



Robust Accounting of International Transfers under Article 6 of the Paris Agreement – Preliminary Findings

Discussion Paper

Editorial information

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This paper was written for the German Environment Agency (UBA) as part of the project titled “Entwicklung von Konzepten zur Umsetzung von neuen oder Transformation von vorhandenen Marktmechanismen in ein neues UNFCCC Klimaabkommen ” (FKZ 3716 42 501 0). This project is being carried out by Öko-Institut (coordination) in cooperation with Stockholm Environment Institute (SEI) and INFRAS.
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Abstract

This discussion paper explores key issues and options to ensure robust accounting of international transfers from market mechanisms under Article 6 of the Paris Agreement. The paper provides an overview of key issues that must be addressed to ensure robust account and highlights approaches to address them. The further analysis focuses on two aspects: we first explore the nature and scope of “internationally transferred mitigation outcomes” under Article 6.2 of the Paris Agreement, discussing possible definitions and scopes. We then assess how double claiming of emission reductions could be avoided through “corresponding adjustments”, taking into account the diversity of nationally determined contributions under the Paris Agreement.

Kurzbeschreibung

Das vorliegende Diskussionspapier erörtert wichtige Aspekte und Ansätze, um eine robuste Bilanzierung bei der internationalen Übertragung von Emissionsminderungen aus Marktmechanismen unter Artikel 6 des Pariser Klimaabkommens sicherzustellen. Das Papier gibt einen Überblick, welche Aspekte geregelt werden müssen, um eine robuste Bilanzierung sicherzustellen, und zeigt mögliche Regelungsansätze auf. Die weitere Analyse fokussiert sich auf zwei Fragestellungen: zunächst werden mögliche Definition und Geltungsbereiche von “international übertragenen Minderungen” unter Artikel 6.2 des Pariser Klimaabkommens erörtert. Daraufhin wird untersucht, wie eine Doppelzählung von Emissionsreduktionen durch entsprechende Anpassungen vermieden werden kann. Hierbei werden die verschiedenen Ausprägungen der Klimaschutzbeiträge der Staaten unter dem Pariser Klimaabkommen berücksichtigt.

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Abbreviations

AAU	Assigned Amount Unit
BAU	Business-As-Usual
CDM	Clean Development Mechanism
CER	Certified emission reduction
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
ETS	Emissions trading system
EU	European Union
GHG	Greenhouse gas
GWP	Global warming potential
ICAO	International Civil International Civil Aviation Organization
IMO	International Maritime Organization
INDCs	Intended nationally determined contribution
ITL	International transaction log
ITMO	Internationally transferred mitigation outcome
LDC	Least Developed Country
LULUCF	Land use, land use change and forestry
NDC	Nationally determined contribution
tCO₂eq	Tonnes of CO ₂ equivalent
UNFCCC	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). The cooperative approaches under article 6.2 allow countries to use “internationally transferred mitigation outcomes” (ITMOs) to achieve their NDCs. The cooperative approaches are commonly understood to enable Parties to transfer mitigation outcomes among each other – be it through international linking of emission trading schemes, international crediting mechanisms, or direct government-to-government transfers – and to account those outcomes towards 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). The provisions resemble strongly those of the Clean Development Mechanism (CDM): the mechanism has a dual objective of supporting mitigation action as well as sustainable development, is supervised by a body designated by the CMA, involves public as well as private entities, requires mitigation action to be additional, real, measurable, long term, and to be verified by designated operational entities.

The Paris Agreement includes several provisions that aim to ensure robust accounting for mitigation targets. These include general provisions for accounting for NDCs under Articles 4 and 13 of the Agreement, as well as specific provisions to account for international transfers under Article 6. The Paris Agreement provides only generic elements or principles; detailed rules governing these elements will have to be negotiated over the next years.

This discussion paper explores key issues and options to ensure robust accounting of transfers from international market mechanisms under Article 6 of the Paris Agreement. The paper aims to contribute to the ongoing discussions on international rules governing Article 6. It draws upon the relevant literature, the experiences with accounting under the Kyoto Protocol and other market mechanisms, and submission by Parties and non-governmental organizations.

The paper is part of a larger research project exploring different aspects of international rules for Article 6. It presents preliminary results and will be updated and amended in 2017 based on further research. Here we provide an overview of what robust accounting is and what elements it entails, both generally with regard to mitigation targets in NDCs (section 2), and specifically with regard to international transfers under Article 6 (section 3). These overviews aim to facilitate understanding of what issues have to be addressed to ensure robust accounting and what approaches could be pursued to address these issues. We then explore two aspects in more detail: the nature and scope of NDCs (section 4) and avoiding double claiming (section 5). Finally, we provide preliminary conclusions (section 6).

This paper does not yet address a number of other important issues to ensure robust accounting of international transfers under Article 6, such as tracking transfers (e.g. through registries or reporting provisions) or appropriately accounting for the vintage of mitigation outcomes. We also do not explore all issues in depth. The large diversity of mitigation targets or actions communicated in NDCs is one of the key accounting challenges not yet fully reflected in this version of the paper. Moreover, this research project does not explore options for addressing the potential non-permanence of emission reductions or removals, such as for mitigation actions in the forest sector. We also limit our consideration to accounting for the GHG emissions impact of mitigation action; we do not explore other potential accounting issues, such as accounting for international support provided and received or any accounting for sustainable development impacts.

When exploring and discussing options for robust accounting, we make several assumptions and use specific terminology. Article 6.2 refers to “ITMOs”, while the Article 6.4 mechanism refers to “emission reductions”. For simplicity, we use the term “international transfers” to refer to transfers of both mitigation outcomes generated under Article 6.2 and emission reductions resulting from the Article 6.4 mechanism. Respectively, when referring to “mitigation outcomes”, this includes both ITMOs generated under Article 6.2 and emission reductions resulting from the Article 6.4 mechanism. We use the term “transferring country” for the country that transfers a mitigation outcome to another country and “acquiring country” for the country acquiring the transferred mitigation outcome, noting that such transfers do not necessarily have to involve a price or purchase of the mitigation outcomes.

The term “environmental integrity” is used in several parts of the Paris Agreement but is not defined. In the context of Article 6, we assume that environmental integrity means that the use of international transfers under Article 6 does not result in higher global emissions than if the NDCs had been achieved only through domestic action. Finally, when referring to “NDCs” we also include intended nationally determined contributions (INDCs) submitted prior to the adoption of the Paris Agreement.

2 Overview of key issues and approaches for accounting of NDCs

The Paris Agreement includes several general provisions for accounting of NDCs under Articles 4 and 13, as well as specific provisions for the accounting of international transfers under Article 6. This section provides an overview of all issues relevant for accounting of NDCs.

In the context of climate mitigation targets, the term “accounting” is often understood to refer to a system that allows comparing mitigation targets with the progress made, so to understand whether mitigation targets have been achieved (Prag et al. 2013). Robust accounting generally aims to appropriately reflect levels and changes to anthropogenic emissions by sources or removals by sinks as a result of mitigation actions by countries or other entities. Accounting also aims to provide transparency and comparability between mitigation efforts and to preserve environmental integrity. Article 4.13 of the Paris Agreements specifies that Parties, in accounting for their NDCs, should promote environmental integrity, transparency, accuracy, completeness, comparability, consistency, and ensure the avoidance of double counting.

Accounting for mitigation targets typically involves the following elements:

- ▶ **Defining mitigation targets:** Accounting for mitigation targets requires (a) that they are expressed in quantifiable indicators – such as absolute GHG emissions, GHG emissions per gross domestic product (GDP), or Megawatts (MW) of installed renewable power capacity –, (b) that the scope of the mitigation targets is clearly defined – including the geographical coverage; the emission sources, removals, and GHGs included; and the time frames covered –, and (c) that the target level is clearly specified – e.g. in relation to historical reference year or projected business-as-usual (BAU) emissions. The definition of mitigation targets often includes specific ways of accounting for the land-use, land-use and forestry (LULUCF) sector.
- ▶ **Tracking progress towards targets:** Accounting for mitigation targets requires establishing systems and procedures to track progress towards the targets. This includes defining the methodologies and data sources to quantify the progress, such as relevant IPCC guidelines; making institutional arrangements to collect relevant data, calculate the progress achieved, and report on the outcome; and establishing means and methods to compare the reported and reviewed progress with the mitigation targets.
- ▶ **Accounting for international transfers:** Robust accounting for international transfers from or to other countries requires, inter alia, standards and procedures to robustly quantify mitigation outcomes; accounting rules to account for net flows of such transfers, including their vintage; and establishing systems to transparently track and reconcile transfers. It may also involve defining which transfers are eligible or any conditions or limits on transferring or using mitigation outcomes.
- ▶ **Accounting for domestic transfers:** Domestic transfers could include transfers from emission sources not included in the scope of the mitigation target, or intertemporal transfers from prior to future target periods (“banking” or “carry-over”). Robust accounting requires standards and procedures to robustly quantify mitigation outcomes and accounting rules to account for flows of mitigation outcomes. It may also involve defining which transfers are eligible or any conditions or limits on transferring or using mitigation outcomes.
- ▶ **Final accounting balance:** Once all information on progress towards targets and any transfers is available, a final accounting balance compares the mitigation target with the progress made, adjusting appropriately for any transfers.
- ▶ **International review and compliance:** All or some of the information and steps may be subject to an international review and an international mechanism to facilitate compliance.

Accounting for mitigation targets requires action and information at different points in time:

- ▶ **Up-front information** defining the mitigation target and the methods used to assess progress towards the target, as well as relevant information on the accounting approaches used for the LULUCF sector, for international or domestic transfers, and for addressing the temporary nature of any emissions or removals (Levin et al. 2014).

- ▶ **Regular information** on progress made towards achievement of the mitigation target, possibly including information on transfers.
- ▶ **Ex-post information**, including a final accounting balance that compares the mitigation target with the progress made, adjusting appropriately for any transfers.

Table 1 provides an overview of key accounting provisions under the Paris Agreement. Several provisions in the agreement relate to providing robust upfront information in defining mitigation targets in NDCs (e.g. Articles 4.8 and 4.10, and paragraphs 26-30 of decision 1/CP.21). The agreement also establishes key principles for accounting, including promoting environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensuring the avoidance of double counting (Article 4.13, paragraph 31 of decision 1/CP.21). Countries have to regularly provide a national inventory report as well as other information necessary to track progress towards achieving the target, (Articles 13.7, paragraphs 91-98 of decisions 1/CP.21). Robust accounting shall be applied to the international transfer of mitigation outcomes under the cooperative approaches (Article 6.2, paragraph 36 of decision 1/CP.21). Emission reductions resulting from the Article 6.4 mechanism should only be used by one Party towards achieving its NDC (Article 6.5). Finally, countries shall account for their NDCs, which can be understood to involve a final accounting balance to demonstrate whether their NDC was achieved (Article 4.13, paragraph 31 of decision 1/CP.21). Several of these provisions may be subject to a technical expert review (Article 13.11, paragraphs 91-98 of decisions 1/CP.21). Moreover, a mechanism is established to facilitate implementation and promote compliance with the provisions of the Agreement in a non-adversarial and non-punitive manner (Article 15). The detailed provisions governing these approaches will be negotiated over the next years with a view to agree upon a set of international rules to be adopted by the CMA.

An important question for the negotiations is how the general accounting provisions under Article 4 and the provisions on the transparency framework of Article 13 will relate to the specific provisions for international transfer under Article 6. How the general accounting provisions under Article 4 and 13 evolve could have implications on what accounting provisions are needed under Article 6, and vice-versa. At the same time, some countries may not engage in international transfers and hence a more limited or simpler set of accounting provisions could apply to them. In this regard, Parties could explore a **tiered or modular approach**, with general accounting provisions applicable to all Parties, and more specific provisions only applicable to Parties wishing to engage in international transfers.

Table 1: Key elements of accounting for mitigation targets

Element	Timing	Key issues	Provisions in the Paris Agreement
Definition of mitigation targets, methods and accounting approaches	Up-front	Clearly defined and quantitative mitigation targets Consistent and accurate methods to track progress (e.g. IPCC Guidelines) Transparent and robust accounting methods	Clarity, transparency and understanding of NDCs (Art. 4.8, para. 28) Guidance on features of NDCs (para. 26) Common time frames for NDCs (Art. 4.10) Public registry of NDCs (Art. 4.12, para. 29) Accounting for NDCs, including promoting environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensuring the avoidance of double counting (Art. 4.13, para. 31)
Tracking progress	Regular	Transparent, accurate, complete, comparable and consistent reporting on progress made	Reporting of national inventory report and information necessary to track progress (Art. 13.7, para. 91)
Accounting for international transfers	Regular or ex-post	Robust accounting rules to avoid double counting and to account for different metrics and vintages of mitigation targets Tracking transfers Appropriate design of mechanisms to quantify mitigation outcomes	Robust accounting to ensure, inter alia, the avoidance of double counting on the basis of corresponding adjustments (Art. 6.2, para. 36) Emission reductions only used by one Party towards NDC achievement (Art. 6.5, para. 37-38)

Element	Timing	Key issues	Provisions in the Paris Agreement
Accounting for domestic transfers	Regular or ex-post	Robust accounting rules Appropriate quantification of mitigation outcomes	NA
Final assessment	Ex-post	Final accounting balance	Accounting for NDCs (Art. 4.13, para. 31)
Review and compliance	Regular or ex-post	International technical expert review of information Compliance assessment	Technical expert review (Art. 13.11, para. 91) Mechanism to facilitate implementation and promote compliance (Art. 15, para. 104)

Source: Authors' own compilation

3 Overview of key issues and approaches for accounting of international transfers under Article 6

Robust accounting of international transfers involves a number of different issues, which could be addressed through several approaches, under a range of different governance arrangements (Figure 1). In this section we identify which issues have to be addressed to ensure robust accounting and which general approaches could be pursued towards this end; in the next chapters we explore some of these issues and approaches further, including possible governance arrangements.

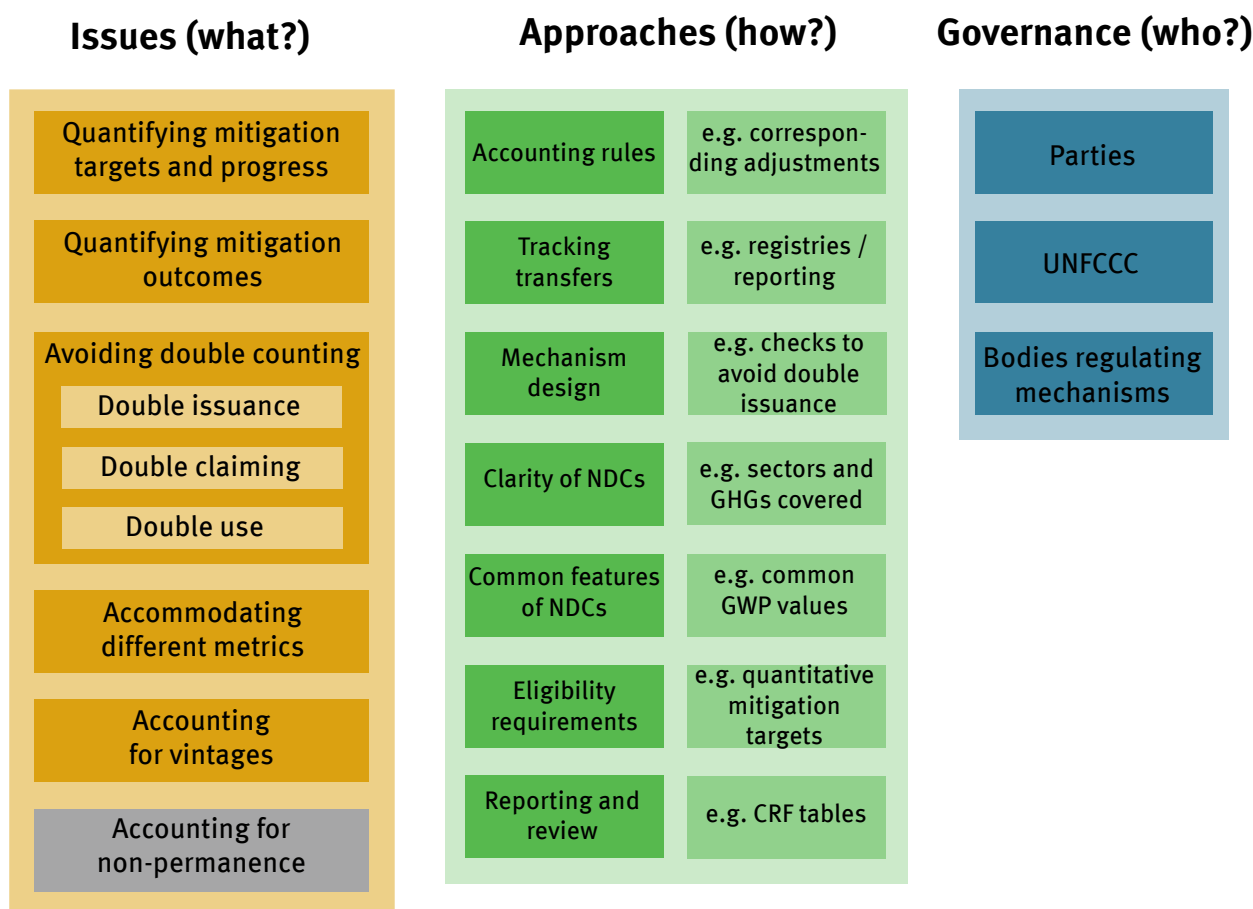
Key issues that must be addressed to ensure robust accounting of international transfers include (see Figure 1):

- ▶ 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 CO₂.

In sections 3.1 to 3.5 below, we briefly explore these issues, with the exception of addressing non-permanence of mitigation outcomes. In doing so, we highlight which general (accounting) approaches could address these issues. A variety of approaches could be used (see Figure 1), including:

- ▶ **Accounting rules for international transfers**, including rules to appropriately account for the net flow of international transfers, such as through the “corresponding adjustments” referred to in paragraph 36 of decision 1/CP.21;
- ▶ **Tracking the transfer and use of mitigation outcomes**, such as through registry systems or systems allowing Parties to report on transferred mitigation outcomes and applied corresponding adjustments;
- ▶ **Appropriate design of market mechanisms**, including standards and procedures to quantify mitigation outcomes or to avoid double issuance of units;
- ▶ **Ensuring clarity of NDCs**, such as guidance on elements that countries could clarify when communicating their NDCs (e.g. the coverage the NDC in terms of sectors, geographical area and GHGs);
- ▶ **Ensuring that NDCs have common features**, such as agreements between countries or on international level to use common time frames, common Global Warming Potential (GWP) values or IPCC methodologies;
- ▶ **Eligibility requirements for the participation in international market mechanisms**, such as requirements to have quantitative NDCs and a system in place to track progress towards NDCs;
- ▶ **Procedures for reporting and review of relevant information**, such biannual reports by countries on progress towards NDCs and international expert review of the submitted information.

In many instances, a combination of approaches may be best suited or even necessary to address a particular issue; for example, avoiding double counting requires not only robust accounting rules but also clarity on NDCs and tracking international transfers. In some instances, different approaches could be pursued to address an issue; for example, all NDCs could use a common set of values for GWP values, or accounting rules could accommodate differences in the GWP values applied by the countries involved in an international transfer.



Source: Authors' own illustration

Figure 1: Issues and possible approaches for robust accounting of international transfers

3.1 Quantifying mitigation targets and progress towards mitigation targets

Appropriate quantification of mitigation targets and progress towards achieving the mitigation targets is a key prerequisite of robust accounting of international transfers. Without quantification, it is not possible to “count” the transferred mitigation outcomes towards achieving a mitigation targets.

Quantification of mitigation targets is in all cases required for the acquiring countries if they use the mitigation outcomes towards achieving their NDC. For transferring countries, quantification of mitigation targets is required if the mitigation outcomes are generated within the scope of their mitigation target. If the mitigation outcomes were generated outside the scope of mitigation targets (e.g. in sectors not covered by the target or affecting GHGs not included in the target) and transferred internationally, quantification of mitigation targets would not be necessary on the side of the transferring country.

It is also important that mitigation targets can be expressed – at least ex-post – in absolute terms, e.g. as absolute GHG emissions, or the capacity of installed renewable energy. For example, an intensity target expressed as a reduction in GHG emissions per gross domestic product (GDP) can be converted ex-post into an absolute amount of GHG emissions, based on the information on GHG emissions and GDP development over time (Kreibich and Obergassel 2016). Absolute terms are needed to enable the accounting for transfers, e.g. through corresponding adjustments.

Appropriate quantification of mitigation targets and expressing them – at least ex-post – in absolute terms could be primarily ensured through clarity on NDCs. Countries could also agree on establishing eligibility requirements for the participation in international market mechanisms which require that mitigation targets be quantified.

3.2 Quantifying mitigation outcomes

Appropriate quantification of mitigation outcomes is another key prerequisite of robust accounting of international transfers. Mitigation outcomes are quantified through relevant standards and procedures of the underlying mechanisms. Appropriate design of the market mechanisms, including its standards, procedures, and governance arrangements, is thus important.

Under crediting mechanisms, quantification of mitigation outcomes commonly requires standards and procedures as well as institutional arrangements to ensure that mitigation actions are additional – that is, they would not occur in the absence of the incentives from the crediting mechanism – and that resulting emission reductions (or other types of outcomes) are not overestimated. Under trading mechanisms, such as international linking of emissions trading systems (ETSs), a transferred unit reduces the amount of units available for compliance in the country of origin, thereby generating a corresponding emission reduction. The environmental integrity of the transferred units depends on whether the ETS emissions cap is set below the emissions level that would occur in the absence of the trading system. Other design features, such as price floors or ceilings, unit reserves, and provisions for banking of units, also affect the mitigation outcome – mainly by altering the cap (Schneider et al. 2016).

Under Article 6.2, quantification of mitigation outcomes and ensuring environmental integrity is mainly the responsibility of the Parties involved in the transfer. Article 6.2 requires countries engaging in cooperative approaches to ensure environmental integrity and apply robust accounting. Parties have different views whether the guidance under Article 6.2 extends to all elements of Article 6.2, including environmental integrity, or only to robust accounting. The quantification of mitigation outcomes could also be seen as one of the elements to ensure “robust accounting”.

Article 6.4 and decision 1/CP.21 establish specific principles aiming to ensure appropriate quantification of emission reductions, including “additionality”, “real, measurable and long-term benefits”, and “verification and certification of emission reductions (...) by designated operational entities”. Under Article 6.4, the CMA and the body assigned by the CMA may develop rules to implement these principles.

3.3 Avoiding double counting

Double counting of emission reductions occurs when a single GHG emission reduction is counted more than once towards achieving mitigation targets. If emission reductions are double counted, actual global GHG emissions are higher than the sum of what individual countries or entities report. As a result, countries or entities could appear to meet their mitigation targets, while total emissions exceed these levels (Schneider et al. 2015). Avoiding double counting is thus an important prerequisite for ensuring environmental integrity.

In the context of mechanisms transferring mitigation outcomes, double counting can occur in three ways (Hood et al. 2014; Prag et al. 2011, 2013; Schneider et al. 2015; UNFCCC 2012):

- 1. Double issuance** occurs if more than one unit is issued for the same emissions or emission reductions. For example, in a fragmented carbon market, with multiple mechanisms under international, bilateral, national or non-governmental governance, two mechanisms could issue units for the same emissions or emission reductions. A particular challenge is addressing double issuance where mechanisms account for indirect lifecycle emissions that occur upstream or downstream of the entities taking the mitigation action.
- 2. Double claiming** occurs if the same emission reductions are counted twice towards fulfilling mitigation targets: by the country or entity where the reductions occur, through reporting of its reduced GHG emissions, and by the country or entity using the units issued for these reductions towards meeting its mitigation target. As with double issuance, double claiming can occur in more indirect ways when mechanisms account for indirect emissions.

- 3. Double use** occurs if the same issued unit is used twice to achieve a mitigation target. Double use may occur, for example, if a unit is duplicated in registries, or if one country uses the same unit in two different years to achieve its mitigation target.

Under Paris Agreement, avoiding double counting is relevant for achieving NDCs and international transfers of mitigation outcomes between countries. The Paris Agreement and decision 1/CP.21 include provisions to avoid double counting in several contexts: accounting for NDCs under Article 4, international transfers under Article 6, the transparency framework under Article 13, as well as enhanced action prior to 2020 (see Table 2). The first three provisions intend to avoid double counting towards NDCs, while the fourth provision relates to double counting with regard to mitigation action prior to 2020.

Table 2: Provisions to avoid double counting in the Paris Agreement

Issue	Applicable provisions
Accounting for NDCs (Article 4)	Article 4.13: Parties shall avoid double counting in accounting for their NDCs
International transfers (Article 6)	Article 6.2: Parties engaging in international transfers of mitigation outcomes shall apply robust accounting to ensure, inter alia, the avoidance of double counting Paragraph 36 of decision 1/CP.21: The guidance under Article 6.2 should “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”. Article 6.5: Emission reductions resulting from the Article 6.4 mechanism shall not be used to demonstrate achievement of the host Party’s NDC if used by another Party to demonstrate achievement of its NDC.
Transparency framework (Article 13)	Paragraph 94: The modalities, procedures and guidelines for Article 13.13 should take into account the need to ensure that double counting is avoided.
Enhanced action prior to 2020 (decision 1/CP.21)	Paragraph 106: Parties are encouraged to promote the voluntary cancellation by Party and non-Party stakeholders, without double counting, of units issued under the Kyoto Protocol, including certified emission reductions that are valid for the second commitment period. Paragraph 107: Host and purchasing Parties are urged to report transparently on internationally transferred mitigation outcomes, including outcomes used to meet international pledges, and emission units issued under the Kyoto Protocol with a view to promoting environmental integrity and avoiding double counting.

Source: Authors' own compilation

Double counting could not only occur between NDCs but also between NDCs and international mechanisms to address emissions from international aviation or international shipping (Cames and Schneider 2016). At its 39th assembly in October 2016, the International Civil Aviation Organization (ICAO) adopted the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The scheme allows using emissions units generated from mechanisms established under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, provided that “they align with future decisions, including on avoiding double counting”.

Addressing double counting requires action at different levels (Schneider et al. 2015), including mainly accounting rules for international transfers, tracking the transfer and use of mitigation outcomes, appropriate design of market mechanisms, and ensuring clarity on NDCs. Section 5 of this discussion paper explores one form of double counting – double claiming – in more detail in the context of the Paris Agreement.

3.4 Accommodating different metrics for mitigation outcomes and mitigation targets

Mitigation targets and transferred mitigation outcomes can be expressed in a variety of metrics. Many countries included in their NDCs mitigation targets which are not quantified in GHG emission levels (in the following referred to as “non-GHG mitigation targets”), including for increasing energy efficiency, expanding renewable energy use, or expanding forest areas. Some of these countries have communicated only non-GHG mitigation targets. Among the countries that use GHG targets, different GWP values are used (Graichen et al. 2016).

Different metrics pose challenges for accounting for international transfers. They could be addressed through a range of different approaches, including accounting rules for international transfers, appropriate design of market mechanisms, ensuring that NDCs have common features, and eligibility requirements for the participation in international market mechanisms.

3.5 Accounting for the vintage of mitigation outcomes and time frame of mitigation targets

Appropriately accounting for the vintage of mitigation outcomes and the time frame of mitigation targets is an important and complex issue for ensuring robust accounting. Not appropriately accounting for the vintage of mitigation outcomes in relation to time frames of mitigation targets can, in some instances, lead to higher cumulative global GHG emissions, even if the transferred mitigation outcomes have environmental integrity. This could occur under a range of different circumstances. Exploring different constellations and aspects of accounting of the vintage of mitigation outcomes in relation to the time frame of mitigation target is an important area of further research.

Under the Kyoto Protocol, all countries with commitments inscribed in Annex B and mitigation targets for the same defined multi-year commitment periods. Many NDCs only specify mitigation targets for single years, such as 2025 or 2030. Single-year targets pose several challenges for accounting for international unit transfers (Prag et al. 2013; Kreibich and Obergassel 2016; Lazarus et al. 2014). Appropriate accounting for the vintage of mitigation outcomes and time periods of mitigation targets requires actions at a variety of levels, in particular robust accounting rules. Ensuring that NDCs use common time frames, as envisaged under Article 4.10, may greatly facilitate robust accounting for the vintage of mitigation outcomes.

4 Nature and scope of ITMOs

Article 6.2 of the Paris Agreement allows countries to engage in cooperative approaches that involve the use of “internationally transferred mitigation outcomes” (ITMOs) towards NDCs. ITMOs or “mitigation outcomes” are not further defined in the Agreement. Understanding and defining the nature of ITMOs is one important question in the negotiations on guidance under Article 6.2. How ITMOs are defined has implications on what rules are necessary to ensure robust accounting. This section explores different aspects of the definition and scope of ITMOs. Table 3 provides an overview of the aspects that are further discussed below.

Table 3: Options for the nature and scope of ITMOs

Issue	Options
Metric of ITMOs	<ul style="list-style-type: none"> ▶ One common metric (e.g. t CO₂ eq) ▶ Several metrics (e.g. t CO₂ eq, MW of renewable power capacity installed)
Units versus reported amounts	<ul style="list-style-type: none"> ▶ Units transferred within or across electronic registries ▶ Amounts reported by countries in tables
Relation to seller country NDCs	<ul style="list-style-type: none"> ▶ Mitigation outcomes can be generated only within the scope of NDCs ▶ Mitigation outcomes may be generated both within and outside the scope of NDCs
Use of ITMOs	<ul style="list-style-type: none"> ▶ Mitigation outcomes are only considered as IMTOs if they are both internationally transferred and used by the buyer country towards achieving its NDC ▶ Mitigation outcomes are considered as ITMOs whenever they are internationally transferred; they could be used for various purposes, including NDC achievement or voluntary cancellation
Mechanism type	<ul style="list-style-type: none"> ▶ Trading schemes, such as international linking of ETSs ▶ Crediting schemes ▶ Other types of government-to-government transfers which may or may not involve a market mechanism

Issue	Options
Fungibility of ITMOs	<ul style="list-style-type: none"> ▶ ITMOs as a single international compliance unit ▶ Different types of ITMOs recognized by different countries or groups of countries
Relationship to Article 6.4	<ul style="list-style-type: none"> ▶ Emission reductions generated under the Article 6.4 mechanism are considered as ITMOs if they are (a) internationally transferred and (b) used by the buyer country to achieve its NDC ▶ Emission reductions generated under the Article 6.4 mechanism are considered as ITMOs if they are (a) internationally transferred, (b) used by the buyer country to achieve its NDC, and (c) covered by the scope of the seller country NDC ▶ Emission reductions generated under Article 6.4 are always considered as ITMOs ▶ Emission reductions generated under Article 6.4 are never considered as ITMOs

Source: Authors' own compilation

4.1 Metric of ITMOs

The metric of ITMOs relates to the question how “mitigation outcomes” are defined. Under the UNFCCC, the term “mitigation” relates to “mitigation of climate change”, which has been linked to reducing GHG emissions or enhancing removals in several places. Article 2(a) of the Convention requires Parties to take measures on the “mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs”. Similarly, Article 4.14 of the Paris Agreement refers to “mitigation actions with respect to anthropogenic emissions and removals”. One could thus argue that the outcome of mitigation is ultimately a reduction in GHG emissions or an enhancement of removals. This would point to using GHG metrics for international transfers, such as t CO₂eq, which has been used under the Kyoto Protocol. Alternatively, the mitigation outcomes could be measured in a variety of other metrics that would relate more to the specific mitigation actions taken, such as MWh of renewable electricity generated, MWh of energy saved through demand side energy efficiency measures, ha of land forested, etc.).

Many Parties have proposed that t CO₂eq be used for ITMOs. Using t CO₂eq as the only or predominant metric for transfers under Article 6.2 could have several advantages. Countries with GHG targets can only account ITMOs towards achieving their NDC if the ITMO is expressed as or converted to a GHG metric. So far, all countries that have indicated in NDCs that they intend to purchase international carbon market units have communicated GHG targets in their NDCs. The Paris Agreement also encourages that targets be expressed as “emissions” targets. According to Article 4.4, developed countries should express their targets as “emission reduction targets” and developing countries are encouraged to move over time towards “emission reduction or limitation targets”. This suggests that, over time, most NDCs will include targets expressed in GHG metrics. For transfers between countries with GHG targets, t CO₂eq is a well-established and straightforward metric for mitigation outcomes. Using t CO₂eq requires either that common GWP values be applied by the countries involved in an international transfer or that differences in GWP values between countries be accounted for (see section 5.4).

Using only t CO₂eq for transfers under Article 6.2 would make accounting for ITMOs through “corresponding adjustments” simpler. Corresponding adjustments, as referred to in paragraph 36 of decision 1/CP.21, could be compiled, aggregated and reconciled more easily if a common metric is used. It may also provide for more clarity and make it easier to ensure that what is transferred from country A corresponds to what country B receives.

A further important advantage of t CO₂eq is that it reflects the ultimate outcome in terms of GHG emissions and removals. Indeed, for other metrics, the mitigation outcome in terms of emissions and removals may not necessarily “correspond” between the two countries engaging in cooperative approaches. Assume, for example, two countries that have targets for renewable electricity generation and use a system of renewable energy certificates (RECs) to achieve their targets. The two RECs systems are interlinked, enabling private sector entities to trade RECs between the two countries. The countries may wish to account the net transfer of RECs towards achieving their NDCs, to ensure that the mitigation outcome from the bilateral transfer of RECs is reflected and accounted for when achieving their NDC. However, if their electricity systems are not connected and have a different carbon intensity, the emission reductions from one MWh of renewable electricity may differ between the two countries.

One MWh of renewable electricity in country A could lead to higher or lower emission reductions than in country B. Transferring MWh of renewable electricity as ITMOs would thus not correspond to the same mitigation outcome and could lead to higher or lower aggregated GHG emissions from the two countries.

The diversity of mitigation targets and the application of “corresponding adjustments”, as referred to in paragraph 36 of decision 1/CP.21, are important considerations for potential other metrics than t CO₂eq. 32 countries have communicated only non-GHG mitigation targets or actions in their NDCs (Graichen et al. 2016). To engage in international transfers and avoid double claiming, these countries would either need to convert their non-GHG mitigation target into a GHG emissions target – which would allow them to make a corresponding adjustment for an ITMO in t CO₂eq – or the corresponding adjustment would need to be made in the non-GHG metric. This latter option could involve a pair of corresponding adjustments in different metrics for one ITMO (see section 5.5).

This raises the question how the metrics of ITMOs and corresponding adjustments relate to each other. The metric of ITMOs could be defined independently of the metric of the corresponding adjustments. In that case, t CO₂eq could be used as the single metric of ITMOs, whereas different metrics may be used for corresponding adjustments to account for non-GHG mitigation targets. This may a simple approach to ensure consistent tracking and reporting on ITMOs. Alternatively, ITMOs might be defined in the same metrics as the corresponding adjustments. This could require expressing a single ITMO in two different, corresponding metrics, to account for the different metrics of mitigation targets of two countries involved. This latter approach may be more complex for reporting and tracking international transfers.

In conclusion, t CO₂eq is a well-established metric for ITMOs, which fits the purpose under most circumstances. This metric would also ensure that the mitigation outcome corresponds between the transferring and the acquiring country. Using t CO₂eq as a generic metric would also not limit the ability of countries to engage in international transfers, as the mitigation outcome from mechanisms in other metrics, such as international transfers of RECs, could be converted into t CO₂eq.

4.2 Units versus reported amounts

The term ITMO is not further defined in the Paris Agreement and decision 1/CP.21. In the negotiations, the term was mainly introduced to avoid implicit references to market mechanisms (Marcu 2016). ITMOs could constitute:

- ▶ Units that move across or within electronic registries; or
- ▶ Amounts reported by countries for the purpose of accounting for international transfers and implementing corresponding adjustments.

The first option would require establishing registry systems to transfer ITMOs. Formalized registries may facilitate the tracking of the issuance, transfer and use of ITMOs, because registry systems could effectively prevent double use of units. Relevant information on the mitigation outcomes could be attached to the units in the form of serial numbers, similar to registry systems used under the Kyoto Protocol or in ETSs. This option may also facilitate the reconciliation of international transfers between countries, i.e. ensuring that the transferring and acquiring countries report consistent information. However, it also requires establishing the necessary infrastructure and agreeing on common international standards for such transfers. If ITMOs are considered as units transferred across or within electronic registries, several further questions arise:

- ▶ Do they represent a single international compliance unit or do they include different types of units generated under the governance of the Parties involved in the transfer (e.g. units transferred in a bilateral registry of a bilateral mechanism)?
- ▶ Do they represent an emissions budget such as assigned amount units (AAUs) under the Kyoto Protocol or are they issued for internationally transferred amounts only?
- ▶ What information should be attached to the units (e.g. country of origin, vintage, etc)?
- ▶ Would unit transfers occur in bilateral arrangements for registries and what (type of) international oversight would be provided on such transfers?

In the second option, ITMOs would be considered as amounts that are reported by countries, possibly in tables, such as tabular reporting formats. Relevant information about the mitigation outcomes, such as the country of origin, whether the mitigation outcomes are generated within or outside the scope of the NDC of the originating country, and in which time periods the mitigation outcomes were generated, would have to be provided through appropriate formats of reporting. Under this option, countries involving in international transfers may still wish to operate electronic registries to track unit transfers. However, these registries would be operated under the responsibility of the countries involved. Different registries may exist for different mechanisms, but reporting on transfers to UNFCCC would follow common formats.

In principle, both options may provide appropriate means to ensure transparent information and robust accounting, depending how they are implemented, in particular whether all relevant information is reported in a consistent and complete manner. Reporting on ITMOs may provide more flexibility to countries to set up their own registries, suited to their own purposes. However, it might also be more prone to errors; the countries involved in international transfers would need to report information consistently, and errors or inconsistencies may need to be resolved through corrections ex-post. Registries or an international transaction log (ITL) as under the Kyoto Protocol may provide higher assurance that unit transfers are consistently tracked and double counting is avoided.

4.3 Relation of ITMOs to the scope of the NDC of the transferring country

Most developed countries and a number of developing countries have pledged economy-wide mitigation targets in their NDCs. These NDCs cover about 58 % of global GHG emissions. However, 108 NDCs, covering about 38 % of global GHG emissions, only cover part of the countries' GHG emissions (Graichen et al. 2016). Some NDCs only include mitigation targets or actions targeting specific sectors or activities, and some NDCs do not include all GHGs. Whether or not emissions are covered by mitigation targets in NDCs has implications for robust accounting. In particular, in order to avoid double claiming, the application of “corresponding adjustments”, as referred to in paragraph 36 of decision 1/CP.21, would not be necessary on the side of the transferring country if the relevant emission sources are not covered by its NDC (see section 5.2 below).

Parties could consider two options for defining the scope of ITMOs in relation to the NDC of the transferring country:

- ▶ ITMOs represent only mitigation outcomes that are generated within the scope of the NDC of the transferring country; or
- ▶ ITMOs represent mitigation outcomes that may be generated both within and outside the scope of the NDC of the transferring country.

The first approach is simpler for accounting purposes but more limiting, as it would only enable transfers from mitigation outcomes generated within the scope of NDCs. While most global GHG emissions fall within the scope of NDCs, many Least Developed Countries (LDCs) do not have economy-wide mitigation targets and would thus have only limited access to cooperative approaches under Article 6.2. Under this approach, these countries would have to use Article 6.4 to address emission sources outside the scope of their NDC. One argument supporting this interpretation could be that the adjustments, referred to in paragraph 36 of decision 1/CP.21, should be “corresponding”; this could be interpreted as requiring adjustments on two sides and, hence, to be only applicable to transfers of mitigation outcomes generated within the scope of NDCs.

One consideration for limiting the scope of cooperative approaches to emission sources covered by NDCs could be the incentives for countries to ensure environmental integrity in quantifying mitigation outcomes. Countries with ambitious mitigation targets have incentives to ensure the environmental integrity of mitigation outcomes generated within the scope of their mitigation targets. If a country overestimates mitigation outcomes and transfers them to another country, it would have to compensate for the transfer in order to still achieve its mitigation target, by either further domestic mitigation action or acquiring mitigation outcomes from other countries. By contrast, if the mitigation outcomes are not included within the scope of the mitigation outcomes, countries could transfer overestimated mitigation outcomes without infringing their ability to achieve their mitigation targets, so they do not have incentives to ensure environmental integrity (Kreibich and Obergassel 2016; Schneider et al. 2016).

This point relates to the question whether and what type of international guidance on environmental integrity may be provided under Article 6.2. If no or only general international guidance is provided, defining ITMOs as mitigation outcomes that are generated within the scope of NDCs may provide a higher assurance of environmental integrity. It would imply that those countries that do not have economy-wide emission targets would need to engage with the Article 6.4 mechanism for engaging in international transfers from emissions sources not covered by their NDC. This could be seen to provide for higher assurance of environmental integrity given that emission reductions from the Article 6.4 mechanism are generated under international oversight.

Another reason for limiting cooperative approaches to mitigation outcomes generated within the scope of NDCs could be avoiding disincentives for governments not to move over time to economy-wide emissions targets, as envisaged under Article 4.4 of the Paris Agreement. If countries can engage in cooperative approaches for mitigation outcomes generated outside the scope of their targets, they might accrue less revenues from ITMO transfers if they expand their target to an economy-wide level. By contrast, limiting international transfers under Article 6.2 to emission sources within the scope of NDCs would provide incentives broaden the scope of mitigation targets in the future.

The second approach would enable a broader participation in cooperative approaches under Article 6.2; countries that do not yet have economy-wide targets could transfer ITMOs originating from all emission sources, within or outside the scope of their NDC. For accounting purposes, this approach would require distinguishing between two types of ITMOs: those generated within and those generated outside the scope of the NDC of the transferring country.

4.4 Use of ITMOs by the acquiring country

Article 6.2 refers to the “use of ITMOs towards NDCs”. This provision clarifies that ITMOs can be used for compliance purposes, to achieve NDCs; it could also be interpreted such that the “construct” of an ITMO only “exists” under the Paris Agreement in the context of its use, i.e. if two conditions are met: the mitigation outcome is (a) internationally transferred, and (b) used by the acquiring country to achieve its NDC. This would imply that any domestic units, such as from ETSs, do not represent ITMOs (Marcu 2016). For international linking of ETSs, it would imply that only the net flow of units from one system to the other may be accounted for. This also suggests that the accounting for ITMOs could be delinked from the registry systems operated by the underlying mechanisms, such as the ETS registries. Allowances in ETS registries may flow forth and back between two internationally linked ETSs, while the net flow may be separately accounted for, ex-post, as ITMOs.

International carbon market mechanisms have also been used for other purposes, beyond compliance. International mechanisms, such as the CDM, have been used as a tool to achieve emission reductions domestically (i.e. without international transfers). For example, South Korea recognizes certified emission reductions (CERs) from domestic projects under its ETS. Mechanisms can also be used for voluntary offsetting of emissions by governments, the private sector, individuals, or non-governmental organizations, or for the verification of mitigation outcomes from climate finance, e.g. by purchasing and cancelling carbon market units as part of resultsbased climate finance programmes.

This raises the question whether ITMOs could also be generated and used beyond achieving NDCs. The narrow definition of ITMOs as mitigation outcomes that are both internationally transferred and used by the acquiring country would not necessarily limit the scope and purpose of the underlying market mechanisms. For example, a bilateral crediting mechanism, such as the Joint Crediting Mechanism (JCM) established by Japan, could operate its own registry system and the units generated from the mechanism may be partially internationally transferred, and partially used for various purposes, including voluntary cancellation. However, only those units that are internationally transferred and used by another country towards achieving its NDC would be considered as ITMOs under the Paris Agreement.

An alternative approach could be defining the scope of ITMOs broader, including functions beyond achieving NDCs, such as voluntary cancellation. This approach may provide for broader uses of ITMOs; however, as pointed out above, such uses could also be pursued with the underlying market mechanisms, without considering such uses as ITMOs in the context of Article 6.2. Defining ITMOs more broadly may also imply a broader scope of accounting, because it may involve tracking and reporting the different uses of ITMOs, in order to reconcile accounting between transferring and acquiring countries.

In summary, Parties could define ITMOs in at least two ways:

- ▶ ITMOs represent only mitigation outcomes that are both internationally transferred and used by the acquiring country towards achieving its NDC;
- ▶ ITMOs represent mitigation outcomes that are internationally transferred and that may be used for different purposes, such as voluntary cancellation.

4.5 Mechanism type

The term ITMO does not imply what type of mechanism may underline the international transfer. This could potentially include

- ▶ trading mechanisms, such as international linking of ETSs;
- ▶ crediting mechanisms, possibly either under the governance of Parties under Article 6.2 or under UNFCCC governance if emission reductions resulting from the Article 6.4 mechanism are considered as ITMOs;
- ▶ other types of government-to-government transfers which may or may not involve a market mechanism (e.g. approaches similar to Green Investment Schemes implemented under the Kyoto Protocol).

Article 6.2 does not seem to limit the type of mechanisms that could be pursued.

4.6 Fungibility of ITMOs

How ITMOs are defined could have implications on their fungibility, i.e. meaning whether they could be mutually substituted in place of one another. Full fungibility would only be provided if Parties agree that ITMOs are an international compliance unit. This would at least require that they have the same metric – presumably t CO₂eq –, that countries apply the same set of GWP values to account for their NDCs, and that countries apply common time frames for mitigation targets. ITMOs of the same vintage (for the same time frame) might then be fully fungible.

In practice, mechanisms operated under Article 6.2 may have different features and groups of countries may apply different scopes, rules and standards for international transfers. It is thus unlikely that ITMOs will be fully fungible, even if the conditions above are met.

4.7 Relationship to Article 6.4

The relationship between the cooperative approaches under Article 6.2 and the Article 6.4 mechanism is one of the issues that require further clarification in the negotiations ahead. Article 6.4 refers to “mitigation outcomes”, whereas Article 6.2 refers to “emission reductions”. How they could relate depends on how other aspects of ITMOs are defined and how the scope of the Article 6.4 mechanism will be defined.

The provisions in the Paris Agreement suggest that emission reductions from the Article 6.4 mechanism could, but do not necessarily have to, be internationally transferred and used by another Party to achieve its NDC. The purpose of Article 6.4 could be broader, promoting mitigation more generally, allowing to use the mechanism as a tool to achieve domestic emission reductions or for purposes such as voluntary cancellation or delivering resultsbased climate finance.

One possible interpretation is that emissions reductions generated under the Article 6.4 mechanism would be considered as ITMOs, whenever they meet the definition of an ITMO – which could include various options, as discussed above. The main difference between Article 6.2 and Article 6.4 would then be how the mitigation outcomes are generated: under Article 6.2 they are generated by mechanisms operated by Parties or non-governmental organizations, and under Article 6.4 they are generated under UNFCCC oversight. This interpretation may also imply that the same accounting rules are applied to international transfers under Article 6.2 and Article 6.4. Most Parties seem to support this interpretation in their submissions to the UNFCCC.

Another possible interpretation could be that emission reductions generated under Article 6.4 are treated and accounted for under a separate track and are not considered as ITMOs, even if they were internationally transferred and used towards achieving a NDC.

In summary, drawing on our analysis of the different possible interpretations of what an ITMOs is, there could be several options for the relationship between emission reductions generated under the Article 6.4 mechanism and ITMOs, including at least:

- ▶ Emission reductions generated under the Article 6.4 mechanism are considered as ITMOs if they are (a) internationally transferred and (b) used by the acquiring country to achieve its NDC;
- ▶ Emission reductions generated under the Article 6.4 mechanism are considered as ITMOs if they are (a) internationally transferred, (b) used by the acquiring country to achieve its NDC, and (c) covered by the scope of the NDC of the transferring country;
- ▶ Emission reductions generated under Article 6.4 are always considered as ITMOs;
- ▶ Emission reductions generated under Article 6.4 are never considered as ITMOs.

5 Avoiding double claiming

Double claiming of emission reductions occurs if the same mitigation outcome is counted twice towards achieving NDCs: once by the country where the emission reductions occur, through reporting of its reduced GHG emissions (or other indicators used to track progress), and once by the country using the mitigation outcome towards achieving its NDC.

The Paris Agreement includes provisions to avoid double claiming with regard to both the cooperative approaches under Article 6.2 and the Article 6.4 mechanism:

- ▶ Article 6.2 requires countries to apply “robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the CMA”. Paragraph 36 of decision 1/CP.21 specifies that the guidance under Article 6.2 should 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 the NDC”.
- ▶ Article 6.5 clarifies that emission reductions resulting from the Article 6.4 mechanism shall only be used by one Party to demonstrate achievement of its NDC.

Both provisions aim to address double claiming. Corresponding adjustments can avoid double claiming between countries by appropriately accounting for the net transfer of mitigation outcomes between countries. Article 6.5 establishes the general objective of avoiding double claiming. How the two provisions relate and whether the same or different sets of rules should apply to them is one of the key questions for the negotiations ahead. Regardless of how this will be approached, a similar set of rules will be required to effectively address double claiming. Developing one set of coherent accounting rules for all transfers under Article 6 might be a simpler approach. We therefore focus our analysis on the application of corresponding adjustments under Article 6.2, noting that the substantive issues are equally applicable to international transfers of emission reductions resulting from the Article 6.4 mechanism.

How corresponding adjustments should be implemented, in particular in the light of the diversity of NDCs, will be one of the key aspects in the negotiations on guidance under Article 6.2. Below we explore several important aspects.

5.1 Should corresponding adjustments be applied to reported emissions or emission budgets?

Corresponding adjustments could, in principle, be implemented in two ways:

1. Adjusting the reported emissions and removals (or possibly other indicators used to track progress towards NDCs), or

2. Adjusting the emissions budget corresponding to the mitigation target (or possibly budgets in non-GHG metrics).

To illustrate the two approaches, we assume two countries A and B that both have economy-wide absolute emission targets for the same basket of GHGs and for the same time period (either the same single year or the same multiyear period). We also assume that both countries express their targets in metric tonnes of CO₂ equivalent and apply the same GWPs.

Country A (the transferring country) has projected BAU emissions of 100 M t CO₂eq and communicated in its NDC to limit its emissions to 80 M t CO₂eq. Country B (the acquiring country) has projected BAU emissions of 110 M t CO₂eq and communicated to limit its emissions to 70 M t CO₂eq. Hence, the two countries together pledged to limit their total emissions to 150 M t CO₂eq. The two countries engage in a cooperative approach involving the transfer of mitigation outcomes of 30 M t CO₂eq from country A to country B.

The first approach is illustrated in Figure 2 below. Under this approach, country A adds the transferred mitigation outcomes to its reported GHG emissions, whereas country B subtracts them. Country A reduces its emissions by 50 M t CO₂eq, enabling it to transfer 30 M t CO₂eq to the acquiring country; it adjusts its reported emissions by adding the amount transferred, resulting in an adjusted emissions level of 80 M t CO₂eq, which equals its emissions target. Country B reduces its emissions only by 10 M t CO₂eq and achieves the remainder of the required emission reduction by using the ITMOs from country A; it adjusts its reported emissions by subtracting the ITMOs transferred, resulting in an adjusted emissions level of 80 M t CO₂eq, which equals its emissions target. In sum both countries still emit 150 M t CO₂eq; double claiming is avoided.

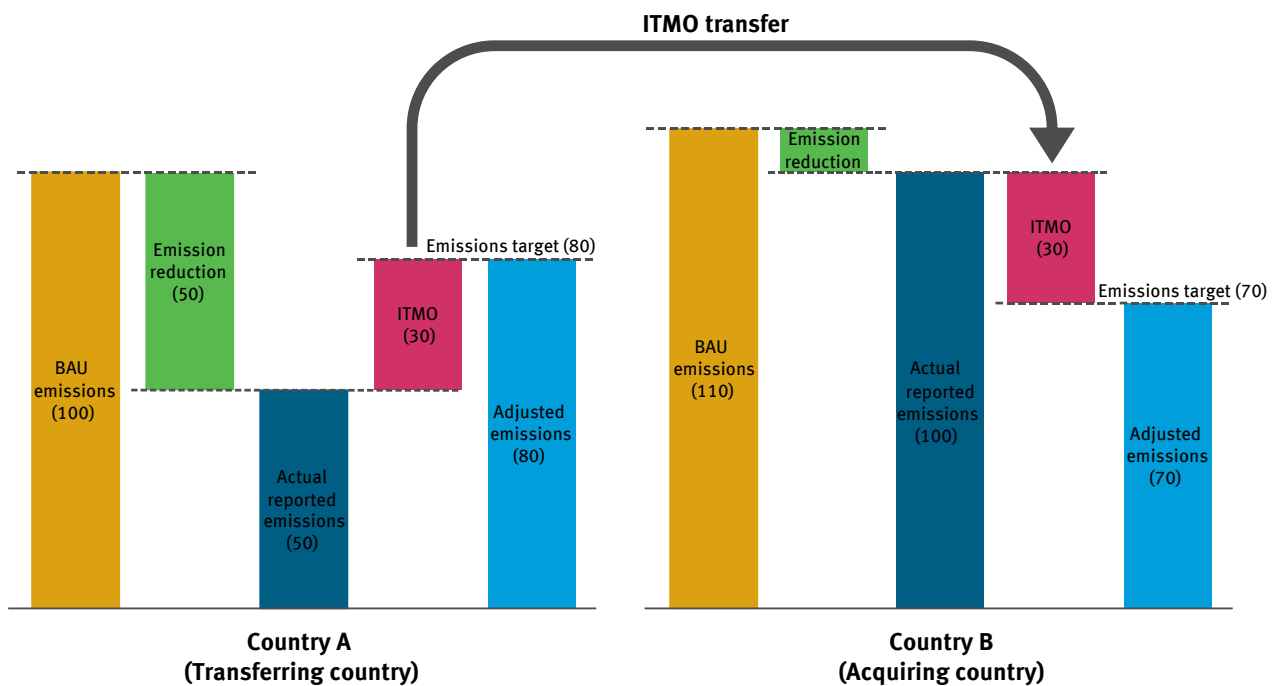


Figure 2: Application of corresponding adjustments to reported emissions

The second approach is illustrated in Figure 3. The figure starts on the left hand side from the emissions budget corresponding to the mitigation target. Under this approach, country A adjusts its emission target by subtracting the amount of mitigation outcomes transferred from its emission budget, resulting in a downward adjustment from 80 to 50 M t CO₂eq. Country B adds the transferred mitigation outcomes to its emissions target, resulting in an upward adjustment from 70 to 100 M t CO₂eq.

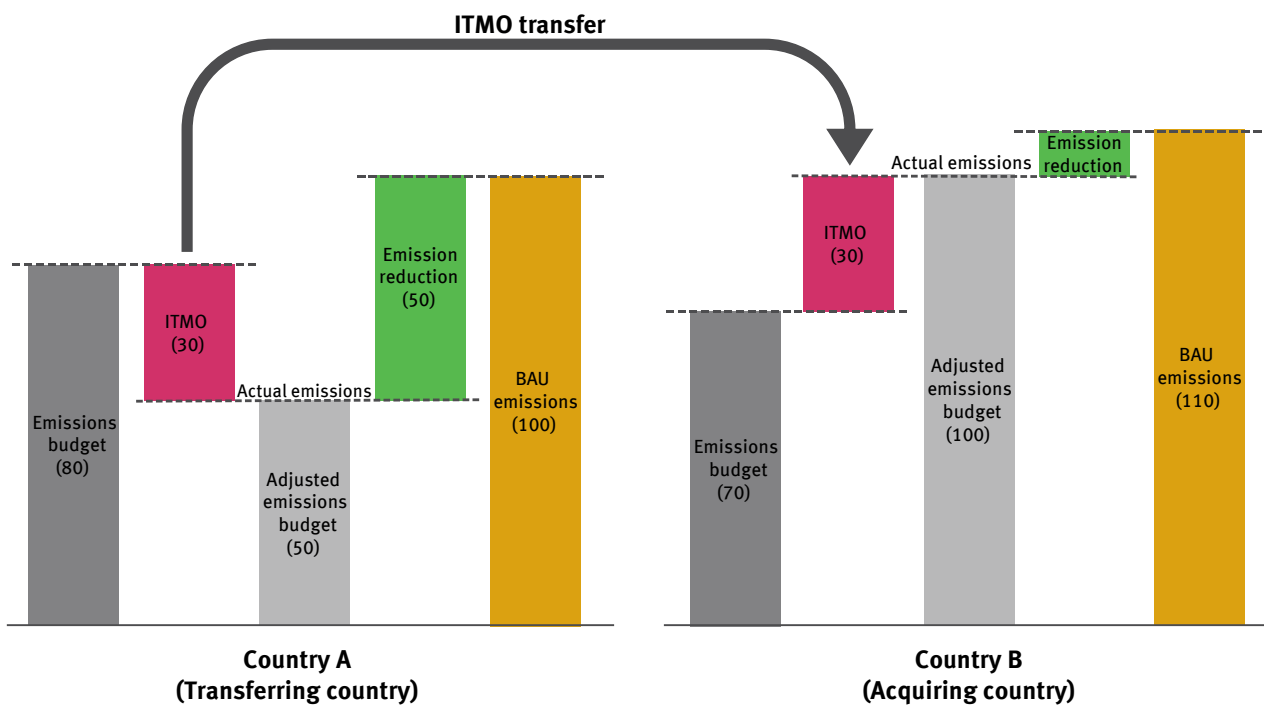


Figure 3: Application of corresponding adjustments to emission budgets

The two approaches have an equivalent outcome and both effectively avoid double claiming. The second approach is applied under the Kyoto Protocol: unit transfers are subtracted from the Parties' assigned amount, unit acquisitions are added. The language in paragraph 36 of decision 1/CP.21 refers to corresponding adjustments for "emissions by sources and removals by sinks". This seems to point to the first approach illustrated in Figure 2.

The first approach could be perceived as changing GHG inventories. Indeed, GHG inventories should reflect the actual emissions of a country, reported in accordance with relevant IPCC Guidelines and independent of any accounting for transferred mitigation outcomes. The application of corresponding adjustments should therefore be clearly separated from GHG inventory estimates, for example, by using different tables to report on corresponding adjustments. The second approach could be perceived as changing the target level or ambition. As for adjustments to the assigned amount under the Kyoto Protocol, corresponding adjustments to the emissions budget should therefore be clearly separated from the communication and quantification of the mitigation target.

In principle, the two countries would not necessarily have to apply the same approach. For example, the transferring country could add the transferred mitigation outcomes to its reported emissions, while the acquiring country could add them to its emissions budget. Respectively, the transferring country could subtract the transferred mitigation outcomes from its emissions budget, while the acquiring country subtracts them from its reported emissions. Theoretically, it is even conceivable that one country applies both approaches at the same time; for instance, country A could engage with countries B and C in cooperative approaches and might agree bilaterally with country B to adjust reported emissions and agree bilaterally with country C to adjust emission budgets. If implemented appropriately, the parallel implementation of the two approaches could be possible without infringing robust accounting. This would imply that some countries may need to apply both approaches at the same time, i.e. adjusting the reported emissions and the emissions budget. In practice, the application of the two approaches in parallel would make the tracking and reconciliation of corresponding adjustments more complex.

International guidance under Article 6.2 could include different provisions with regard to the general approach towards corresponding adjustments. The guidance could:

- ▶ Establish one of the two approaches as being applicable to all Parties;
- ▶ Require each Party to select one of the two approaches and to apply it consistently to all ITMOs;

- ▶ Allow Parties to apply any of the two approaches in a cooperative approach but require that the same approach be applied by the two Parties involved in the international transfer consistently; or
- ▶ Allow any Parties to apply any of the two approaches in any international transfer.

The first option would be the simplest one. It would avoid complexity and facilitate transparent tracking and reconciliation of ITMOs and corresponding adjustments. Agreeing internationally on one of the two approaches does not limit the ability of countries to engage in cooperative approaches, as both approaches are equivalent and have the same implications for Parties. In this regard, the other options do, in practice, not provide more flexibility to Parties. Moreover, one could argue that paragraph 36 of decision 1/CP.21 points to the adjustment of reported emissions and removals, rather than mitigation targets in NDCs. For these reasons, we recommend that all Parties adjust the reported emissions and removals (or possibly other indicators used to track progress towards NDCs).

5.2 In which circumstances do corresponding adjustments need to be applied?

Double claiming in the context of international transfers occurs if all of the following conditions apply (Schneider et al. 2015):

1. The mitigation outcome falls within the scope of the mitigation target in the NDC of the transferring country;
2. The mitigation outcome is reflected in the GHG inventory of the transferring country (or in other indicators used to measure progress towards achieving its NDC);
3. The acquiring country accounts the acquired mitigation outcome to achieve the mitigation target in its NDC, by applying a corresponding adjustment;
4. The transfer of the mitigation outcome is not accounted for by the transferring country, i.e., the transferring country does not apply a corresponding adjustment.

Conversely, double claiming does not occur, and hence corresponding adjustments would not need to be applied, if one of the above conditions does not apply. A range of scenarios are possible. First, the transferring country would not need to apply a corresponding adjustment if the mitigation outcome does not fall within the scope of its mitigation target. In such cases, clarity of NDCs is important to be able to identify whether a mitigation outcome is generated within or outside its scope. For trading mechanisms, such as ETs, it is usually straightforward to identify whether emission sources are covered. For crediting mechanisms, this can raise practical challenges, as crediting programs often credit reductions that occur upstream or downstream of where the mitigation action takes place. In some instances, the installations where the reductions occur are not known or they could be located in other countries (Schneider et al. 2015).

Second, the mitigation outcomes could not be reflected in GHG inventories or other indicators used to measure progress. Emission reductions from mitigation actions are often automatically reflected in GHG inventories. Take, for example, a wind power project. By feeding electricity into the grid, the wind power plant reduces fossil fuel consumption in other power plants connected to the grid. If fossil fuel consumption statistics are used to prepare that country's GHG inventory, then the reductions from the wind farm will be automatically reflected in the GHG inventory. In some instances, however, more advanced inventory methods (IPCC Tier 2 or 3) are needed for mitigation actions to be reflected in GHG inventories. This holds true particularly for non-CO₂ gases. Take, for example, a country that uses a simple Tier 1 default emission factor for estimating N₂O emissions from nitric acid production. In this case, the emissions impact of a crediting mechanism targeting N₂O emissions from nitric acid production would not show up in the GHG inventory; the project would impact the average emission factor from nitric acid production, which, however, is not reflected as a lower emission factor in the GHG inventory. This issue has also been referred to as “visibility” of emission reductions in GHG inventories (Prag et al. 2013).

If the mitigation outcomes were not reflected in the GHG inventory, theoretically, the transferring country would also not have to apply a corresponding adjustment in order to avoid double claiming. In practice, this case may be rarely relevant. Moreover, all countries are encouraged to improve their GHG inventories over time and more advanced methods usually allow reflecting the emission reductions from specific actions.

Enabling countries not to apply corresponding adjustments in such situations could also create disincentives for countries to improve GHG inventories. For these reasons, not applying corresponding adjustments in such situations may not be advisable.

And third, corresponding adjustments are not necessary on the side of the transferring country, if the acquiring country uses the mitigation outcomes for other purposes, such as delivering results-based climate finance, but does not account them towards achieving the mitigation target in its NDC. Jurisdictions, entities or non-governmental organizations from two countries could decide to engage in international transfers of mitigation outcomes, while the countries may not account for them towards their NDCs. For example, any net transfers between the international linking between the ETSs in California and Quebec are currently not internationally accounted for by the United States and Canada. In these cases, emission reductions are not double claimed – only the country that has transferred a net amount of allowances to the other country would account for the emission reductions from such transfers, through its reported GHG emissions. This might be a simple and practical option for instances where only small amounts of mitigation outcomes are transferred between countries.

In summary, corresponding adjustments on the side of the transferring country do not appear necessary if the mitigation outcomes:

- ▶ are not generated within the scope of the mitigation target in the NDC of the transferring country; or
- ▶ are not accounted by the acquiring country towards achieving its NDC.

5.3 How can the diversity of NDCs be addressed?

In Figure 2 and Figure 3 above, we made several assumptions with regard to how emission targets are expressed in NDCs. In practice, the mitigation targets or actions communicated in NDCs are rather diverse (Graichen et al. 2016). This diversity poses considerable challenges for accounting for ITMOs (Hood et al. 2014). How to ensure robust accounting in the light of the considerable diversity of NDCs is subject to further research. In this discussion paper, we briefly point to key challenges, principles and approaches to address this challenge.

Generally speaking, the diversity of NDCs can be addressed in two broad ways:

- ▶ **Ensuring compatibility of NDCs:** Accounting for international transfers is greatly facilitated if the mitigation targets of the countries involved are expressed in similar ways and have similar features. Compatibility of NDCs could be achieved in different ways: first, countries could decide to convert (part of) their NDCs in a way that it becomes compatible with a country they wish to engage in cooperative approaches. A group of countries could also agree to formulate their NDCs in consistent ways, in order to facilitate robust accounting of international transfers among them. Second, international guidance under Article 6.2 could require a certain level of compatibility to ensure robust accounting, e.g. by establishing eligibility criteria for participation in international market mechanisms or by requiring that certain features (e.g. GWP values) need to be common between countries engaging in an international transfer (Kreibich and Hermwille 2016). Third, international rules under Article 4, in particular with regard to transparency, clarity and understanding of NDCs, could help clarify the scope of NDCs. And fourth, international rules might facilitate that NDCs have similar features from the onset, such as common time frames, as envisaged under Article 4.10, or common metrics, as envisaged under paragraph 31(a) of decision 1/CP.21.
- ▶ **Conversion of corresponding adjustments:** If the mitigation targets or actions of two countries involved in cooperative approaches are not expressed in the same way, the corresponding adjustments (or mitigation outcome) could be appropriately converted.

Which approach is more suitable, may depend on the context. The diversity of NDCs raises several challenges for implementing corresponding adjustments:

- ▶ **GWP values:** In their NDCs countries intend to use different set of GWP values to account for their mitigation targets, including values from 2nd, 4th and 5th IPCC assessment report (Graichen et al. 2016). Section 5.4 discusses possible approaches to address different GWP values when implementing corresponding adjustments.

- ▶ **Non-GHG mitigation targets:** Many NDCs include a GHG emissions target, often in combination with other non-GHG mitigation targets. A number of countries, however, communicated only non-GHG mitigation targets in their NDCs, such as energy efficiency or renewable energy targets. Section 5.5 discusses possible approaches to address international transfers under non-GHG mitigation targets.
- ▶ **Target period:** NDCs have different target years or periods. Many countries have submitted NDCs with a single target year, mostly 2030. International transfers between NDCs with different target time frames can, in some instances, increase global GHG emissions. In principle, robust accounting for the target periods could be addressed if two countries involved have defined their NDC for the same target year or period and if only mitigation outcomes generated in that period would be transferred among them. However, this option may not always be compatible with international linking of ETSs which use multi-year emission budgets and usually allow banking of units between years. Converting single-year into multi-year emission trajectories or targets could be another robust approach to ensure compatibility of NDCs (Lazarus et al. 2014).
- ▶ **Targets covering part of the economy:** Most countries communicated in their NDCs mitigation targets which cover only part of their economy; they include only some sectors of the economy, only some GHGs, or – rather exceptionally – only cover part of the countries' geographical area (Graichen et al. 2016). Where mitigation targets cover only part of the economy, it is important to identify whether a mitigation outcome is generated within or outside the scope of the NDC.
- ▶ **Reference level:** Most countries express their GHG targets as reductions compared to a future hypothetical BAU scenario. Others express them based on emissions intensity (e.g. per unit of GDP). Several communicated a reduction compared to a historic base year (e.g. X % below year Y), and a few have fixed an absolute target (e.g. carbon neutrality by year Y). To apply corresponding adjustments, the reported progress or mitigation targets need to be expressed – at least ex-post – in quantitative terms (see section 3.1).
- ▶ **Conditional targets:** Many countries have communicated NDCs that are subject to support from other countries. Targets may be partially or entirely conditional on climate finance, access to international market mechanisms, technology transfer and capacity building. If corresponding adjustments are made to mitigation targets, they could be applied to either unconditional or conditional targets, which has different consequences for the aggregated mitigation outcome from both countries.
- ▶ **Non-quantitative targets:** Most NDCs include quantitative mitigation targets, including GHG emission, renewable energy or energy efficiency targets. Some NDCs, in particular from LDCs, only include non-quantitative actions, such as promoting renewable energy. It is unclear whether and how corresponding adjustments could be applied in this case on the side of the transferring countries.

5.4 How could the use of different GWP values in NDCs be reconciled?

In Figure 3 and Figure 4 in section 5.1 above, we assumed that the two countries apply the same GWP values. The scientific understanding of the GWP of gases has advanced over time and the GWP values depend on the current concentrations of these gases in the atmosphere. Therefore, GWP values are updated in each IPCC assessment report, sometimes leading to significant revisions compared to previous estimates. In their NDCs, countries use different sets of GWP values from the 2nd, 4th and 5th IPCC assessment reports (Graichen et al. 2016).

The use of different GWP values exacerbates robust accounting for ITMOs, as illustrated with the following example: Assume a transferring country that uses a GWP of 28 for CH₄, as included in the 5th IPCC assessment report, to account for its NDC. The country transfers a mitigation outcome of 100 t CH₄ from an emission reduction project under a crediting programme to an acquiring country, which uses a GWP of 21 for CH₄, as included in the 2nd IPCC assessment report.

To transfer the mitigation outcome, the transferring country converts it into t CO₂eq, using its own GWP value of 28, resulting in an amount of 2,800 t CO₂eq (100 times 28). The transferring country applies a corresponding adjustment and adds this amount to its reported emissions. If the acquiring country would apply the same corresponding adjustment and subtract 2,800 t CO₂eq from its reported emissions, the aggregated emissions from both countries could change. The subtraction of 2,800 t CO₂eq could, for example, allow the acquiring country to emit 133 t CH₄ more (2800 divided by 21), which would result in an aggregated net increase of emissions from both countries by 33 t CH₄.

Transferring t CO₂eq with different GWP values of the countries involved could lead to both higher or lower aggregated emissions compared to achieving emission reductions domestically. The impact depends on the GWP values applied and how the acquiring country uses the mitigation outcomes.

To avoid increases or decreases of aggregated emissions due to such transfers, an appropriate conversion of corresponding adjustments could be explored. Under this approach, each country would apply a different value of corresponding adjustments to the same international transfer, consistent with its GWP values. In the example above, the transferring country would calculate a corresponding adjustment of 2,800 t CO₂eq (100 times 28), whereas the acquiring country would apply a corresponding adjustment of 2,100 t CO₂eq (100 times 21). In other words, the value of the corresponding adjustments is converted to reflect the differences in GWP values. This provision would ensure that the transferred mitigation outcome has the same emissions impact if the acquiring country would take the same type of mitigation action, i.e. if it would reduce the same gases domestically instead of acquiring the ITMO. It could thus be argued that the adjustments would better “correspond”, though the values applied are different.

Using different corresponding adjustment values might be feasible in instances where the exact composition of GHGs of the transferred mitigation outcomes is known, such as in the case of emission reductions from a project capturing and using landfill gas for electricity generation. This is, however, not always the case. Many ETSs do not only address CO₂ emissions but also other GHGs. The European Union (EU) ETS includes, for example, N₂O emissions from nitric and adipic acid production.

If the EU ETS were linked to an ETS in another country, and if the two jurisdictions would wish to account for the net transfer of allowances towards achieving their NDCs under the Paris Agreement, they would need to apply corresponding adjustments. ETS allowances, however, represent a permit to emit and do not correspond to specific emission reductions. For each allowance transferred, a t CO₂eq of emissions is reduced in the transferring jurisdiction, because the overall amount of allowances available to the entities in that jurisdiction is lowered. However, the exact emission source and GHGs reduced are not known; the emission reductions could include CO₂ or non-CO₂ gases. Without identifying the composition of GHGs of the mitigation outcome, however, the application of two different adjustment values is not possible. Similar practical challenges could arise from crediting programmes, which sometimes use simple default emission factors that include different GHGs from different sources.

For both international linking of ETSs and international crediting programs, simplified estimates of the approximate composition of GHGs could be a practical – though less accurate – approach. For example, the average composition of GHGs in reported emissions under ETSs could be used as a proxy for the emission reductions induced through international transfers of ETS allowances.

Alternatively, all countries or a group of countries engaging in international transfers could agree to use common GWP values for accounting for their NDCs. This would avoid any indirect effects on aggregated emissions that may result from the transfer of mitigation outcomes under different national GWP values. This approach is thus significantly less complex and would considerably facilitate accounting for international transfers, but requires coordination and international agreement on which GWP values should be applied. The provisions of the Paris Agreement can be interpreted to support the use of common GWP values: paragraph 31(a) of decision 1/CP.21 establishes that the guidance to account for Parties’ NDCs under Article 4.13 should ensure that Parties account for emissions and removals in accordance with “common metrics assessed by the IPCC”.

Finally, Parties could also decide to neglect this effect. Given that the aggregated mitigation outcome could increase or decrease as a result of different GWP values, one could argue that the aggregated effect from all transfers may balance to some degree and might thus not be very significant. In this case, a simple approach could be that the GWP values of the transferring country are used to determine the CO₂eq of a mitigation outcome.

In summary, this accounting challenge could be addressed in several ways:

- ▶ **Common GWP values for all countries:** Parties could internationally agree to apply a consistent set of GWP values to mitigation targets over time, for instance, to apply the latest 100-year GWP values from the 5th IPCC assessment report to targets in the period 2021 to 2030.

- ▶ **Common GWP values for the countries involved in a cooperative approach:** A group of countries wishing to engage in international transfers could agree among themselves to use the same GWP values to account for their NDCs. Parties could also internationally agree, e.g. as part of guidance under Article 6.2, that two countries engaging in a cooperative approach should apply the same GWP values to account for their NDCs. This may require some countries updating their NDCs.
- ▶ **Conversion of corresponding adjustments:** The guidance under Article 6.2 could allow countries to convert the corresponding adjustments to reflect differences in GWP values, possibly using simplifications to estimate the composition of GHGs from mitigation outcomes transferred.
- ▶ **Application of the GWP values of the transferring country:** The guidance under Article 6.2 could specify that the GWP values of the transferring country be applied to convert mitigation outcomes into t CO₂eq. This would neglect the effect that use of such outcomes by a country with different GWP values could lead to higher or lower aggregated GHG emissions.

The first option would be the simplest and would facilitate implementing cooperative approaches under Article 6.2. It would ensure compatibility of NDCs from the onset. It may also overall facilitate comparability of GHG mitigation targets and accounting for NDCs under the Paris Agreement. Conversion of corresponding adjustments faces practical challenges and is more complex and less accurate, but would provide the flexibility to countries to use different sets of GWP values.

5.5 How could corresponding adjustments be applied to international transfers under non-GHG mitigation targets?

Applying corresponding adjustments for international transfers between countries with different metrics of mitigation targets is a particular accounting challenge. A first challenge is that transfers of non-GHG metrics, such as MWh of renewable electricity, do not necessarily involve the same mitigation outcome in terms of GHG emissions and removals: producing one MWh of electricity in country A may generate a larger or smaller mitigation outcome than producing a MWh in country B, depending on the composition of the power plants in the electricity grids. A transfer of one MWh may thus lead to different mitigation outcomes in the two countries involved (see section 4.1 above).

A second challenge arises if the two countries involved use different metrics for their mitigation targets. Assume, for example, a transferring country which communicated only a non-GHG mitigation target to expand its renewable power generation capacity and an acquiring country with a GHG target. Assume further that the acquiring country funds a new wind power plant and purchases emission reductions credits generated by that plant. The acquiring country also accounts the credits as ITMOs, expressed in t CO₂eq, towards its NDC. In that case, corresponding adjustments could not be applied in the same metrics.

In principle, these challenges could be addressed through two options:

- ▶ **Conversion of non-GHG mitigation targets:** Any non-GHG mitigation targets could be converted into corresponding GHG emission targets. This would enable both countries to make a corresponding adjustment for an ITMO in t CO₂eq. It may require updating the NDC or providing additional information how already communicated targets are converted in their metrics.
- ▶ **Conversion of corresponding adjustments:** The two countries could convert the corresponding adjustments such that they are consistent with their metrics of mitigation targets and, at the same time, correspond to the same mitigation outcome.

One could argue that the first option is supported by paragraph 36 of decision 1/CP.21, because the corresponding adjustments should be applied to “emissions” or “removals”, and not to other metrics. In this regard, international guidance under Article 6.2 could specify that countries should express or convert their non-GHG mitigation targets in GHG metrics if they wish to engage in international transfers for mitigation outcomes that are generated within the scope of their NDCs.

The second option is illustrated in Figure 4 below. We assume in the figure that country A has a mitigation target to expand its renewable power capacity to 100 MW. The country wishes to transfer the mitigation outcome from a 20 MW wind power plant to country B, through a bilateral crediting mechanism. Country B purchases a corresponding amount of credits generated by the 20 MW wind power plant. The amount of credits is calculated consistent with recognized standards, e.g. by monitoring the amount of electricity generation from the plant and multiplying it with a grid emission factor of country A. The emission reductions vary from year to year, subject to level of wind power generation and changes in the grid emission factor. Country B has an absolute GHG emissions target and wishes to account for the mitigation towards achieving its target.

To accommodate the different metrics of mitigation targets, the two countries could apply a pair of corresponding adjustments, expressed in different metrics, but implying the same mitigation outcome. For instance, country A could subtract 20 MW from its reported level of installed renewable power capacity and country B could subtract a corresponding amount of emission reductions from its reported emissions. The two adjustments by the transferring and the acquiring country would “correspond” to the same mitigation outcome, although two different metrics are used. To ensure robust accounting under this option, adequate methods and approaches to convert mitigation outcomes are important.

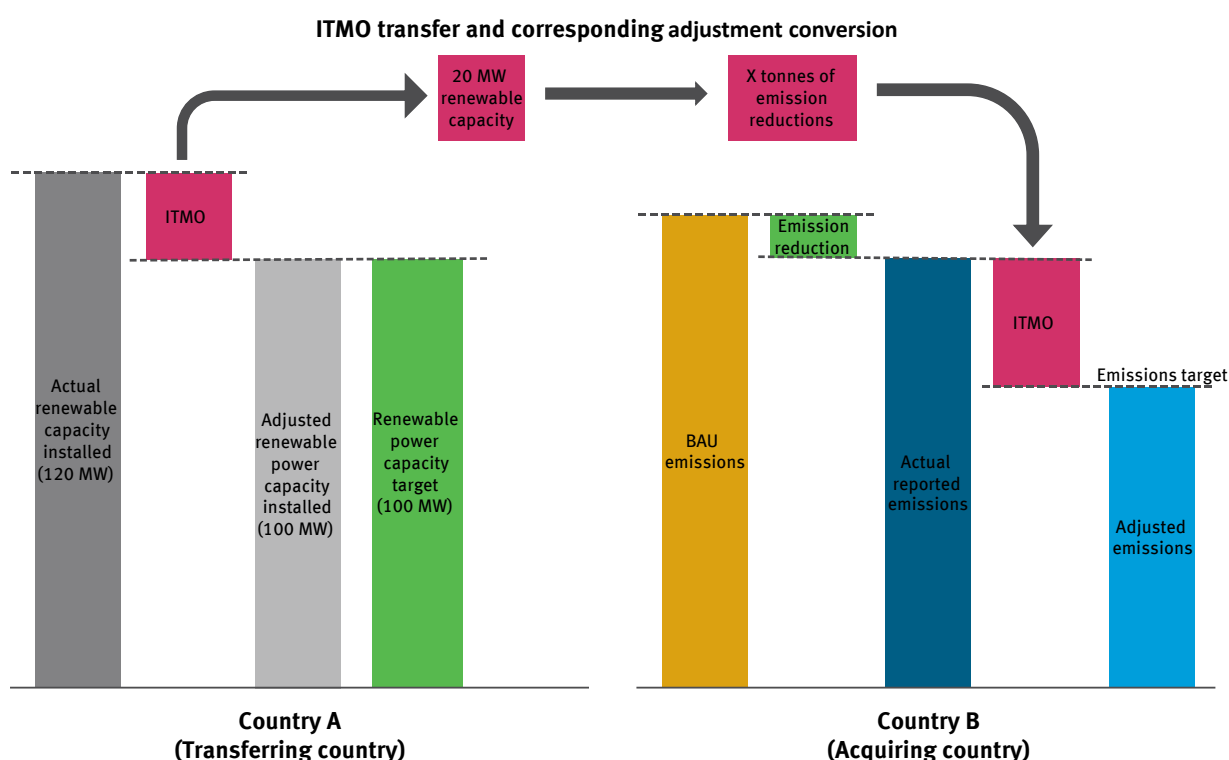


Figure 4: Application of corresponding adjustments for an international transfer between a country with a renewable power target and a country with a GHG emissions target

5.6 Should corresponding adjustments apply to emission reductions generated under Article 6.4?

In section 4.5 above we discussed how ITMOs relate to emission reductions resulting from the Article 6.4 mechanism. Depending on the definition of the nature of ITMOs, emission reductions generated under the Article 6.4 mechanism could be:

- ▶ Considered as ITMOs if they are (a) internationally transferred and (b) used by the acquiring country to achieve its NDC;
- ▶ Considered as ITMOs if they are (a) internationally transferred, (b) used by the acquiring country to achieve its NDC, and (c) covered by the scope of the NDC of the transferring country;
- ▶ Always considered as ITMOs; or
- ▶ Never considered as ITMOs.

Under the first three options, the approaches for corresponding adjustments under Article 6.2 would automatically apply to emission reductions resulting from the Article 6.4 mechanism. Under the last option, a different set of accounting rules may apply.

Using the same set of accounting rules provides several advantages. It would be less complex. And importantly, the issues that have to be addressed, such as avoiding double counting, are the same for any type of international transfers, independent of whether the mitigation outcomes are generated under a UNFCCC mechanism with international oversight or under different governance arrangements. As the ultimate requirements are likely to be similar, the emerging rules are also likely to be similar.

A case for different accounting rules could be made if the scope of Article 6.2 and Article 6.4 were clearly different; for instance, if Article 6.2 would only cover mitigation outcomes that fall within the scope of mitigation target of the transferring country and if Article 6.4 would only address emission reductions that are not included in the scope of the mitigation targets. In this case, corresponding adjustments by the transferring country would only be applicable under Article 6.2 but not under Article 6.4. This, however, would limit the scope of both approaches.

5.7 How could double claiming with ICAO or IMO be avoided?

Under the UNFCCC and applicable IPCC Guidelines, emissions from international aviation and maritime transport are reported by countries as memo items, but not included in their total national GHG emissions. The Paris Agreement does not explicitly refer to emissions from international aviation and maritime transport. Since these emissions are clearly anthropogenic, they are implicitly included in the scope of Article 4.1 of the Paris Agreement. However, drawing upon the approach in the IPCC Guidelines for reporting of GHG inventories, countries did not include these emissions in the scope of their NDCs.

Indeed, efforts are underway – though at different paces – to address these emissions under the ICAO and the International Maritime Organization (IMO). The CORSIA, recently adopted by ICAO, allows using emissions units generated from mechanisms under the UNFCCC and the Paris Agreement for offsetting the CO₂ emission growth beyond 2020. IMO may also pursue offsetting emissions from international maritime transport in the longer term. Using emission offsets under ICAO and IMO would result in double claiming if the emissions reductions are also accounted towards the NDCs. This raises the question how such double claiming can be avoided. The ICAO resolution requires that emission units are eligible, provided that “they align with future decisions, including on avoiding double counting”.

Double claiming of emission reductions could occur if an airline under ICAO (or a shipping company under IMO) would use a mitigation outcome that is also used by a Party to achieve its NDCs. This can occur if the mitigation outcome falls within the scope of the NDC of the transferring country and if the transfer and use under ICAO or IMO would not be reflected appropriately through a corresponding adjustment by the transferring country.

Corresponding adjustments to avoid double claiming between mitigation targets in NDCs and obligations under ICAO or IMO could be implemented similarly to corresponding adjustments for international transfers between countries: countries transferring mitigation outcomes for use under ICAO or IMO would need to add a corresponding adjustment to their reported progress, or subtract a corresponding adjustment from their emissions budget. Such adjustments would only be necessary if the mitigation outcome falls within the scope of the countries' NDC.

An important practical and legal question is whether the Paris Agreement includes elements that give interpretation to avoiding double counting with ICAO and IMO. Article 6.2 applies to mitigation outcomes that are used by Parties to achieve NDCs; this raises the question whether the article is applicable to any transfers for the purpose of offsetting emissions from international aviation or maritime transport. Article 4.13 requires countries to ensure the avoidance of double counting in the context of accounting for their NDCs. This provision could be interpreted to be broader in applicability, as to avoiding double counting between the countries' NDC and mitigation actions by other countries or under other international treaties. This interpretation may also be supported by the fact that the scope and objective of the Paris Agreement includes all anthropogenic emissions including those from international aviation and maritime transport.

The challenge of avoiding double claiming between UNFCCC and ICAO or IMO does not only apply to the Paris Agreement but also to the Kyoto Protocol, should units generated under the Kyoto Protocol be used under ICAO or IMO. For example, ERUs from JI may need to be cancelled or retired in specific accounts when used for compliance under ICAO or IMO, to avoid double claiming with targets of Annex I countries with a commitment inscribed in Annex B of the Kyoto Protocol. A further practical challenge is that effectively avoiding double claiming requires coordination between different regimes: the UNFCCC and ICAO, and the UNFCCC and IMO.

6 Conclusions

This discussion paper explored some aspects of robust accounting for international transfers under Article 6 of the Paris Agreement. A key feature of the Paris Agreement is the national self-determination of contributions. As a consequence, current NDCs show a large diversity in several aspects, including how mitigation targets are expressed, which sectors and gases they cover, which time frames they are applicable to, and which methods and metrics they employ. This diversity of mitigation targets in NDCs makes accounting for international transfers more complex, compared to the framework of the Kyoto Protocol where mitigation targets were expressed as economy-wide absolute emission budgets for defined time periods and a defined basket of GHGs.

In developing international rules on robust accounting of international transfers under Article 6, the diversity of NDCs could be addressed in two generic ways:

- ▶ by developing rules that aim to reflect the diversity of NDCs and enable international transfers between different types of NDCs; or
- ▶ by agreeing internationally, among groups of countries, or bilaterally on common features that make NDCs more compatible for international transfers.

These approaches can be combined and Parties may have to carefully balance when to pursue which approach. On the one hand, common features should not infringe on the self-determination of NDCs. On the other hand, the more diverse the NDCs are, the more complex and prone to errors may robust accounting become. This paper identified a number of options for both approaches.

The Paris Agreement provides for some elements that may, over time, moderate the current diversity of NDCs and make accounting for international transfers under future NDCs less complex. Article 4.10 requests Parties to consider common time frames for NDCs. Article 4.4 requires economy-wide absolute emission reduction targets for developed countries and encourages developing countries to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances. Paragraph 31(a) of decision 1/CP.21 suggests that the guidance under Article 4.13 should ensure that Parties account for emissions and removals in accordance with common metrics by the IPCC. If mitigation targets are applicable to common time frames, economy-wide, and expressed in common GHG metrics, accounting for international transfers would be already greatly facilitated compared to the current diversity of NDCs.

Finally, an important question is how the general accounting provisions under the Paris Agreement relate to the specific provisions for international transfers under Article 6. We recommend exploring a tiered or modular approach, with general accounting provisions being applicable to all countries for the purpose of accounting for their NDCs, and specific provisions required for robust accounting of international transfers being applicable to those countries wishing to engage in international transfers.

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