions vs emission reductions, and unclear coverage, make it more difficult to guarantee the environmental integrity of transfers and ensure that ambition-raising measures have the desired impact (Schneider, Füssler, et al. 2017; Lazarus, Kollmuss, and Schneider 2014). Voluntary improvement of NDCs to move towards multi-year, absolute, economy-wide emission targets is an important step that acquiring countries can choose that would support increased ambition, as long the overall mitigation goal is also increased (i.e. greater coverage should not result in a weaker goal overall). These moves would also create greater credibility for international carbon markets. The role of long-term goals is discussed in more detail in 4.7 below.

4.4. Directly investing in low-carbon technologies

Instead of using the gains from trading as a lever for strengthening overall NDC goals or domestic policy instruments, acquiring countries could also directly invest (some portion of) these savings in low-carbon technologies to go beyond their current NDCs. This could happen through government investment or through investment by obligated entities under domestic carbon pricing instruments (e.g. emitters under an ETS) who save compliance costs by utilizing international carbon markets. This would necessarily require some form of incentive (e.g. financial or regulatory) for private compliance entities to reinvest. One model for this is the concept of "insetting" (as opposed to "offsetting") to "commit to implement additional domestic mitigation actions when using the imported ITMOs for NDC [compliance]" (Kreibich 2018). This idea builds on the emerging use of "insetting" in corporate climate strategies, where companies invest in reducing emissions in their upstream supply chain (Davies 2016). Acquiring country pledges to insetting might be related to the ITMO-generating activities (e.g. acquiring ITMOs from a high efficiency motor project is paired with additional investment in similar technology in the acquiring country) or could simply be funded by a share of the imputed savings or a share of the value of the ITMOs imported (e.g. 10% of the value of the ITMOs acquired is invested in low-carbon technologies in the acquiring country). Of course, to increase the ambition of the acquiring country, these investments would have to support activities that were

beyond the acquiring country's NDCs. Defining or identifying these activities could be challenging, just as it is difficult to identify which activities in the host countries would go beyond their NDCs. Because the transferred ITMOs would be used by the acquiring country for compliance, there is a risk of the insetting investments simply supporting domestic actors to achieve the mitigation required for the acquiring country's NDC goals but no increase in ambition beyond that.

4.5. Voluntary cancelation of ITMOs by acquiring country

One of the most widely discussed tools for increasing ambition, and in the earlier discussion of achieving net mitigation through carbon markets, is for the acquiring country to cancel (all or some of) the ITMOs acquired (Schneider et al. 2018; Kreibich 2018; New Climate Institute 2018).[6] Because the host country would be required to implement a corresponding adjustment, then, assuming both countries still meet their NDCs, the total mitigation activity would be increased. In this case, there would be more mitigation in the host country without any change in mitigation in the acquiring country. This is similar to the discussion of canceling of a portion of Article 6.4 units to create an "overall mitigation of global emissions", although that might happen under international rules instead of due to a voluntary Decision by an individual Party (see more discussion in section 6.2) (Schneider et al. 2018; Vrolijk and Phillips 2013). In this case, the voluntary cancelation could be seen as a contribution by the acquiring country to raising the ambition of their mitigation beyond their stated NDC goals. While this could, in principle, have the same result as the earlier suggestion to "increase NDC goal and purchase additional ITMOs" (section 4.1), in this case the acquiring country would not revise their NDC goal nor would they use the ITMOs to "over-achieve" their NDCs as reported in the "Structured summary" of the Biennial Transparency Report.

Voluntary cancelation of ITMO purchases could be part of a results-based climate finance (RBCF) program, in which ITMOs were used as the "trigger" for performance-based payments (World Bank 2017; Warnecke et al. 2015; Schneider, Spalding-Fecher, and Cames 2015). However, the crucial conditions for raising ambition would be that the host country has an ambitious NDC and implements a corresponding adjustment.[7] Without this adjustment, the climate finance-supported activity would simply help the host country meet their existing target,

[6] This would also have similarities to the voluntary cancelation of CERs for domestic compliance purposes, as allowed under the UNFCCC voluntary cancelation process. See https://www.thepmr.org/system/files/documents/PMR%20Webinar%20Feb%202015%20UNFCCC%20Technical%20Brief%20Voluntary%20Cancellation%20of%20CERs%20for%20Domestic%20Offset%20Schemes.pdf

[7] Results-based climate finance mechanisms could be implemented without relying on ITMO transfers – for example, using a domestic certification system in the host country to verify the emission reductions but not requesting any transfers of mitigation outcomes.

without an increase in ambition. This is an important consideration in designing RBCF facilities, whether or not they might transition to being facilities for purchasing ITMOs for compliance. The World Bank's Transformative Asset Carbon Facility (TCAF)[8], for example, "supports middle-income countries in scaling up their climate commitments and accelerating meaningful socio-economic growth" while also "test[ing] various methods to transparently transfer "mitigation outcomes" between Parties and to provide stringent accounting and transparency, ensuring the environmental integrity of the assets." As long as all units contracted by TCAF are subject to corresponding adjustments, the contributor countries could then decide whether to cancel these ITMOs (i.e. raising ambition) or use them for compliance (i.e. potentially reducing compliance costs but not increasing ambition).

4.6. Transformational non-market approaches using climate finance

Many of the institutional, regulatory and capacity innovations that are essential for long-term low emissions development need financial support, but their results cannot be linked directly to emission reductions – or at least not with a high degree of certainty. Even laying the groundwork for future development of carbon markets under Article 6 will require capacity development that is not directly linked to emission reductions. Some of the capacity needs are also explored in more detail in chapter 7. Acquiring countries could provide climate finance to host countries for these critical enabling environment interventions, which could catalyze further mitigation in current and future NDC cycles, without any transfer of mitigation outcomes (i.e. as a non-market approach). This could be part of activities recognized under Article 6.8, reported by countries under the enhanced transparency framework as "support provided", and support the implementation of capacity building, technology transfer and awareness raising provisions under the Paris Agreement (Obergassel and Asche 2017; New Climate Institute 2018). These interventions would need to be carefully designed to remove barriers and unlock future mitigation options, to allow for ambition raising by the host country in future NDC cycles and potentially even in the current cycle if they enable the country to update its NDC.

One possible area for non-market approaches would be for policies and strategies that are economy-wide or have complex impacts on energy markets, making it difficult to quantify ITMOs. Fossil fuel subsidy reform, for example, would not only free-up public resources for investment in mitigation and potentially decrease demand for carbon-intensive products, but it would also increase the efficiency of existing and new domestic carbon pricing instruments (CPLC 2016; Hood 2013). Despite repeated calls for reducing these subsidies, including pledges

[8] https://tcaf.worldbank.org/

from the G7 and G20[9], and research on the very large emission reductions possible from such reform (Jewell et al. 2018), progress has been slow (OECD 2018). There are no examples yet of a carbon market methodological approach to quantify emission reductions from these types of policy activities. REDD+ may also be an area for non-market cooperation (assuming these activities cannot generate ITMOs), both because of high uncertainty of baselines, the complexities of MRV, risks associated with (global) leakage, and also the need for upfront financing for policy reform and planning (New Climate Institute 2018). In terms of policy tools, climate finance could be used to reduce the risks to private investors in low carbon technologies, providing guarantees, upfront financing and risk sharing to help "crowd in" private financing (Howard 2018).

4.7. Long-term strategies linking ITMOs to higher ambition

According to Article 4.19 of the Paris Agreement, "all Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." For acquiring countries, these strategies provide an opportunity to demonstrate the role of markets in achieving deep decarbonization within the acquiring country (CCAP 2017). A number of countries plan, for example, to achieve net carbon neutrality before 2050 and consider using some offsets from other countries for this purpose. A long-term mitigation strategy could clearly show the roles of markets and ITMOs in the transformation of the acquiring countries' economies, as well as reaching a net zero emissions goal earlier than without trading.

This approach would address the concern that the wide-spread use of ITMOs as offsets would reduce domestic incentives for mitigation and increase the risk of "carbon lock-in" (Bertram et al. 2015). Countries could explicitly show how the use of ITMOs would allow time for technological development to reduce the abatement costs of low carbon technologies in the acquiring country (i.e. by allowing more time for research & development and experience-based cost reductions), making deeper mitigation possible in the longer term, as well as how using ITMOs could facilitate an earlier date for a "net zero emissions" target. The long-term strategy should show how the use of ITMOs would be supplemental to domestic action, as well as but also how they would be used strategically as offsets in sectors facing high mitigation costs in the short- to medium-term while investing in technology development for those same sectors. The strategies could specify which sectors face specific challenges, how these would

[9] "The G20 countries pledged to 'rationalize and phase out over the medium-term inefficient fossil fuel subsidies that encourage wasteful consumption' at the 2009 G20 summit. The G7, in 2016, took a stronger stance by setting 2025 as the deadline for eliminating 'inefficient fossil fuel subsidies', although no mention was made in the 2017 communiqué." (New Climate Institute 2018)

be addressed over time, and what roles offsets would play in the broader technological and socio-economic pathways for development in the acquiring country.

5. Comprehensive reporting and transparency to facilitate ambition raising

As outlined in chapter 2, Parties agreed on comprehensive rules to implement the Paris Agreement at COP24 in late 2018. While provisions on the implementation of Article 6 were not agreed, there are other agreed provisions relevant for ambition raising through Article 6. This chapter covers the requirements on upfront information, transparency, reporting and review, which are all particularly important. These requirements may make the NDC targets and their ambition level, as well as tracking progress towards NDC targets, more comparable among different countries and different NDC cycles, and by doing so encourage the adoption of more ambitious NDCs and reduce the risks of increased emissions as a result of cooperation (see categories of ambition in section 3.3).

Given the lack of agreement on the detailed rules for Article 6 implementation, the provisions outlined below become even more important, because reporting and transparency remain the main overarching framework assuring at least the visibility of progress in ambition for the international community. Therefore, this chapter describes the provisions in more detail and explains their relevance for Article 6 and its ambition-raising function.

This chapter also identifies possible "further developments of the rules" in the context of Article 6 that would facilitate increased transparency of ambition levels in NDCs and support ambition raising through the use of Article 6. While the suggestions could be part of a multilateral agreement on the rules for Article 6 implementation, they could also be taken up by a climate club (see section 2.4). For this reason, there are additional references to some of the concepts and actions in chapter 6.

The following table provides an overview of this chapter's suggestions for further developments of the international rules in the context of Article 6, as well as how they help increase ambition through Article 6.

Table 5: Overview of proposals for further developments of the rules in the context of Article 6

Elements of the Paris Agreement	Relevant provisions in the Katowice Climate Package	Suggested further developments of the rules in context of Article 6[10]
NDCs	Information on the intention to use Article 6	Require Parties to include, amongst others, information on the quantified amount to be transferred or acquired
	Information on the NDC planning process	Require Parties using Article 6 to provide a Long-Term Low Emission Development Strategy (LT-LEDS)
Accounting	Accounting in accordance with methodologies and common metrics	Require sound and consistent accounting framework, including definition of ITMOs, avoidance of double counting etc.
Reporting requirements	National inventory reports (NIR)	Minimum NIR quality, e.g. higher tier applied in the inventory for sectors with Article 6 activities
	Tracking NDC progress in Biennial Transparency Reports (BTRs)	Ask for specific information on how Article 6 has allowed the Party to increase ambition
Review	No review of self-determined application of flexibility[11]	Limit flexibilities for Parties that are making use of Article 6
	Members with knowledge on Article 6 in technical expert review (TER) teams	Dedicated Article 6 Technical Expert Reviews (TERs)
	Multilateral consideration of progress	Questions on Article 6 use
Global Stocktake	Ex-post assessment of collective progress	Include information on the use of Article 6 and how it has helped Parties to increase ambition
Compliance mechanism	Different triggers allow the committee to consider non-compliance cases	No proposal, but considerations on how some triggers may allow the committee to discuss Article 6 related issues

5.1. Improving upfront information

5.1.1. Providing relevant information in NDCs for increased clarity, transparency and understanding of ambition levels, including through Article 6 use

Article 4.8 of the Paris Agreement requires Parties to provide "information necessary for clarity, transparency and understanding" in their NDCs. More detailed information on NDCs could make it easier to compare the ambition levels of NDCs among countries and help to identify progress from one NDC cycle to the next. For example, acquiring countries have better

[10] Most of the suggestions could be part of a multilateral agreement on the rules for Article 6 implementation or taken up by a club (section 2.4).

[1111] "Flexibility" refers here to the context of the Enhanced Transparency Frameworks (ETF) modalities, procedures and guidelines.

information to carry out their own assessment of the relative ambition of the NDCs of potential host countries, so they could minimize the risk of purchasing "hot air".

The Katowice Climate Package includes several elements that may help to understand the ambition of NDCs and the role of Article 6 in ambition raising. All Parties need to provide the following information in their second and subsequent NDCs (Decision 4/CMA.1, para 7 and Annex I): "(i) quantifiable information on the reference point, (ii) time frames and/or periods for implementation, (iii) scope and coverage, (iv) planning processes, (v) assumptions and methodological approaches, (vi) how the Party considers that its NDC is fair and ambitious, in the light of its national circumstances, and (vii) how the NDC contributes towards achieving the objective of the Convention". These provisions, including the specifications in Annex I, do not differentiate between developed and developing countries, but allow Parties to self-differentiate, i.e. chose what information they provide. The information required may help increasing ambition through Article 6, depending on how this information is used or referenced in the implementation of Article 6. The most relevant requirements are explained in more detail below. In addition, possible further developments for each of the outlined requirements are presented. These additional requirements could be included in the Article 6 rules or in separate guidelines developed by a club of countries in order to foster ambition raising in the context of Article 6 mechanisms:

Quantifiable information on the reference points (Decision 4/CMA.1, Annex I, para 1(a)-(f)): Parties are required to provide information on reference years or other starting points, a target relative to the reference indicator expressed numerically, and quantifiable information on the reference indicators at the starting points and in the target year. Having quantifiable NDC targets, baselines as well as BAU emissions projections are of particular importance where mitigation outcomes are transferred from within a host country's NDC. Such information would help the host country to better understand what amount it can transfer without risking not achieving its own NDC target. The acquiring country also would better understand the gap between domestic actions planned and the NDC target, and thus the quantity of international transfers needed.

Further development of the rules: While Annex I to Decision 4/CMA.1 allows Parties to self-differentiate, Parties making use of Article 6 mechanisms could be required to provide quantifiable information on targets as well as on BAU emissions projections. This requirement could be an eligibility criterion for using Article 6 (see chapter 6.1.2). Without such information, it becomes more difficult for countries and stakeholders to understand the ambition level of NDCs and to determine how and to which extend mitigation activities contribute to NDC achievement or go beyond the target and can therefore be transferred internationally without

undermining the achievement of the country's NDC target. More concretely, setting crediting baselines requires not only a BAU scenario, but also a quantified emissions trajectory that is in line with meeting their NDC target (Schneider, Füssler, et al. 2017).

Information on the intention to use Article 6 (Decision 4/CMA.1, Annex I, para 5(g)): Parties are required to provide information on their intention to engage in voluntary cooperation under Article 6 mechanisms. This would transparently present the role of Article 6 in the country's NDC and other mitigation activities. Together with additional information required on the ambition level of NDCs (para 6) and the contribution towards the objective of the Paris Agreement (para 7(b)), this step would also allow stakeholders to better assess the role of Article 6 in the ambition level of NDCs.

Further development of the rules: It would be useful to have information not only on the intention to use Article 6, but also estimates of the quantified amount that a Party is planning on transferring or acquiring and in which sectors or project types they intend to focus for international transfers based on its LT-LEDS or similar national mitigation planning. A description on how Article 6 allows the Party to have "higher ambition in their mitigation actions" (Article 6.1) and increase ambition in its current and future NDCs would also be useful. This would include a quantified statement on mitigation outcomes a country plans to *acquire* and would transparently demonstrate how this complements domestic mitigation policies and measures. Host countries that specify the amount they intend to transfer internationally, and potentially which sectors or project types are targeted for Article 6 mechanisms, can demonstrate how international transfers do not jeopardize their current NDC target and future increases in ambition (see chapter 7.2).

Planning process (Decision 4/CMA.1, Annex I, para 4(a)): Parties are required to provide information on the planning process to prepare their NDC. An unambitious or unclear NDC may be the result of an incomplete preparation process lacking relevant information, such as good reference scenarios. A well-established planning process may support a Party to set ambitious targets, to achieve ambitious mitigation outcomes, and to make use of Article 6 while managing the risk to meeting their own NDC targets (Schneider, Füssler, et al. 2017). Therefore, upfront information on the planning process allows stakeholders to better understand how NDC targets have been set.

Further development of the rules: In its description of the planning process for the NDC, a Party could be asked to provide also information on its long-term low emission development strategy (LT-LEDS) and how the NDC target fits into this. Such information should also entail the intention to use Article 6 in the long-term and how the mechanism will be used. This would

help stakeholders to understand if the use of Article 6 might negatively affect a host country in meeting its NDC target and hinder future ratcheting-up.

5.1.2. Accounting for progress towards NDC targets and Article 6 contribution

Article 4.13 of the Paris Agreement requires Parties to account for their progress towards the goals articulated in their NDCs and in doing so to promote "environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting". All Parties are required, from their second and subsequent NDCs onwards, to: (i) account in accordance with methodologies and common metrics assessed by the IPCC, (ii) ensure methodological consistency between the NDC and its implementation, (iii) strive to include all categories of anthropogenic emissions or removals in the NDC and explain why any category is excluded (Decision 4/CMA.1, para 12-14).

Of particular relevance to Article 6 is the requirement that Parties use methodologies and common metrics assessed by the IPCC or, if the IPCC guidelines cannot be used, provide information on their own accounting methodology (Decision 4/CMA.1, Annex II, para 1(a)-(c)). In addition, the Party must ensure methodological consistency between accounting and inventory (see chapter 5.2) and report any methodological changes made (Decision 4/CMA.1, Annex II, para 2(e)). This allows tracking progress towards the achievement of an NDC target and understanding the contribution of Article 6 transfers. In addition, a sound and consistent accounting framework forms the basis of any comparison of ambition levels and increasing ambition over time.

Further development of the rules: The rules already require Parties to provide much of the relevant information with regard to accounting. Nevertheless, some issues relevant for Article 6 need to be defined, ideally in the rules. This includes provisions requiring the transparent definition of ITMOs, avoidance of double counting, correct accounting for the vintage of mitigation outcomes and the time frame of mitigation targets and robust tracking of ITMOs(for more on accounting issues, see e.g. Schneider, Füssler, et al. 2017).

5.2. Tracking and reviewing progress through an enhanced transparency framework

Article 13 establishes an enhanced transparency framework (ETF) for both action and support. This framework is the main mechanism to hold states accountable for the implementation of their NDCs. The ETF is tracking progress towards the achievement of NDC targets, including through Article 6 use. The modalities, procedures and guidelines are common to all Parties and have been adopted through Decision 18/CMA.1. However, the transparency framework provides flexibility for those developing country Parties that "need it in the light of their

capacities" (Article 13.2). Parties making use of this flexibility must explain the capacity constraints that make the flexibility necessary and provide time frames for improvements (Decision 18/CMA.1, Annex, para 6).

5.2.1. Requiring reporting on Article 6 impact and progress made

There are two reporting requirements for each Party (Article 13.7): (i)national inventory reports (NIR) and (ii) information necessary to track progress in implementing and achieving its NDC. This information has to be provided in biennial transparency reports (BTRs), but LDCs and SIDS may submit the information at their discretion (Decision 1/CP.21, para 90). Parties that have submitted inventories annually (i.e. most developed countries) should continue to submit their NIR on an annual basis (Decision 1/CP.21, para 92(e)).

To support developing countries to meet "enhanced transparency requirements as defined in Article 13" (Decision1/CP.21, para 84), Parties established the Capacity-building Initiative for Transparency (CBIT). The importance of supporting host countries in fulfilling the reporting requirements as a steppingstone to realize ambition raising through Article 6 is further elaborated in chapter 7.

The rules outline the information that Parties need to provide (Decision 18/CMA.1, Annex). Requirements of particular relevance for understanding ambition raising through Article 6 are presented below. In certain instances, the rules indicate that future Article 6 guidance will also need to be taken into account. Thus, suggestions for further developments of the reporting requirements are presented, which could be included in such guidance or in separate guidelines developed by a club of countries:

NIR (Decision 18/CMA.1, Annex, II): "Each Party shall use the 2006 IPCC Guidelines, and shall use any subsequent version or refinement of the IPCC guidelines" (Decision18/CMA.1, annex, para 20). However, a Party may use other methods in case "they better reflect its national circumstances" (Decision 18/CMA.1, Annex, para 22). Each Party is required to "report a consistent annual time series starting from 1990", although Parties making use of the flexibility may report "at a minimum, the reference year/period for its NDC" (Decision18/CMA.1, Annex, para 57). In addition, each Party is required to ensure consistency in the methods for each reported year (Decision18/CMA.1, Annex, para 26). Parties are required to report seven gases, but a Party may report also only on the three gases CO2, CH4 and N2O in case they need flexibility. However, if an Article 6 activity covers one of the other four gases, the Party also needs to include this in its NIR (Decision 18/CMA.1, Annex, para 48).

These requirements are important for quality and consistency of emissions reporting by Parties. Adherence to 2006 IPCC and subsequent inventory guidelines assures a better alignment of national inventory methodologies with methodologies potentially used in Article 6

mechanisms, thus making the impact of mitigation activities visible in the national inventories. Overall, these requirements are a crucial basis for understanding progress of Parties and in tracking the contribution of Article 6 activities which forms in turn the necessary fundament of any ambition raising.

Further development of the rules: The requirements outlined above do not guarantee the visibility of mitigation impacts from Article 6 actions in the GHG inventories. The (lower) tier applied in the inventory (e.g. building on default values) may not be able to reflect the reduction impact of the mitigation measure. Host countries may want to make sure that the mitigation actions under Article 6 are visible in their GHG inventories. Alternatively, NIR quality may be a requirement for participation in Article 6 mechanism (similar to the requirements to participate in Flexible Mechanisms under the Kyoto Protocol).

Tracking progress (Decision 18/CMA.1, Annex, III): Each Party is required to provide any updates to its NDC, including on the intention to use Article 6 (Decision 18/CMA.1, Annex, para 64 (f)). In addition, the most recent information for quantitative and/or qualitative indicators to track progress must be provided (Decision 18/CMA.1, Annex, para 65 and 68). In the BTR containing information on the NDC target year or period, a Party shall "provide an assessment of whether it has achieved the target(s)" (Decision 18/CMA.1, Annex, para 70). Each Party that makes use of Article 6 is required to provide "an emission balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by their NDC adjusted on the basis of corresponding adjustments" and information on how double counting has been avoided (Decision 18/CMA.1, Annex, para 77(d))[12]. Again, a robust and comprehensive national emissions inventory and corresponding adjustments allows a host country to assess its current progress and plan future increases in ambition levels. For acquiring countries, transparent measuring of progress and comparability of efforts is key to raising ambition over time which forms in turn the necessary fundament of any ambition raising.

Further development of the rules: In addition to the assessment of whether NDC targets have been achieved, Parties could be asked to provide specific information on how Article 6 use has allowed them to achieve their NDC targets and increase ambition in their current NDC.

5.2.2. Reviewing the implementation of NDCs and the role of Article 6

There is a two-step review process common to all Parties (Articles 13.11 and 13.12): First, there is a technical expert review (TER) (i) to consider a Party's "implementation and achievement of its NDC" and, as relevant, its "support provided", (ii) to check "consistency of the information with the modalities, procedures and guidelines" of the transparency framework, (iii) to identify "areas of improvement" related to Article 13, and (iv) to identify capacity-building needs of

[12] It is assumed that both Article 6.2 and 6.4 mechanisms are considered cooperative approaches.

"developing country Parties that need it in the light of their capacities". Second, there is a facilitative, multilateral consideration of progress.

The rules specify that TERs shall not make political judgments, review the adequacy or appropriateness of a Party's NDC – including its description and indicators selected to track progress – nor review the adequacy of a Party's domestic actions and support provided (Decision 18/CMA.1, Annex, para 149). In addition, the self-determined application of flexibility and the capacity to implement a specific provision without flexibility is also not to be reviewed by the TERs (Decision 18/CMA.1, Annex, para 6 and 149 (e)).

Further development of the rules: The Article 6 rules might need to specify that certain flexibility may not be available for Parties making use of Article 6 and that specific information in the NDC as well as indicators to track progress is required. For instance, avoiding double counting and the implementing corresponding adjustments may require a certain level of quantification and coverage in both the acquiring and host country NDCs in order to be (i.e. mathematically) feasible. This will be necessary so that Article 6 use does not undermine progress and ambition.

According to the rules, technical expert teams must include members with knowledge on Article 6, if relevant for the information to be reviewed (Decision 18/CMA.1, Annex, para 176). This is necessary to review the information provided by Parties on Article 6 use.

Further development of the rules: There is a discussion on specific Article 6 TERs that review the application of Article 6 guidance by participating Parties based on their reports and corresponding adjustments and forward its recommendations to the TERs of Article 13 (Proposal by the President, section II, para 4). This could further improve the quality of the review of Article 6 information by Parties.

The facilitative, multilateral consideration of progress focuses on a Party's implementation and achievement of its NDC as well as on the provision of finance. According to the rules, the facilitative, multilateral consideration will usually follow the TER, but it will also be conducted if a Party does not submit a BTR and there is no TER (Decision 18/CMA.1, Annex, para 197 and 198). The modalities largely draw on existing practices, with Parties exchanging questions and answers first in writing and then in an open session (C2ES 2018). The rules allow only questions from Parties; stakeholders may participate as observers in the open session (Decision 18/CMA.1, Annex, para 192 and 193).

Further development of the rules: Based on the scope identified for the facilitative, multilateral consideration of progress, questions on Article 6 use seem possible and suitable. For example, an acquiring country may ask a host country how it was able to ensure high ambition in its NDC or an acquiring country may be asked how Article 6 use has allowed it to increase ambition without endangering future ambition.

5.3. Building on the global stocktake and compliance regime

In addition to the provisions of the rules discussed above, Article 14 and 15 may also have implications for ambition raising under Article 6.

5.3.1. Assessing collective progress through the global stocktake

Article 14 establishes a global stocktake on the implementation of the Paris Agreement to assess collective progress (Article 14.1). The first stocktake will take place in 2023 and every five years thereafter (Article 14.2). The outcome of the global stocktake shall inform Parties in updating and enhancing their NDCs as well as enhance international cooperation on climate action (Article 14.3). Thus, it is a key element of the ratcheting mechanism to increase ambition over time in the Paris Agreement.

The rules emphasize that the outputs of the stocktake "have no individual Party focus" and provide only a "non-policy prescriptive consideration of collective progress" (Decision 19/CMA.1, para 14). Parties are required to take into account the outcome of the global stocktake in their future NDCs (Article 4.9). In addition, each NDC must be more ambitious than the previous and reflect the highest possible ambition (Article 4.3). However, the elaboration of NDCs remains a purely nationally determined process.

Further development of the rules: Such an ex-post assessment will probably include information on the use of Article 6. It would be useful to also have information on how it has helped Parties to achieve their targets and increase ambition. Specifically, lessons learned and best practices in order to improve the use of Article 6 mechanism could be provided, based on the transparency framework (Article 13.5). Examples could be provided that show how Article 6 use has helped Parties to increase ambition.

5.3.2. Making use of the limited possibilities for the compliance mechanism to consider Article 6 issues

Article 15 of the Paris Agreement establishes a mechanism "to facilitate implementation" and "promote compliance". It is a facilitative mechanism that is based on the work of an expert committee (Article 15.2).

According to the rules, the committee may consider an issue in the following cases: (i) if a Party provides a submission on its own implementation or compliance; (ii) if a Party has failed to submit an NDC, an inventory or BTR; (iii) if a Party has not participated in the facilitative, multilateral consideration of progress; (iv) in case of persistent and significant inconsistencies with the Article 13 modalities, procedures and guidelines; (v) in cases of so called "systematic issues" (paragraph 20, 22, 32 of Decision 20/CMA.1).

The Article 6 rules are not mentioned as part of this mechanism. In contrast to the Kyoto Protocol, there is also no link between non-compliance and the eligibility for use of market mechanisms.[13] Therefore, the possibilities for using the compliance mechanism for ambition raising through Article 6 seems very limited. The fourth option listed above could have some link to Article 6, since reporting on transfers is part of the Article 13 rules, but this would depend on whether there were "significant inconsistencies". While the first option listed above would allow consideration of Article 6 use more generally, the effectiveness of self-triggering, i.e. a Party providing a submission on its own implementation or compliance, usually depends on the actual availability of support. Finally, the fifth option could be relevant, but only if the use of Article 6 transfers is somehow connected to "systematic issues" affecting multiple countries.

[13] The nature of the compliance mechanism of the Kyoto Protocol was not only to facilitate, but also to enforce compliance. The enforcement branch applicable only to Annex I Parties could suspend the eligibility for market mechanisms in case of non-compliance. See Decision 27/CMP.1, Annex, Section XV, para. 4.

6. Designing Article 6 implementation to increase ambition

Since the Katowice Climate Package did not yet provide further guidance on Article 6 and international negotiations are ongoing, this chapter identifies and discusses options for how international rules on the operationalization of Article 6 can contribute to ambition raising. It builds on an analysis of the draft Article 6 texts and other proposals from literature that we further develop (see references in the text). The options may be implemented on the level of the UNFCCC and the CMA, or in club approaches or by individual countries (see section 2.4).

First, different options will be presented for designing guidance and rules for Article 6 so that the mechanisms will increase ambition. These can be implemented on the level of the detailed design of the Article 6 mechanisms. Second, we discuss how the Article 6.4 mechanism (respectively the Article 6 mechanisms in general) may increase ambition by contributing to overall mitigation in global emissions (OMGE).

Box 1. Power sector examples of Article 6 guidance options

To illustrate how some of the options discussed could be applied to future crediting programs, a series of text boxes will present a hypothetical crediting program in the power sector in a developing country. This country has an NDC covering the energy, industry, agriculture and waste sectors. As part of the energy sector mitigation pledges, the country has made an unconditional pledge to reduce total power sector emissions by 10% below business as usual by 2030. Note that this emission reductions versus BAU targets are common in developing countries and is used in a total in 86 out of the 169 NDCs (https://klimalog.die-gdi.de/ndc).

6.1. Options for designing Article 6 to contribute to ambition raising

6.1.1. Ensuring environmental integrity in international transfers

Environmental integrity is a prerequisite for maintaining current ambition levels and enabling Article 6 to contribute to ambition raising. Environmental integrity in the context of Article 6 can be defined as follows: “The use of international transfers does not result in higher global GHG emissions than if the mitigation targets in NDCs had been achieved only through domestic mitigation action, without international transfers” (Schneider, Fuessler, et al. 2017; Schneider and La Hoz Theuer 2019).

In theory, 1 t CO2eq of emission reduction in the host country allows the acquiring country to emit 1 t CO2eq more. However, reality is more complex and there is a risk that the Article 6

mechanisms could actually increase global GHG emissions. The following four approaches would foster environmental integrity (for details, see Schneider, Fuessler, et al. 2017; Schneider and La Hoz Theuer 2019):

- **Applying robust accounting**, e.g. to avoid double counting. As explained in chapter 5.1.2, the Katowice Climate Package already contains many important accounting requirements, but others still need to be integrated.
- Ensuring that Article 6 mechanisms generate **high quality units**. This means that emission reductions are additional, not overestimated, and are permanent or provisions are in place to address the risk of non-permanence. This may be particularly important in case mitigation outcomes are transferred from outside an NDC, since the host country will face few incentives to ensure unit quality. Transferring units that did not represent real reductions from within a country's NDC, by contrast, could make it more difficult for the host country to meet its NDC target, because it has to compensate for the mitigation outcomes transferred, but not actually realized (as long as the country has an ambitious NDC).
- Facilitating host country shift toward **economy-wide** and **ambitious NDC targets**. If both host and acquiring countries have economy-wide and ambitious (i.e. below BAU) targets and they meet those targets, then even transfers of poor quality mitigation outcomes will not increase global emissions, i.e. because with corresponding adjustments, the host country has to compensate for any potential transfer that lacks unit quality (see below chapter 6.1.2, where this is proposed as an eligibility criteria).
- **Preventing** transfer of units from countries with **hot air** or emission sources not covered by NDC targets. To mitigate environmental integrity risks, the transfer of units could also be prevented in situations where environmental integrity risks are higher. This holds in particular if a host country has an NDC target that includes hot air or if the emission reductions are not covered by the NDC. The transfer of units could be prevented through eligibility criteria or through quantitative limits. (see below chapter 6.1.2, for an example of using eligibility criteria).

These measures do not lead to ambition raising in the strict sense, but at least avoid an increase in global emissions as a result of Article 6 cooperation (section 3.3).

6.1.2. Defining eligibility criteria for Article 6 mechanisms

This section presents eligibility criteria that could facilitate increasing ambition through Article 6 or provide safeguard against any reduction in overall ambition because of international transfers. Some of these options are being discussed in the ongoing negotiations. However, they are currently not formulated as a necessary precondition for participating in Article 6. If not implemented on a CMA level, they may be introduced by complementing rules on a club level

(section 2.4). While the whole set of proposed eligibility criteria could be applied as a precondition to participate in Article 6, a less strict application would also be possible. If host countries did not fulfill all the criteria, there could be limits on the number of ITMOs that they could transfer internationally (Schneider, Fuessler, et al. 2017; La Hoz Theuer, Schneider, and Broekhoff 2019).

Requiring conservative or (progressively) decreasing crediting baselines

Setting conservative crediting baselines would not raise ambition per se, but it would make it easier for host countries to set and achieve ambitious NDC targets (see also chapter 6.2). This is because a part of the emission reductions would then not be internationally transferred but could be used by the host country to achieve its NDC. Lowering the crediting baseline level over time could thereby also facilitate raising the ambition level of the host country NDC. With this, the mitigation action contributes an increasing share to meeting the domestic NDC target and thus facilitates the ratcheting up of the NDC target.

Box 2. Power sector examples of conservative baseline

An example of a conservative, decreasing baseline for potential mitigation activities in the power sector (e.g. a new solar plant) would be to use the traditional "combined margin" emission factor for the baseline grid emission factor at the beginning of the crediting in 2020, but then reduce this each year faster than the NDC target (e.g. enough for a 30% reduction in total emissions by 2030, taking into account increased generation). The emission factor could even be scaled down to zero by the end of crediting period in 2030. Of course, regardless of the baseline level, if the investment still operated after the end of the crediting period, all of the mitigation impact can contribute to increasing the ambition of the next NDC target.

The existing draft texts on Article 6 include references to setting conservative crediting baselines. For instance, the proposal for the Article 6.4 mechanism (Presidency Text Art. 6.4, para 35) to use a "[best available][performance-based] approach" may provide an opportunity to implement ambitious or even decreasing crediting baselines. The proposed baseline approach relating to historic or BAU emissions is not conservative and does not take into account that host countries may have NDC targets that are more stringent than BAU or historic emissions. Realistically, this is a topic that may have to be solved on the level of the Supervisory Body rulings. Regarding the (much less defined) cooperative approaches under Article 6.2.

Requiring reporting on how use of Article 6 mechanisms foster ambition raising

The reporting requirements for Article 6 activities could include provisions that both acquiring and host countries report how their use of Article 6 contributes to their own ambition raising. This would at least raise awareness of the issue (see also section 4). The draft text includes an option stating that each participating Party should submit information on "how it ensures that cooperative approaches in which it participates: […] (ii) Do not impede the formulation of an NDC by the host Party that reflects the highest possible ambition and a progression over time of the NDC" (SBSTA text on Art. 6.2, Annex, para 28 (i)).

Requiring ambitious NDCs

As elaborated in chapter 2.2, host countries could have an incentive to set unambitious NDC targets or to inflate their BAU scenarios, because this allows more transfers of mitigation outcomes without jeopardizing the achievement of their NDCs. This may require the consideration of host country ambition levels when using Article 6 mechanism.

The assessment of the ambition of NDC targets is technically and politically difficult (see Chapter 3 for an overview of different possible approaches). Some of the requirements in the rules are helpful to assess the ambition level of an NDC. As outlined in chapter 5, Parties are required to provide starting points, quantifiable information on reference indicators, if applicable, and a target expressed numerically in their NDC. In addition, a Party must provide information on how it "considers that its NDCs is fair and ambitious in the light of its national circumstances", what "fairness considerations, including reflecting on equity" it has included, and how its NDC represents a progression (Decision 4/CMA.1, Annex I, para 6).

The Article 6 rules could make eligibility for participation subject to clear justification that the NDC targets were (well) below BAU emissions. An additional requirement could be that the BAU development scenario referenced in each NDC cycle would have to start (i.e. in the current year) with the actual emission levels achieved at the end of the previous cycle (see Warnecke et al. 2018). The rules could also limit transfers of mitigation outcomes to the difference between current emissions and emissions at the end of the last NDC cycle. This last point would be an example of "Adopting policies that avoid an increase in global emissions", rather than directly increasing ambition (section 3.3).

Parties that intend on using Article 6 mechanisms in a club of like-minded host and acquiring countries (section 2.4) could also agree to a comprehensive independent review of their NDC's ambition level. This voluntary review of upfront information would be separate from the TER foreseen in the Paris Agreement, which focuses on the information reported ex-post by Parties. It would also be different from and complement the technical expert reviews proposed specifically for Article 6.2 that also would focus on ex-post information (i.e. Presidency Text,

Art. 6.2, Annex, II). Only after the voluntary comprehensive review shows that the NDC target is more stringent than BAU would the Party be allowed to participate in the club's system of transfers under Article 6.

Box 3. Power sector and ambitious NDC goals

To continue the example of the power sector in a hypothetical country, how might requiring ambitious NDC goals affect this country? If the country articulated their goal in absolute GHG emissions (e.g. power sector emissions will be reduced to 100 $mtCO_2$ by 2030), then it would be possible to commission an expert review of this goal to assess whether it was below the most likely BAU emissions level (i.e. similar to the work by Climate Action Tracker discussed earlier). However, if the goal is articulated as a "reduction versus BAU", then this is more difficult to evaluate because it depends on how BAU is eventually defined. The host country might specify the BAU emissions in advance, but this is not currently included in many development country NDCs and, even where it is, some countries reserve the right to update the BAU as necessary. The reporting requirements under Article 13 include providing an explanation of the reference and starting points, baselines and methodologies used to create and monitor NDC goals. This could mean that some countries will only specify their BAU emissions level when they submit their BTR. This information might, then, be available for the Technical Expert Review or even a technical review under Article 6. However, without absolute GHG targets (which few developing countries have made), evaluating ambition is considerably more difficult.

Requiring quantified NDC targets

As discussed in chapter 5, the rules require Parties to provide quantifiable information on the reference indicators at the starting points and the target years in their NDCs (Decision 4/CMA.1, Annex I, para 1). However, in case this is not possible, a Party may also provide other relevant information. An eligibility criterion for Article 6 could therefore be that only Parties with quantified NDC targets are allowed to make use of the mechanisms. Such a requirement is also proposed in the draft text available on Article 6 (Presidency text, Art. 6.2, para 21). This would allow better understanding of NDC ambition, progress made, and corresponding adjustments applied. This would be another example of "Adopting policies that avoid an increase in global emissions", rather than directly increasing ambition (section 3.3).

Box 4. Power sector and quantified targets

In the case of our power sector example, this requirement could mean that the country would have to translate their relative target (i.e. reduction versus BAU) for the sector into an absolute target for power sector emissions in 2030. This will most likely have to happen at some point in any case, given the requirements in the BTR to specify the details of the NDC coverage, level, baseline, starting point, etc. The issue is the timing of when BAU is set. If BAU emissions are set prior to NDC implementation (e.g. in the first NDC submission, or a revision pre-2020), then this would be a fundamental change in the nature and content of the NDC. In other words, this now essentially becomes an absolute emission target. On the other hand, if BAU is only listing in each BTR for the years included in that report, then this might not be considered setting an ex-ante target and working towards this, as required by the Paris Agreement.

Even if the country currently had a long-term low emission development strategy, these often include different scenarios for future emissions – even different BAU scenarios. One possibility would be to use the latest official power sector development plan, but even here there could be questions about which scenarios in that plan were BAU. If the plan was meant to chart a path toward the country's NDC goal, for example, (I.e. without specifying the financing and policy instruments necessary to achieve this goal) then the emissions pathway might match the NDC pledge, not a BAU trajectory.

Requiring economy-wide NDC targets or adjustments for transfers outside of the NDC

Parties that want to make use of Article 6 could be required to have economy-wide targets (see also Warnecke et al. 2018). As elaborated above, this could contribute to environmental integrity. Another option included in the existing draft text on Article 6 is that only transfers of mitigation outcomes from an activity that achieves emission reductions in the sectors and GHGs covered by the NDC of the host Party are allowed (Presidency Text, Annex, Article 6.2, para 16 and 17; Article 6.4, para 31 (c)). This would encourage Parties to extend their NDC scope towards economy-wide emission reduction targets (see also Warnecke et al. 2018). Without such a requirement, there could be a perverse incentive for host countries to maintain a narrow NDC scope so that they can export more mitigation outcomes without having to implement corresponding adjustments.

Another option included in the draft texts on Article 6 would be to require host countries to also account for the transfer of mitigation outcomes generated outside the scope of their NDC and to apply corresponding adjustments (Presidency Text, Annex, Article 6.2, para 16 and 17; Article 6.4, para 61-64). This requirement could contribute to increasing ambition of NDCs

by encouraging Parties to move more quickly towards economy-wide targets than they would have done without Article 6 mechanisms.

The requirement to formulate economy wide NDC targets may be quite challenging for some potential host countries, given their current capacity. These countries could be required to provide a plan for the adoption of economy-wide targets to be eligible for participation in Article 6 (Warnecke et al. 2018). Additionally, support could be provided to potential host countries for their planning process to move more quickly towards economy-wide targets (see also chapter 7.2).

Box 5. Power sector and NDC scope requirements

In this example, the country does not have an economy wide NDC, but the power sector itself is covered. This would not affect the eligibility of mitigation activities in the power sector, but it would affect forestry projects, for example. Given that all but two INDCs included the energy sector, this restriction would mainly affect sectors such as transport, waste and agriculture, which were not included about 50 INDCs. Forestry and land-use change was also not included in 41 INDCs.

Requiring countries to have long-term low emission development strategies (LT-LEDS)

The idea that participating Parties should submit information on their long-term low emission development strategies (LT-LEDS) (Article 4.19) has been discussed in the negotiations on Article 6 rules (Presidency Text, Art. 6.2 Annex para 25; SBSTA Text Art. 6.2 para 29; SBSTA Text Art. 6.4 para 30(e)). However, the requirements related to the LT-LEDS could go further. As discussed in section 2.2, without a LT-LEDS that integrates the use of Article 6, acquiring countries relying too much on transfers for NDC compliance may not invest domestically in technological advancements for low-emission development. For host countries, allowing transfers of low-cost mitigation options can increase future mitigation costs and so dampen any potential increase in ambition in future NDCs. The importance of LT-LEDS is further discussed in chapter 4.7 for acquiring countries and in chapter 7.2 for host countries. The Article 6 rules could require that both host and acquiring countries develop LT-LEDS and to provide the relevant information as a condition for participation. Additionally, Parties could be required to demonstrate in their LT-LEDS how they intend to increase ambition over time by using Article 6 mechanisms, without undermining the achievement of their own NDC targets and the transition towards decarbonization (see also Warnecke et al. 2018, CCAP 2017). LT-LEDS may include an explanation of how the use of Article 6 is integrated into achieving long term goals. In terms of impact, as of April 2019 only eleven countries have submitted LT-LEDS to the UNFCCC, so using this criterion as a restriction would eliminate almost all countries from participation. More countries

would have some form of LT-LEDS, and so if the criterion were that a country had "official national mitigation plans" or "NDC implementation plans", more would be eligible. The question is what type of strategy is sufficient to support ambition raising. Without presenting an economy-wide plan for reaching net zero emissions by mid-century, it would be difficult to demonstrate how ITMO transfers support that strategy rather than detracting from it.

Restricting eligibility of technologies or mitigation activities

The existing draft texts on Article 6 do not foresee any restriction on technologies or types of action that could result in mitigation outcomes. Careful design of Article 6, however, could facilitate investments in technologies that the host country would not be able to implement unilaterally. This is similar to the discussion in Warnecke et al. (2018) on focusing the Article 6 mechanisms on "inaccessible technologies". These would be, for example, technologies that currently have low market penetration and high abatement costs, or that face other prohibitive non-market barriers. Restricting eligibility of technologies or types of action to those that most need support could accelerate technology diffusion and, in turn, enable the host country to increase ambition in its future NDCs.

The CDM applied positive lists, for instance, in small and micro-scale renewable energy and energy efficiency projects, on the grounds that these technologies face high costs and other prohibitive barriers in host countries. For CDM, these lists were only to decide which technologies could use simplified rules, not for which technologies were or were not allowed in the CDM. In practice, however, positive lists were equivalent to automatic eligibility in many cases, because there were very few other requirements that needed to be met. Article 6 mechanisms could include lists of technologies that were either automatically eligible (positive lists) or were excluded entirely (negative lists). There could be similar international lists for Article 6 mechanisms. Low-cost, mature technologies, for example, might be part of an international negative list, while high-cost emerging technologies that faced high costs or other barriers could be on an international positive list. In between, there would be a "grey zone" of technologies that need further investigation, because there are significant differences across regions and countries (Warnecke et al. 2018). These technologies need to be analyzed for each country or a group of countries individually (e.g. using developed Decision trees or other eligibility criteria) (Schneider et al. 2017). Host countries also have an interest in channelling funding toward otherwise inaccessible technologies, but they might need support in doing so (see chapter 7.3).

These positive and negative lists would need to be regularly updated to take into account changes in the diffusion and costs of technologies, economic development, technical capacity in the country and other relevant developments that would affect barriers to diffusion. Ideally, the update would be aligned with the 5-year cycle of NDCs.

Box 6. Power sector and technology lists

Under the CDM, many small and micro-scale technologies in the energy sector were included in positive lists, often based on a mix of technology, country type and consumer type criteria. Examples included grid and off-grid solar, offshore wind and marine power up to 15 MW, rural electrification with renewable energy in countries with less than 20% access, or renewable energy up to 5MW in LDCs and SIDS. These positive lists did not determine eligibility for the CDM, but they did significantly simply the process of project approval and generating tradable emission reductions. On the other hand, many papers raised concerns about the additionality of large wind, hydropower, and in some cases biomass power projects (e.g. Cames et al. 2016, Lazarus et al. 2012), so an argument could made for included these in a "negative list" that would exclude these projects entirely, not simply change the rules that were applied. The impact on the power sector in our example, therefore, would depend on what technologies were included in the proposed crediting program. This could be particularly challenging for a sectoral crediting program, because it might include a mix of technologies on both the type of eligibility lists.

In summary, there are several different potential eligibility criteria for participation in Article 6 that could ensure that these mechanisms contribute to ambition raising. The existing draft texts do not foresee eligibility criteria for making use of Article 6. Taken together, however, the eligibility criteria could reduce the risks of host countries without ambitious NDCs having a competitive advantage over host countries with ambitious NDCs, thereby strengthening the ambition and environmental integrity of trading. Eligibility criteria have already been used under the CDM by clubs of countries and individual countries (see also section 2.4).

Restricting crediting periods

Very long crediting periods (e.g. a total of 21 years, as is possible in the CDM) prevents host countries from using the mitigation potentials towards their own targets. In addition, the corresponding adjustments burden the national emissions balances for multiple NDC cycles, discouraging the ratcheting up of targets. Limiting the crediting period therefore prevents the "lock-in" of mitigation potential in the host country and may therefore foster ambition raising, as it allows to use the mitigation outcomes for itself more quickly and increase ambition of its NDC targets. In addition, it reduces the perverse incentive not to expand the scope and ambition of the NDC. Shorter crediting periods also have the advantage that they may increase environmental integrity. Scenarios for crediting baselines can change and they are thus more difficult to estimate over longer time periods. The uncertainties increase over time so that the

impact of the crediting revenue may be much smaller than the impact of variations in other key financial parameters (i.e. “signal-to-noise-ratio”, see Fuessler et al. (2012)). However, in order for Article 6 activities with shorter crediting periods to be financially attractive, the price per ITMO must be higher to compensate for the shorter period over which carbon revenues are generated.

Box 7. Power sector and short crediting periods

Currently power supply and demand projects under the CDM can choose from either a 10-year crediting period or a seven-year period that can be renewed twice (i.e. a total for 21 years). The lifetime of the projects could be even longer than this, since power plants in practice may have a useful life of more than 20 years. Restricting the crediting period to five or seven years, for example, would reduce the creditable emission reductions by 50% of more. This could obviously reduce the impact of carbon market revenue on the financial viability of the projects, although the impact might not be in direct proportion to the change in ITMO generation. The net effect would depend on how market prices are set and to what extent there was a truly global market. If there were a global price and all project types had a shorter crediting period, then the global market price might be higher compared to a scenario with longer crediting periods. However, whether the total revenue for a project owner goes up or down depends on the structure of the market and how both supply and demand are affected by price changes. If net carbon revenue declines as a result of having shorter crediting periods, this could make it even more difficult to demonstrate additionality (i.e. because of the limited impact on viability). On the other hand, it could mean that only projects with very large emission impacts relative to other revenue streams (e.g. landfill gas power) would be included in crediting programs.

Requiring inclusion of emissions targeted by Article 6 activity into future NDC

Host countries could be required to include sectors and technologies that are used in Article 6 mechanisms during one NDC cycle in their future NDCs. This could be an alternative to restricting crediting to NDC scope or requiring corresponding adjustments for crediting outside NDC scope (see section 6.1.2). In the next NDC cycle, the Party could be required to include the new sector within the scope of the NDC. In addition, in subsequent NDC periods, the country could be required to include in their emission projections the impact of mitigation activities original supported by Article 6 transfers. As an additional consequence, the crediting period would be restricted with the positive consequences explained in section 6.1.2.

6.2. Operationalizing overall mitigation in global emissions

One approach to promoting greater ambition through the use of Article 6 mechanisms is to ensure that any use of international transfers results in an "overall mitigation in global emissions" (OMGE). This condition is expressly required in Article 6.4(d), relating to the new mechanism to be created under Article 6.4. There is no agreement among Parties to the UNFCCC what this concept means. Some Parties have the view that conservative baselines or shorter crediting periods already contribute to an overall mitigation because they could enable countries to overachieve their NDCs or to adopt more ambitious NDCs. Other Parties are of the view that this principle implies that any transfer of mitigation outcomes should directly result in *lower* global emissions relative to a scenario in which the transfer did not occur.[14] Thus, a requirement for "overall mitigation" could ensure that *global* ambition is raised as a direct consequence of engaging in international transfers.[15] This would require that a portion of the emission reductions are not used by any Party to achieve its NDC, i.e. neither by the host nor by the acquiring Party. This definition is used for the analysis in this in paper. In principle, such a requirement could be applied to both Article 6.4 and 6.2.

6.2.1. Options for achieving OMGE

The concept of overall mitigation as defined here (sometimes referred to as "overall *net* mitigation" or achieving a "net climate benefit", among other terms) has been discussed as a possible ambition-raising measure for market mechanisms for several years, including prior to the Paris Agreement (Warnecke et al. 2014). Most of the discussion historically has centered around the CDM (Erickson, Lazarus, and Spalding-Fecher 2014; Vrolijk and Phillips 2013; Butzengeiger-Geyer et al. 2010; Schneider 2009; Bakker et al. 2009; Chung 2007). Vrolijk and Phillips (2013), for example, outline several approaches that could be used to achieve overall (net) mitigation in the context of the CDM (Table 6).

[14] Various definitions of "overall mitigation in global emissions" have been proposed by Parties and observers to the UNFCCC process; however, no definitions were included in Article 6 draft texts in Katowice.

[15] A key notion here is increasing *global* ambition, as opposed to the ambition (or claimed mitigation) of any one country. Overall mitigation can occur when emission reductions are not used by any country to implement or achieve its NDC; if some portion of achieved emission reductions are unused as a condition for international transfers, global emissions will decrease as a result of any transfer (Schneider et al. 2018; Kreibich 2018).

Table 6: Options for achieving "net mitigation" through the CDM (or similar offsetting mechanisms)

Approaches applied prior to credit issuance to reduce creditable emission reductions	Approaches applied during or after credit issuance to limit use of credits
▪ Reducing baseline emissions levels, e.g., by using conservative assumptions, or simply discounting quantified emission reductions ▪ Reducing baseline validity periods, e.g., by shortening crediting periods and/or requiring more frequent up-dates ▪ Changing project type eligibility, e.g., setting simpler eligibility conditions for project types deemed to (already) generate net mitigation benefits, due to conservative baseline methodologies	▪ Introduce a "net mitigation levy", i.e., withhold a share of offset credits at the time of issuance to prevent their use for offsetting ▪ Apply a discount, e.g., require that more than one offset credit be used to satisfy a mitigation obligation of one tonne CO2e.

Source: adapted from Vrolijk and Phillips (2013)

An important qualification is that, in the context of the Paris Agreement*, these approaches may not necessarily achieve an OMGE as defined above*. Under the Kyoto Protocol, CDM host countries do not have any mitigation targets. Thus, any GHG reductions achieved by a project but for which credits are not issued (e.g. because conservative baseline assumptions result in those reductions not being quantified) contribute to reducing net global emissions.[16] Under the Paris Agreement, however, all countries have now submitted NDCs. If uncredited emission reductions occur at sources or sinks covered by a host country's NDC, then they will contribute to the achievement of the NDC rather than achieve OMGE. Approaches on the left side of Table 6 will only reduce net global emissions if they are applied to emission reductions that occur outside the coverage of host country NDCs.

Similarly, not using a number of credits (right side of Table 6) would also only lead to OMGE if the host country applies a corresponding adjustment for the full amount of the emission reductions. However, this may not necessarily occur if, for example, a share of offset credits is withheld at issuance (i.e., the "net mitigation levy" approach), since adjustments are triggered through the international transfer of ITMOs, not by their issuance (i.e., following the text in Decision 18/CMA.1, paragraph 77(d)(ii)).

Schneider et al. (2018) identify three general conditions for ensuring the achievement of overall mitigation. First, the portion of emission reductions used for overall mitigation must be quantified. Second, accounting provisions must ensure that this portion is not used by any country towards achieving its NDC. Third, the approach for implementing overall mitigation must be mandatory for all transfers. Only the "net mitigation levy" and "discounting" approaches in Table 6 satisfy all three of these conditions, and only under the condition that the

[16] Assuming the project is additional.

host country would apply a corresponding adjustments for the full amount of emissions reductions (Schneider et al. 2018; Howard 2018).[17]

Implementation of these approaches could occur in different ways, depending on which mechanism is involved (i.e., Article 6.2 transfers or the Article 6.4 mechanism). The "net mitigation levy" (or "automatic cancellation") approach may have practical advantages, because cancelling credits prior to their transfer ensures that credits intended for overall mitigation do not enter circulation. This is similar to what already occurs under the CDM, where a portion of CERs are automatically withheld to generate revenue for the Adaptation Fund. However, in the context of the Paris Agreement, corresponding adjustments would have to be applied for the full quantity of emission reductions that occur at sources covered by the host country's NDC, not only for the number of credits internationally transferred. This may require further clarification of how and when corresponding adjustments could be applied by host countries to mitigation outcomes that are not transferred.

An important question in designing a net mitigation levy is what portion of credits to reserve and cancel (or what discount rate to use, if discounting is applied). Schneider et al. (2018) examine the potential effects on credit supply and pricing under cancellation rates ranging from 10-50%. Although a levy of this sort would increase credit prices, they find that under a broad range of circumstances, higher rates of cancellation will lead to higher levels of overall mitigation.

Finally, it should be noted that most discussion of how to operationalize OMGE has focused on the Article 6.4 mechanism and has therefore been concerned with achieving overall mitigation related to use of offsetting instruments. However, the discounting approach (right side of Table 6) could in principle also be applied to the transfer of allowances under linked emissions trading systems, as a way to achieve OMGE associated with these transfers as well. This may, however, raise practical challenges, as it could constitute a barrier to full linking of emissions trading systems with full fungibility of allowances.

A related question is whether the principle should only apply to the Article 6.4 mechanism or also to Article 6.2. Application to all crediting mechanisms would generate a level playing field and avoid market distortions; on the other hand, the principle is only mentioned in the context of the Article 6.4 mechanism in the Paris Agreement.

6.2.2. Incentivizing OMGE

One practical question for achieving OMGE is how to encourage countries to implement the options described above. If OMGE - as defined here – is formally adopted as a requirement for

[17] Schneider et al. (2018) evaluate a series of approaches, including those identified in Table 6, currently being discussed in international negotiations.

the Article 6.4 mechanism, then countries using Article 6.4 may be required to apply one of the options. The rules could also specify what level or rate of OMGE must be achieved, e.g., what portion of credits to cancel, or what discount rate to use. For Article 6.2 transfers, it may be up to individual Parties engaged in such transfers to determine whether, how, and to what extent to achieve OMGE. One way to encourage OMGE would be to establish a central reporting platform, where Parties could report quantities of net global emission reductions achieved but not counted towards any NDC. Such a platform could help to formalize and legitimize the achievement of OMGE outside of Article 6.4 – even if OMGE may remain voluntary for Article 6.2 transfers – and facilitate international tracking of the extent to which Article 6 transfers contribute to increased ambition. To encourage consistency and transparency in reporting, it would be preferable to adopt an OMGE approach that applies *after* credit issuance (right side of Table 6). This would avoid any uncertainties or discrepancies in how emission reductions are quantified in different countries and ensure that OMGE achieved both within and outside the scope of NDCs is accounted for in the same manner.

7. Host countries actions to raise ambition, and support required

Some of the potential eligibility requirements discussed in chapter 6 as means to raise ambition could require action by host countries to be able to participate in Article 6 markets, which may require significant capacity building. Even to comply with the new enhanced transparency framework under Article 13 will be major undertaking for many countries, because often developing countries only submitted national communications once every five to ten years – and many have never submitted a Biennial Update Report[18]. Setting up a system for reporting through Biennial Transparency Reports (BTRs) will therefore already require significant investments in institutional, regulatory, technical and administrative capacity simply to comply with the Paris Agreement rules. The options for further development of the Katowice Climate Package explained in chapter0, however, go a step further, and would require additional analysis and reporting. To ensure that interested host countries can participate in Article 6 transactions, they will need to take action in at least three specific areas: increasing compliance with Article 13 reporting requirements (i.e. beyond the minimum required for developing countries), developing long-term low greenhouse gas emission development strategies (LT-LEDS) that facilitate ambitious NDC pledges, and analyzing which sectors and technologies could qualify for crediting under a regime that restricted transactions to "inaccessible technologies" (see section 6.1.2). Each of these areas is likely to require technical assistance and capacity building. The financing channels and approaches for these different areas are discussed in the sub-sections below.

7.1. Increasing transparency and reporting

As discussed in chapter 5.2, the Paris Agreement, supported by the Decisions on the Katowice Climate Package at COP24 (December 2018), creates an "enhanced transparency framework", which significantly increases the depth of reporting, as well as the frequency, for all countries and especially for developing countries (right side of Figure 3).

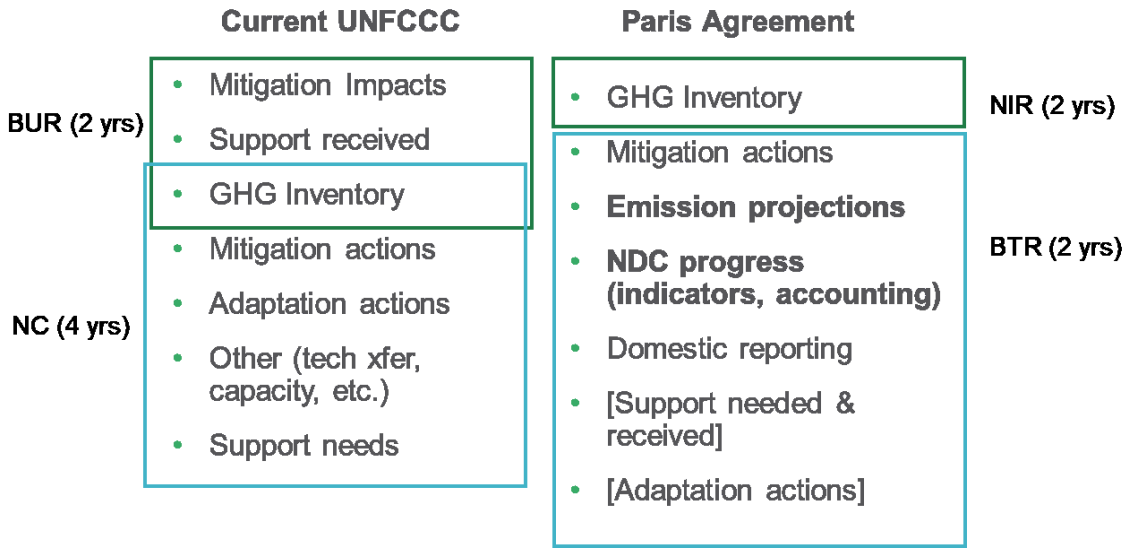
All developing countries are expected to submit both National Inventory Reports (NIRs) and Biennial Transparency Reports (BTRs). The NIRs are similar to the earlier GHG inventories but using *2006* IPCC Guidelines[19] and presenting a longer time series. The focus of the BTR is tracking progress toward the country's stated NDCs. Given the bottom-up nature of NDCs, the specific goals and indicators will vary by country, but the BTR reporting on NDC progress is still

[18] See https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-update-reports-non-annex-i-Parties/national-communication-submissions-from-non-annex-i-Parties and https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-convention/biennial-update-reports-0

[19] Countries may also use "nationally appropriate methodologies if they better reflect its national circumstances and are consistent with the IPCC guidelines".

mandatory for *all* Parties. Each country selects the indicators that are appropriate for their NDC mitigation pledges (e.g. metric, base year, baseline/reference level) and reports progress toward those goals, as well as the accounting approach used to demonstrate progress. Note that, because not all countries have economy-wide pledges, the NDC progress reporting may not cover all of the sectors or gases that are in the NIR[20]. In addition, the sector definitions used in NDCs are not necessarily the same as the NIR sectors. The BTR also includes reporting on all of the mitigation actions that support NDC implementation and recommended (but not mandatory) reporting on adaptation actions and financial, technical and capacity support received. In addition to the new requirement to report on NDC progress, BTRs also include a new mandatory requirement to report emission projections for all sectors.

Figure 3: UNFCCC reporting versus Paris Agreement reporting for developing counties



Note: BUR=Biennial Update Report; NC=National Communication; NIR=National Inventory Report; BTR=Biennial Transparency Report; bold text shows new requirements under the Paris Agreement; items in brackets are not mandatory for developing countries.

Source: Adapted from UNFCCC (2014) and Katowice Climate Package

To support the implementation of the Article 13 rules, the Parties to the Paris Agreement, UN agencies and other multi-lateral funders have initiated several capacity building programs. The most important is the Capacity Building Initiative for Transparency (CBIT), created by the Global Environmental Facility (GEF) at the request of Parties to Paris Agreement. The CBIT was

[20] For example, a country may regularly report agriculture sector emissions in their national inventory but not have NDC mitigation pledges for that sector. In this case, the BTR section on NDC progress would not address agriculture sector emissions.

initiated "to help strengthen the institutional and technical capacities of developing country Parties to meet the enhanced transparency requirements defined in Article 13 of the Paris Agreement."[21] Under the GEF-6 phase of funding (2016-2018), the CBIT approved 44 national projects and four global projects, programming $58 million in its first two years. Another $55 million has been earmarked in the next GEF replenishment (GEF-7, 2018-2020) for CBIT programs. The CBIT portfolio also currently includes 11 LDC country projects and 5 projects in Small Island Developing States (SIDS). CBIT projects cover new institutional arrangements, monitoring and reporting systems, accounting methodologies, GHG inventories, scenario modelling and broader capacity building, as well as other relevant areas. Current projects support 26% of developing countries, meaning that this program must be scale up rapidly over the next few years to reach all the developing countries with Paris Agreement reporting obligations that need support. It will be important to review the impact of the first round of CBIT projects, to ensure that they deliver sufficient capacity and technical resources to support countries in meeting their full transparency obligations, particularly if Article 6 participation could require a higher level of transparency than the minimum required (see chapter 5).

7.2. Developing low emission development strategies that address cooperation

As mentioned earlier, Article 4.19 calls on all Parties to develop and communicate long-term low emission development strategies. These strategies would form the basis of Parties' future NDCs, as they would lay out a pathway for mitigation up to 2050, which would include both domestic actions and cooperative approaches. While not a specific requirement under Article 4.19, explaining the role of Article 6 mechanisms in the LT-LEDS would address the concerns about the perverse incentives for countries to not move toward economy-wide targets, as well as concerns about the level of ambition of the mitigation pledges relative to the overall Paris Agreement goal (CCAP 2017). In other words, the LT-LEDS is an opportunity for potential host countries to present, in concrete terms, how voluntary cooperation on mitigation under Article 6 would provide a more rapid and less expensive pathway towards decarbonization than independent action by each country.

In addition, LT-LEDS would provide the evidence base needed for the country to take on more ambitious mitigation pledges, as long as financing sources could be identified for the mitigation opportunities included in the strategy. This idea is similar to the suggestion from New Climate Institute (2018) that, "international support for Article 6 readiness could assist countries to build the information and evidence to support ambitious target setting". The implicit assumption here is that the reason some NDCs may not be sufficiently ambitious is not simply

[21] Decision 1/CP.21 para 84-88; see detail on CBIT at www.thegef.org/topics/capacity-building-initiative-transparency-cbit

the lack of political will but the lack of adequate information, which increases the risks associated with more ambitious targets. Without this information base, host countries are unlikely to move towards either broader coverage of NDCs or more ambitious targets.

So far, only 11 countries[22] have formally submitted LT-LEDS to the UNFCCC, with roughly half of these being highly industrialized countries. There are initiatives to expand this resource base, particularly the LEDS Global Partnership (LEDS-GP)[23], funded by the USA, UK and Netherlands governments, which brings together practitioners and experts from 350 institutions in 118 countries. The focus of the LEDS-GP is peer learning, technical assistance, knowledge resources and supporting early mover projects. In other words, the LEDS-GP facilitates these strategies and the supporting capacity but does not directly fund the LT-LEDS development. One sectoral focal area of the LEDS-GP is finance, which provides technical and advisory support on mobilizing finance and assistance in engaging with the private sector. The resources and support provided do cover accessing climate finance. However, they do not include the possibility of using carbon markets to access new technologies or increase ambition.

Given that one option for ambition raising using the rules for Article 6 would be to target countries that have well developed LT-LEDS, the current capacity initiatives would need to include the role of carbon markets when developing LT-LEDS. Typically, these strategy documents will assess mitigation opportunities across a range of sectors, and identify the institutional, financial and capacity needs to take advantage of these opportunities. This may not, however, address the issue of broadening the scope of NDC mitigation pledges over time or demonstrate how early engagement in carbon markets (inside or outside of the NDC scope) can catalyse greater mitigation action. By making the role of carbon markets needs an explicit component of the LT-LEDS vision, not only could more countries actively engage in markets with confidence, but this engagement can lead to higher ambition in future NDC cycles (see also chapter 6.1.2).

7.3. Identifying priority technologies for carbon markets

As explained in chapter 6.1.2, another option to raising ambition is to target technologies that are unlikely to be implemented in host countries without support from markets, based on assessment different barriers to technology diffusion. The challenge is to screen these technologies on a country-specific basis, because many important issues such as market maturity, implementation costs and non-financial barriers have important local or national dimensions. A technology with significant share and competitive costs in one country may be virtually

[22] In reverse chronological order, Fiji, Marshall Islands, Ukraine, United Kingdom, Czech Republic, France, Benin, United States, Mexico, Germany, Canada
[23] www.ledsgp.org

unknown and cost prohibitive in another, or face economic, technical, or political barriers for historical reasons. As examples of technology maturity, New Climate Institute mentions carbon capture and storage (CCS) as newer technologies, while many large scale renewables and energy efficiency applications (e.g. on-shore wind, solar PV, LED lighting) would be considered as more mature in many countries (New Climate Institute 2018). This latter group of technologies could still, of course, be higher cost than current baseline technologies in a given country or might face barriers, particularly in specific markets (e.g. LED lighting in rural areas as opposed to urban areas). Many negative emission technologies (E.g. biomass energy with carbon capture and storage (BECCS)) currently have high costs and low penetration rates, and yet have been highlighted in low emission scenarios as crucial for meeting the low term climate goals, so these could also be candidates for positive lists.

Not only do acquiring countries and companies want confidence that the technologies supported by markets would not be implemented without this support, but also the host country does not want to risk selling ITMOs based on "low hanging fruits" – low cost mitigation options that could be used to meet unconditional mitigation pledges. Targeting the "high-hanging fruits" will therefore require significant investment in country-specific analysis. This could build on the LT-LEDS discussed above but would need more detailed assessment of specific technologies across all NDC sectors to create positive and negative lists of technologies for engaging in carbon markets. This is similar to the New Climate Institute (2018) suggestion of using international support in the "identification of domestically inaccessible technologies and actions for ITMO-eligibility" (see section 6.1.2).

There is a precedent for this type of detailed technology analysis for carbon markets in the National JI/CDM Strategy Studies (NSS) initiated by the World Bank and Switzerland, with co-financing from Australia, Germany, Finland, Austria and Canada.[24] This program ran from 1997 to 2005 and supported comprehensive mitigation analysis for international carbon markets in 14 countries[25], conducted by host country experts in collaboration with experts from donor countries and the World Bank. These studies went beyond simply identifying mitigation opportunities, and proposed pipelines of potential carbon market projects, taking into consideration the expected and evolving rules for CDM and JI at the time. For the Paris Agreement markets, host countries could be supported to develop "Article 6 strategy studies", which would need to be developed together with LT-LEDS and could assess mitigation technologies for their market maturity and costs in the context of that specific market, to derive proposals for country-specific positive and negative lists for ITMO generation.

[24] http://web.worldbank.org/archive/website00675/WEB/OTHER/PROGRA-8.HTM

[25] Argentina, Bolivia, China, Colombia, Czech Republic, India, Indonesia, Peru, Russia, Slovak, South Africa, Ukraine, Uzbekistan and Zimbabwe

8. Conclusions and Recommendations

Ambition is fundamental to the implementation of Article 6 of the Paris Agreement, not only because of the Article 6.1 states that such cooperation should "allow…for higher ambition", but also because of the global context - the massive gap between current collective global pledges to mitigation and what is necessary to prevent catastrophic impacts of climate change (UNEP 2018; CAT 2018b; IPCC 2018). Ambition in the context of Article 6 means not only ensuring that such cooperation does not increase global emissions (i.e. reducing risks to environmental integrity), but also adopting policies and rules that result in more global emission reductions than are counted towards achieving countries' NDCs and pursuing measures that encourage the adoption of more stringent NDCs, in current and/or future NDC cycles. All three of these dimensions of ambition are necessary for Article 6 cooperation to make a definitive contribution to the long-term goals of the Paris Agreement. In fact, given the potential volume of trading (e.g., World Bank 2016), providing safeguards and incentives around Article 6 that raise ambition may be almost as important as advancing the NDCs of individual countries.

The paper presents a wide range of actions that relate to all three dimensions of ambition, building on previous important work in this emerging field (e.g., New Climate Institute 2018; Howard 2018; Fuessler et al. 2019; Kreibich 2018). These broad areas of action are shown in Table 7, along with some consideration of how they could be implemented.

Table 7: Main areas of action for ambition raising with Article 6 mechanisms and how these could be implemented

Action for ambition	How to implement the proposed interventions
Ambition-raising actions by the acquiring country (Chapter 4)	▪ Individual acquiring country's national climate policy ▪ Club approach: Acquiring countries agree as a group to take some of the actions in a coordinated way
Comprehensive reporting and transparency to facilitate ambition raising (Chapter 5)	▪ Article 6 rules: Additional requirements for up-front information and reporting ▪ Club approach: requesting additional information on roles of Article 6 in transparency reporting, to ensure rigorous accounting and support progression of ambition
Designing Article 6 implementation to increase ambition (Chapter 6)	▪ Article 6 rules: eligibility requirements for countries and technologies ▪ Supervisory Body for Article 6.4 related issues ▪ Club approach: acquiring and host countries agree as a group on specific interventions related to eligibility
Host country actions to raise ambition, and support required (Chapter 7)	▪ Support for enhancing transparency and reporting (e.g. support via expanded CBIT), to meet potential eligibility requirements ▪ Detailed technology analysis and long-term low emission developed scenarios showing role of Article 6 mechanisms, conducted with bilateral and multi-lateral support

Source: Authors.

This paper presents actions that individual host countries and acquiring countries could take, and – perhaps more importantly – how these countries could advance the level of ambition through the design of Article 6 rules and related rules and practices in particular for reporting and transparency. Given the urgency of increased global climate action, the challenges in the international negotiations, and the real risks that Article 6 cooperation could create perverse incentives to weaken ambition, we would argue that almost all of these inventions should be pursued in parallel, at whatever level is possible at the current time (i.e. UNFCCC/ CMA rules and practice, climate clubs and individual country actions). Implementation on a UNFCCC/CMA level may in general be preferred, since then the intervention applies equally to all Parties and there is no risk of "free riders" who could weaken the environmental integrity of the cooperative mechanisms. Given the "bottom-up" nature of the Paris Agreement and the complexities of the negotiations, however, it may be difficult to implement some of the interventions presented in the paper at the CMA level. Complementary to this, almost all the interventions could be implemented by a group of countries as a "club"; or even on the level of individual countries. For example, it might be very difficult to agree at the CMA level on eligibility criteria for Article 6 participation. Instead, a club of countries could decide on a list of eligibility criteria and only buy from host countries that fulfil those criteria. Where even marshalling a critical mass of countries around specific interventions is not possible, individual countries – both host

countries and acquiring countries - could take up these actions as part of their Article 6 cooperation strategies. In fact, pursuing ambitious outcomes under Article 6 cooperation is arguably an indispensable part of any ambitious national climate action strategy, for any country that wishes to include international cooperation as part of their suite of climate policies.

As the IPCC 1.5 Special Report has highlighted, the need for raising ambition in all aspects of national and international climate action is urgent, and the rules for implementing voluntary cooperation under Article 6 are no exception. Only a dramatic change in approach from previous cooperation mechanisms, with explicit guidance and rules to increase ambition, will ensure that carbon markets can reach their full potential to support solutions to the climate challenge, and avoid the potential to weaken the Paris Agreement. By acting in cooperation at multiple levels – from the UNFCCC negotiations to a range of collaboration by groups or "clubs" of countries – both potential acquiring countries and host countries can ensure that Article 6 cooperation becomes a model for ambitious global climate action.

Figures

Tables

List of acronyms and abbreviations

Table 8: Acronyms and abbreviations

BAU	Business as Usual
BTR	Biennial Transparency Report
CAT	Climate Action Tracker
CCAP	Center for Clean Air Policy
CDM	Clean Development Mechanism
CERs	Certified emission reductions from the CDM
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
ETF	Enhanced Transparency Framework
ETS	Emission Trading System
EU ETS	European Union Emission Trading Scheme
GHG	Greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
ITMO	Internationally Transferred Mitigation Outcomes
LDC	Least Developed Countries
LT-LEDS	Long-Term Low Emission Development Strategies
MPG	Modalities, Procedures and Guidelines
MRV	Measurement, Reporting, Verification
NC	National Communication
NIR	National inventory reports
NDC	Nationally determined contribution
OMGE	Overall Mitigation in Global Emissions
PMR	World Bank's Partnership for Market Readiness
REDD+	Reduction of Emissions from Deforestation and Forest Degradation
SBSTA	Subsidiary Body for Scientific and Technological Advice
TCAF	Transformative Carbon Asset Facility
TER	Technical expert review
UNFCCC	United Nations Framework Convention on Climate Change

Source: Authors

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