



# **Market Mechanisms in the Paris Agreement – Differences and Commonalities with Kyoto Mechanisms**

## **Discussion Paper**

# Editorial information

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## **Abstract**

Article 6 of the Paris Agreement introduces provisions for using international market mechanisms to fulfil nationally determined contributions. In developing national and international rules governing these approaches it is important to draw on the lessons learnt from the existing flexibility mechanisms under the Kyoto Protocol and to understand how they compare and differ from the approaches under the Paris Agreement. This discussion paper analyses Article 6 of the Paris Agreement, discusses how these approaches compare and contrast with the flexibility mechanisms of the Kyoto Protocol, and highlights important lessons learned from the Kyoto mechanisms for operationalizing Article 6 of the Paris Agreement. Finally, the paper outlines key areas for discussion and decision making in the development of international rules for Article 6.

## **Kurzbeschreibung**

Artikel 6 des Pariser Klimaabkommen ermöglicht die Nutzung von internationalen Marktmechanismen zur Erfüllung von Klimaschutzbeiträgen der Staaten. Bei der Entwicklung von nationalen und internationalen Regeln für diese Mechanismen ist es wichtig, die Erfahrungen mit den bestehenden flexiblen Mechanismen des Kyoto-Protokolls zu berücksichtigen und Gemeinsamkeiten und Unterschiede mit den Pariser Mechanismen zu verstehen. Dieses Diskussionspapier analysiert Artikel 6 des Pariser Klimaabkommens und vergleicht die Pariser Ansätze mit denen des Kyoto-Protokolls. Darüber hinaus werden wichtige Erfahrungen aus den Kyoto-Mechanismen für die Umsetzung von Artikel 6 des Pariser Klimaabkommens benannt. Schließlich werden wichtige Aspekte für die Diskussion und Entscheidungsfindung um internationale Regeln für Artikel 6 zusammengefasst.

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## Abbreviations

|                            |  |
|----------------------------|--|
| <b>AAU</b>                 | Assigned Amount Unit   |
| <b>AI</b>                  | Annex I  |
| <b>BAU</b>                 | Business-As-Usual  |
| <b>CCS</b>                 | Carbon capture and storage   |
| <b>CDM</b>                 | Clean Development Mechanism  |
| <b>CDM EB</b>              | CDM Executive Board  |
| <b>CER</b>                 | Certified emission reduction   |
| <b>CMA</b>                 | Conference of the Parties serving as the meeting of the Parties to the Paris Agreement   |
| <b>CMP</b>                 | Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol  |
| <b>COP</b>                 | Conference of the Parties  |
| <b>DNA</b>                 | Designated National Authority  |
| <b>ETS</b>                 | Emissions trading system   |
| <b>ERU</b>                 | Emission reduction unit  |
| <b>EU</b>                  | European Union   |
| <b>GHG</b>                 | Greenhouse gas   |
| <b>GWP</b>                 | Global warming potential   |
| <b>IET</b>                 | International emissions trading  |
| <b>INDCs</b>               | Intended nationally determined contribution  |
| <b>ITL</b>                 | International transaction log  |
| <b>ITMO</b>                | Internationally transferred mitigation outcome   |
| <b>JI</b>                  | Joint Implementation   |
| <b>JISC</b>                | Joint Implementation Supervisory Committee   |
| <b>KP</b>                  | Kyoto Protocol   |
| <b>ICER</b>                | Long-term certified emission reduction   |
| <b>LULUCF</b>              | Land use, land use change and forestry   |
| <b>NAI</b>                 | Non-Annex I  |
| <b>NDC</b>                 | Nationally determined contribution   |
| <b>REDD+</b>               | Reduced emissions from deforestation, forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries |
| <b>RMU</b>                 | Removal unit   |
| <b>SBSTA</b>               | Subsidiary Body for Science and Technology Advice  |
| <b>SD</b>                  | Sustainable development  |
| <b>tCER</b>                | Temporary certified emission reduction   |
| <b>t CO<sub>2</sub> eq</b> | Tonnes of CO <sub>2</sub> equivalent   |
| <b>UNFCCC</b>              | United Nations Framework Convention on Climate Change  |

## 1 Introduction

Article 6 of the Paris Agreement introduces provisions for using international market mechanisms to fulfil nationally determined contributions (NDCs).<sup>1</sup> The cooperative approaches under Article 6.2 allow countries using “internationally transferred mitigation outcomes” (ITMOs) to achieve their NDCs. Article 6.4 establishes a new crediting mechanism under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).

International rules governing these approaches are currently being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC). In developing both national and international rules, it is important to draw on the lessons learned from the existing flexibility mechanisms under the Kyoto Protocol (KP) and to understand how they compare and differ from the approaches under the Paris Agreement. This discussion paper contributes to the understanding of Article 6, and puts the key design questions in the perspective of existing mechanisms, by:

- ▶ Analysing Article 6 of the Paris Agreement and its related decision paragraphs;
- ▶ Discussing how the approaches contained in Articles 6.2 and 6.4 compare and contrast with the flexibility mechanisms of the Kyoto Protocol: the Clean Development Mechanism (CDM), Joint Implementation (JI), and International Emissions Trading (IET);
- ▶ Highlighting lessons learned from the mechanisms of the Kyoto Protocol, where they are relevant for key design questions under Article 6; and
- ▶ Identifying key areas for discussion and decision making in the development of international rules for Articles 6.2 and 6.4 in the years to come.

This discussion paper is based primarily on a review of legal texts and of relevant literature. Submissions made to the UNFCCC by Parties and observer organizations were also considered with a view to taking into account the different views put forward in those documents.

Section 2 provides a brief overview of market mechanisms under the Kyoto Protocol and the Paris Agreement. Section 3 contrasts the five approaches – CDM, JI, IET, Article 6.2, Article 6.4 – along their key features, concluding with a summary table of all features (section 3.12). Section 4 identifies key questions for the ongoing negotiations.

## 2 Overview of market mechanisms under the Kyoto Protocol and the Paris Agreement

This section provides a brief overview of the flexible mechanisms established under the Kyoto Protocol and the provisions of Article 6 of the Paris Agreement.

### 2.1 The flexibility mechanisms of the Kyoto Protocol

The **CDM** (Article 12 of the Kyoto Protocol) is a crediting mechanism that allows mitigation projects and programs in non-Annex I (NAI) countries to receive credits – Certified Emission Reductions (CERs), and temporary Certified Emission reductions (tCERs) or long-term certified emission reductions (lCERs) for afforestation and reforestation projects – that can be transferred internationally and used by Annex I (AI) countries to meet their commitments inscribed in Annex B of the Kyoto Protocol.

The Kyoto Protocol establishes the CDM with the double purpose of assisting NAI countries in “achieving sustainable development and in contributing to the ultimate objective of the Convention”; and assisting AI Parties in achieving their mitigation targets inscribed in Annex B of the Kyoto Protocol. The CDM is supervised by the CDM Executive Board (CDM EB).

<sup>1</sup> In the preparation of the COP 21 in December 2015 in Paris, most countries submitted intended nationally determined contributions (INDCs). Once a country ratifies the Paris Agreement, the INDC becomes the country's NDC – unless the Party determines otherwise. Although Parties can still update their INDCs in light of the adopted Agreement during the ratification process, most INDCs will likely remain unchanged. In this paper we use the term NDCs to reflect both NDCs and INDCs that have not yet been converted into NDCs.

**JI** (Article 6 of the Kyoto Protocol) is a crediting mechanism that allows mitigation projects or programs in Annex I countries to receive credits that can be transferred internationally and used by other Annex I countries to meet their targets under the Kyoto Protocol. JI has two tracks: under track 1, the host Party may register projects or programs and issue emission reduction units (ERUs) directly, without international oversight. To use track 1, the country has to meet a set of eligibility requirements.<sup>2</sup> Under track 2, projects or programs are registered and ERUs are issued under supervision of the Joint Implementation Supervisory Committee (JISC). Under Track 2, the host Party has to meet a less strict set of eligibility requirements.

Under **international emissions trading** (IET, Article 17 of the Kyoto Protocol), Annex I countries can participate in emissions trading for the purposes of fulfilling their targets. All types of Kyoto units may be transferred, including assigned amount units (AAUs) and removal units (RMUs). The same eligibility requirements have to be met as for JI track 1.

## 2.2 Principles in Article 6.1 of the Paris Agreement

Article 6 of the Paris Agreement begins with a general introductory paragraph (see Box 1). The paragraph could be interpreted as setting broad principles for all activities under Article 6. Article 6.1 presents four concomitant purposes to Article 6: implementation of NDCs; allowing for higher ambition in mitigation and adaptation actions; promoting sustainable development; and promoting environmental integrity. The formulation around “recognition” points towards a Party-driven approach. The paragraph also highlights the voluntary nature of cooperation under Article 6.

### Box 1: Article 6.1

Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.

## 2.3 Cooperative Approaches under Article 6.2

The cooperative approaches under Article 6.2 and 6.3 allow countries to use ITMOs to fulfil their NDCs (see Box 2). International guidance on implementing Article 6.2 is currently being negotiated under the Subsidiary Body for Science and Technology Advice (SBSTA). The cooperative approaches are commonly understood to allow Parties to transfer mitigation outcomes across borders – be it through international linking of emission trading schemes, international crediting mechanisms, or direct bilateral transfers – and to account those outcomes towards their NDCs. The use of cooperative approaches is accompanied by obligations for Parties towards sustainable development, environmental integrity, governance, transparency, and accounting.

<sup>2</sup> An AI Party with a commitment inscribed in Annex B is eligible to transfer and/or acquire ERUs if it is a Party to the Kyoto Protocol and if the Party has the following elements in place: a calculated and recorded assigned amount; a national system for GHG inventories; a national registry; annual submissions of the most recent inventory; and annual submissions of supplementary information (decision 9/CMP.1, para. 21).

## **Box 2: Provisions governing cooperative approaches under Article 6.2**

### **Article 6.2**

Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of ITMOs towards NDCs, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).

### **Article 6.3**

The use of ITMOs to achieve NDCs under this Agreement shall be voluntary and authorized by participating Parties.

### **Paragraph 36 of decision 1/CP.21**

Requests the SBSTA to develop and recommend the guidance referred to under Article 6, paragraph 2, of the Agreement for adoption by the CMA at its first session, including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by their NDCs under the Agreement.

## **2.4 Mechanism under Article 6.4**

The mechanism under Article 6.4 is commonly understood to be a new crediting mechanisms under the authority and guidance of the CMA (see Box 3). The provisions resemble strongly those of the CDM: the mechanism has a dual objective of supporting mitigation action as well as sustainable development, is under authority and guidance of the CMA and supervised by a UNFCCC body, involves public as well as private entities, and requires mitigation action to be additional, real, measurable, long term, as well as to be verified by designated operational entities.

### **Box 3: Provisions governing the crediting mechanism under Article 6.4**

#### **Article 6.4**

A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the CMA for use by Parties on a voluntary basis. It shall be supervised by a body designated by the CMA, and shall aim:

- (a) To promote the mitigation of greenhouse gas (GHG) emissions while fostering sustainable development;
- (b) To incentivize and facilitate participation in the mitigation of GHG emissions by public and private entities authorized by a Party;
- (c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its NDC; and
- (d) To deliver an overall mitigation in global emissions.

#### **Article 6.5**

Emission reductions resulting from the mechanism referred to in paragraph 4 of this Article shall not be used to demonstrate achievement of the host Party's NDC if used by another Party to demonstrate achievement of its NDC.

#### **Article 6.6**

The CMA shall ensure that a share of the proceeds from activities under the mechanism referred to in paragraph 4 of this Article is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.

#### **Article 6.7**

The CMA shall adopt rules, modalities and procedures for the mechanism referred to in paragraph 4 of this Article at its first session.

#### **Paragraph 37 of decision 1/CP.21**

Recommends that the CMA adopt rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Agreement on the basis of:

- (a) Voluntary participation authorized by each Party involved;
- (b) Real, measurable, and long-term benefits related to the mitigation of climate change;
- (c) Specific scopes of activities;
- (d) Reductions in emissions that are additional to any that would otherwise occur;
- (e) Verification and certification of emission mitigation activities by designated operational entities;
- (f) Experience gained with and lessons learned from existing mechanisms and approaches adopted under the Convention and its related legal instruments.

#### **Paragraph 38 of decision 1/CP.21**

Requests the SBSTA to develop and recommend rules, modalities and procedures for the mechanism referred to in paragraph 37 above for consideration and adoption by the CMA at its first session.

### 3 Analysis and comparison of key features

This section analyses and compares the mechanisms under the Kyoto Protocol (CDM, JI, IET) and the approaches under the Paris Agreement (Articles 6.2 and 6.4) along key features, with the objective of identifying important differences and design questions for the elaboration of approaches under the Paris Agreement. Section 3.12 provides a summary table of the analysis presented below.

#### 3.1 Purpose of the mechanisms

##### 3.1.1. Mitigation

Carbon markets aim to reduce the cost of mitigating climate change, thereby facilitating the achievement of mitigation targets. In fact, all mechanisms studied here (CDM, JI, IET, 6.2, 6.4) have the facilitation of achievement of targets as a purpose. All Kyoto units, including CERs, tCERs and ICERs from the CDM, ERUs from JI, and AAUs or RMUs can be used to fulfil commitments inscribed in Annex B to the Kyoto Protocol. Article 6.2 refers to the “use of ITMOs towards NDCs” and Articles 6.4(c) and 6.5 refer to using emission reductions resulting from the Article 6.4 mechanism towards NDCs.

International market mechanisms could also be used to facilitate further mitigation objectives. These include:

- ▶ Enabling countries to adopt more ambitious international mitigation targets, due to the cost reductions achieved through international market mechanisms;
- ▶ Achieving directly a global emission reduction beyond established mitigation targets<sup>3</sup> (referred to as “net emission reductions” in the following);
- ▶ Enabling countries to use international market mechanisms in domestic policies to achieve emission reductions;
- ▶ Allowing the verification of mitigation outcomes from climate finance, e.g. by purchasing and cancelling carbon market units as part of results-based climate finance programmes;
- ▶ Enabling voluntary offsetting of emissions by governments, the private sector, individuals, or non-governmental organizations;
- ▶ Facilitating capacity building, technology transfer and diffusion, and awareness raising, which may lead to increased mitigation action in the future.

CERs from the **CDM** and ERUs from **JI** have been mainly used for compliance with commitments inscribed in Annex B. The largest demand came from entities in the European Union’s (EU) emissions trading system (ETS) which can fulfil part of their compliance obligation with CERs or ERUs. In addition, several governments purchased CERs and ERUs through governmental purchase programs (EEA 2015).

CERs have, however, also been used for voluntary cancellation by Party and non-Party stakeholders, thereby tapping into non-compliance uses.<sup>4</sup> The World Banks’ Pilot Auctioning Facility and Climate Initiative for Development are purchasing CERs as a vehicle to provide results-based finance. CERs are also used as a compliance instrument in domestic schemes without international transfers – notably in the Korean ETS, where the CDM is effectively used as a domestic crediting scheme. The CDM is also seen to have increased awareness of climate change, have built capacity and have facilitated technology transfer and diffusion in host countries (Spalding-Fecher et al. 2012). For ERUs from JI other uses are possible, but have been rarely observed.

Internationally transferred AAUs and RMUs under **IET** have mainly been used towards the achievement of Kyoto Protocol targets. Transfers mainly took place in two types of situations: first, as a means to reflect net transfers across EU countries through the EU ETS; and second, as part of bilateral governmental purchase agreements, sometimes in connection with Green Investment Schemes (Tuerk et al. 2013). Neither AAUs nor RMUs can be used to meet compliance in ETS schemes; this relatively restricted use of AAUs and RMUs is largely a consequence of the limited oversight to ensure the environmental integrity (and thereby the credibility) of units.

<sup>3</sup> E.g. through baselines below business-as-usual (BAU) emissions or discounting of emissions reductions.

<sup>4</sup> Both the CMP and the COP have encouraged the use of CERs for voluntary cancellation by Party and non-Party stakeholders; the COP has extended this call also to other Kyoto Protocol units (see decision 1/CP.21, paragraph 106).

That said, several countries voluntarily cancelled large amounts of AAUs at the end of the first commitment period under the Kyoto Protocol, instead of banking them into the second commitment period.

Article 6 has a number of elements that point towards possible other uses than achieving existent NDCs.

**Article 6.1** refers to “allowing for higher ambition in mitigation and adaptation actions”; this could be interpreted as a broad purpose of Article 6, applicable to both the cooperative approaches under 6.2 and the Article 6.4 mechanism. “Allowing for higher ambition” could have different meanings, such as incentivizing more ambitious subsequent NDCs, providing net emission reductions or providing for adaptation actions that go beyond the adaptation measures pledged in Parties’ NDCs. In the negotiations to come, Parties could provide more clarity what aspects are meant with “allowing for higher ambition” and how this concept should be operationalized.

The reference to adaptation is also new as compared to the flexible mechanisms of the Kyoto Protocol, and could point toward an emphasis on mitigation actions with adaptation benefits. Although neither Article 6.2 nor Article 6.4 mention adaptation explicitly, this aspect could be captured through the “sustainable development” element (see below), as well as through provisions for shares of proceeds directed at adaptation activities. Lastly, Article 6.1 also mentions “environmental integrity” as one of its principles. This aspect is further discussed section 3.10 (Environmental integrity).

**Article 6.2** refers to the “use of ITMOs towards NDCs”. This could be interpreted in different ways. One option is that the provisions under Article 6.2 only apply to situations where international transfers are used for achieving NDCs. Another option could be to establish ITMOs as units that can be issued and transferred and that may or may not be used to meet NDCs. In this latter case, ITMOs could possibly also be used for purposes other than achieving NDCs, such as for voluntary cancellation or in the context of activities implemented under Article 6.8.

Unlike Article 6.2, **Article 6.4** is described in the Paris Agreement as promoting the mitigation of GHG emissions in general terms (as opposed to only facilitating the achievement of NDCs). This could point to a broader use of the mechanism and/or its units. Article 6.4 also has the aim to deliver an “overall mitigation in global emissions”. There is no agreed definition for the term, but it evolved from proposals that mechanisms contribute to “net mitigation” of global emissions (or net emission reductions) (Marcu, 2016). The discussion about what “overall mitigation” is, who delivers it, when it is delivered, and how it is to be accounted for is one of the key issues for consideration in the elaboration of Article 6.4.

Clarifying the mitigation objectives and possible uses of ITMOs or units from Article 6.2 and 6.4 is important as they can influence the design of the mechanisms. Moreover, different objectives and uses will impact how the mechanisms are used – affecting both the supply and the demand, and ultimately the market price of ITMOs or units.

### 3.1.2. Sustainable development

Achieving sustainable development (SD) is often a further purpose of international market mechanisms. For the **CDM** and the **Article 6.4** mechanism, SD is one of the primary purposes. Article 6.2 also emphasises the promotion of SD as one of the requirements for Parties when transferring ITMOs. Moreover, Article 6.1 mentions the promotion of sustainable development. Neither JI nor IET make reference to SD.

Under the **CDM**, the assessment of sustainable development issues is the prerogative of host countries. When approving projects, the designated national authority (DNA) of the host country has to confirm that the projects assist the country in achieving sustainable development. Some host countries have developed and published criteria or guidelines to assess the SD benefits of projects and programs, while most countries have not.

Information on sustainable development impacts is self-declared by project developers in project design documents. In response to a request by the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol (CMP), the CDM Executive Board has developed a tool that may be used on a voluntary basis to report on sustainable development co-benefits in a comparable and structured manner. The tool does not allow project developers to report on any negative effects. The CDM does not require third party verification or monitoring of sustainable development benefits. There are also no international environmental or social safeguards, except for Carbon Capture and Storage (CCS) projects.

Under **Article 6**, many countries have argued that the assessment of sustainable development should remain a prerogative of countries. Countries could, however, be required to report on how the use of international mechanisms promotes sustainable development. This could also include minimum requirements or reporting tools. Some stakeholders have proposed to establish a link to the Sustainable Development Goals (UNFCCC 2016).

|                | <b>CDM</b>   | <b>JI</b>   | <b>IET</b>  | <b>6.2</b>  | <b>6.4</b>   |
|----------------|--|---|---|---|--|
| <b>Purpose</b> | <ul style="list-style-type: none"> <li>▶ Achieving sustainable development in NAI countries</li> <li>▶ Assisting NAI countries in contributing to ult. objective of the Convention</li> <li>▶ Fulfilling KP targets</li> </ul> | <ul style="list-style-type: none"> <li>▶ Fulfilling KP targets</li> </ul> | <ul style="list-style-type: none"> <li>▶ Fulfilling KP targets</li> </ul> | <ul style="list-style-type: none"> <li>▶ Achieving NDCs</li> <li>▶ Allow for higher ambition in mit. and adapt. (Art. 6.1)</li> <li>▶ Promote sustainable development (Art. 6.1)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Contribute to mitigation of GHGs</li> <li>▶ Achieving NDCs</li> <li>▶ Support sustainable development</li> <li>▶ Overall mitigation in global emissions</li> <li>▶ Allow for higher ambition in mit. and adapt. (Art. 6.1)</li> </ul> |

### 3.2 Mechanism type

There are two main types of mechanisms: in trading mechanisms, participants transfer emission permits within an overall emissions cap. Trading mechanisms can be implemented at government level (i.e. directly between governments, e.g. through bilateral transfers) and at installation level (e.g. by international linking of ETSs). In crediting mechanisms, reductions in emissions are credited against a baseline, possibly adjusting for indirect emission effects (leakage). These credits can then be transferred and used to achieve targets, such as ETS caps or national mitigation targets. Credits could be originated from activities within or outside the scope of mitigation targets.

The **CDM** is a crediting mechanism outside the scope of targets inscribed in Annex B of the Kyoto Protocol, **JI** is a crediting mechanism within the scope of these targets, and **IET** is a trading mechanism at governmental level between Annex B countries.

The cooperative approaches under **Article 6.2** are not further defined, leaving the type of mechanism that can use the provisions of Article 6.2 open. A possible interpretation is thus that Article 6.2 could accommodate both trading and crediting mechanisms. An open question is whether Article 6.2 only includes mitigation outcomes generated with the scope of NDCs, or also mitigation outcomes generated outside the scope of NDCs.

Although the term “crediting” is not explicitly mentioned, the **Article 6.4** mechanism is structured as a crediting mechanism. This is underscored by references to “emission reductions”, “additionality”, “real, measurable and long term” emission reductions, and verification and certification by “designated operational entities”. Article 6.4 could potentially include activities both outside the scope of NDCs (similar to the CDM) and within the scope of NDCs (similar to JI). The relationship between emission reductions under Article 6.4 and NDCs will be one important aspect in the further elaboration of the mechanism. It is also possible that the mechanism be structured around separate “tracks” or “windows” which could cater to different aspects of coverage (i.e. within/outside of NDCs), as well as to different scales and types of activities.

|                       | <b>CDM</b>  | <b>JI</b>  | <b>IET</b>  | <b>6.2</b>   | <b>6.4</b>  |
|-----------------------|---|--|---|--|---|
| <b>Mechanism type</b> | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (outside the scope of KP targets)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (within scope of KP targets)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Trading mechanism</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified (possibly trading and crediting mechanisms, scope not specified)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (scope not specified)</li> </ul> |

### 3.3 Nature of mitigation outcomes (unit or reported information)

Mitigation outcomes under Article 6.2 and emission reductions under Article 6.4 could be issued as units, transferred across or within electronic registries. Alternatively, mitigation outcomes and emission reductions could simply be amounts reported by countries in tables for accounting purposes. The former facilitates trading and tracking, while the latter avoids the establishment of registry infrastructure.

The **Kyoto Protocol** establishes units that are issued to and transferred between national registries. Commitments inscribed in Annex B of the Kyoto Protocol are converted into assigned amounts, which in turn are issued as AAUs. ERUs are obtained by converting AAUs, whereas CERs are issued in a CDM registry operated by the UNFCCC secretariat.

ITMOs under **Article 6.2** are “mitigation outcomes” that are “internationally transferred”. It is unclear whether they will be issued as units or merely be reported by countries for the purpose of implementing “corresponding adjustments” (see section 3.11 below).

The text on the **Article 6.4** mechanism refers to “emission reductions”. They could also either constitute units, similar to the Kyoto Protocol, or only amounts reported by countries in tables. It is also unclear whether or not emission reductions transferred and used by another country towards achieving its NDC are considered as ITMOs under Article 6.2.

|  | CDM    | JI     | IET    | 6.2             | 6.4             |
|--|--------|--------|--------|-----------------|-----------------|
| Nature of mitigation outcomes (unit or reported information) | ► Unit | ► Unit | ► Unit | ► Not specified | ► Not specified |

### 3.4 Metrics of mitigation outcomes

In carbon market mechanisms, units are usually expressed as t CO<sub>2</sub>eq; yet other metrics are also employed by market mechanisms, such as MWh of renewable energy for trading of renewable energy certificates. The metric of units is particularly relevant for accounting of international transfers.

All flexibility mechanisms under the **Kyoto Protocol** use t CO<sub>2</sub>eq as unit of measure, using the basket of GHGs in Annex A to the Kyoto Protocol and applying the same values for global warming potentials (GWPs) as countries.

**Article 6.2** does not indicate any metric of ITMOs, and some Parties argue that it could include outcomes measured in metrics other than t CO<sub>2</sub>eq. Using t CO<sub>2</sub>eq as a universal metric may facilitate accounting for international transfers. Addressing different metrics of mitigation targets – and possibly different metrics for ITMOs – is one of the challenges for robust accounting of international transfers of mitigation outcomes under Article 6.2 (Schneider et al. 2016a).

The output of the mechanism in **Article 6.4** is referred to as “emission reductions”, which could be interpreted to mean that the unit of measurement is also t CO<sub>2</sub>eq.

|                                | CDM                    | JI                     | IET                    | 6.2             | 6.4                           |
|--------------------------------|------------------------|------------------------|------------------------|-----------------|-------------------------------|
| Metrics of mitigation outcomes | ► t CO <sub>2</sub> eq | ► t CO <sub>2</sub> eq | ► t CO <sub>2</sub> eq | ► Not specified | ► Likely t CO <sub>2</sub> eq |

### 3.5 Applicable countries

The Kyoto Protocol has dedicated mechanisms for different country groups: **CDM** activities can only be hosted in non-Annex I countries; **JII** activities can only be hosted in Annex I countries; and **IET** can only take place among Annex I countries. This differentiation does not exist in **Article 6** of the Paris Agreement; all countries could, in principle, make use of either Article 6.2 or 6.4.

|                      | CDM  | JII   | IET   | 6.2   | 6.4   |
|----------------------|--|---|---|---|---|
| Applicable countries | <ul style="list-style-type: none"><li>▶ Non-Annex I countries host projects</li><li>▶ Annex I countries acquire CERs</li></ul> | <ul style="list-style-type: none"><li>▶ Annex I countries</li></ul> | <ul style="list-style-type: none"><li>▶ Annex I countries</li></ul> | <ul style="list-style-type: none"><li>▶ All countries</li></ul> | <ul style="list-style-type: none"><li>▶ All countries</li></ul> |

### 3.6 Prerequisites and restrictions for using mechanisms

Participation by countries in international carbon market instruments can be subject to prerequisites, and/or their access may be subject to restrictions. These include, mainly:

- ▶ **Eligibility criteria for participation**, such as having ratified the international agreement, having a certain type of target, or having registries or national systems to report GHG emissions in place;
- ▶ **Limitations on the transfer or use of units**, such as thresholds for the amount of mitigation outcomes that are transferrable, such as the commitment period reserve under the Kyoto Protocol, or the principle of supplementarity, which is commonly understood to mean that the mitigation effort of a Party needs to be achieved mainly domestically.

Access to all flexibility mechanisms of the Kyoto Protocol is subject to the country being a party to the Protocol. Moreover, Annex I countries wishing to acquire or transfer Kyoto units have to meet a number of eligibility criteria: they must have calculated their assigned amount in accordance with CMP rules; have inventory and registry systems; and annually submit relevant information on GHG emissions and accounting of units. A less strict scope of requirements applies to the issuance and transfer of ERUs under JI track 2.

To use the CDM, both Annex I and non-Annex I countries have to designate a national authority for the CDM. Specific requirements apply to countries wishing to host CCS CDM projects: they have to assume long-term liability for the storage site and they must have established laws or regulations that provide for “timely and effective redress for affected entities, individuals and communities for any significant damages (...) caused by the project activity” (decision 10/CMP.7).

The flexibility mechanisms of the Kyoto Protocol are subject to the principle of supplementarity (decision 2/CMP.1). Parties with a commitment inscribed in Annex B also have to calculate a commitment period reserve – a minimum amount of units which they have to hold in national registries and cannot transfer to other countries.

The Paris Agreement does not establish any eligibility criteria or limitations on the use of Article 6. Participation in both cooperative approaches under Article 6.2 and the Article 6.4 mechanism is also voluntary. However, it is possible that eligibility criteria or limitations could arise from the operationalization of the principles of environmental integrity and robust accounting. Both eligibility criteria and limits are proposed by countries in the ongoing negotiations.

Article 4.2 of the Paris Agreement requires Parties to pursue domestic mitigation. Although the paragraph stems from discussions on the “bindingness” of NDCs (Bodansky 2016), the current formulation could be interpreted as a principle similar to supplementarity under the Kyoto Protocol, requiring Parties to achieve at least part of their NDC through domestic actions.

|  | <b>CDM</b>  | <b>JI</b>  | <b>IET</b>   | <b>6.2</b>  | <b>6.4</b>  |
|--|---|--|--|---|---|
| <b>Prerequisites and restrictions for using mechanisms</b> | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> </ul> | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> <li>▶ Commitment period reserve</li> </ul> | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> <li>▶ Commitment period reserve</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul> |

### 3.7 Activities eligible under crediting mechanisms

Crediting mechanisms can be applicable to different types of activities.<sup>5</sup> Two aspects are important:

- ▶ The level at which crediting occurs: this could include projects (i.e. an individual activity in a single location, such as a methane flaring project in a specific landfill), programmes (i.e. several similar activities in multiple locations, such as the distribution of efficient cook stoves), sectors (i.e. crediting an entire sector if emissions fall below a sectoral baseline), or policies (i.e. crediting the emission reductions from the implementation of a policy<sup>6</sup>); and
- ▶ The types of mitigation actions that are eligible (i.e. restrictions on specific sectors or technologies).

The **CDM** can be employed for individual projects and PoAs, but not to crediting at policy level. Although it allows for the determination of baselines on the basis of sectoral data (e.g. standardized baselines), it does not allow crediting emission reductions at sectoral level by comparing a sector-wide baseline with sector-wide actual emissions. It allows for a broad range of mitigation actions, with a few activities or technologies excluded for methodological and other reasons. Restrictions apply, for example, on nuclear facilities, land-use change other than afforestation and reforestation, and activities that give raise to non-permanence of emission reductions. Restrictions also apply to activities that do not easily render themselves for quantification of emission reductions, such as capacity building measures or some types of hydropower reservoirs.

**JI** can also be employed for individual projects and to PoAs, and has only a restriction on nuclear facilities. Both the CDM and JI include all gases listed in Annex A of the Kyoto Protocol in baseline emissions.

**Article 6.2** does not include any explicit restrictions. The lack of provisions, the strong role of Parties, and the term “guidance” could be interpreted to mean that cooperative approaches could include crediting at different levels and that all type of activities are eligible.

**Article 6.4** refers to “specific scopes of activities” to be determined in the rules, modalities and procedures (paragraph 37c of decision 1/CP.21). This provision is also open to different interpretations, both with regard to the level of crediting and the type of activities eligible. It could be interpreted to mean that the type of activities or the level at which crediting occurs could be limited in scope:

- ▶ Some stakeholders have proposed that the Article 6.4 mechanism should not only credit projects and PoAs, but also entire sectors and policies. For example, the World Bank is exploring up-scaled crediting at sectoral or policy level as part of its Transformative Carbon Asset Facility.
- ▶ In terms of types of activities, the rules, modalities and procedures could limit the type of eligible activities or be open to any type of activity. An important debate arising in the negotiations is whether REDD+<sup>7</sup> activities should be included or excluded from the mechanism, with at least one Party strongly in favour and another one strongly against.

<sup>5</sup> By contrast, trading mechanisms are defined by their coverage, including which countries, entities or installations participate in the mechanism, as well as the gases controlled by the scheme.

<sup>6</sup> Policy crediting could differ from programme crediting in terms of the ability to assess additionality and measure emission reductions. Specifically, policy crediting is often mentioned in the context of policies for which emission reductions do not easily render themselves for quantification (e.g. for capacity-building initiatives).

<sup>7</sup> REDD+ refers to “Reduced emissions from deforestation, forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”.

Article 6.4 also requires that mitigation benefits be “long-term”. The meaning is not clear. It could be interpreted in the context of permanence of emission reductions or as activities that contribute to the long-term transition to a low carbon economy, e.g. those with a “transformational effect” or those avoiding the lock-in of technologies that represent emission reductions in the short term but need to be phased out in the long term, such as fossil fuel infrastructure.

|                              | <b>CDM</b>  | <b>JI</b>  | <b>IET</b> | <b>6.2</b>      | <b>6.4</b>                        |
|------------------------------|---|--|------------|-----------------|-----------------------------------|
| <b>Applicable activities</b> | <ul style="list-style-type: none"> <li>▶ Scale: Projects and programmes</li> <li>▶ Techs: a few exceptions apply</li> </ul> | <ul style="list-style-type: none"> <li>▶ Scale: Projects and programmes</li> <li>▶ Techs: all but nuclear</li> </ul> | ▶ n/a      | ▶ Not specified | ▶ “Specific scopes of activities” |

## 3.8 Governance arrangements

Mechanisms can be overseen, regulated and operated by bodies established at different levels: at international/multilateral level (e.g. UNFCCC, World Bank), by a group of countries, at bilateral level (e.g. the Joint Crediting Mechanism initiated by Japan), at national level (governments), and by non-governmental organizations. Hybrid structures are possible and responsibilities are often shared, so that different levels play different roles in the design and operation of the mechanism.

Broadly speaking, governance arrangements at higher levels (e.g. at international level) are often seen to allow for higher harmonization, leading to more comparability and consistency and providing a minimum assurance of environmental integrity, yet with the disadvantage of possibly making the mechanism less adaptable to local circumstances. Lower-level governance arrangements may be able to better reflect local circumstances, but are likely to increase fragmentation and could fail to ensure a minimum level of environmental integrity.

In this section we address two key governance issues: the bodies that participate in the regulation and operation of the mechanisms; and the relevant rules that govern each instrument.

### 3.8.1. Governing bodies

The **flexibility mechanisms of the Kyoto Protocol** involve three main governance levels: the CMP, UNFCCC bodies, and host countries. For all three mechanisms, the CMP establishes general rules governing the mechanisms. Under the **CDM**, an executive board operates and supervises the mechanism, supported by the UNFCCC secretariat and technical panels, working groups and experts. The DNAs of the participating countries approve projects and authorise participation of private entities at national level. The CDM also includes provisions for the consultation of stakeholders during the project cycle.

**JI track 2** is similar to the CDM, with the JISC overseeing the implementation of the mechanism. In **JI track 1**, however, it is the host Party that operates the mechanism within its territory. Having identified a number of environmental integrity issues with JI track 1 projects, Kollmuss et al. (2015) conclude that international oversight is needed for crediting mechanisms, particularly where national targets lie above BAU emissions.

Unlike CDM and JI, **IET** has no dedicated supervising body. Instead, its operations follow international rules agreed by the CMP. Parties are responsible for implementing the rules, and compliance is ensured through an UNFCCC international transaction log (ITL) authorizing unit transfers between national registries, a technical expert review of information reported by countries on unit transfers, and procedures for non-compliance.

**Article 6.2** establishes that “Parties shall (...) ensure environmental integrity and transparency, including in governance (...).” This provision suggests that Parties are the main responsible entities for ensuring the principles set out in the Article. It could also be interpreted that transparency shall be provided not only with regard to the transfer of ITMOs, but also the governance arrangements underlying the transfers. This could potentially extend to making information on transfers publicly available, having publicly accessible procedures and standards for any mechanisms underlying the transfers, or providing for means of stakeholder consultation. Moreover, Article 6.3 establishes that the use of ITMOs to achieve NDCs shall be authorized by participating Parties.

The **Article 6.4** mechanism is under the authority and guidance of the CMA, and supervised by a body designated by the CMA. Paragraph 37 of the decision 1/CP.21 also establishes that participation shall be authorized by “each Party involved”. The mechanism is thus understood to be a centralized UNFCCC mechanism similar to the CDM or JI track 2, although it is possible that more authority be devolved to host governments than in the CDM or JI track 2.

Another important aspect is the issue of enforcement: binding rules presume the existence of an enforcement mechanism, yet the mechanism to facilitate implementation and promote compliance under Article 15 of the Paris Agreement is “facilitative”, “non-adversarial” and “non-punitive”. Information on governance arrangements, and how countries meet requirements under Article 6 generally, could be reported under Article 13 of the Agreement and be subject to the technical expert review of Article 13.11. It is not clear, however, if these provisions would be sufficient to maintain credibility of international market mechanisms.

|                         | <b>CDM</b>   | <b>JI</b>  | <b>IET</b>  | <b>6.2</b>   | <b>6.4</b>  |
|-------------------------|--|--|---|--|---|
| <b>Governing bodies</b> | <ul style="list-style-type: none"> <li>▶ CDM EB and CMP</li> <li>▶ Parties (project approval)</li> <li>▶ Stakeholder consultation</li> </ul> | <ul style="list-style-type: none"> <li>▶ Track 1: Parties, with CMP rules</li> <li>▶ Track 2: JISC and CMP</li> <li>▶ Track 2: Parties (project approval)</li> <li>▶ Stakeholder consultation</li> </ul> | <ul style="list-style-type: none"> <li>▶ Parties, with CMP rules</li> </ul> | <ul style="list-style-type: none"> <li>▶ Parties, with CMA guidance</li> </ul> | <ul style="list-style-type: none"> <li>▶ UNFCCC body and CMA authority and guidance</li> <li>▶ Party authorization</li> </ul> |

### 3.8.2. International rules

The flexible mechanisms of the Kyoto Protocol were established as part of the Protocol and further detailed in a number of CMP decisions. Experience has shown that further rules are often developed as the need arises – often expanding the original scope of rules. Operational decisions – such as the adoption of standards, procedures or guidelines, or rulings on specific projects or entities – are then taken by UNFCCC bodies or the countries implementing the mechanisms.

Article 12 of the Kyoto Protocol requests that “modalities and procedures” be elaborated for the **CDM**. Different modalities and procedures were developed for different project types, distinguishing between project size (large-scale and small-scale) and different project types (“normal” CDM projects, afforestation and reforestation projects, and CCS projects). The modalities and procedures govern all aspects related to the generation of CERs, whereas other CMP decisions regulate the transfer and use of units. These provisions are mandatory and were adopted by the CMP, which also provides annually further guidance to the CDM Executive Board.

Article 6 of the Kyoto Protocol requests that “Guidelines” be elaborated for **JI**. The JI Guidelines are mandatory and were adopted by the CMP. For JI track 2, much like the CDM modalities and procedures, the JI Guidelines govern all aspects related to the approval of ERUs by the JISC. The CMP also provides annually further guidance to the JISC. For JI track 1, the JI Guidelines establish eligibility criteria and basic substantive and procedural requirements. Other CMP decisions regulate the transfer and use of units.

Article 17 of the Kyoto Protocol requests that “principles, modalities, rules and guidelines” be elaborated for **IET**. The main regulation of IET is centred on the “Modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol” (decision 11/CMP.1), yet other CMP decisions (e.g. decision 13/CMP.1 on accounting of assigned amounts) are also relevant for the operation of the instrument. Together, these provisions – which are mandatory and were adopted by the CMP – regulate all aspects of IET.

As mentioned above, **Article 6.2** requires implementation to be “consistent with guidance” to be adopted by the CMA. Parties differ in their interpretation of the scope of said guidance: some see it applying to accounting issues only, whereas others consider that the guidance should also cover all other aspects of Article 6.2 (i.e. “sustainable development, environmental integrity and transparency, including in governance”).

In any case, several Parties argue for the need for international provisions on environmental integrity under 6.2. Ensuring environmental integrity and robust accounting requires provisions at three points: the issuance, transfer and use of mitigation outcomes; however, there is no agreement among Parties which of these points should be addressed by the international guidance. A further area of contention is likely to be the nature of the provisions: while “guidance” is commonly interpreted to mean that the provisions are not mandatory, some Parties consider that the guidance under 6.2 is to be binding on all Parties. The scope and content of the guidance to be elaborated by the CMA is key in determining the level of self-determination granted to Parties in the implementation of the provisions of Article 6.2.

As for **Article 6.4**, the mandate is for “rules, modalities and procedures” to be adopted by the CMA. The elements contained in paragraph 37 of the Paris decision indicate that, much like the CDM, the rules, modalities and procedures of Article 6.4 will govern most or all aspects related to the generation of emission reductions. It remains to be seen, however, how accounting provisions will be regulated – i.e. whether they will be specific to Article 6.4, or whether a common set of accounting provision will apply to Article 6.2 and 6.4.

|                            | <b>CDM</b>  | <b>JI</b>  | <b>IET</b>   | <b>6.2</b>   | <b>6.4</b>  |
|----------------------------|---|--|--|--|---|
| <b>International rules</b> | <ul style="list-style-type: none"> <li>▶ Modalities and procedures for different project types</li> <li>▶ Annual CMP guidance to the CDM EB</li> <li>▶ Rules adopted by the CDM EB</li> </ul> | <ul style="list-style-type: none"> <li>▶ Guidelines</li> <li>▶ Track 2: Annual CMP guidance to the JISC</li> <li>▶ Track 2: Rules adopted by the JISC</li> </ul> | <ul style="list-style-type: none"> <li>▶ Principles, modalities, rules and guidelines</li> </ul> | <ul style="list-style-type: none"> <li>▶ Guidance</li> </ul> | <ul style="list-style-type: none"> <li>▶ Rules, modalities and procedures</li> <li>▶ Rules adopted by the governing body</li> </ul> |

### 3.9 Involvement of public and private entities

One of the key advantages of carbon markets is their ability to mobilize the private sector towards climate action and thereby identify low-cost mitigation opportunities. The **CDM**, **JI** and **Article 6.4** include references for the participation of both public and private entities<sup>8</sup>, subject to authorization by the host Party. In contrast, Kyoto provisions for **IET** and **Article 6.2** do not mention private entities. Yet private entities could be involved in mechanisms underlying transfers under Article 6.2, such as bilateral crediting mechanisms or international linking of ETSS.

|   | <b>CDM</b>  | <b>JI</b>   | <b>IET</b>  | <b>6.2</b>  | <b>6.4</b>  |
|---|---|---|---|---|---|
| <b>Involvement of private and public entities</b> | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul> | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul> | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul> |

### 3.10 Environmental integrity

The term “environmental integrity” has not been defined – neither under the Kyoto Protocol nor under the Paris Agreement. In the context of international transfers under Article 6, environmental integrity could mean that the international transfer of mitigation outcomes should not result in higher global emissions than if the NDCs had been achieved only through domestic action (Schneider et al. 2016b). Four factors are critical for ensuring the environmental integrity of international transfers of mitigation outcomes (Schneider et al. 2016b):

- 1. Ambition of NDCs:** Countries with ambitious economy-wide mitigation targets have an incentive to ensure the environmental integrity of mitigation outcomes they transfer to another country. If a country transfers mitigation outcomes that lack environmental integrity to another country, it would have to compensate for the transfer in order to still achieve its mitigation target, by either further reducing emissions or acquiring mitigation outcomes elsewhere.

<sup>8</sup> JI refers to “legal entities”.

By contrast, if a country's NDC target is above its actual business-as-usual (BAU) emissions, it could sell mitigation outcomes that lack environmental integrity without infringing its ability to achieve its target, so there is no incentive to ensure environmental integrity.

2. **Incentives for future mitigation action:** Market mechanisms reduce the cost of mitigation and could thereby enable countries to adopt more ambitious targets. They could also increase knowledge and awareness of climate issues, which might lead to enhanced mitigation efforts in the future. Yet participation in international market mechanisms can also create disincentives to pursue mitigation action. Countries could have incentives to set mitigation targets at unambitious levels, or to define the scope of targets narrowly, in order to accrue more benefits from selling mitigation outcomes internationally. Under crediting mechanisms, host countries could also have perverse incentives not to adopt mitigation policies, because they might lower the potential for generating and exporting credits.
3. **Environmental integrity of the mitigation outcomes:** The environmental integrity of a mitigation outcome (assuming here it represents a 1 t CO<sub>2</sub>eq emission reduction) is ensured if the transfer actually generates a GHG emission reduction in the originating country of not less than 1 t CO<sub>2</sub>eq. In crediting mechanisms, this means ensuring that the credited activities are additional – i.e. they would not be implemented in the absence of the crediting program – and the emission reductions are not overestimated. In trading mechanisms, this means ensuring proper quantification of emissions and that emission caps are set below business-as-usual (BAU) emissions, although in ETSs other design features – such as price collars, unit reserves, provisions for banking or borrowing of units, and interactions with other policies – can also affect the environmental outcome.
4. **Robust accounting of for the transferred mitigation outcomes:** This includes different aspects further explored in the next section below.

Here we compare how mechanisms ensure the environmental integrity of mitigation outcomes.

The **CDM** aims to ensure environmental integrity of CERs through several requirements and steps throughout the project cycle. Projects have to demonstrate additionality and determine emission reductions in a conservative manner, using approved baseline and monitoring methodologies. The approval of projects and the issuance of CERs is vetted by third-party auditors, by the host country, through stakeholder consultations and by the Executive Board. Environmental impact assessments are also required. The wealth of rules and procedural steps has fuelled criticism that the CDM is too costly and cumbersome; at the same time, and despite its rules and processes, the mechanism has raised concerns about environmental integrity (Spalding-Fecher et al. 2012).

The two **JI** tracks share the underlying principle of additionality, alongside basic criteria for baseline and monitoring methodologies. The JISC established rules and procedures for the verification of projects and emissions reductions under track 2 that draw on those from the CDM. Some countries have established similar rules for track 1, but the integrity of ERUs was assessed to be low in countries with mitigation targets above BAU emissions (also referred to as “hot air”), in particular for the large amount of ERUs from Ukraine and Russia (Kollmuss et al. 2015; Schneider and Kollmuss 2015). This questions whether countries with mitigation targets above BAU emissions have incentives to ensure environmental integrity of transferred mitigation outcomes.

The use of AAUs under **IET** also faced several problems with the transfer of “hot air”, raising concerns over the environmental integrity of the units transferred. AAUs were, for instance, transferred in the context of Green Investment Schemes. However, based on the available information, it is questionable whether the emission reductions are equal to the amount of AAUs transferred.

**Article 6.2** requires Parties to “ensure environmental integrity and transparency” where engaging in cooperative approaches. An important question is whether the international guidance under Article 6.2 will address environmental integrity. To ensure the environmental integrity of transferred mitigation outcomes, in principle, two approaches could be pursued at international level: International rules could establish principles for environmental integrity and request Parties to implement these and report on their implementation under the transparency framework of Article 13. For crediting mechanisms, this could, for example, include general requirements to ensure additionality of the credited activities. Another approach could be ensuring that only countries with mitigation targets below their actual BAU emissions participate in international transfers under Article 6.2.<sup>9</sup> Towards this end, one Party has proposed limits on the mitigation outcomes that are eligible for transfer.

<sup>9</sup> This would likely require an agreement among Parties on how to define and quantify BAU emissions.

**Article 6.4** has a number of provisions that aim to safeguard environmental integrity. These include requiring that mitigation benefits be real, measurable and long term; that additionality is ensured; and that emission reductions be verified and certified by designated operational entities. These elements can build on the experience of CDM and JI, but may also be expanded further.

|  | CDM   | JI  | IET   | 6.2   | 6.4   |
|--|---|---|---|---|---|
| <b>Environmental integrity and transparency provisions</b> | <ul style="list-style-type: none"> <li>▶ Real, measurable, long-term benefits</li> <li>▶ Additionality</li> <li>▶ Third-Party verification</li> <li>▶ Impact assessments</li> </ul> | <ul style="list-style-type: none"> <li>▶ Additionality</li> <li>▶ Track 2: Third-party verification</li> <li>▶ Reporting and review of GHG inventories and accounting of assigned amount</li> </ul> | <ul style="list-style-type: none"> <li>▶ Reporting and review of GHG inventories and accounting of assigned amount</li> </ul> | <ul style="list-style-type: none"> <li>▶ Ensure environmental integrity and transparency</li> </ul> | <ul style="list-style-type: none"> <li>▶ Real, measurable, long-term benefits</li> <li>▶ Additionality</li> <li>▶ Third-party verification</li> </ul> |

### 3.11 Accounting for the transfer of mitigation outcomes

Robust accounting for the transfer of mitigation outcomes requires addressing a number of different issues (Schneider et al. 2016a), including:

- ▶ Quantifying mitigation targets and progress towards mitigation targets;
- ▶ Quantifying mitigation outcomes;
- ▶ Avoiding double counting of emission reductions;
- ▶ Accommodating any different metrics for mitigation outcomes and mitigation targets;
- ▶ Accounting for the vintage of mitigation outcomes in relation to mitigation targets; and
- ▶ Addressing any non-permanence of mitigation outcomes, such as in the LULUCF sector or from geological storage of CO<sub>2</sub>.

These issues could be addressed through a range of (accounting) approaches, including:

- ▶ Accounting rules for international transfer;
- ▶ Tracking the transfer and use of mitigation outcomes;
- ▶ Appropriate design of market mechanisms;
- ▶ Ensuring clarity of mitigation targets;
- ▶ Ensuring that mitigation targets have common features;
- ▶ Eligibility requirements for the participation in international market mechanisms;
- ▶ Procedures for reporting and review of relevant information.

Here we focus our comparison on rules to account for the transfer of mitigation outcomes.

**Under the Kyoto Protocol**, Parties with commitments inscribed in Annex B have absolute, economy-wide, multiyear emission targets for the same basket of GHGs and the same defined commitment periods. This greatly facilitates accounting for international unit transfers: units acquired from other countries or the CDM registry are added to the emissions budget (the “assigned amount”), and units transferred to other countries are subtracted. Units could be carried over between the first and the second commitment period, although with restrictions on the type and amount. The potential non-permanence of mitigation from afforestation, reforestation and CCS projects from the CDM is addressed through the creation of temporary and/or revocable credits.

Under the **Paris Agreement**, an important general question for the negotiations is how the accounting provisions under Article 4 and the provisions on the transparency framework of Article 13 will relate to the specific accounting provisions for international transfer under Article 6.

Parties could, for example, explore a tiered or modular approach, with general accounting provisions applicable to all Parties, and more specific provisions applicable to Parties wishing to engage in international transfers.

The provisions under **Article 6.2** require the application of “robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the CMA”. This is to be done, among others, through “corresponding adjustments” for emissions and removals covered by NDCs. Hence, whereas the Kyoto Protocol adjusts the mitigation targets to account for unit transfers, by changing the emissions budget of the country, the Paris Agreement requires countries to adjust their reported progress. Both approaches can, in principle, effectively avoid double counting of emission reductions between countries.

With regard to the **Article 6.4 mechanisms**, the Paris Agreement does not explicitly refer to “robust accounting” or the “avoidance of double counting”, but Article 6.5 requires that emission reductions resulting from the mechanism shall only be used by one Party towards achieving of its NDC. This provision thus also aims to avoid double counting of emission reductions.

An important issue for the negotiations is the relationship between the accounting provisions of Article 6.4 and 6.2. Parties could establish the same or different accounting provisions for the two approaches. One possible interpretation is that any mitigation outcome that is used towards NDCs – independent of whether it is generated under the Article 6.4 mechanism or by a cooperation among Parties under Article 6.2 – automatically falls under the scope of Article 6.2, and that the same accounting provisions apply. Another possible interpretation is that the specific accounting provision in Article 6.5 could point to a different set of accounting rules.

Under both Article 6.2 and 6.4, the diversity of NDCs submitted under the Paris Agreement is a major challenge for robust accounting. Not all NDCs have quantitative mitigation targets, but some only include “actions”. Some NDCs have non-GHG mitigation targets, targets for parts of the economy or only for some GHGs, targets for single years only, or targets that are conditional to provision of international support.

|  | <b>CDM</b>   | <b>JI</b>   | <b>IET</b>   | <b>6.2</b>  | <b>6.4</b>  |
|--|--|---|--|---|---|
| <b>Accounting for transfers of mitigation outcomes</b> | <ul style="list-style-type: none"> <li>▶ Issuance to CDM registry</li> <li>▶ Additions to assigned amount</li> <li>▶ Carry-over with restrictions</li> </ul> | <ul style="list-style-type: none"> <li>▶ Issuance by conversion of AAUs</li> <li>▶ Additions and subtractions to assigned amount</li> <li>▶ Carry-over with restrictions</li> </ul> | <ul style="list-style-type: none"> <li>▶ Issuance to national registries</li> <li>▶ Additions and subtractions to assigned amount</li> <li>▶ Carry-over with restrictions</li> </ul> | <ul style="list-style-type: none"> <li>▶ Robust accounting, inter alia, to ensure avoiding double counting Corresponding adjustments</li> </ul> | <ul style="list-style-type: none"> <li>▶ Reductions transferrable but to be used by one Party only</li> </ul> |

## 3.12 Summary

Table 1 provides a summary of the information presented in sections 3.1–3.11 above.

Table 1: Comparison of market mechanism under the Kyoto Protocol and Paris Agreement

|   | <b>CDM</b>   | <b>JI</b>  | <b>IET</b>   | <b>Article 6.2</b>  | <b>Article 6.4</b>  |
|---|--|--|--|---|---|
| <b>3.1 Purpose</b>  | <ul style="list-style-type: none"> <li>▶ Achieving sustainable development in NAI countries</li> <li>▶ Assisting NAI countries in contributing to ult. objective of the Convention</li> <li>▶ Fulfilling KP targets</li> </ul> | <ul style="list-style-type: none"> <li>▶ Fulfilling KP targets</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Fulfilling KP targets</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Achieving NDCs</li> <li>▶ Allow for higher ambition in mit. and adapt. (Art. 6.1)</li> <li>▶ Promote sustainable development (Art. 6.1)</li> </ul> | <ul style="list-style-type: none"> <li>▶ Contribute to mitigation of GHGs</li> <li>▶ Achieving NDCs</li> <li>▶ Support sust. dev.</li> <li>▶ Overall mitigation</li> <li>▶ Allow for higher ambition in mit. and adapt. (Art. 6.1)</li> </ul> |
| <b>3.2 Mechanism type</b>   | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (outside the scope of KP targets)</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (within scope of KP targets)</li> </ul>                                     | <ul style="list-style-type: none"> <li>▶ Trading mechanism</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Not specified (possibly trading and crediting mechanisms, scope not specified)</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Crediting mechanism (scope not specified)</li> </ul>   |
| <b>3.3 Nature of mitigation outcomes (unit or reported information)</b> | <ul style="list-style-type: none"> <li>▶ Unit</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Unit</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Unit</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   |
| <b>3.4 Metrics of mitigation outcomes</b>                               | <ul style="list-style-type: none"> <li>▶ t CO<sub>2</sub>eq</li> </ul>   | <ul style="list-style-type: none"> <li>▶ t CO<sub>2</sub>eq</li> </ul>   | <ul style="list-style-type: none"> <li>▶ t CO<sub>2</sub>eq</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Likely t CO<sub>2</sub>eq</li> </ul>   |
| <b>3.5 Applicable countries</b>   | <ul style="list-style-type: none"> <li>▶ Non-Annex I countries host projects</li> <li>▶ Annex I countries acquire CERs</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Annex I countries</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Annex I countries</li> </ul>  | <ul style="list-style-type: none"> <li>▶ All countries</li> </ul>   | <ul style="list-style-type: none"> <li>▶ All countries</li> </ul>   |
| <b>3.6 Prerequisites and restrictions for using mechanisms</b>          | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> <li>▶ Commitment period reserve</li> </ul> | <ul style="list-style-type: none"> <li>▶ Eligibility criteria</li> <li>▶ Supplementarity</li> <li>▶ Commitment period reserve</li> </ul> | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   |
| <b>3.7 Applicable activities</b>  | <ul style="list-style-type: none"> <li>▶ Scale: Projects and programmes</li> <li>▶ Techs: exceptions apply</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Scale: Projects and programmes</li> <li>▶ Techs: all but nuclear</li> </ul>                     | <ul style="list-style-type: none"> <li>▶ n/a</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>   | <ul style="list-style-type: none"> <li>▶ “Specific scopes of activities”</li> </ul>   |

|   | CDM   | JI   | IET  | Article 6.2  | Article 6.4   |
|---|---|--|--|--|---|
| <b>3.8.1 Governing bodies</b>                                   | <ul style="list-style-type: none"> <li>▶ CDM EB and CMP</li> <li>▶ Parties (project approval)</li> <li>▶ Stakeholder consultation</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Track 1: Parties, with CMP rules</li> <li>▶ Track 2: JISC and CMP</li> <li>▶ Track 2: Parties (project approval)</li> <li>▶ Stakeholder consultation</li> </ul> | <ul style="list-style-type: none"> <li>▶ Parties, with CMP rules</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Parties, with CMA guidance</li> </ul>   | <ul style="list-style-type: none"> <li>▶ UNFCCC Body and CMA</li> </ul>   |
| <b>3.8.2 International rules</b>                                | <ul style="list-style-type: none"> <li>▶ Modalities and procedures for different project types</li> <li>▶ Annual CMP guidance to the CDM EB</li> <li>▶ Rules adopted by the CDM EB</li> </ul> | <ul style="list-style-type: none"> <li>▶ Guidelines</li> <li>▶ Track 2: Annual CMP guidance to the JISC</li> <li>▶ Track 2: Rules adopted by the JISC</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Principles, modalities, rules and guidelines</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Guidance</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Rules, modalities and procedures</li> <li>▶ Rules adopted by the governing body</li> </ul>                   |
| <b>3.9 Involvement of private and public entities</b>           | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Not specified</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Yes</li> </ul>   |
| <b>3.10 Environmental integrity and transparency provisions</b> | <ul style="list-style-type: none"> <li>▶ Real, measurable, long-term benefits</li> <li>▶ Additionality</li> <li>▶ Third-party verification</li> <li>▶ Impact assessments</li> </ul>           | <ul style="list-style-type: none"> <li>▶ Additionality</li> <li>▶ Track 2: Third-party verification</li> <li>▶ Reporting and review of GHG inventories and accounting of assigned amount</li> </ul>      | <ul style="list-style-type: none"> <li>▶ Reporting and review of GHG inventories and accounting of assigned amount</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Ensure environmental integrity and transparency</li> </ul>  | <ul style="list-style-type: none"> <li>▶ Real, measurable, long-term benefits</li> <li>▶ Additionality</li> <li>▶ Third-party verification</li> </ul> |
| <b>3.11 Accounting for transfers of mitigation outcomes</b>     | <ul style="list-style-type: none"> <li>▶ Issuance to CDM registry</li> <li>▶ Additions to assigned amount</li> <li>▶ Carry-over with restrictions</li> </ul>                                  | <ul style="list-style-type: none"> <li>▶ Issuance by conversion of AAUs</li> <li>▶ Additions and subtractions to assigned amount</li> <li>▶ Carry-over with restr.</li> </ul>                            | <ul style="list-style-type: none"> <li>▶ Issuance to national registries</li> <li>▶ Additions and subtractions to assigned amount</li> <li>▶ Carry-over with restr.</li> </ul> | <ul style="list-style-type: none"> <li>▶ Robust accounting, inter alia, to ensure avoiding double counting</li> <li>▶ Corresponding adjustments</li> </ul> | <ul style="list-style-type: none"> <li>▶ Reductions transferrable but to be used by one Party only</li> </ul>   |

## 4 Key questions for UNFCCC negotiations

The sections above analysed and compared mechanisms along different dimensions. Here, we briefly summarize some of the key design questions for Articles 6.2 and 6.4. The list is not exhaustive, but attempts to highlight key issues to be addressed in the UNFCCC negotiations ahead. The list is organized in the order of dimensions presented in the text, and does not aim at prioritizing issues.

### 4.1 Design questions for Article 6.2

#### Purpose of the mechanisms:

- ▶ What is the role of Article 6.1 vis à vis Article 6.2?
- ▶ If the provisions of 6.1 apply to 6.2, how shall the principle of “allow[ing] for higher ambition in mitigation and adaptation” be operationalized?
- ▶ How shall the sustainable development aspect be ensured?

#### Mechanism type:

- ▶ Does Article 6.2 apply only to mitigation outcomes generated within the scope of the NDC of the originating country or does the Article also apply to mitigation outcomes generated outside the scope of NDCs?
- ▶ Nature of mitigation outcomes (unit or reported information):
- ▶ Are ITMOs issued as a “unit” that can be transferred within or between registries, or are they amounts reported by Parties in the context of “corresponding adjustments”?

#### Metrics of mitigation outcomes:

- ▶ Are ITMOs expressed in t CO<sub>2</sub>eq? If not, how can different metrics be reconciled?

#### Prerequisites and restriction for using mechanisms:

- ▶ Should any eligibility criteria or limitations apply on the use of Article 6.2 apply, with the view to ensuring environmental integrity and robust accounting?

#### Governance arrangements:

- ▶ Bodies:
  - ▶ What international governance arrangements (regulatory and operational), if any, should be applicable to 6.2?
- ▶ Guidance:
  - ▶ Scope: should the CMA establish guidance on sustainable development, environmental integrity, transparency, and/or governance?
  - ▶ Point of application: at what point (issuance, transfer, use) should the guidance to be applied?
  - ▶ Is the guidance to be voluntary or mandatory?

#### Involvement of public and private entities:

- ▶ What is the expected involvement of private entities, and are any provisions to this end required under the UNFCCC?

#### Environmental integrity:

- ▶ How can the environmental integrity of transferred mitigation outcomes (particularly with regards to risk of potential transfer of hot air) be ensured?

#### **Accounting for the transfer of mitigation outcomes:**

- ▶ How should the specific accounting provisions for Article 6.2 relate to the general accounting provisions under Article 4 and 13 of the Paris Agreement?
- ▶ How should NDCs be quantified in a way amenable to the accounting of transfers of mitigation outcomes?
- ▶ What does “corresponding adjustment” mean, and how should it be implemented?
- ▶ What is the accounting relationship between Articles 6.2 and 6.4?

## **4.2 Design questions for Article 6.4**

#### **Purpose of the mechanisms:**

- ▶ What is the role of Article 6.1 vis à vis Article 6.4?
- ▶ If the provisions of 6.1 apply to 6.2, how shall the principle of “allow[ing] for higher ambition in mitigation and adaptation” be ensured?
- ▶ Overall mitigation: what is it, who does it, how is it done, how is it measured?

#### **Mechanism type:**

- ▶ Shall credited activities be within and/or outside the scope of NDCs?

#### **Activities eligible under crediting mechanisms:**

- ▶ Which activities shall be eligible for crediting? Should any restrictions apply?
- ▶ At which scale shall crediting be possible (projects/programmes/sectors/policies)?

#### **Accounting for the transfer of mitigation outcomes:**

- ▶ How should the specific accounting provisions for Article 6.4 relate to the general accounting provisions under Article 4 and 13 of the Paris Agreement?
- ▶ What is the accounting relationship between 6.4 and 6.2? Will a single set of accounting rules apply to both Article 6.2 and Article 6.4 ?

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