



Options for fostering increasing ambition levels under the Paris Article 6.4 Mechanism

Discussion Paper

Editorial information

Publisher

German Emissions Trading Authority (DEHSt)
at the German Environment Agency
Bismarckplatz 1
D-14193 Berlin
Phone: +49 (0) 30 89 03-50 50
Fax: +49 (0) 30 89 03-50 10
emissionstrading@dehst.de
Internet: www.dehst.de/EN

Status: April 2019

Authors

Juerg Fuessler, Anik Kohli, Sascha Lehmann, Nicolas Kreibich, Wolfgang Obergassel

Performing Organisation

INFRAS
Binzstrasse 23
8045 Zürich, Switzerland

Fraunhofer Institute for Systems and Innovation Research ISI
Breslauer Str. 48
76139 Karlsruhe, Germany

Wuppertal Institute for Climate, Environment, Energy
Döppersberg 19
42103 Wuppertal, Germany

On behalf of the German Environment Agency
Completion date March 2019

Environmental Research of the Federal Ministry for the Environment, Nature Conservation,
Building and Nuclear Safety
Project number: 3717 42 504 0

Cover image: Tkemot/Shutterstock.com

Abstract

Article 6 of the Paris Agreement establishes mechanisms for Parties to “pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions [...]” (Article 6.1). I. e. the mechanisms are explicitly designed to foster higher ambition. However, without additional guidance and rules, the economic incentives of carbon markets may work against increasing host country ambition. For example, setting ambitious NDC targets may directly reduce the amount of mitigation outcomes that go beyond the NDC target and that a host country can transfer abroad. The report presents four options on how the risks can be addressed and ambition can be increased: (1) Strengthening reporting, transparency and comparability; (2) Reconciling the design of the Article 6.4 mechanism with ambition raising of host countries; (3) Supporting the host country to raise ambition through the Article 6.4 mechanism; (4) Fostering the acquiring country to raise ambition through the Article 6.4 mechanism. These options are assessed and recommendations are provided on how they could be implemented.

Kurzbeschreibung

Artikel 6 des Pariser Abkommens schafft Mechanismen, welche es den Vertragsparteien erlaubt, dass sie sich für „eine freiwillige Zusammenarbeit bei der Umsetzung ihrer national festgelegten Beiträge entscheiden, um sich für ihre Minderungs- und Anpassungsmaßnahmen höhere Ambitionen setzen zu können [...]“ (Artikel 6.1, Übersetzung der AutorInnen). D. h. die Mechanismen sind explizit darauf ausgerichtet, höhere Ambitionen zu fördern. Ohne zusätzliche Leitlinien und Regeln können die wirtschaftlichen Anreize der Kohlenstoffmärkte jedoch verhindern, dass die Ambitionen des Gastlandes erhöht werden. So kann beispielsweise die Festlegung ehrgeiziger NDC-Ziele die Menge der Emissionsminderungen, die über das NDC-Ziel hinausgehen und die ein Gastland ins Ausland transferieren kann, direkt reduzieren. Der Bericht stellt vier Optionen vor, wie die Risiken angegangen und die Ambitionen gesteigert werden können: (1) Stärkung der Berichterstattung, Transparenz und Vergleichbarkeit; (2) Ausgestaltung des Artikel 6.4 Mechanismus, damit dieser die Ambitionen der Gastländer helfen kann zu steigern; (3) Unterstützung des Gastgeberlandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus steigern kann; (4) Förderung des Beschaffungslandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus steigert. Diese Optionen werden bewertet und es werden Empfehlungen formuliert, wie sie umgesetzt werden können.

Content

Abbreviations	6
Summary	7
Introduction	7
Ambition raising through Article 6.4	7
Option 1: Strengthening reporting, transparency and comparability	7
Option 2: Reconciling the design of the Article 6.4 mechanism with ambition raising of host countries	8
Option 3: Supporting the host country to raise ambition through the Article 6.4 mechanism	8
Option 4: Fostering the acquiring country to raise ambition through the Article 6.4 mechanism.....	8
Recommendations.....	9
Zusammenfassung	10
Einleitung	10
Ambitionsförderung durch Artikel 6.4	10
Option 1: Stärkung der Berichterstattung, Transparenz und Vergleichbarkeit	10
Option 2: Ausgestaltung des Artikel 6.4 Mechanismus, damit dieser die Ambitionen der Gastländer helfen kann zu steigern	11
Option 3: Unterstützung des Gastgeberlandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus steigern kann	11
Option 4: Förderung des Beschaffungslandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus erhöhen.....	11
Empfehlungen.....	12
1 Introduction	13
2 The Paris Agreement’s aim for ambition raising and incentives from international transfers under Article 6.4	14
2.1 Ambition raising in the Paris Agreement.....	14
2.2 Challenges and risks of the Article 6.4 mechanism in contributing to ambition raising	15
3 Options for fostering ambition raising in the context of Article 6.4 mechanisms	16
3.1 Strengthening reporting, transparency and comparability	16
3.2 Reconciling the design of the Article 6.4 mechanism with ambition raising of host countries	19
3.3 Supporting the host country to raise ambition through the Article 6.4 mechanism	23
3.4 Fostering the acquiring country to raise ambition through the Article 6.4 mechanism	24
4 Evaluation of options and recommendations	28
4.1 Overview and assessment of options	28
4.2 Recommendations.....	30
5 References	32

List of Tables

Table 1: Options to address perverse incentives and make Art. 6.4 an ambition raising mechanism ...19

Table 2: Assessment of the options28

Abbreviations

BAU	Business as usual
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
DDPP	Deep Decarbonisation Pathway Project
EUA	EU Allowance Unit
ETS	Emission Trading System
EU ETS	European Union Emission Trading Scheme
LEDS	Low Emission Development Strategies
MAPS	Mitigation Action Plans and Scenarios
MRV	Measurement, Reporting, Verification
NC	National Communication
NDC	Nationally determined contribution
PMR	World Bank's Partnership for Market Readiness
SBSTA	Subsidiary Body for Scientific and Technological Advice
TCAF	Transformative Carbon Asset Facility
UNFCCC	United Nations Framework Convention on Climate Change

Summary

Introduction

The collective ambition level of Parties' Nationally Determined Contributions (NDCs) pledges falls short of meeting the objectives of the Paris Agreement to hold “the increase in the global average temperature to well below 2 °C above pre-industrial levels” (Article 2) and “to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century” (Article 4). Therefore, it is particularly important that the Paris Agreement has an inbuilt mechanism of progressively raising ambition levels individually and collectively.

Ambition raising through Article 6.4

Ambition raising is also a component of the cooperation approaches established under Article 6 of the Paris Agreement (see Article 6.1), and therefore also a guiding principle for the design and operation of the Article 6.4 mechanism. This is a departure from the market-based instruments of the Kyoto Protocol, which were meant to assist countries in reaching fixed targets through reduced costs, but without any direct relation to their commitment levels. Ambition raising can be defined as a process in which Parties enhance their NDC targets and/or intensify their mitigation actions.

The incentives set by the Article 6.4 mechanism may not necessarily support or may even conflict with the Paris Agreement's need for ambition raising, depending on the outcome of the ongoing negotiation of the detailed modalities and rules. The following examples are key issues discussed in the negotiations: On the one hand, setting ambitious targets may directly reduce the amount of mitigation outcomes that go beyond the NDC target and that a host country can transfer (and sell) abroad. On the other hand, if the Article 6.4. mechanism allows for crediting of activities that are beyond the scope of the NDC without requiring the host country to account for exported mitigation outcomes from such activities, there is no incentive to expand the scope of the NDC, because this would reduce the host country's potential to obtain external funding.

The paper presents four options on how the risks outlined above could be addressed allowing Article 6.4 to contribute to ambition raising:

Option 1: Strengthening reporting, transparency and comparability

This weakest option to foster ambition raising builds on the comprehensive requirements of the Paris Agreement for transparency, reporting and review and the related guidebook. Parties may choose for a comprehensive and strong implementation in order to foster comparability between efforts and therefore ambition raising.

Upfront information: Each party is required to provide upfront information through their NDCs, including on the use of Article 6 mechanism, which may make targets and ambition levels comparable between different countries and over time.

Transparency framework and review: The transparency framework for action and support is the main mechanism to hold states accountable for the implementation of their NDCs. The rulebook is not very specific on reporting about Article 6.4 use, so further guidance is important.

Global stocktake: The global stocktake on the implementation of the Paris Agreement assesses the collective progress and is a key element of the ratcheting mechanism to increase ambition over time. While not specified in the rulebook, the stocktake could provide lessons learned and best practices from Parties that have used Article 6.4 mechanism to increase ambition.

Compliance mechanism: The Paris Agreement establishes a mechanism “to facilitate implementation” and “promote compliance” (Article 15). The rulebook contains its modalities and procedures, but it remains to be seen to what extent it may have an impact on Article 6 and ambition raising.

Option 2: Reconciling the design of the Article 6.4 mechanism with ambition raising of host countries

This option focuses on ways to design the rules, modalities and procedures that operationalize the Article 6.4 mechanism in such a way that allows countries to raise their ambition without being negatively affected in their role as host countries.

- ▶ Requiring host countries to also account through corresponding adjustments for exported mitigation outcomes that were generated outside the scope of their NDC
- ▶ Restricting crediting periods and adjusting baselines in alignment with the 5-year NDC cycle
- ▶ Requiring ambitious crediting baselines
- ▶ Defining eligibility criteria for the Article 6.4 mechanism (relating to NDC targets): Coverage of NDC targets, engaging in long-term strategies, restricting eligibility of technologies or types of action, requiring ambitious and quantified NDC targets
- ▶ Requiring inclusion of emissions targeted by Article 6.4 activity into future NDC
- ▶ Assuring quality of the mitigation outcomes

Option 3: Supporting the host country to raise ambition through the Article 6.4 mechanism

Parties, bi- and multilateral institutions and initiatives can support host countries in fulfilling the requirements outlined in the previous section.

Support ambitious target-setting and long-term planning activities: Limited and incomplete planning processes can be a reason for unambitious and unclear NDCs as well as incomplete long-term strategies. Therefore, support for countries that need it could help increasing ambition.

Facilitate investments in new low-carbon technologies: The Article 6.4 mechanism should facilitate investments in technologies in a host country that would be unable to make such investments unilaterally. There could be positive lists for (high cost) emerging technologies and negative lists for low-cost, mature technologies.

Option 4: Fostering the acquiring country to raise ambition through the Article 6.4 mechanism

An acquiring country can use the mitigation outcomes purchased to reach their NDC target, but also to cancel (a part of) the mitigation outcomes to increase its ambition.

Using lower compliance costs for ambition raising: The country is lowering its cost of compliance with its NDC target if the implementation of policies that would be necessary to reach the NDC has higher marginal abatement costs than the purchase of the mitigation outcomes from the Article 6.4 mechanism. If the acquiring country invests the savings in domestic reductions or international climate finance, this can lead to increased ambition.

Increasing ambition with long-term strategies: Embedding the purchase of mitigation outcomes in long-term strategies and clear communication of these strategies can help increasing ambition.

Increasing ambition through risk reduction: The country bears a risk of not being able to attain its NDC target due to financial or technical constraints. Mitigation outcomes are acquired to hedge the risk.

“Insetting” or linking use of mitigation outcomes to domestic mitigation activities: Countries wishing to use mitigation outcomes from abroad to achieve their NDC could voluntarily commit to carry out additional domestic reductions.

Recommendations

The first two options may be implemented on different levels, depending on the level of international agreement with regard to the need to prevent perverse incentives from the use of the Article 6.4 mechanism. The following cascade may be considered:

- ▶ CMA/ rulebook level (international governance setting required)
- ▶ Supervisory Body for Article 6.4
- ▶ “Club” of likeminded parties
- ▶ Individual acquiring countries defining criteria for mitigation outcomes purchase

The third option is the support of host countries to raise ambition. This is a role that many (potential) acquiring countries and multilateral institutions have historically carried out already in the Kyoto periods and will probably continue to do so under the Paris Agreement.

The fourth option is fostering action to raise ambition on the side of the acquiring country. This is key to achieving the targets of the Paris Agreement and will mainly be achieved individually.

Zusammenfassung

Einleitung

Die kollektive Ambition der Vertragsparteien in ihren national festgelegten Beiträgen (NDCs) entspricht nicht den Zielen des Paris Abkommens, „den Anstieg der globalen Durchschnittstemperatur auf deutlich unter 2 °C über dem vorindustriellen Niveau“ (Artikel 2, Übersetzung durch AutorInnen) zu halten und „ein Gleichgewicht zwischen den anthropogenen Emissionen von Treibhausgasen aus Quellen und dem Abbau solcher Gase mittels Senken in der zweiten Hälfte dieses Jahrhunderts zu erreichen“ (Artikel 4, Übersetzung durch AutorInnen). Daher ist es besonders wichtig, dass das Paris Abkommen über einen eingebauten Mechanismus verfügt, der es ermöglicht, die Ambitionen sowohl einzeln als auch gemeinsam stetig anzuheben.

Ambitionsförderung durch Artikel 6.4

Die Ambitionsförderung ist auch Bestandteil der in Artikel 6 des Paris Abkommens festgelegten Kooperationsansätze (siehe Artikel 6.1) und damit auch ein Leitprinzip für die Gestaltung und Durchführung des Artikel 6.4 Mechanismus. Dies ist eine Abkehr von den marktbasierenden Instrumenten des Kyoto Protokolls, welche den Ländern helfen sollten, festgelegte Ziele durch Kostensenkungen zu erreichen, jedoch ohne direkten Bezug zur Höhe ihrer Verpflichtungen. Ambitionsförderung kann definiert werden als ein Prozess, in dem die Vertragsparteien ihre NDC-Ziele verbessern und/oder ihre Minderungsmaßnahmen intensivieren.

Die durch den Artikel 6.4 Mechanismus gesetzten Anreize unterstützen die Notwendigkeit der Erhöhung der Ambitionen des Pariser Abkommens nicht automatisch oder können sie sogar behindern, je nach Ergebnis der laufenden Verhandlungen über die detaillierten Modalitäten und Regeln. Die folgenden Beispiele sind Schlüsselemente, die in den Verhandlungen diskutiert werden: Einerseits kann die Festlegung ehrgeiziger NDC-Ziele die Menge der Emissionsminderungen, die über das NDC-Ziel hinausgehen und die ein Gastland ins Ausland transferieren (und verkaufen) kann, direkt reduzieren. Oder wenn der Artikel 6.4 Mechanismus die Anrechnung von Aktivitäten erlaubt, die über den Anwendungsbereich des NDC hinausgehen, ohne dass das Gastland verpflichtet ist, die exportierten Minderungserträge aus solchen Aktivitäten zu berücksichtigen, besteht kein Anreiz, den Anwendungsbereich des NDC auszuweiten, da dies das Potenzial des Gastlandes, externe Finanzmittel zu erhalten, verringern würde.

Das Papier stellt vier Optionen vor, wie die oben skizzierten Risiken angegangen werden könnten, so dass Artikel 6.4 zur Steigerung der Ambitionen beitragen kann:

Option 1: Stärkung der Berichterstattung, Transparenz und Vergleichbarkeit

Diese schwächste Option zur Steigerung der Ambitionen baut auf den umfassenden Anforderungen des Paris Abkommens und des entsprechenden Leitfadens (rulebook) an Transparenz, Berichterstattung und Überprüfung auf. Die Vertragsparteien können sich für eine umfassende und starke Umsetzung entscheiden, um die Vergleichbarkeit zwischen den Bemühungen und die Ambitionssteigerung zu fördern.

Vorabinformationen: Jede Vertragspartei ist verpflichtet, über ihre NDCs Vorabinformationen zur Verfügung zu stellen, auch über die Anwendung des Mechanismus in Artikel 6. Dies kann die Ziele und Ambitionen zwischen den verschiedenen Ländern und über die Zeit hinweg vergleichbar machen.

Transparenzrahmen und Überprüfung: Der Transparenzrahmen für Maßnahmen und Unterstützung ist der Hauptmechanismus, um die Staaten für die Umsetzung ihrer NDCs zur Verantwortung zu ziehen. Der Leitfaden (rulebook) ist nicht sehr spezifisch bezüglich der Berichterstattung über die Verwendung von Artikel 6.4, weshalb weitere Anleitungen wichtig sind.

Bestandsaufnahme: Die globale Bestandsaufnahme zur Umsetzung des Pariser Abkommens bewertet den kollektiven Fortschritt und ist ein Schlüsselement des Ratcheting-Mechanismus zur Steigerung der Ambitionen im Laufe der Zeit. Auch wenn im Leitfaden (rulebook) nicht festgelegt, so könnte die Bestandsaufnahme Erkenntnisse und bewährte Praktiken von Vertragsparteien liefern, die den Artikel 6.4 Mechanismus genutzt haben, um ihre Ambitionen zu erhöhen.

Compliance-Mechanismus: Mit dem Paris Abkommen wird ein Mechanismus eingeführt, der „die Umsetzung erleichtert“ und „die Einhaltung der Bestimmungen des Abkommens fördert“ (Artikel 15, Übersetzung durch AutorInnen). Der Leitfaden (rulebook) enthält die Modalitäten und Verfahren, aber es bleibt abzuwarten, inwieweit diese Auswirkungen auf Artikel 6 und die Steigerung der Ambitionen haben kann.

Option 2: Ausgestaltung des Artikel 6.4 Mechanismus, damit dieser die Ambitionen der Gastländer helfen kann zu steigern

Diese Option konzentriert sich auf Möglichkeiten, die Regeln, Modalitäten und Verfahren zur Umsetzung des Artikel 6.4 Mechanismus so zu gestalten, dass die Länder ihre Ambitionen steigern können, ohne in ihrer Rolle als Gastländer negativ beeinflusst zu werden.

- ▶ Verpflichtung der Gastländer, auch für exportierte Minderungserträge, die außerhalb ihres NDC erzielt wurden, durch entsprechende Anpassungen Rechnung zu tragen.
- ▶ Einschränkung der Anrechnungszeiträume und Anpassung der Baselines an den 5-jährigen NDC-Zyklus.
- ▶ Erfordern anspruchsvoller Baselines.
- ▶ Festlegung von Zulassungskriterien für den Artikel 6.4 Mechanismus (in Bezug auf die NDC-Ziele): Reichweite der NDC-Ziele, Formulierung langfristiger Strategien, Einschränkung der Zulässigkeit von Technologien oder Arten von Maßnahmen, Forderung nach ehrgeizigen und quantifizierten NDC-Zielen.
- ▶ Integration der in Artikel 6.4 genannten Emissionen in die künftigen NDCs.
- ▶ Sicherstellung der Qualität der Minderungserträge.

Option 3: Unterstützung des Gastgeberlandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus steigern kann

Vertragsparteien sowie bi- und multilaterale Institutionen und Initiativen können die Gastländer bei der Erfüllung der im vorherigen Abschnitt beschriebenen Anforderungen unterstützen.

Unterstützung ambitionierter Zielvereinbarungen und langfristiger Planungsaktivitäten: Begrenzte und unvollständige Planungsprozesse können ein Grund für wenig ambitionierte und unklare NDCs sowie unvollständige langfristige Strategien sein. Daher könnte die Unterstützung von Ländern, die diese benötigen, dazu beitragen, die Ambitionen zu erhöhen.

Erleichterung von Investitionen in neue kohlenstoffarme Technologien: Der Artikel 6.4 Mechanismus sollte Investitionen in Technologien in einem Gastland erleichtern, das nicht in der Lage wäre, solche Investitionen alleine durchzuführen. Es könnte positive Listen für (teure) neue Technologien und negative Listen für kostengünstige, ausgereifte Technologien geben.

Option 4: Förderung des Beschaffungslandes, damit dieses die Ambitionen durch den Artikel 6.4 Mechanismus erhöhen

Ein Beschaffungsland kann die erzielten Minderungserträge nutzen, um sein NDC-Ziel zu erreichen, aber auch, um (einen Teil der) Minderungserträge zu annullieren und seine Ambitionen zu erhöhen.

Nutzung niedrigerer Compliance-Kosten zur Steigerung der Ambitionen: Das Land senkt seine Kosten für die Einhaltung seines NDC-Ziels, wenn die Umsetzung von Massnahmen, die notwendig wären zu Erreichung des NDC-Ziels, höhere marginale Minderungskosten verursacht als der Kauf der Minderungserträge als Teil des Artikel 6.4-Mechanismus. Wenn das Beschaffungsland die Ersparnisse in inländische Reduktionen oder internationale Klimafinanzierungen investiert, kann dies zu einer erhöhten Ambition führen.

Ambitionssteigerung durch langfristige Strategien: Die Einbettung des Erwerbs von Minderungserträge in langfristige Strategien und die klare Kommunikation dieser Strategien kann bei der Steigerung der Ambitionen helfen.

Steigerung der Ambitionen durch Risikominderung: Ein Land trägt das Risiko, dass es aufgrund finanzieller oder technischer Herausforderungen sein NDC-Ziel nicht erreichen kann. Zur Absicherung des Risikos werden Minderungserträge erworben.

„Insetting“ oder die Verknüpfung der Nutzung von Minderungserträgen mit nationalen Minderungsmaßnahmen: Länder, die die Erträge der Minderung aus dem Ausland zur Erreichung ihrer NDC-Ziele nutzen wollen, könnten sich freiwillig verpflichten, zusätzliche inländische Reduktionen durchzuführen.

Empfehlungen

Die ersten zwei Optionen können auf verschiedenen Ebenen umgesetzt werden, je nach Verhandlungsergebnis und Einigung bezüglich der Notwendigkeit, perverse Anreize durch die Anwendung des Artikel 6.4 Mechanismus zu verhindern. Die folgende Kaskade kann berücksichtigt werden:

- ▶ CMA/ Leitfaden (rulebook) (internationale Gouvernanz-Strukturen erforderlich)
- ▶ Artikel 6.4 Aufsichtsgremium
- ▶ „Club“ von gleichgesinnten Vertragsparteien
- ▶ Beschaffungsländer definieren individuell die Kriterien für den Kauf von Minderungserträgen

Die dritte Option ist die Unterstützung der Gastländer bei der Erreichung ihrer Ziele. Dies ist eine Rolle, die viele (potenzielle) Beschaffungsländer und multilaterale Institutionen bereits in der Vergangenheit, in den Kyoto-Perioden ausgeübt haben und wahrscheinlich auch im Rahmen des Paris Abkommens weiter ausüben werden.

Die vierte Option besteht darin, das Beschaffungsland in der Erhöhung seiner Ambitionen zu fördern. Dies wird in erster Linie von den einzelnen Vertragsparteien individuell verfolgt, um so zur Erreichung der Ziele des Paris Abkommens beitragen zu können.

1 Introduction

The collective ambition level of Parties' Nationally Determined Contributions (NDCs) pledges falls short of meeting 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” (Article 4) and to limit global temperature increase to “well below” 2°C. The UN Gap Report (2017, p. xiv) concludes that “the NDCs that form the foundation of the Paris Agreement cover only approximately one third of the emissions reductions needed to be on a least cost pathway for the goal of staying well below 2°C” and identifies an “urgent need for accelerated short-term action and enhanced longer-term national ambition”. The IPCC Special Report on the impacts of global warming of 1.5 °C reaffirmed these observations, stating that current NDCs are broadly consistent with pathways that result in a global warming of about 3 °C by 2100, with warming continuing afterwards (IPCC 2018).

Given this weakness of the current NDC targets, it is particularly important that the Paris Agreement includes an inbuilt mechanism of progressively raising ambition levels individually and collectively. Several provisions of the Paris Agreement are intended to contribute to ambition raising. However, while this makes ambition raising a key concept of the Paris Agreement, a clear definition is still missing. We will therefore first explore this concept by building on the key provisions contained in the Paris Agreement. Ambition raising is also a component of the cooperation approaches established under Article 6 of the Paris Agreement, and therefore also a guiding principle for the design and operation of the Article 6.4 mechanism, which will be the focus of this section.

Having ambition raising as an explicit goal of international cooperation is new and a departure from the market-based instruments of the Kyoto Protocol, which were meant to assist countries in reaching fixed targets through reduced costs, but without any direct relation to their commitment levels (Warnecke et al. 2018). Depending on the outcome of the ongoing negotiation of the detailed modalities and rules for Article 6.4 (as of March 2019), the incentives set by the Article 6.4 mechanism may not necessarily support or may even conflict with the Paris Agreement's need for ambition raising and regular “ratcheting-up” of Parties ambition levels.

The following examples are key issues discussed in the negotiations: On the one hand, setting ambitious targets may directly reduce the amount of mitigation outcomes that go beyond the NDC target and that a host country can transfer (and sell) abroad. On the other hand, if the Article 6.4. mechanism allows for crediting of activities that are beyond the scope of the NDC without requiring the host country to account for exported mitigation outcomes from such activities, there is no incentive to expand the scope of the NDC, because this would reduce the host country's potential to obtain external funding.

This paper explores the complex interaction between ambition raising and the Article 6.4 mechanism, develops options on how the mechanism may be designed in order to foster ambition raising and evaluates these options regarding their contribution to raising ambition levels, their practicability and feasibility. It finally derives conclusions from these findings and presents recommendations to enhance the ambition raising potential of the Article 6.4 mechanism.

Please note that this section focuses on design elements of the Paris Agreement and its Article 6.4 mechanism that allow for “ambition raising” related to Parties' NDC targets in terms of ambition level and scope. Another concept closely related to ambition raising is “overall mitigation”, i. e. the net climate benefit of Art. 6.4 activities resulting from the mechanism's design as such, which is discussed in chapter [see text on work package 1.1].

2 The Paris Agreement's aim for ambition raising and incentives from international transfers under Article 6.4

2.1 Ambition raising in the Paris Agreement

The Paris Agreement and the decision by the Conference of the Parties adopting the Agreement (Decision 1/CP.21) contain several elements that underline the importance of increasing ambition over time.

Article 3 states that the efforts of 'all Parties' – collectively – will represent a progression over time. Article 4.3 states that "each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition", while stressing the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

The Paris Agreement establishes a ratcheting mechanism in order to increase ambition over time (Kohli 2015). According to Article 4.9, each Party shall communicate an NDC every five years "with a view to enhancing its level of ambition" (Article 4.9). Parties may also increase the ambition level of their NDC at any time (Article 4.11). Each round of NDC submission is preceded by a global stocktake through which the collective progress towards the Agreement's long-term goals is assessed. Parties are required to take into account the outcomes of the global stocktake when formulating their NDCs (Art. 4.9 and 14.3).

Ambition raising is not only related to increasing the target levels of an NDC, but "progression" referred to in Article 4.3 may also relate to expanding the coverage (or scope) of the NDC. This is in line with requirements of the Paris Agreement: 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). To this aim, developing countries shall be provided support (Article 4.5).

Ambition raising can however also be understood to include an increase of climate actions more generally. This broader concept is used in Article 6.1, which states that the voluntary cooperation among Parties is "to allow for higher ambition in their mitigation and adaptation actions" (Art. 6.1).

At the same time, ambition raising can be discerned from the concept of overall mitigation in global emissions (see Wang-Helmreich et al. 2019). Delivering such an overall mitigation in global emissions is one of the aims of the Article 6.4 mechanism. The key difference between both concepts is actorness: Overall mitigation is achieved by the design of the mechanism while ambition raising is an outcome of individual Parties taking action to generate a climate benefit. With overall mitigation, the mitigation outcomes are no longer linked to the Parties involved and the Parties' ambition level stays the same.

In sum, ambition raising can be defined as a process in which Parties enhance their NDC targets and/or intensify their mitigation actions. Expanding the concept of ambition raising to include both NDC targets and concrete mitigation actions is not only in line with the provisions contained in the Paris Agreement. It further allows to achieve both, an enhancement of climate change targets in the mid-term (NDCs) and long-term (2050 strategies) as well as an immediate climate impact. The latter aspect is also key, as exclusively relying on the (future) enhancement of purely nationally determined targets of NDCs and long-term low greenhouse gas emission development strategies cannot be considered a viable pathway to address climate change given their lack of legal bindingness. Hence, the use of Article 6.4 would ideally support Parties in achieving both, a short-term increase of their mitigation actions and a long-term enhancement of their mitigation targets.

2.2 Challenges and risks of the Article 6.4 mechanism in contributing to ambition raising

Article 6 is explicitly introduced as a means for Parties “to allow for higher ambition in their mitigation and adaptation actions” (Article 6.1). In theory, allowing for the allocation of resources to actions that provide mitigation outcomes at the lowest cost may help to raise ambition in order to achieve the goals of the Paris Agreement. Using mitigation outcomes generated abroad and using them for NDC attainment may decrease mitigation costs for acquiring countries. This may or may not lead the acquiring countries to pledge more ambitious mitigation levels in their NDC, depending on how they make use of the economic rent from international transfers. In addition, the use of Article 6 mechanisms may incentivize investments in advanced mitigation technologies and sustainable development that are only possible with such cooperative approaches.

However, the use of international transfers under Article 6.4 may bring various challenges and perverse incentives to raising the ambition of both, host and acquiring countries. The fundamentally new element comes with the fact that under the Paris Agreement, in contrast to the Kyoto Protocol, all Parties are now expected to contribute to the global effort of mitigation, peak their own emissions as soon as possible, and to rapidly reduce their emissions thereafter (Article 4.1).

Host countries: Ambition raising of host countries could be adversely impacted by the Article 6.4 mechanism in numerous ways. One potential perverse incentive relates to the scope of Parties’ NDCs: Although developed countries should and developed countries are encouraged to move to economy-wide NDCs, the use of the Article 6.4 mechanism may provide perverse incentives not to do so. If the mechanism allows crediting of activities that are beyond the scope of the NDC without requiring the host country to account for exported mitigation outcomes from such activities, expanding the scope of the NDC would reduce the host country’s potential to obtain external funding.

Article 6.4 may further impact the ambition level of an NDC, as the definition of a country’s NDC has an impact on baseline-setting and additionality demonstration of mitigation actions to be credited under the mechanism. Setting ambitious targets may directly reduce the amount of mitigation outcomes that go beyond the NDC target and that a host country can transfer (and sell) abroad (Schneider et al 2017; CCAP 2017). Host countries that increase their ambition level may lose their (lower cost) mitigation potential, which they might want to monetize under Article 6.4.

In addition, many NDCs in their current initial form are not yet formulated very clearly and in a quantified manner. This includes aspects of NDCs such as the quantification of emission targets, definition of national business as usual (BAU) scenarios, scope of NDC, single-year- vs. multi-year-targets etc. Aiming to participate in market mechanisms may provide incentives to interpret these NDC targets in an unambitious way, e. g. by assuming non-conservative BAU scenarios that allow for more mitigation outcomes to be transferred internationally.

In addition to these potential perverse incentives, the structure of Article 6.4 mechanism may also entail a risk for the host country. Using low-hanging fruits for international transfers may increase the marginal cost of additional mitigation potentials and make it costlier for a host country to reach its NDC and to increase its ambition level in the future.

Acquiring countries: From the perspective of the acquiring country, the availability of more cost-effective mitigation outcomes from Article 6.4 mitigation activities abroad may entail the risk of reducing investments in domestic low carbon technologies and allow for the prolonged use and implementation of high emitting technologies (“lock-in” effect). This may hinder the necessary transformation towards a low-carbon economy domestically.

From this it appears that without adequate incentives, rules and procedures, the Article 6.4 mechanism may fail to achieve its goal of contributing to ambition raising and, on the contrary, may provide numerous perverse incentives for host countries not to increase their ambition levels, possibly leading to a race to the bottom. The following section develops different options on how to, at least partially, address these challenges.

3 Options for fostering ambition raising in the context of Article 6.4 mechanisms

In the following, we develop four options on how the risks outlined above could be addressed allowing Article 6.4 to exert its ambition raising function:

1. Strengthening reporting, transparency and comparability
2. Reconciling the design of the Art. 6.4 mechanism with ambition raising of host countries
3. Supporting the host country to raise ambition through the Article 6.4 mechanism
4. Fostering the acquiring country to raise ambition through the Article 6.4 mechanism

This chapter will first describe the options in detail. Subsequently, the options will be evaluated in chapter 4 with regards to their potential to enhance ambition levels and their practicality in terms of institutional needs, data availability etc.

3.1 Strengthening reporting, transparency and comparability

This weakest option to foster ambition raising builds on the comprehensive requirements of the Paris Agreement for transparency, reporting and review. Stringent requirements, including on reporting information about progress in ambition levels as well as on accounting of all international transfers, could contribute to raising ambition. The key is comparability of the targets and ambition levels between different countries and over time. More ambitious countries could demonstrate their high ambition levels. In contrast, countries with low ambition levels may be identified, in particular those who engage in hosting mitigation outcomes for international transfers based on their “hot air”. Such information may also be useful for acquiring countries that seek to buy mitigation outcomes from countries with sufficiently ambitious NDC targets, preserving environmental integrity.

The rulebook adopted end of 2018 in Katowice includes guidance on the relevant articles of the Paris Agreement, except Article 6. Some of the current provisions allow to increase comparability of targets and progress. However, in some cases further guidance or clarity may be needed so that the implementation of the rulebook actually allows transparency, reporting and review to contribute to ambition raising through Article 6.4. In the following, relevant provisions from the Paris Agreement and rulebook are presented. While an assessment of the latter needs a further and more indepth analysis, the text below nevertheless provides some initial proposals on how the provisions could be further developed.

Upfront information

Each Party is required to provide upfront information through their NDCs. The features of the NDCs and the information to be provided by Parties in order to facilitate clarity, transparency, and understanding of NDCs (Article 4.8) may contribute to increasing ambition, namely by allowing better comparability of NDCs between countries and between different NDC cycles. Consequently, the ambition level at a certain time and the increasing ambition over time can be better understood and compared by the different stakeholders.

In their second and subsequent NDCs, Parties need to provide the following information: (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.

Annex I of decision 4/CMA.1 specifies each of the aforementioned element. Parties are required to provide information on the intention to use voluntary cooperation under Article 6 mechanisms, including Article 6.4 mechanism (see 5(g)). Additionally, Parties are required to describe how their NDC contributes towards the objective of the Paris Agreement to holding the increase in the global average temperature to well below 2 °C above preindustrial levels (see 7(b)). There is no further indication on what the information should entail to fulfil these requirements. Information may contain a description not only on how, but also to what extent (quantified amount) Article 6 mechanisms are used. Additionally, information may contain a description on how the use of Article 6 mechanisms allows the Party to have “higher ambition in their mitigation actions” (Article 6.1) and increase ambition in its current and future NDCs.

Quantifiability in terms of CO₂-eq is another relevant feature. Annex I of decision 4/CMA.1 requires Parties to provide quantifiable information (1 (a–f)). While there seems to be a certain leeway (see 1(c)), 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. Quantifiable targets and baselines for NDCs are particularly important if the mitigation outcomes transferred are from within a host country’s NDC. Amongst others, it helps the host country to understand what amount it can transfer without risking to not achieve its own (ambitious) NDC. On the acquiring country’s side, such information is relevant to understand what can be achieved through domestic actions and how much international transfers are needed to achieve its own (ambitious) NDC.

Annex I of decision 4/CMA.1 requires information on the planning process that a Party undertook to prepare its NDC (4 (a)). While not explicitly mentioned, such information could also entail a link to a Party’s long-term strategy or how it considers the formulated target to fit into its long-term mitigation actions and decarbonization. Together with the information on Article 6 mechanisms this would help to understand if short term gains are favored instead of a long-term decarbonization.

As outlined above, Annex I of decision 4/CMA.1 already contains several requirements for relevant information to assess ambition. However, some of the above mentioned and more detailed information necessary for assessing ambition raising through Article 6.4 mechanism is not explicitly mentioned. It could be decided – for example by the supervisory body of Article 6.4 mechanism or a “club” of acquiring countries – that these requirements are only to be fulfilled by those Parties deciding to make use of Article 6.4 mechanism.

Transparency framework and review

Article 13 establishes an enhanced transparency framework for action and support. This framework is the main mechanism to hold states accountable for the implementation of their NDCs. The modalities, procedures and guidelines have been specified through decision 18/CMA.1. While they are common to all Parties, there is a certain flexibility foreseen for those developing country Parties that need it in the light of their capacities (Article 13.2). Parties making use of the flexibility have to indicate the capacity constraints that make the flexibility necessary and provide time frames for improvements (see para. 6 of annex to decision 18/CMA.1).

Parties are required to provide national inventory reports as well as information necessary to track progress made in implementing and achieving their NDCs (Article 13.7). The annex of decision 18/CMA.1 outlines the information that Parties need to provide. For example, with regard to Article 6, Parties have to provide (para. 76 (d)) a description on how double counting of net GHG emission reductions has been avoided, or (para. 77 (d)) 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 (assuming that the Article 6.4 mechanism is considered a cooperative approach). For additional information that might be necessary requirements could be included in the guidance for Article 6, which still needs to be developed, additional guidance established by the Article 6.4 supervisory body or a “club” of acquiring countries. For example, Parties could be asked to provide specific information on how Article 6.4 use has allowed them to increase ambition.

There is a two-step review process common to all Parties (Articles 13.11 and 13.12): First, there is a technical expert review, checking consistency of the information with the modalities, procedures and guidelines of the transparency framework. Second, there is a multilateral consideration of progress. As recognized in the annex to decision 18/CMA.1, technical expert teams have to include members with knowledge on Article 6, if relevant for the information to be reviewed. This is necessary to review the information provided by parties on the Article 6.4 use and how it e.g. helped them to increase ambition.

The purpose of the framework for transparency of action is to provide not only clarity and tracking of progress towards achieving Parties' individual NDCs, but to also include good practices, priorities, needs and gaps to inform the global stocktake under Article 14 (see also Article 13.5). Amongst others, good practices with regard to ambition raising through Article 6.4 could be identified and provided as input to the global stocktake.

As outlined above, Annex I of decision 4/CMA.1 already contains some requirements for relevant information to assess ambition raising through Article 6.4. However, the annex refers in some cases to guidance related to Article 6 that still needs to be developed. Additionally, some of the above mentioned and more detailed information necessary could also be part of reporting requirements established by the Article 6.4 supervisory body or a "club" of acquiring countries.

Global Stocktake

Article 14 establishes a global stocktake on the implementation of the Paris Agreement to assess the collective progress. It is a key element of the ratcheting mechanism to increase ambition over time.

The assessment not only includes progress towards achieving the purpose of the Paris Agreement, but also its long-term goals (Article 14.1). Thus, as noted above, it allows a feedback mechanism connecting the current climate action with the long-term targets of the Paris Agreement (Northrop et al. 2018). The outcome of the global stocktake shall inform Parties in updating and enhancing their NDCs as well as enhance international cooperation for climate action (Article 14.3). While Parties are required to take into account the outcome of the global stocktake in their NDCs (Article 4.9), it remains a nationally determined process on how and to what extent they want to profit from the information. The first stocktake will take place in 2023 and every five years thereafter (Article 14.2).

The mandate of Article 14 is limited, as it only assesses the progress ex post and on an aggregate level. Nevertheless, such an assessment could include information on the extent of Article 6.4 use. The assessment could include information on how the use of Article 6.4 mechanism has actually helped Parties to achieve their targets and increase ambition. Lessons learned and best practices could be provided in order to improve the use of Article 6.4 mechanism in future NDC cycles so that they allow Parties to increase the ambition levels in their NDCs.

Hermwille and Siemons (2018) propose that the global stocktake could also implicitly or explicitly determine points of references for ambition, possibly for country groupings, based on parameters such as the level of emissions, state of development, or sectoral benchmarks. Such points of references could then be used by national policy makers and civil society organizations to assess the NDCs of the following cycle (Hermwille and Siemons 2018). Such points of references could include Article 6.4 use. Alternatively, points of references could also be developed by civil society or a "club" of acquiring countries, based on the global stocktake.

Compliance Mechanism

Article 15 of the Paris Agreement establishes a mechanism "to facilitate implementation" and "promote compliance". In December 2018 in Katowice, Parties have agreed in the rulebook on the modalities and procedures for the effective operation of this mechanism and its committee. The committee may consider an issue in the following cases (paragraph 20, 22, 32 of decision 20/CMA.1): first, if a party provides a submission on its own implementation or compliance; second, if a party has failed to submit an NDC, a mandatory inventory or report; third, if a party has not participated in the facilitative, multilateral consideration of progress; fourth, in case of persistent and significant inconsistencies with the Article 13 modalities, procedures and guidelines; fifth, in case of systematic issues.

Further analysis is necessary to understand the implications of adopted modalities and procedures of Article 15 for Article 6 and ambition raising. For example, the fourth option seems interesting as it may include issues related to reporting progress by parties using the Article 6 mechanisms. The first option would allow the mechanism to also address challenges of individual Parties in implementing their NDCs and increasing ambition, including through the Article 6.4 mechanism. However, and based on the experience with other compliance mechanisms, it remains to be seen to what extent this option will be used.

3.2 Reconciling the design of the Article 6.4 mechanism with ambition raising of host countries

This section considers ways to design the rules, modalities and procedures that operationalize the Article 6.4 mechanism in such a way that allows countries to raise their ambition without being negatively affected in their role as Article 6.4 host countries. In addition, this section discusses design options that allow the Article 6.4 mechanism to exert its function as ambition raising. These options could be implemented on a CMA-level or by the ruling of the considered Supervisory Body under Article 6.4. In absence of such an international ruling, an acquiring or host country or a group of countries (“club”) could decide to implement these design options on a regional or national level, or even on the project level through the inclusion in an emission reductions purchase agreement. The acquiring countries could complement such rulemaking by providing support to host countries (see also section 3.3).

The following approaches build on earlier work of Schneider et al. (2017) and Warnecke et al. (2018) Howard (2018), Kreibich (2018). They are key issues in the ongoing negotiations for Article 6.

Table 1: Options to address perverse incentives and make Art. 6.4 an ambition raising mechanism

Option	Suboption	Perverse incentive or risk addressed	Contribution to ambition raising
Requiring host countries to also account for exported mitigation outcomes that were generated outside the scope of their NDC		YES, the perverse incentive to maintain the scope of the NDC narrow is addressed	–
Restricting crediting periods and adjusting baselines in alignment with the 5-year NDC cycle		YES, risk mitigated	–
Requiring ambitious crediting baselines		YES, the incentive to adopt unambitious NDC targets is addressed.	
Defining eligibility criteria for Article 6.4 mechanism (relating to NDC targets)	<i>Coverage of NDC targets</i>		YES, countries are incentivised to expand the scope of their NDC.
	<i>Engaging in long-term strategies</i>	YES, the incentive to exclusively focus on the short-term cost-savings from offsetting is addressed.	YES, countries would be required to demonstrate how they intend to use Art. 6.4 for ambition raising.
	<i>Restricting eligibility of technologies or types of action within the scope of the NDC</i>	YES, by restricting eligibility to actions within the scope of the NDC the incentive to maintain a narrow scope is addressed.	
	<i>Requiring ambitious and quantified NDC targets</i>	YES	YES
Requiring inclusion of emissions targeted by Art. 6.4 activity into future NDC		YES, by requiring the inclusion of emissions into future NDCs the incentive to maintain a narrow scope is addressed.	YES, requiring the inclusion of emissions into future NDCs expands the scope of NDCs.
Quality of the mitigation outcomes		YES, quality of MO as necessary prerequisite enabling ambition raising in subsequent NDC cycles	–

Comments in text below, for e.g. references and explanations

Requiring host countries to also account for exported mitigation outcomes that were generated outside the scope of their NDC

If host countries are allowed to export mitigation outcomes that were generated outside the scope of their NDC there could be a perverse incentive to maintain the scope of their NDC narrow, in order to be able to export a larger amount of mitigation outcomes without having to implement corresponding adjustments. This perverse incentive could be addressed by requiring host countries to also account for exported mitigation outcomes that were generated outside the scope of their NDC and to carry out corresponding adjustments also for these mitigation outcomes.

Restricting crediting periods and adjusting baselines in alignment with the 5-year NDC cycle

The period over which outcomes from a specific mitigation activity could be internationally transferred might be limited, possibly aligned with the NDC cycle. Restricting crediting periods prevents the lock-in of mitigation potential in the host country. If crediting periods were much longer (e.g. 21 years as is possible in the CDM), then the host country would not be able to use these mitigation potentials over a long time period and the related corresponding adjustments would burden the adjusted national emissions balance for a long period, making it more difficult for host countries to ratchet-up their NDC target. Limiting crediting periods combined with the inclusion of emission reduction into future NDC targets (see below) can further contribute to ambition raising.

Restricting crediting periods is applied already under the CDM. For instance, under the CDM project proponents may choose between one ten-year crediting period or three seven-year periods with a reassessment of the baseline for each new period. These timeframes appear rather long compared with the shorter five-year NDC cycles foreseen in the Paris Agreement.

In addition, shorter crediting periods may increase environmental integrity, because scenarios for crediting baselines can change over the time. They are difficult to estimate over longer time periods. Especially for complex and dynamic areas, the baseline uncertainty may increase and become larger than the considered emission reduction (i.e. the issue of “signal-to-noise-ratio”, see Fuessler et al. (NMM Part II)). Restricting crediting periods and aligning them with the 5-year cycle of updating NDCs would remove uncertainties with regard to the mitigation outcomes that are transferred (Schneider et al. 2017).

Requiring ambitious crediting baselines

Host countries have an incentive to set unambitious NDC targets or inflate baseline emission projections to which these targets are tied, in order to allow to transfer more mitigation outcomes. One possibility would be to require the baselines for generating mitigation outcomes in subsequent NDCs to be based on emission levels achieved in previous NDCs, including any mitigation outcomes transferred (Warnecke et al. 2018).

Alternatively, baselines could be determined at the international level by the Supervisory Body of the Article 6.4 Mechanism, as suggested by Michaelowa and Butzengeiger (2017). Only activities in countries that agree to an international review of their NDC’s ambition level and where this review determines that the NDC does not contain hot air would be automatically deemed additional.

Defining eligibility criteria for the Article 6.4 mechanism (relating to NDC targets)

Participation by parties in Article 6.4 mechanism could be subject to eligibility criteria contributing to ambition raising.

Explicit and implicit eligibility criteria have already been used under the CDM. For example, participating parties need to nominate a designated national authority responsible for authorizing projects, some technologies (e.g. nuclear) were ruled out and only those project types were applicable where a corresponding CDM methodology has been approved (see further examples in Schneider et al. 2017).

Coverage of NDC targets

Participation could be restricted to Parties with economy-wide targets in their NDCs (see also Warnecke et al. 2018). According to Article 4.4, developed country Parties should undertake economy-wide absolute emission reduction targets and also developing country Parties are encouraged to move over time towards economy-wide emission reduction or limitation targets. A requirement for economy-wide emission reduction targets would actively encourage Parties to move more quickly towards economy-wide targets than they would have done without Article 6.4 mechanism. Since such a requirement might be challenging to fulfill for some potential host parties, one could also allow for these countries to only provide a clear plan for the adoption of economy-wide targets (Warnecke et al. 2018). Such countries could possibly receive support in capacity building in doing so (see section 3.3 further below).

Engaging in long-term strategies

Engaging in a process to develop and communicate long-term strategies according to Article 4.19 could also be a prerequisite for both acquiring and host parties to participate in the Article 4.6 mechanism:

Without long-term strategies, acquiring countries risk to not achieve the transition towards low-emission development because they do not sufficiently invest in technological advancements on the national level.

Host countries risk that they do not consider the implications of using Article 6.4 mechanism on achieving their own NDC target as well as for ambition raising in the future. In long-term strategies, participating countries could be required to demonstrate how they intend to increase the ambition of their targets in future NDC cycles, by using Article 6.4 mechanism without undermining the achievement of their own NDC target, and on focusing long-term decarbonisation instead of short-term gains only (see also Warnecke et al. 2018, CCAP 2017 and further below).

Restricting eligibility of technologies or types of action

Eligibility of actions could be restricted to sectors, technologies and actions within the scope of NDCs (see also Warnecke et al. 2018). This would avoid disincentives to not include actions in NDCs.

Based on positive and/or negative lists of technologies, only certain activities would be allowed for transferring emission outcomes under Article 6.4 mechanism. The CDM applied positive lists in small and micro-scale renewable energy and energy efficiency projects/programs. On how these lists could be defined, see elaborations below in chapter 3.3.

Requiring ambitious and quantified NDC targets

Parties are required to set ambitious NDC targets (Article 4.3), for which certain safeguards can be formulated. This not only contributes to avoiding the transfer of hot air and undermining the overall ambition, but it also contributes to raising the individual ambition of NDCs. Assessing the level of ambition in NDCs is difficult, but it is necessary to get an idea on how Article 6.4 contributes to raising ambition (Howard 2018). As a minimum, participating parties could be required to demonstrate how their NDC targets are more stringent than their BAU emissions. This is a minimum requirement that could be combined with the requirement that the baselines in each NDC cycle need to be based on the actual emissions in the previous cycle (see above). In addition, all parties participating in Article 6.4 mechanism could be required to provide information necessary for clarity, transparency and understanding (Article 4.8) on how they consider their target to be the highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities in the light of different national circumstances (Article 4.3) (see also Schneider et al. 2017). What the information should be can be defined based on the guidelines currently developed on paragraph 28 of decision 1/CP.21 on NDCs.

Another eligibility criteria could be that only parties with quantified NDC targets are allowed to trade emission outcomes. This would facilitate clarity, transparency and understanding of nationally determined contributions (Article 4.8), what the transferred mitigation outcomes are and how the corresponding adjustments have been applied.

Application of eligibility criteria

The eligibility criteria could be applied strictly, so that only parties fulfilling all criteria can participate in Article 6.4 mechanisms. However, a less strict application could also be required to limit the quantities of emission outcomes that can be transferred from countries that do not fulfil all criteria (see also Schneider et al. 2017).

Eligibility criteria that for example would only allow for international transfers from host countries that have NDCs with a “sufficient level of ambition” and which can demonstrate progress towards more comprehensive and more ambitious NDCs over time would prevent the competition with host countries that have unambitious NDCs and can therefore transfer more mitigation outcomes internationally and at a lower cost. In practice however, it is politically very difficult to agree between parties on what adequate ambition levels are. As such eligibility criteria may not be implemented on a CMA level, some acquiring countries (or clubs of buying countries) may require an objective demonstration from potential host countries that their NDC’s ambition level is adequate and that the country has a strategy on how to increase ambition levels over time. For instance, Switzerland takes the NDC of prospective host countries into account when selecting potential suppliers in the carbon market pilot scheme.

Requiring inclusion of emissions targeted by Article 6.4 activity into future NDC

If the scope of Article 6.4 is not limited to activities within the scope of NDCs, host parties could also be required to include sectors and technologies that are used in Article 6.4 mechanism during one NDC cycle to their NDC in future cycles (see also above on restricting crediting periods). This is a contribution to ambition raising, as the scope of the NDC would be increased. At the same time, this measure would address the incentive for countries to maintain a narrow scope of the NDC is addressed.

Quality of the mitigation outcomes

Units that lack quality increase global greenhouse gas emissions. Under crediting mechanisms, the quality of credits is ensured if the emission reductions are additional, not overestimated, and permanent (or provisions are in place to address non-permanence). Additionally, robust accounting needs to be applied.

Units that lack quality may also be a risk for host countries not to achieve their NDC target. In case a mitigation outcome is transferred from within a party’s NDC, quality of unit is important for the host country to assess if it still achieves its own NDC target.¹ This is particularly true if the transfer happens before the target year or period, because the host country may have to compensate for the transfer of units that lack quality (Schneider et al. 2017). International rules may be important to assure unit quality.

In case the host country is required to integrate the activities used for Article 6.4 mechanism in its future NDC, it seems particularly important to assure unit quality. Otherwise the host country risks that it has to compensate in the future for low quality units.

¹ Units have quality if the 6.4 mechanism ensures that the issuance or transfer of one unit, defined as 1 t CO₂eq, directly leads to an emission reduction of at least 1 t CO₂eq in the host country, compared to the situation in the absence of the mechanism (Schneider et al 2017)

3.3 Supporting the host country to raise ambition through the Article 6.4 mechanism

In the following, options are presented how other parties, bi- and multilateral institutions and initiatives could support host countries in fulfilling the requirements outlined in the previous section. Some of the requirements outlined in 3.2 are challenging to fulfil, especially for certain host countries. This may lead to the exclusion of some countries to participate in Article 6.4 mechanism and, in turn, hinder increasing ambition. Therefore, support for those countries that need it may contribute to raising ambition of NDCs through Article 6.4 mechanism. Such support could also be part of the Article 6.4 mechanism.

Support ambitious target-setting and long-term planning activities

National mitigation planning processes leading to a long-term strategy are important to define and progress in NDC targets. A well-established planning process may help a party to set ambitious targets, achieve ambitious mitigation outcomes in the short as well as long term, and to participate in the Article 6.4 mechanism while managing the risk of non-achievement of the own NDC targets (Schneider et al. 2017). Limited and incomplete planning processes can be a reason for unambitious, unclear and incomplete NDCs, amongst others because reference scenarios are unknown. Planning processes have been implemented in several countries in the context of the regular domestic climate policies and measures including the Low Emission Development Strategies (LEDS) or Mitigation Action Plans and Scenarios (MAPS).

Article 4.19 of the Paris Agreement encourages Parties ‘to formulate and communicate long-term low greenhouse gas emission development strategies’. At COP 23 end of 2017, several parties proposed linking potential participation in Article 6 mechanisms to long-term decarbonisation strategies (Warnecke et al. 2018). Requiring long-term strategies that explicitly identify the role of Article 6.4 mechanism would help to analyze the impacts of the Article 6.4 mechanism on the achievement of a Party’s own NDC target and how it may help to increase ambition and achieving long-term mitigation goals. By September 2018, nine parties have submitted a long-term low greenhouse gas emission development strategy under Article 4.19 of the Paris Agreement. In addition, many (developed) countries elaborate and communicate long-term strategies in the context of their National Communications under the UN-FCCC and in other international or domestic fora (e. g. the Deep Decarbonisation Pathway Project (DDPP)).

Host countries might be required to provide answers to the following challenges and questions related to their long-term strategies (CCAP 2017):

- ▶ How will the NDC scope expand over time and how can Article 6.4 participation help, through the inflow of finance, technology and capacity, to incorporate sectors/activities into subsequent NDCs and increase ambition?
- ▶ What mitigation pathways are required or possible for achieving domestic NDC targets and how does participation in Article 6.4 allow or help getting on this pathway?
- ▶ How can be assured that using the Article 6.4 mechanism does not prioritize short-term gains over long-term decarbonization and how it may even encourage long-term decarbonisation?

Formulating ambitious targets and long-term strategies is not easy. Particularly developing references and mitigation scenarios are a very complex task (Novikova et al. 2016). Many host countries lack relevant information e. g. in their greenhouse gas inventories and know-how for defining future pathways based on assumptions related to e. g. economic growth, developments in economic sectors, or effects on emission sources. Thus, there is a need of some host countries for support and capacity building.

This support may come through existing international financing mechanisms and bilateral cooperation (see also Warnecke et al. 2018 or Howard 2018). However, there could also be a collaboration between an individual acquiring country or a coalition of acquiring countries with potential host countries. An example for such a complementary approach is the work of the World Bank’s Partnership for Market Readiness (PMR) capacity building initiative, supporting host countries in their mitigation planning processes and development of domestic MRV capabilities and mitigation instruments. This capacity building then allows for other World Bank carbon facilities such as the Transformative Carbon Asset Facility (TCAF) to engage with these host countries in using the Article 6.4 mechanism.

Facilitate investments in new low-carbon technologies

The Article 6.4 mechanism should facilitate investments in technologies in a host country that would be unable to make such investments unilaterally (see Warnecke et al. 2018 on the importance of identifying inaccessible technologies). This may accelerate technology diffusion to host countries allowing them to raise ambition in their future NDCs. It is not only in the interest of the international community, but may also be a host countries' priority to identify activities that are particularly suitable for the Article 6.4 mechanism. If a host country sells its cheapest mitigation options that could well be implemented domestically, it is left with only the more expensive abatement options for the achievement of its NDC target.

Host countries may focus or even restrict their use of the Article 6.4 mechanism to sectors/ project types that facilitate investments to technologies where specific local barriers of technology, know-how and finance limit a purely domestic uptake and where international cooperation is necessary for their transformational implementation (Warnecke et al. 2018). See also section 3.2.

In order to assess whether an activity involves an “inaccessible” technology for a country, the maturity of the technology for a specific country or region, if not globally, and the costs need to be considered (Warnecke et al. 2018). There could be an international negative list for low-cost, mature technologies and an international positive list for (higher cost) emerging technologies. In addition, there is a “grey zone” of high-cost, mature technologies and low-cost, emerging technologies, which needs careful investigation, taking into account the domestic context of the host country (Warnecke et al. 2018). There are major differences between regions and countries with regard to technologies, so that the inaccessibility of technologies in the “grey zone” needs to be analysed for each country or a group of countries individually. This could be done through internationally developed decision trees or eligibility criteria (Schneider et al 2017). Through a national self-assessment, the decision tree or eligibility criteria could be applied to develop the national lists, which would then be internationally reviewed, e. g. through a peer review process (Warnecke et al. 2018).

As mentioned above, it is also in the host country's interest to identify the inaccessibility of technologies. However, the task of establishing national positive and negative lists is very challenging. In addition, national actors overseeing Article 6.4 participation in their countries need to be able to assess activities proposed by the private sector. Therefore, support for host country's readiness to participate in Article 6.4 mechanism should be available – either through international mechanisms or bilateral agreements for capacity building and financial support.

The positive and negative lists need to be regularly updated, ideally in alignment with the 5-year cycle of the NDCs. An update every five (or ten) years would allow to take into account new developments such as the diffusion and costs of technologies, changes to GDP or know how of a country.

3.4 Fostering the acquiring country to raise ambition through the Article 6.4 mechanism

The mitigation outcomes purchased by acquiring countries can be used by the acquiring countries to reach their NDC target. An acquiring country may, however, also decide to cancel (a part of) the mitigation outcomes it has acquired and thus increase its ambition. While such a voluntary cancellation implies units to be issued, the acquiring country may also implement a corresponding adjustment by unilaterally adjusting its NDC target or its emissions level according to the amount of mitigation outcomes acquired. In addition to this short-term ambition raising impact, countries could also use the purchase of Article 6.4 mitigation outcomes to increase its ambition level in the long run.

Four cases can be identified in which countries buy mitigation outcomes from abroad, leading to increased ambitions under certain conditions:

1. Using lower compliance costs for ambition raising: The country is lowering its cost of compliance with its NDC target if the implementation of policies that would be necessary to reach the NDC has higher marginal abatement costs than the purchase of the mitigation out-comes from the Article 6.4 mechanism. If the acquiring country invests the savings in domestic reductions or international climate finance, this can lead to increased ambition.

2. Increasing ambition with long-term strategies: Embedding purchase of mitigation out-comes in long-term strategies and clear communication of these strategies.
3. Increasing ambition through risk reduction: The country bears a risk of not being able to attain its NDC target due to financial or technical constraints. Mitigation outcomes are acquired to hedge the risk.
4. “Insetting”: Linking use of mitigation outcomes to domestic mitigation activities: Countries wishing to use mitigation outcomes from abroad to achieve their NDC could voluntarily commit to carry out additional domestic reductions.

Using lower compliance costs for ambition raising

Countries with very high mitigation costs have incentives to buy mitigation outcomes up to the point where their own marginal abatement costs are equal to the price of mitigation outcomes from abroad. If this trade is conducted with environmental integrity and the mitigation outcomes are not discounted, the trade has no impact on global emissions. However, emissions are reduced by trading with mitigation outcomes exactly where this is financially most favorable. This not only benefits the acquiring country through lower costs, but also the host country through income from the sale of mitigation out-comes.

Spalding-Fecher et al. (2012) consider the EU ETS region as acquiring countries, they show that the savings in the second trading period of the EU ETS for private companies were estimated at least 2.3 billion dollars (rather higher, since the price decline of the EUA that was caused by the availability of CERs was not included in this calculation). Government savings over this period are estimated at around \$1.3 billion.

The cost reduction achieved by trading mitigation outcomes can have two consequences. On the one hand, necessary investments in low carbon technologies in the acquiring country are not being made, which leads to higher emissions in the acquiring country than would be the case without trading of mitigation outcomes (CCAP 2017). This effect becomes apparent in the medium to long term when mitigation outcomes from abroad become scarcer. Meeting the NDC of the acquiring country becomes more expensive due to higher prices for mitigation outcomes and cannot be reached domestically due to a lack of necessary long-term investments in low carbon technologies.

On the other hand, the benefits achieved by trading with mitigation outcomes could encourage policy-makers to raise ambitions. This can be achieved by three different options.

1. Fixed investment volume in low carbon technologies:

The benefits achieved could be invested in low carbon technologies at the national level. However, these investments alone are not enough to increase ambition, as they ultimately only lead to lower domestic abatement costs in reaching the NDC. But, the acquiring country could set itself a fixed investment volume that corresponds, for example, to the investment volume required to achieve the NDC without the possibility of acquiring mitigation outcomes. This case would lead to an increase in ambition, provided that the country invests the money into mitigation activities. However, this would not happen without incentives, as actors tend to take short-term secure profits rather than invest them in an uncertain future.

2. Strengthen targets:

Policy makers could be encouraged by the lower expected mitigation costs due to trading of mitigation outcomes to make more ambitious commitments than would be possible without trading. Spalding-Fecher et al. (2012) investigate whether the establishment of the CDM under the Kyoto Protocol has increased the ambition of Annex I countries. Interviews with negotiators from Annex I countries, carried out as part of the report’s research, confirmed that the inclusion of the CDM in the Kyoto Protocol had no quantitative impact on the Annex I commitments. However, negotiations on the Kyoto Protocol took place more than 20 years ago and since then a lot has been learned about carbon pricing and emissions trading and climate change has also become more prominent in public opinion. These changing conditions may lead to negotiators today being more willing to pursue more ambitious NDCs due to the financial benefits of trading mitigation outcomes. However, it is not confirmed that acquiring countries actually set more ambitious targets because of the possibility to use international carbon markets.

3. Strengthen domestic instruments:

Howard (2018) describes another instrument that enables increased ambitions through lower compliance costs. According to Howard, an effective instrument is the strengthening of domestic compliance obligations for emitters under an ETS or CO₂ tax. These stronger obligations could be set for example, by lowering targets, tightening allocation rules, increasing coverage to include new emission sources or in the case of a tax by higher tax rates. The ability for emitters to use mitigation outcomes generated under Article 6.4 from international sources under their ETS or tax obligations can raise lower costs and support strong emission targets for emitters. According to Howard it would be important that the strengthened ETS or tax obligations are not offset by relaxing other contributions – either by relaxing other components of the country’s NDC or by reselling acquired reductions to other countries as compensation for their NDCs. The impact of the increase in ambition would have to be safeguarded by reserving the increased mitigation efforts and reporting them to the UNFCCC as an achievement of an enhanced NDC or as an over-achievement of an NDC. In contrast to 2., where only the possibility of trading mitigation outcomes could strengthen the negotiated NDCs, in this case it becomes clear how the linking of national instruments such as an ETS or a CO₂ tax with mitigation outcomes can achieve increases in ambition.

Increasing ambition with long-term strategies

The CCAP report (2017) identifies long-term strategies as a suitable instrument not only to eliminate the abovementioned perverse incentives, but also to achieve increases in ambition. Long-term strategies are used as a basis to demonstrate the complementarity between the acquisition of mitigation outcomes and domestic action. It should be clearly communicated which sectors have problems to achieve short-term reduction targets, what makes the acquisition of mitigation outcomes necessary and which measures the policy plans to support the transformation. A clear communication about the time period for the planned acquisition of mitigation outcomes and the volume is important. Furthermore emissions and compliance projections without the acquisition of mitigation outcomes and projected emissions/compliance with use of mitigation outcomes (CCAP 2017) should also be well communicated, which illustrates how trading mitigation outcomes can have a positive impact on the development of decarbonization. Such communicated long-term strategies clearly show which goals are to be pursued and when these must be met. In this way, they give the acting parties certainty with regard to the planning of necessary investments. Long-term strategies thus prevent the lack of necessary investments. The elimination of the perverse incentive by the long-term strategy leads to higher investments than without a long-term strategy and thus to increased ambition. Long-term strategies, which include, for example, the contribution of a country to the achievement of the 2 °C target, sometimes represent a more ambitious plan than to pursue only a five-year NDC. An orientation towards such a long-term strategy would thus increase ambition in the present compared to the goal of NDC achievement. Under these circumstances, a long-term strategy contributes to increasing ambition not only by eliminating the perverse incentive, but also directly through higher long-term reduction targets.

Risk reduction

When countries set their NDCs based on available budgets and technologies, they have an incentive to design them in a way that they are likely to be met (Höhne et al. 2016). This applies to countries with limited political will to fight climate change but also to those that have made climate change mitigation a political priority. This leads to the NDC targets being weaker than they would be in an optimal case. An optimal NDC, in simplified terms, would have to be set to an average of all projections for a given budget and technology level. An optimal NDC would however, mean that the probability of reaching the NDC would not be well above 50 percent. In a world where there is no transfer of mitigation outcomes, such NDCs would not be adopted because the risk of not reaching them would be too high. In a world that allows the international exchange of mitigation outcomes, countries are able to set such NDCs without significant risk, as they can acquire mitigation outcomes if the NDC is not reached through domestic measures. Transferring mitigation outcomes can thus help countries to set their NDCs at an optimal and thus higher level than without trade.

It should be noted, however, that if decision-makers continue to set their NDC conservatively, there would be an oversupply of mitigation outcomes leading to globally lower investments into low carbon technologies than optimal. In order to counteract this effect, acquiring countries could be encouraged to buy-up and cancel mitigation outcomes in order to increase their ambition. According to Kreibich (2018), an efficient measure to prevent conservatively set NDC targets could be that countries that are willing to enter into cooperation under Article 6 are required by the UNFCCC to adopt a NDC with specific characteristics in order to prevent the generation of an oversupply of mitigation outcomes at its core.

“Insetting”: Linking use of mitigation outcomes to domestic mitigation activities

Kreibich (2018) describes a fourth way of increasing the ambition of acquiring countries by using mitigation outcomes. In this case, countries wanting to import mitigation outcomes from abroad and use them for NDC attainment could decide to carry out additional domestic reductions that are linked to the mitigation outcomes acquired. The link could be via technology, incentive structure or the quantity of greenhouse gas reductions. If, for example, the mitigation outcomes imported and the domestic measures are linked via technology, the acquiring country could decide that with the purchase of mitigation outcomes from a certain project type, say solar PV, an additional investment will be made to foster solar PV domestically. The scale of the domestic investment could be equivalent to the amount spent for the mitigation outcomes imported.

In order to have a real ambition raising impact, the acquiring country would have to ensure that the domestic measures are additional and do not contribute to the achievement of the NDC. While this option seems to be fully compatible with well-known principles, such as complementarity, it can be expected to be associated with significant challenges when being implemented. Linking the transfer of mitigation outcomes to the implementation of or support for a domestic policy could raise significant opposition, including from the transferring Party.

In summary, it can be said that all four possibilities described do not automatically lead to increased ambitions. Incentives and obligations are also necessary so that the use of mitigation outcomes leads to the desired increase in ambition. In all cases it also depends on how motivated political decision makers are in designing efficient mechanisms or to set ambitious climate protection targets, whether the trade of mitigation outcomes leads to increased ambition in the acquiring country.

4 Evaluation of options and recommendations

4.1 Overview and assessment of options

The following table summarizes the options presented in the previous chapter. It provides an overview of their impact on ambition raising as well as the possibilities for their implementation are presented. In addition, it provides an assessment of the different options' political feasibility.

Table 2: Assessment of the options

Option	Assessment Impact on ambition raising	Practicability (institutional circumstances, data availability etc.)	Political feasibility
1) Strengthening reporting, transparency and comparability			
Upfront information	<p>Indirect impact through transparency and comparability of ambition and intended Article 6.4 use.</p> <p>More detailed guidelines could be added through guidelines by the 6.4 supervisory body or a "club".</p> <p>Some countries might need support to provide necessary data.</p>	<p>General guidelines on clarity, transparency, and understanding of NDCs are included in the rulebook.</p>	<p>In the rulebook.</p> <p>Further requirements through the 6.4 supervisory body or a "club": politically feasible.</p>
Transparency framework and review	<p>Indirect impact through transparency and comparability of Article 6.4 use, achievement of NDC target and ambition.</p>	<p>General guidelines on reporting and modalities and procedures of the transparency framework are included in the rulebook.</p> <p>More detailed guidelines could be added through separate reporting requirements established by the 6.4 supervisory body or a "club".</p> <p>Some countries might need support to provide necessary data.</p>	<p>In the rulebook, but further guidance to be developed for Article 6 and these negotiations seem difficult.</p> <p>Other possibilities such as the 6.4 supervisory body or a "club": politically feasible.</p>
Global Stock-take	<p>Indirect impact through transparency on progress, including the effect of Article 6.4 use, and possibly through comparability of ambition with points of references.</p>	<p>The modalities for the global stocktake are included in the rulebook.</p> <p>Additionally or alternatively, "clubs" or stakeholders from civil society could make independent assessments.</p>	<p>Demonstrating the added value of Article 6.4 mechanism in the collective progress is not explicitly mentioned in the rulebook but seems feasible.</p> <p>Points of references for ambition are not mentioned in the rulebook and seem difficult, because it could be perceived as a tool for ex ante assessments.</p> <p>Other possibilities such as "clubs" or stakeholders seems possible.</p>
Compliance Mechanism	<p>Indirect impact by addressing challenges of individual Parties in implementing their NDCs and increasing ambition.</p>	<p>The modalities and procedures are included in the rulebook.</p>	<p>In the rulebook, but impact depends also on operationalisation through the Committee.</p>

Option	Assessment Impact on ambition raising	Practicability (institutional circumstances, data availability etc.)	Political feasibility
2) Reconciling the design of the Art. 6.4 mechanism with ambition raising of host countries			
Requiring host countries to also account for exported mitigation out-comes that were generated outside the scope of their NDC	Addresses the perverse incentive to maintain the scope of the NDC narrow.	Integrate in the rules, modalities and procedures for Article 6.4 mechanism. Other possibilities would be decisions by the supervisory body or “club”.	Part of Article 6.4 negotiations. Possible
Restricting crediting periods and adjusting baselines in alignment with the 5-year NDC cycle	Mitigates the risk to lock-in mitigation potential over long crediting periods	Integrate in the rules, modalities and procedures for Article 6.4 mechanism. Other possibilities would be decisions by the supervisory body or “club”.	Part of Article 6.4 negotiations. Possible. Similar rule exists under CDM.
Requiring ambitious crediting baselines	Addresses the incentive to adopt unambitious NDC targets.	Integrate in the rules, modalities and procedures for Article 6.4 mechanism. Other possibilities would be decisions by the supervisory body or “club”.	Part of Article 6.4 negotiations. Discussed controversially.
Defining eligibility criteria for the Article 6.4 mechanism (relating to NDC targets)	The different criteria address perverse incentives and/or contribute to ambition raising.	Integrate in the rules, modalities and procedures for Article 6.4 mechanism. Other possibilities would be decisions by the supervisory body or “club”.	Part of Article 6.4 negotiations. Possible if “soft”. Similar rule exists under CDM.
Requiring inclusion of emissions targeted by Article 6.4 activity into future NDC	Addresses the incentive to maintain a narrow scope in a NDC. Contributes to ambition raising.	Integrate in the rules, modalities and procedures for Article 6.4 mechanism. Other possibilities would be decisions by the supervisory body or “club”.	Part of Article 6.4 negotiations, but rather unlikely
Quality of the mitigation out-comes (additionality, no overestimation, permanence, robust accounting)	Addresses the quality of mitigation outcomes as necessary prerequisite for ambition raising.	Integrate in the modalities, procedures, and guidelines for the transparency framework for action and support in the context of the accounting rules. Integrate in the rules, modalities and procedures for Article 6.4 mechanism.	Part of Article 6.4 negotiations, but rather unlikely
3) Supporting the host country to raise ambition through the Article 6.4 mechanism			
Support ambitious target-setting and long-term planning activities	Indirect impact through support for good planning processes in host countries	Integrate suggestions for long-term low greenhouse gas emission development strategies and other planning activities. Support for some host countries that need it.	Yes, requires international (acquiring country) resources
Facilitate investments in new low-carbon technologies	Indirect impact through investments in low-carbon technologies	Support for some host countries that need it.	Yes, requires international (acquiring country) resources

Option	Assessment Impact on ambition raising	Practicability (institutional circumstances, data availability etc.)	Political feasibility
4) Fostering the acquiring country to raise ambition through the Article 6.4 mechanism			
Using lower compliance costs of Article 6.4 for ambition raising	Limited; Historically, experience was mixed.	Acquiring country's own decision.	Possible
Increasing ambition with long-term strategies	Limited; Strategy needs to demonstrate complementarity of transfer of mitigation outcomes and domestic action.	Integrate in the suggestions for the long-term low greenhouse gas emission development strategies Other possibilities would be decisions by the supervisory body or "club".	Possible
Risk reduction	Relevant	Acquiring country's own decision.	Possible
"Insetting": Combining use of international mitigation outcomes to domestic mitigation activities	Relevant	Countries wanting to import mitigation outcomes from abroad and use them for NDC attainment could decide to carry out additional domestic reductions that are linked to the mitigation outcomes acquired.	First option unlikely, but "club" option seems possible

4.2 Recommendations

Without adequate incentives, rules and procedures, the Article 6.4 mechanism may fail to achieve its goal of contributing to ambition raising and, on the contrary, may provide numerous perverse incentives for host countries not to increase their ambition levels, possibly leading to a race to the bottom.

In the current negotiations, a key issue of concern is that a host country engaging in Article 6 has no incentive to set ambitious targets, because this may directly reduce the amount of mitigation outcomes that go beyond the NDC target and that can be transferred internationally. Another key issue is that if the mechanism allows crediting of activities that are beyond the scope of the NDC without requiring the host country to account for exported mitigation outcomes from such activities, there is no incentive for the host country to expand the scope of the NDC, because it would reduce the potential to obtain external funding.

Based on earlier work (Schneider et al. 2017, Warneke et al. 2018, Howard 2018, Kreibich 2018) four lines of action are identified to mitigate perverse incentives and foster NDC target ambition raising in host and acquiring countries in the context of article 6.4:

- a) Strengthening reporting, transparency and comparability
- b) Reconciling the design of the Art. 6.4 mechanism with ambition raising of host countries
- c) Supporting the host country to raise ambition through the Article 6.4 mechanism
- d) Fostering the acquiring country to raise ambition through the Article 6.4 mechanism

The first two lines of action may be implemented on different levels, depending on the level of international agreement with regard to the need to prevent perverse incentives from the use of the Article 6.4 mechanism. The following cascade may be considered:

- ▶ CMA/ rulebook level (international governance setting required)
- ▶ Supervisory Body for Article 6.4
- ▶ "Club" of likeminded parties
- ▶ Individual acquiring countries defining criteria for mitigation outcomes purchase

In order for the Article 6.4 mechanism to actually contribute to ambition raising, it would be important to have clear rules on the rulebook level or on the level of the supervisory body. Ideally, Article 6.4 could only be used by countries that have ambitious NDCs and that cannot only demonstrate this ambition but also report transparently about progress.

In December 2018 in Katowice, the rulebook has been adopted. However, Parties could not find an agreement on Article 6. This means that many issues on the first line of action (a) have been clarified. Nevertheless, the outcome needs further analysis and some issues remain unclear, including issues on e.g. reporting related to Article 6. The second line of action (b) will be further negotiated on the CMA level, but these negotiations may turn out to be challenging. The task of reconciling the use of Article 6.4 with the need for progress in NDC target levels and scope may be handed down to the Article 6.4 supervisory body who may put in place rules under Article 6 such as the limitation of crediting periods as well as the definition of criteria for the participation of host countries in Article 6.4 activities (b).

In absence of the CMA or the Article 6.4 supervisory body providing rules to prevent the perverse incentives, “clubs” of like-minded (host and acquiring) countries can agree among themselves on additional rules regarding information (a) and Article 6.4 (b) that govern all transactions between the countries (i.e. the acquiring country would only allow mitigation outcomes for compliance with their NDC target that fulfil additional criteria regarding (a) and (b)).

Initially, individual acquiring countries may decide to define criteria for purchasing mitigation outcomes that follow the approaches listed in lines of action (a) and (b) and implement them together with interested host countries.

The support of host countries to raise ambition (c) is a role that many (potential) acquiring countries and multilateral institutions have historically carried out already in the Kyoto periods and will probably continue to do so under the Paris Agreement. The need for support is strengthened by the additional requirements for host countries in terms of planning their mitigation actions on a national level and demonstrate how to reconcile ambition raising in NDC target with the use of Article 6.4 over time.

Finally, fostering action to raise ambition on the side of the acquiring country (d) is key to achieve the targets of the Paris Agreement and will mainly be achieved by acquiring countries implementing it individually or as part of a “club”.

5 References

- CCAP, 2017:** Using Transfers to Enhance Ambition over the NDC cycles. online: <http://ccap.org/resource/using-transfers-to-enhance-ambition-over-the-ndc-cycles/> [Accessed 25 September 2018].
- Hermwille, L. and S. Siemons, 2018:** What Makes an Ideal Global Stocktake? A Functional Analysis, Climate Change 22/2018, Discussion Paper on behalf of the German Environment Agency.
- Höhne, N., Kuramochi, T., Warnecke, C., Röser, F., Fekete, H., Hagemann, M. & Gonzales, S., 2017, The Paris Agreement:** resolving the inconsistency between global goals and national contributions. Climate Policy, 17(1), 16–32.
- Howard, A., 2018:** Incentivizing mitigation: Using international carbon markets to raise ambition, online: https://docs.wixstatic.com/ugd/ea650e_ced416745ef64d41a47e0dcd3b9b86e1.pdf [Accessed 25 September 2018].
- IPCC, 2018:** Global Warming of 1.5 °C – an IPCC special report on the impacts of global warming of 1.5 °C above preindustrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. Geneva: Intergovernmental Panel on Climate Change, online: http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf [Accessed 26 October 2018].
- Kohli, A., 2015:** Making Sense of Transparency and Review in the Paris Agreement, Yearbook of international Environmental Law, Vol. 26, No. 1 (2015), pp. 46–67.
- Kreibich, N., 2018:** Raising Ambition through Cooperation, Using Article 6 to bolster climate change mitigation, JIKO Policy Paper No. 02/2018, online: https://epub.wupperinst.org/files/7122/7122_Raising_Ambition.pdf [Accessed 25 September 2018].
- Michaelowa, A., & S. Butzengeiger, 2017:** Ensuring additionality under Art. 6 of the Paris Agreement (p. 32), online: www.perspectives.cc/fileadmin/Publications/Ensuring_additionality_under_Art._6_of_the_Paris_agreement_Michaelowa_Axel_Butzengeiger_Sonja_2017.pdf [Accessed 12 September 2018].
- Obergassel, W. & Asche, F., 2017:** Shaping the Paris Mechanisms Part III An Update on Submissions on Article 6 of the Paris Agreement, online: https://epub.wupperinst.org/frontdoor/deliver/index/docId/6682/file/6682_Paris_Mechanisms.pdf [Accessed 25 September 2018].
- Northrop, E., Y Dagnet, N. Höhne, J. Thwaites, and K. Mogelgaard, 2018:** Achieving the Ambition of Paris: Designing the Global Stocktake, World Resources Institute (WRI), Washington, DC, online: <https://wriorg.s3.amazonaws.com/s3fs-public/achieving-ambition-paris-designing-global-stockade.pdf> [Accessed 28 September 2018].
- Novikova, V., J. Fuessler, M. Molnar, A. O. Abdel-Aziz, D Bongardt, D. Saygin, M. Vieweg-Mersmann, N. Wagner, 2016:** Compendium on greenhouse gas baselines and monitoring, National-level mitigation actions, UNFCCC, Bonn, online: http://unfccc.int/files/national_reports/non-annex_i_natcom/cge/application/pdf/final-compendium-mitigation-actions.pdf [Accessed 2 April 2019].
- Schneider, L., J. Fuessler, S. La Hoz Theuer, A. Kohli, J. Graichen, S. Healy, and D. Broekhoff, 2017:** Environmental Integrity under Article 6 of the Paris Agreement, Discussion Paper for the German Environment Agency, DEHSt: Berlin, online: www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/Discussion-Paper_Environmental_integrity.pdf [Accessed 25 September 2018].

Spalding-Fecher, Randall, Amrita Narayan Achanta, Peter Erickson, Erik Haites, Michael Lazarus, Neha Pahuja, Nimisha Pandey, Stephen Seres and Ritika Tewari, 2012: Assessing the Impact of the Clean Development Mechanism, Report commissioned by the High-Level Panel on the CDM Policy Dialogue, online:

www.researchgate.net/profile/Randall_Spalding-Fecher/publication/273698154_Assessing_the_Impact_of_the_Clean_Development_Mechanism/links/5552536308ae980ca606adbc/Assessing-the-Impact-of-the-Clean-Development-Mechanism.pdf

Wang-Helmreich, H., W. Obergassel, N. Kreibich, 2019: Achieving Overall Mitigation of Global Emissions under the Paris Article 6.4 Mechanism, UBA: Dessau-Roßlau.

Warnecke, Carsten, Niklas Höhne, Ritika Tewari, Thomas Day, Aki Kachi, 2018: Opportunities and safeguards for ambition raising through Article 6. The perspective of countries transferring mitigation outcomes, online: <http://newclimate.org/publications/> [Accessed 25 September 2018].

German Emissions Trading Authority (DEHSt) at the German Environment Agency
Bismarckplatz 1
D-14193 Berlin

www.dehst.de/EN | emissionstrading@dehst.de