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Features and implications of NDCs for carbon markets

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Executive Summary

Building robustness out of diversity

The Nationally Determined Contributions (NDCs) submitted by countries contain a diverse range of pledged targets and actions. They differ in form, level and coverage. This is in keeping with how the Paris Agreement has prioritised universal and ambitious climate effort over any top-down definition of countries' actions.

This diversity carries over into Article 6 of the Paris Agreement,[1] which facilitates voluntary cooperation among countries in achieving their NDCs and raising ambition levels in their climate action. Many countries will implement cooperative approaches of their own under Article 6.2,[2] through which internationally transferred mitigation outcomes (ITMOs) may count towards achieving the NDCs of countries that have invested in or purchased them. These approaches could alternatively be used as means to facilitate climate finance or contribute to an overall mitigation in global emissions. Countries may also use the UNFCCC-governed crediting system established in Article 6.4 and cooperate on non-market approaches under Article 6.8. The context for this cooperation is set out in Article 6.1 as one that allows for higher ambition and promotes sustainable development and environmental integrity.

This report identifies features and implications of countries' NDCs that are particularly relevant to the design and use of carbon markets in the context of Article 6.2. More specifically, it maps out and discusses issues relating to NDCs and Article 6.2 that may need to be addressed through decisions under the UNFCCC.

While not directly addressing other aspects of Article 6, the discussion of some NDC and Article 6.2 issues may also impact on other Article 6 provisions, in particular the mechanism established by Article 6.4. Such cases are noted in the report.

There are many issues and potential options within each of these areas. The Paris Agreement and decision 1/CP.21[3] set parameters within which countries are to act, give a structure for international oversight, and emphasise repeatedly the key interlinked principles of environmental integrity, transparency and comparability.

[1] UNFCCC (2015a)

[2] Unless otherwise stated, references to 'articles' in this report refer to articles of the Paris Agreement.

[3] UNFCCC (2015b)

Much of what may need to be specified in guidance under the UNFCCC relating to carbon markets is expected to focus on the interplay of three factors:

- **NDC features:** how guidance might provide a robust basis in NDCs for the operation of market instruments
- **NDC and ITMO accounting:** how guidance can coordinate adjustments relating to NDC targets and specify how these impact on their achievement
- **Generation of mitigation outcomes:** how guidance can ensure their environmental integrity and enhance their comparability and exchangeability

Making effective use of this cooperation while ensuring environmental integrity is a key priority underlying all these factors. Environmental integrity requires that transfers do not lead to higher global emissions than would have happened if NDCs were achieved without the transfers being made. Operationalising all this—while maintaining flexibility in the national implementation of climate action—is one of the many challenges facing the work to develop guidance on NDCs and Article 6.

Strengthening NDC features

The NDCs submitted under Article 4 are diverse in many aspects: target types, timeframes, metrics, sectoral scopes, and the distinctions between unconditional and conditional elements of NDCs. Many targets use metrics relating to the quantity of greenhouse gas (GHG) emissions and are expressed in absolute, relative or intensity terms. There are also action-based targets that are not measured in GHGs.

The clarity, transparency and understanding of NDCs will require countries to provide information relevant to their NDC types. Understanding NDC ambition requires comparability across targets and information to assess how conservative the assumptions in BAU projections are. Common NDC timeframes would also strengthen transparency and comparability. A major issue that has emerged from the diversity of NDCs is that multi-year and single-year emissions targets do not share a common basis for using ITMOs. This would be considerably helped by countries providing information on their expectations for their emissions trajectories over time.

The boundary needs to be clarified between NDC pledges that a country plans to implement unconditionally with its own resources and those which are conditional on the country receiving international support. Countries can provide further information on this, as it is important in determining which activities under crediting systems are additional and what quantity of emission reductions they generate.

NDCs may cover entire economies or may be limited to specific sectors. A comprehensive move towards economy-wide emission reduction or limitation targets would help comparability and, even more importantly, help raise ambition. However, this can only be expected to happen incrementally.

Accounting for NDCs and ITMOs

Accounting is the assessment of countries' progress towards, and ultimately the achievement of, the contributions they have pledged through their NDCs. As such, accounting is directly linked to the nature of those pledges and determines what may contribute to their achievement. Article 6 and decision 1/CP.21 require that when international transfers are made, robust accounting shall be applied on the basis of "corresponding adjustments" to, *inter alia*, avoid double counting.

ITMOs accounting therefore needs to work within the wider scope of NDC accounting and needs to play a crucial role in ensuring the environmental integrity of transfers.

Two different levels of the interaction between countries may be distinguished in relation to ITMOs:

- **The transfers themselves and their 'tracking' in participating countries.** How this is undertaken will be determined by the countries implementing the cooperative approaches. Different methods are possible, with more complex market approaches typically making use of registry systems. The tracking systems put in place by countries need to be adequate for their needs while also ensuring a sufficiently strong basis for conducting the accounting.

- **The reflection of transfers in the accounting of NDCs.** This is to occur through corresponding adjustments relating to the NDCs of each participating country. This accounting is to be conducted at the national level and reported to the UNFCCC in line with the transparency framework under Article 13.

A clear distinction between transfers and accounting allows countries flexibility to tailor transfers to their specific forms of cooperation. The task of the accounting framework is then to define what types of adjustment need to be applied and how.

A range of issues need to be considered for possible accounting guidance, including:

- **In relation to transfers:** Should the accounting system focus on ITMOs quantified in GHG terms? Are 'units' needed or can emission reductions be transferred directly? Are transfers made in the context of the Article 6.4 also to be considered ITMOs and covered by the same accounting? What information needs to be tracked? What tracking systems are needed?

- **In relation to adjustments:** How are corresponding adjustments to apply? When are corresponding adjustments not needed? What other adjustments may be needed? What should trigger adjustments?

- **In relation to other accounting issues:** How should transfers with the International Civil Aviation Organization (ICAO) be treated? Are eligibility requirements needed? How should any restrictions on linking be taken into account? How can ITMOs for single-year targets be made more representative? Who may use an ITMO if an NDC is not achieved? What degree of intertemporal transfers is appropriate? How should accounting results be reported? What information needs to be reported? How can the reported information be compiled and assessed?

It is important that the tracking of ITMOs provides a robust and clear basis for making accounting adjustments. This tracking would benefit from a universal system for assigning serial numbers to the emission reductions and units, which would ease their tracking and associate them with important information on activities and reductions that countries and the accounting system need to keep. Many cooperative approaches, especially where they involve private or public sector entities and secondary trading, will establish registry systems. These systems will need to link to each other, but within this there are different models with varying degrees of centralisation across what may one day function as a single network of registries and, potentially, transaction logs. A centralised system could be provided, perhaps under the auspices of the UNFCCC, which countries could choose to join.

Adjustments made in the accounting system need to be expressed in the same metric as the NDCs they are to count against. With the NDCs contemplating the use of ITMOs being almost universally expressed in GHGs, the complexity of the tracking and adjustments would be considerably reduced by focusing, at least initially, only on ITMOs that use GHGs as a metric and that standardise the global warming potentials used. This would be consistent with the call in Article 4.4 for all countries to move towards emission reduction or limitation targets that are economy-wide.

The accounting system will need to make clear what adjustments are needed under what circumstances, including international transfers but also addressing any cancellation or banking. There may also be cases in which the application of accounting adjustments needs to be tailored to suit specific circumstances.

Adjustments can be applied to emissions recorded in a country's national inventory or to a 'budget' of emissions allowed under the relevant NDC target. The two approaches are mathematically equivalent, although countries involved in trading or crediting may well opt for the budget basis while others may find it easier to use the emissions basis. This flexibility would not compromise the accounting system, although it may be easier if all reporting to the UNFCCC used the emissions basis.

It also needs to be determined whether the accounting guidance to be developed under Article 6.2 is also to apply to transfers of credits that are generated by the Article 6.4 mechanism. There would appear to be advantage in having a single system of accounting for all transfers under Article 6. This may also need to address any limitations established for banking emission reductions into future NDC cycles or any provision for using pre-2020 emission reductions in achieving post-2020 NDCs.

The environmental integrity, transparency and comparability of the accounting system may also be helped by establishing eligibility criteria for the systems and processes that countries need to have in place to transfer or use ITMOs.

Reporting on transactions and accounting adjustments would need to be made at least on a biennial basis, in line with the reporting on progress in achieving NDCs under the transparency framework. As well as determining what information each country should report, it will be important to understand how that information will need to be compiled and assessed to ensure that no double counting has occurred.

Ensuring environmental integrity in ITMO generation

Guidance may be required to ensure the environmental integrity of the mitigation outcomes which are transferred as ITMOs. This raises issues around baseline setting and additionality, as well as monitoring, reporting and verification (MRV), at the level of cooperative approaches. These issues address the nature and degree of UNFCCC guidance required, differences in guidance for ITMOs generated inside or outside the scope of NDCs, and possible overlaps with rules for the Article 6.4 mechanism.

Defining common principles could help ensure consistency in the type and quality of ITMOs generated, thereby enhancing their credibility and facilitating their exchangeability. These principles would serve as a point of departure for countries in in elaborating standards for their cooperative approaches. They would need to ensure that additionality assessments and baseline setting under cooperative approaches properly reflect the unconditional component of the host country's NDC. MRV would need to give rise to—among others things—transparency, completeness, conservativeness, accuracy, reliability of data, and continuous improvement.

Within an environment of stringent NDC targets, a transferring country has an incentive to be conservative in determining the ITMOs that may be generated and passed to other countries. However, if a transferring country's NDC is less stringent, possibly with expected emissions already below NDC targets, the incentive to be cautious is weaker. Establishing common guidance could reduce the risk of inflated baselines, promote comparable methodologies and harmonise MRV approaches.

There may also be value in drawing on standards from the Article 6.4 mechanism, either for direct use or to inform guidance for Article 6.2, for example in relation to additionality or the concept of overall mitigation of global emissions.

Ambition and international governance represent in some ways a trade-off. Ambition can increase demand and bring out more supply, but in a way that makes supplying countries more conservative, reinforces quality and strengthens price signals. Strong ambition can therefore reduce pressures to have strong forms of international governance, in particular over the generation of ITMOs. Seen conversely, international governance may need to be stronger when ambition is not present or when it is not possible to gain assurance that it is present.

Moving forward and unlocking understanding

Carbon markets are often promoted as a means of increasing ambition in climate action, particularly in relation to mitigation. For this to occur, the cost-effectiveness of market approaches and engagement of the private sector need to be reflected in strong national measures—for example, strong ETS targets or meaningful carbon price signals—and NDCs need to be taken into account in additionality assessments and baseline calculations.

The guidance under Article 6 also needs to pay attention to its impact on incentives for the extent and breadth of ambition. This could be influenced by measures to: ensure transparency and the extension of targets; support developing countries in expanding the scope of their NDCs; use the Article 6.4 mechanism to address emission reductions originating outside of the scope of NDCs; extend the concept of "overall mitigation"; and link the scope for transfers to a country's progress in achieving its NDC target or reducing its emissions.

An underlying theme across the issues and options in this report is the degree of harmonisation or centralisation that should be sought. Guidance that promotes more harmonisation in transactions, standards, MRV, and perhaps more centralisation in systems and infrastructure, can facilitate and promote effective cooperation and carbon markets. It can offer carbon markets greater transparency and overall predictability. More broadly, it can offer greater clarity and comparability in the ambition of NDCs, more confidence in the integrity of cooperative approaches and ITMOs, and stronger acceptance of the cooperative approaches by entities.

Guidance that promotes less harmonisation and centralisation would offer more flexibility for national implementation as it would leave more scope for countries to interpret it. This may encourage new ways of achieving mitigation, but also risks extending market fragmentation further, with fewer opportunities for cost-efficient mitigation and less overall predictability for markets.

The task until the end of 2018 to develop and agree UNFCCC guidance on various aspects relating to NDCs and Article 6 is a challenging one. Countries will have to grapple with many of the issues raised in this report. It appears that, in most cases, answers to these issues may benefit from approaches that are more coordinated or

harmonised but seek at the same time to not unnecessarily limit the national implementation of cooperative approaches.

Making fast progress and unlocking the further negotiations of the broader set of NDC and Article 6 guidance may require the development of an early understanding with regard to the following issues among countries:

- Whether the guidance on accounting under Article 6.2 should focus on ITMOs expressed in GHG metrics, at least in the first instance. This could significantly ease or complicate the development of the guidance.
- The scope of activities under Articles 6.2 and 6.4, in particular in relation to emissions inside and outside of the scope of NDCs. Having a common understanding of this would simplify progress on the accounting guidance.
- The favoured means of delivering confidence in the environmental integrity of cooperative approaches under Article 6.2, for example, whether stronger forms of international oversight or greater focus on ensuring high ambition is preferred. This will have implications for the appropriate balance of national versus international governance over the cooperative approaches.
- The manner in which the adjustments under the accounting system need to work. The mechanics of the necessary NDC and ITMO accounting need to be better and more widely understood, for countries to have collective comfort in moving ahead.

1. Introduction

1.1 Objective

This report identifies features and implications of Parties' nationally determined contributions (NDCs) under the Paris Agreement that are relevant to the design and use of carbon markets in the context of Article 6.2. This article envisages countries implementing cooperative approaches that allow for reductions in greenhouse gas emissions in one country to be transferred to other countries, where they may contribute to the achievement of NDCs.[4]

With many aspects of the Paris Agreement currently subject to further negotiation, the report focuses on issues concerning NDCs and Article 6.2 that may need to be addressed through decisions under the United Nations Framework Convention on Climate Change (UNFCCC). While not directly addressing other aspects of Article 6, the discussion in this report of some NDCs and Article 6.2 issues may also impact on other Article 6 provisions, in particular the mechanism established by Article 6.4. Such cases are noted in the report.

The discussion in this report draws upon UNFCCC discussions that led to the final language of the Paris Agreement and discussions that are ongoing under current UNFCCC work programmes established by decision 1/CP.21 to implement the Paris Agreement. This includes submissions made by Parties and observer organisations,[5] other dialogue initiatives and relevant literature.

1.2 Background

The Paris Agreement adopts a decentralised approach in responding globally to climate change by relying on each country to determine for itself the contribution it will make towards meeting the Agreement's purpose in Article 2. The Agreement does not prescribe the level of countries' effort or the actions they may choose to take. However, it does set certain parameters within which countries are to act and gives a structure of international oversight.

[4] For simplicity, references in this report to emission reductions refer generally also enhanced removals by sinks and avoidance of emissions.

[5] All views attributed in this report to Parties and observer organisations are from their submissions under the agenda items of the Subsidiary Body for Scientific and Technological Advice (SBSTA) on matters relating to Article 6 of the Paris Agreement, due on 30 September 2016 and (to a lesser extent, given the timing of the preparation of this report) on 17 March 2017. All submissions are available at www4.unfccc.int/Submissions

The NDCs under Article 4 of the Paris Agreement set out the mitigation contributions that each country undertakes to contribute.[6] They are to be formally submitted for the first time when each country ratifies the Paris Agreement, with countries then commencing a five-year cycle of communicating NDCs that represent progressive levels of ambition in their climate action.

Article 6.1 sets the context for the cooperation that can occur under Article 6 as one that is to be on a fully voluntary basis, allows for higher ambition in countries' mitigation and adaptation actions,[7] and promotes sustainable development and environmental integrity. Two of the routes for cooperation set out in Article 6 may relate to carbon market instruments:

(a) **Cooperative approaches under Articles 6.2 and 6.3:** These provisions recognise that countries will implement collaborative market instruments that lead to emission reductions in the form of internationally transferred mitigation outcomes (ITMOs). They offer a 'decentralised' and country-led approach to the governance of cooperative approaches, but place safeguards at the level of the UNFCCC to ensure the environmental integrity, transparency, and comparability of outcomes transferred internationally and used to achieve NDCs.

(b) **The UNFCCC-governed crediting mechanism under Articles 6.4 to 6.7:** This recognises the value of having a centralised, international crediting instrument under the UNFCCC, with assured quality and fungibility of the emission reductions, that may be used by all countries to help achieve their NDCs and support their sustainable development.

Articles 6.8 and 6.9 set out a framework for non-market approaches, in recognition that the substantial portion of climate action that does not engage market approaches, contributes nevertheless to the achievement of NDCs and also needs promotion and coordination. Although the scope and purpose of these provisions are not yet well understood, they may develop in the direction of non-market policy instruments that closely complement market instruments.

Further guidance and rules for carbon markets are now to be elaborated through the various work programmes and mandates set up by decision 1/CP.21, including those concerning:

- Features of NDCs referred to in Article 4, information to be provided by countries to facilitate the clarity, transparency and understanding of NDCs, the accounting of NDCs, and whether there should be common time frames for NDCs
- Guidance in relation to cooperative approaches referred to under Article 6.2, including to ensure that double counting is avoided on the basis of corresponding adjustments
- Rules, modalities and procedures for the Article 6.4 mechanism

[6] NDCs also cover adaptation, but the focus of this report is on mitigation.

[7] Cooperation may lead to greater ambition as a result of enabling greater cost efficiency in mitigation activities, which may allow a country to undertake more mitigation action.

- Common modalities, procedures and guidelines, as appropriate, for the transparency of action and support, as referred to in Article 13

A full list of relevant work programmes and references is contained in Annex 1. These are to be completed by the end of 2018.[8]

Beyond the UNFCCC negotiations, the International Civil Aviation Organization (ICAO) agreed in October 2016 on the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to offset any increase in total CO_2 emissions from international aviation above 2020 levels. The ICAO Council is to adopt, by mid-2018, emissions unit criteria (EUC) and related guidance to support the purchase of emissions units by aircraft operators under the scheme, taking into account relevant developments in the UNFCCC and Article 6. CORSIA is expected to create significant demand for emission reductions sourced from sectors covered by the UNFCCC and consideration will be needed on how it may be integrated with the overall system of NDCs, voluntary cooperation and accounting under the Paris Agreement.[9]

1.3 Report structure

Section 2 provides an overview of the 'system' of the Paris Agreement and how its components relate to each other. This serves as an introduction and orientation to three possible building blocks—NDC features, NDC and ITMO accounting, and ITMO generation—that can provide the international guidance under the UNFCCC for the use of carbon markets under the Paris Agreement. These three building blocks are further elaborated in Sections 3, 4 and 5 by:

- Identifying issues that need resolution
- Identifying and exploring possible options for CMA guidance to address these issues through the Paris Agreement work programmes, while setting out insights from relevant literature and what is known of the views of Parties on these matters
- Noting linkages and dependencies in relation to other Paris Agreement areas and other issues to be negotiated
- Exploring implications for the design of carbon markets

Section 6 draws conclusions from this work, including how guidance by the CMA might be further developed and its overall implications for carbon markets.

[8] Decision 1/CP.22-/CMA.1 invited the Conference of the Parties (COP) to the UNFCCC to continue and accelerate this work and forward the outcomes at the latest to the third part of the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), to be convened in conjunction with the 24th session of the COP (December 2018), for consideration and adoption.

[9] Market mechanisms could also be applied to shipping under the International Maritime Organization (IMO) but any decision on such measures appears to still be some time away. Measures to improve the energy efficiency of international shipping entered into force in 2013. More recently, in October 2016, the Marine Environment Protection Committee (MEPC) of the IMO approved mandatory requirements for ships to record and report their fuel consumption to their flag States. The resulting data, to be collected from 2019, is to be used in considering if further measures through the IMO are required. Under the roadmap for development of a "comprehensive IMO strategy on reduction of GHG emissions from ships", also adopted by the MEPC in October 2016, an initial strategy is to be adopted in 2018 and revised with measures in 2023.

2. Mapping the elements

2.1 The political context

The Paris Agreement was born in a new political awareness that mandatory mitigation targets for all countries are not possible to agree in a consensus-based system. The universal participation of all countries in mitigation action took priority over measures to ensure minimum standards or levels of action. Each country may determine its own contributions to the global effort, in full cognisance of its own national circumstances. In this manner, the Paris Agreement differs from other agreements in important respects such as who determines the goals for each country, the nature of those goals, how uniform they are, their clarity and degree of quantification, and the consequences of not meeting them.

At its core, however, the Paris Agreement still does what previous international climate agreements have done: establishes goals, measures progress and determines the extent to which the goals have been met. This has been the fundamental structure of the UNFCCC itself, the Kyoto Protocol and the pledges that countries made through the Copenhagen and Cancun processes.

The Paris Agreement and its accompanying decision 1/CP.21 refer to many interlinked principles that are to underlie countries' actions, their impacts and the information on these to be made available, in particular:

- **Environmental integrity:** Accounting for NDCs (Article 4.13) and the use of cooperative approaches (Article 6.2) are to ensure environmental integrity and the avoidance of double counting. The key feature of environmental integrity requires that transfers do not lead to higher global emissions than would have happened if NDCs were achieved without the transfers being made.
- **Transparency:** The transparency framework is to provide a clear understanding of climate change action, including clarity and tracking of progress towards achieving NDCs, and clarity on support provided and received (Article 13); countries are to provide the information necessary for the clarity, transparency and understanding of NDCs (Article 4.8); accounting is to promote transparency, accuracy, completeness and consistency (Article 4.13).
- **Comparability:** accounting for NDCs is to promote comparability (Article 4.13)

These principles are already challenging when considering the contributions to climate action undertaken individually by different countries. They become even more complex when mitigation outcomes are to be transferred and counted towards different NDCs. Working out what these principles mean in practice—while maintaining the sought-after self-determination by countries—is one of the many challenges facing the work programmes set up by decision 1/CP.21.

Some countries are wary of UNFCCC guidance that may limit the free choice of goals and actions they have under Paris, while others are concerned that climate action under Paris needs guidance and safeguards if its integrity and growing ambition are to be protected. The future rules will need to walk a fine line of compromise between these positions.

2.2 NDC provisions

All countries are to communicate NDCs to set out their objectives and the measures they plan to implement (Article 4.2). These NDCs are therefore the focus for determining and implementing national action on climate change, requiring countries to examine their economic, social and environmental circumstances, identify opportunities and decide on policies. The submission of NDCs is a public, political commitment of a country's contributions to global mitigation action. Countries have also specified in their NDCs what action they will undertake unconditionally with domestic resources, and what nature and level of support is conditionally required to undertake the remainder.

Countries are to communicate their first NDC no later than the submission of their instruments of ratification of the Paris Agreement, although countries may also wish to have their intended NDCs (INDCs) from 2015 recognised as their first NDCs (Decision 1/CP.21, para 22). The overwhelming majority of countries that have ratified to date have chosen the latter route. Countries have an opportunity to strengthen their NDCs after the facilitative dialogue in 2018 (paras 23 – 24) and to submit new or updated NDCs by 2020.

From this point on, all countries are to enter a five-year cycle of communicating NDCs, with each representing a "progression" beyond the previous one and reflecting the Party's "highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances" (Article 4.3).

There is a general call to move towards economy-wide, absolute emission reduction targets. NDCs of this nature are expected from developed countries as part of their lead in addressing climate change. Developing countries are to continue enhancing their mitigation efforts and are encouraged to move to economy-wide emission reduction or limitation targets, "in light of different national circumstances" (Article 4.4). NDCs may be adjusted at any time, if this is to enhance ambition (Article 4.11).

The CMA is to periodically undertake a "global stocktake" to assess the collective progress towards achieving the purpose set out in Article 2 and its long-term goals (Article 14). The first global stocktake is to take place in 2023 and it is currently foreseen that stocktakes will take place every five years thereafter. The outcomes of the global stocktakes are to inform the revision of actions and support in subsequent NDCs and enhance international cooperation on climate action.

2.3 Making markets

The NDCs submitted to date[10] are diverse and not all are immediately amenable to the operation of carbon markets. Generally speaking, carbon markets are given a strong basis when NDCs are stringent and quantified in GHG terms.

Over three quarters of submitted NDCs contain emission targets in GHG terms. Around half of these are expressed relative to a historical base year, meaning that the target level of future allowable emissions is known and fixed in advance. However, around half are expressed relative to business-as-usual (BAU) and several are expressed on an intensity basis. To the extent that these rely on future revisions of BAU scenarios and future data (e.g. gross domestic product (GDP)), these NDC types make the future level of absolute emissions uncertain, complicating the operation of carbon markets.[11, 12]

Many targets are expressed in GHG terms but are submitted in NDCs only as an emissions level in a single future year (e.g. 2030) rather than over period of multiple years (e.g. 2020 – 2030). As there is no mitigation contribution defined for emissions outside this single year—and indeed none for the country's cumulative contribution to climate change over time—countries with single and multi-year targets do not have a common basis for using ITMOs.[13, 14]

It is not surprising that not all NDCs are immediately amendable to the use of carbon markets. Other factors and priorities may be stronger determinants of NDCs than the wish to use market instruments. The awareness of the technical basis for the use of market instruments is also not widespread.

There are opportunities to promote conditions which facilitate the use of carbon markets through the work programmes on NDC features, upfront information, common timeframes, and NDC updating modalities. These may impact on future cycles of NDCs but are not likely to significantly impact on current NDCs.

However, the absence of these conditions from the NDCs does not rule out the use of carbon markets, as much of this basis can be established by the market approaches themselves. For example, implementing an ETS would set up a multi-year emissions budget for the sectors covered, even where the relevant NDC specifies only a single-year target, and ETS-level emission targets can be established below BAU levels for the covered sectors, irrespective of how stringent the overall NDC for the country may be.[15] What may still need to be

[10] For simplicity, references in this report to submitted NDCs includes INDCs of countries that have not yet submitted NDCs.

[11] Allowable emissions for the target period can be can be calculated in both cases, but may change when BAU scenarios are updated and when projections for the denominator in intensity target calculations (e.g. GDP) are replaced with actual data. Such changes can create market uncertainty and have major impacts on, for example: unit prices, investment decisions, and compliance positions.

[12] Data is drawn from the CAIT Climate Data Explorer (http://cait.wri.org) and the INDC Tracker prepared by the International Emissions Trading Association (http://ieta.org).

[13] Prag, A. et al. (2013)

[14] Lazarus, M. et al. (2014)

[15] See Section 5 on ITMO generation.

addressed through the accounting system is how ITMOs between linked ETS' may be treated between single and multi-year NDCs.[16]

2.4 Accounting needs a common basis

The accounting for NDCs refers to the assessment of countries' progress towards the fulfilment of the contributions they have pledged through their NDCs. As such, accounting is directly linked to the nature of those pledges, including the metric in which they are expressed, and encompasses the determination of what may contribute to the achievement of the pledges.[17] The Paris Agreement already confirms that ITMOs transferred in the context of cooperative approaches may be used in achieving NDCs (Article 6.2) and that the same applies to emission reductions resulting from the UNFCCC-governed mechanism (Article 6.4 – 6.5).

Article 6.2 requires that, when international transfers are made, robust accounting shall be applied to, *inter alia*, avoid double counting (see Section 4.4 of this report). This is to be ensured on the basis of corresponding adjustments made by countries for anthropogenic emissions by sources and removals by sinks covered by their NDCs (decision 1/CP.21, paragraph 36).[18]

Two levels of interaction between countries are therefore distinguishable in relation to ITMOs:

- **The transfer itself and its 'tracking' in both countries.** This transfer is regulated through a cooperative approach, for example as a direct government-to-government transfer or through an ETS or crediting system. The latter approaches would tend to be more complex in that they may involve private or public sector entities, allowances and credits that are legally defined 'units' under the respective systems, and a secondary market for on-selling ITMOs to other actors and countries. In such cases, the tracking of unit transfers, as well as their issuance, cancellation, use against targets, etc., would generally occur through registry infrastructure provided or designated by the regulation of the cooperative approach, including by ensuring the necessary registry linkages with the other country.

- **The reflection of transfers in the accounting of NDCs through 'corresponding adjustments' in the participating countries.** This takes place at country level and may integrate adjustments for multiple cooperative approaches used by the country. In order to count towards the NDC goal, the metric of the corresponding adjustments must match the metric of the respective NDC goal in each country. Such adjustments are different from the transfers themselves and need to be recorded in the systems used for accounting and reporting on NDCs (as opposed to the registries in which transfers are tracked).

[16] See Section 4 on NDC and ITMO accounting.

[17] Hood, C., et al. (2014)

[18] Although neither the terms ITMO or corresponding adjustments are used by the Paris Agreement in reference to the Article 6.4 mechanism, Article 6.5 is quite clear in prohibiting any double counting of emissions reductions relating to Article 6.4 towards multiple NDCs. It is not yet clear to what extent the guidance on accounting under Article 6.2 should also address the Article 6.4 mechanism in order to achieve this (see Section 4.1).

The accounting of ITMOs for NDC achievement is therefore a separate step from the transfer and its tracking. This frees the accounting to occur on a periodic basis, potentially netting out over that period the inflows and outflows of ITMOs that occur in real time. There may also be instances whether adjustments do not need to be made for some transfers, or where adjustments need to be made for purposes other than transfers (see Section 4.4).

The guidance on accounting under Article 6.2 will, among other things, need to coordinate the corresponding adjustments made across all countries engaging in ITMOs, including what is adjusted, how, when and with what reporting. Where ITMOs involve the transfer of units, the guidance may also address compatibility in the systems through which these transfers occur.

Figure 1 gives an illustrative view of the components of the system under the Paris Agreement that relate to carbon markets. These components are subject to further specification through the work programmes under decision 1/CP.21.

Figure 1 indicates two points at which common metrics are needed in order to allow the necessary comparisons to be made:

- Demonstrating the achievement of an NDC (upper blue box) involves comparing the actions originally pledged by countries in their NDCs (*ex ante*) against the results of the mitigation effort (*ex post*). For NDCs using a GHG metric, the results of the mitigation effort also need to be available in the same GHG metric.

- The GHG results of the mitigation effort (lower blue box) is shown by the country's emissions, as contained in its national inventory, adjusted by the transfer of mitigation outcomes under Article 6. Adjustments in both countries involved in the transfer need to 'correspond'. As discussed in Section 2.3, ITMOs are expected to be mostly (or perhaps solely) expressed in GHG terms.

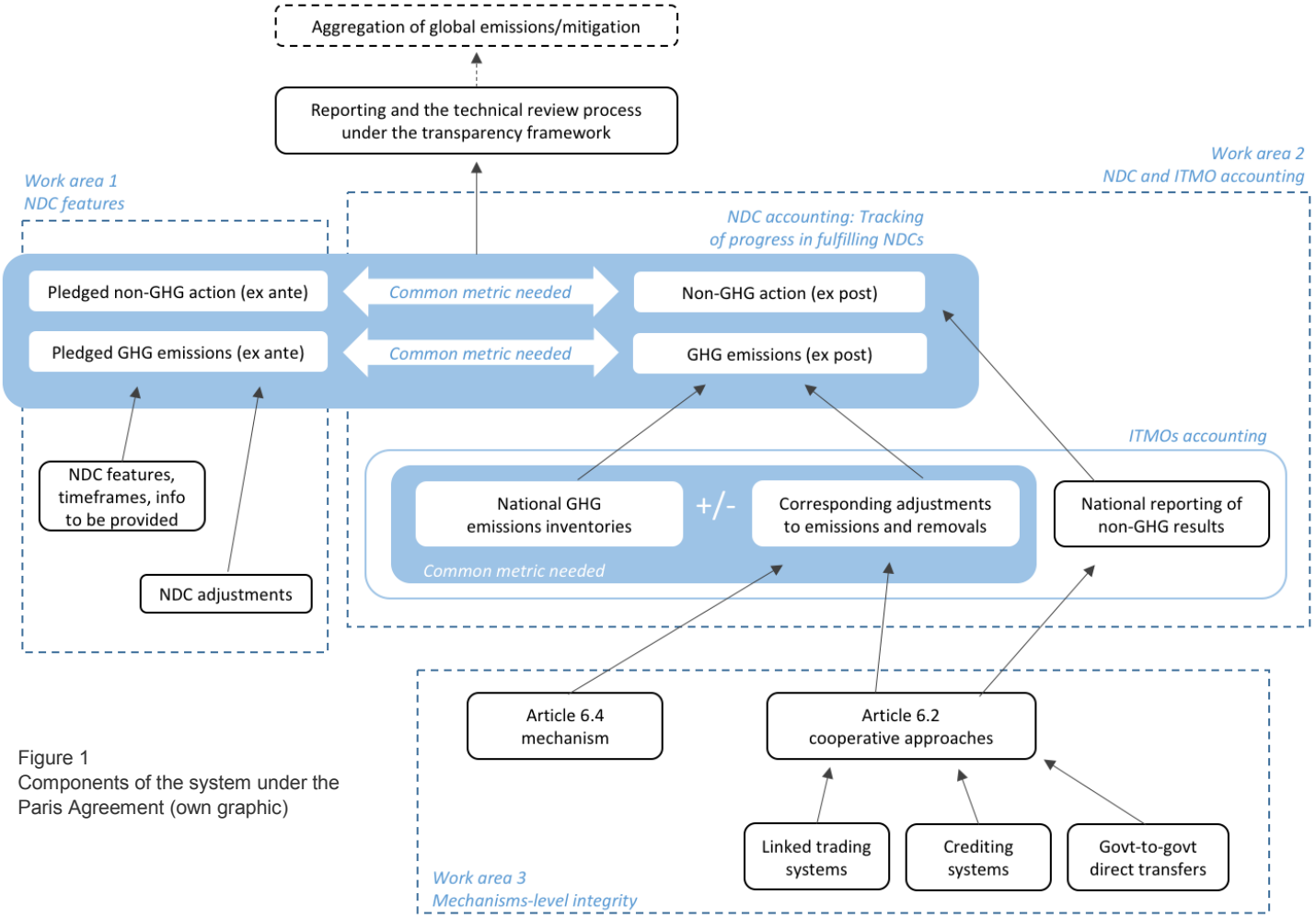

Figure 1
Components of the system under the Paris Agreement (own graphic)

Some NDCs are expressed in non-GHG metrics and it may be possible that ITMOs could also be expressed in such terms (e.g. megawatts of renewable energy). An alternative means of recording and coordinating the mitigation outcomes would, however, be a requirement that is not currently being met by national emission inventories and their GHG metrics. Creating additional rules and institutional infrastructure for non-GHG ITMOs would add considerable complexity to the system.

It is not clear that countries wish to transfer ITMOs in terms other than GHG metrics. All NDCs clearly stating an intent to engage in ITMOs have targets specified in GHG terms. NDCs containing non-GHG targets typically do not express an intent to transfer ITMO on the basis of these non-GHG terms. Article 4.4 also establishes a principle that developed countries should be submitting NDCs with economy-wide targets that are based on emissions reduction or limitation, and that developing countries should be moving in this direction.

The results of countries' climate actions are to be reported under the transparency framework, which is to provide for clarity and tracking of progress towards achieving NDCs and inform the global stocktakes. Each country is to report information at least every two years on the tracking of progress made in

implementing and achieving its NDC (Article 13.7, decision 1/CP.21 para 90).[19] This information is to undergo a technical expert review (Article 13.11).

How the system depicted in Figure 1 will be impacted by the ICAO CORSIA system is not yet known. It may be possible to treat the international aviation sector as a separate 'country' in its relations with NDC and ITMO accounting. In this case, it would be subject to guidance on ITMO accounting, including corresponding adjustments (see Section 4.5).

2.5 Work areas

In relation to carbon markets, much of what needs to be specified through the work programmes set out in decision 1/CP.21 is expected to focus on the interplay of three factors:

- **NDC features**: Most NDCs for the immediate post-2020 period have already been submitted. Guidance may focus on how future NDCs may provide a robust basis for the operation of carbon markets.

- **NDC and ITMO accounting**: Guidance is expected to focus on coordinating the corresponding adjustments, determining how these impact on the achievement of NDCs and how countries are to report on their actions and adjustments. This guidance may also cover transfers of emission reductions generated under Article 6.4. It may also address measures to facilitate the compatibility of systems for tracking transfers.

- **ITMO generation**: The forms of cooperation or market approaches expected under Article 6.2 are likely to be diverse, differing in the standards they apply and the systems and processes that they use. If countries choose to provide guidance on these matters, it may focus on ensuring the quality of ITMOs generated, thereby enhancing their comparability and exchangeability.

The breakdown of these issues is shown in Figure 1 as work areas. This breakdown is used in the remainder of this document in considering options for guidance that could be provided by the CMA in relation to NDCs and carbon markets, as well as implications for carbon markets design.

[19] LDCs and SIDS may submit this information at their discretion.

3. Strengthening NDC features

This section discusses the relevance of NDC features and identifies issues and possible elements for CMA guidance to strengthen the basis provided by NDCs for the effective operationalisation of Article 6 and related carbon market approaches. In addition, this section identifies issues and possible guidance that could be specified at the CMA level to strengthen the basis provided by NDCs for the effective operationalisation of Article 6 and functioning of carbon markets.

The term 'features' of NDCs is not contained in the Paris Agreement, but generally describes characteristics such as the target type, timeframes, metrics, sectoral scope, and conditionality of targets.[20, 21, 22] These features have a bearing on the degree of quantification of NDCs, the comprehensiveness of their coverage, and how transparent, clear and understandable they are.

Work programmes have been established to develop further guidance under the CMA on NDC features and upfront information to be provided "to facilitate transparency, clarity and understanding" (decision 1/CP.21, para 26-28). CMA decisions could therefore provide guidance on NDC features that are important for credible and robust carbon markets. This would most likely only apply from the second cycle of NDCs onwards, given that the first cycle of NDC submissions is almost complete due to the rapid ratification of the Paris Agreement by the majority of countries; however, countries could also apply such guidance in any revisions they make to their first period NDCs.

Countries also have other opportunities to provide fuller information on the NDCs and use of voluntary cooperation in the context of Article 6, such as the preparation of the low emission development strategies called for in Article 4.19, NDC implementation plans or domestic regulations and programmes.

[20] Füssler, J., et al. (2015)

[21] Graichen, J. et al. (2016)

[22] Simeonova, K. (2016)

3.1 What information on NDCs is needed?

Differences between NDC target types have significant implications for the information needed from countries to ensure the environmental integrity, transparency and comparability of cooperative approaches. For example, the effective functioning of carbon markets requires the target level of future allowable emissions to be known with certainty:[23]

- Absolute targets over the NDC period or in a target year. Such targets already clarify the future level of allowable emissions.
- Relative targets expressed in tonnes of CO_2 equivalent emissions:
    - Relative to a base year. This requires information on emissions in the base year.
    - Relative to a BAU emissions scenario. This needs information on the BAU emissions over the NDC period, as well as on whether and how the BAU may be adapted over the period.
- Intensity targets per unit of output. These require information on the projected development of the output (e.g. GDP) over the NDC period.
- Intensity reduction targets expressed as a percentage change of tonnes CO_2 equivalent emissions per unit of output. These require information on BAU emissions and output projections (e.g. output).

It may be possible to derive absolute emission budgets from NDCs with intensity targets in order to enable the transfer of units under cap and trade systems. Such budgets may need updating when the final data on the denominator (e.g. GDP) becomes known. How such NDC features are translated into GHG-denominated units has important implications for carbon market demand. Therefore, ensuring transparency and comparability of when and how such information is presented is important for market price dynamics.[24]

Many Parties seem to agree that the information to be provided depends on the target type (**Japan, Canada, EU**). In addition, a number of Parties wish information to be provided to make explicit the assumptions that underlie reference scenarios for relative targets. Some countries suggest specific assumptions which may be needed for each target type (**Japan, Canada, EU**).

The information needed to promote the clarity, transparency and understanding of NDCs goes well beyond the information noted above, which would need to be complemented with information on the methodologies and assumptions used in the BAU projections.[25] Understanding the ambition of GHG targets requires defining a BAU scenario.

Questions about the appropriateness of the BAU scenarios contained in NDCs could be reduced through harmonising the data and methods used,[22] e.g.

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[23] Graichen, J. et al. (2016)

[24] In practice, few links between trading systems based on absolute and intensity targets have been allowed. Some systems have not allowed such links (e.g. EU ETS, US Clean Power Plan) or have established a 'gateway' to allow transfers only from the absolute-target system into the intensity-target system (e.g. UK ETS).

[25] For an example see: Michaelowa, A. et al. (2016)

assumptions, data sources, treatment of existing policies, and consistency. While it may be difficult to agree on detailed guidance for NDC BAU scenario development, there could be an agreement by the CMA on methodological principles, including whether to include implemented or planned mitigation.

If an assessment of the ambition of targets were to be introduced, it would need to ensure that the mitigation target is below BAU emission levels. If this is not the case, the subsequent hot air would undermine the environmental integrity of carbon markets as surplus emission reduction units could be sold or transferred abroad without additional domestic action needing to take place.

Confidence in the ambition of targets can be strengthened through full transparency of the calculations and assumptions, peer review processes among countries or, most effectively, an independent assessment. Such processes could be integrated into the NDC preparation and submission cycle. It would be possible to integrate an independent assessment process under the transparency framework and make a finding that the target is sufficiently below BAU levels, a prerequisite for the use of ITMOs in achieving NDCs. Politically, however, this may be difficult to agree. Another option is to adopt minimum standards or requirements for information to be provided in NDCs.

Independent assessments from actors external to the UNFCCC may complement information provided in the NDC—for instance, if they are commissioned by countries interested in purchasing ITMOs. Such countries could voluntarily set standards regarding the environmental integrity of emission reductions they wish to procure. These could then contribute to establishing best practice. The facilitative dialogue in 2018 and the global stocktakes beginning in 2023 are to inform the preparation of future NDCs and could help identify areas of convergence on NDC features that could potentially translate into CMA guidance at a later stage.[26]

In order to cater for different degrees of ambition in national cap and trade systems, the World Bank's Networked Carbon Markets initiative aims to create exchange rates between units in different trading systems.[27, 28] However, this approach is complex, may lead to debates about the stringency of targets within trading systems, and has not yet gained support of many countries.

Another approach to increasing ambition when including carbon markets in NDCs may be to set or encourage strong levels of supplementarity in the use of ITMOs. This may help ensure that acquiring countries do not overly rely on ITMOs to achieve their NDCs but instead invest in long-term reduction efforts. Countries could commit to a stepwise decrease in the use of ITMOs, beginning with lower rates of domestic mitigation and growing this to high rates of domestic mitigation in, say, the post-2030 period. This would provide certainty to governments and market stakeholders with regard to potential future demand and reinforce countries' efforts to avoid 'lock-in' of high emitting technologies.

Table 1 summarises possible CMA guidance relating to NDC types and ambition.

[26] Simeonova, K. (2016)

[27] Marcu, A. (2015)

[28] World Bank (2016)

Table 1
What information on NDCs is needed?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Nature and degree of information to be provided	• Encourage minimum information to be included in NDCs (e.g. reference points, time frames, sector coverage, basis for BAU scenarios, methodologies, assumptions, etc.), taking account of different NDC types • Require minimum information to be included in NDCs
Assessment of ambition level	• No assessment • Peer review process among countries • Independent review process
Harmonisation of BAU methodologies	• Publication of assumptions that drive BAU • Require or request publication of BAUs for all NDCs denominated in GHG covering the entire NDC period

3.2 How to increase comparability in NDC targets and timeframes?

NDCs have been submitted with a variety of target years and periods. Countries do not appear to emphasise the issue of common timeframes strongly in their submissions. Only **Canada** has stated that common timeframes should be established by 2025, although **New Zealand** lists timeframes as a key feature of NDCs. Common NDC timeframes are not essential but would strengthen transparency and comparability of progress made towards achieving NDC targets. The first period that they could apply from is likely to be 2025 onwards, given the current state of NDC submissions. While most NDCs generally cover the period 2020 – 2030, many of them specify an emission target only for a single year, e.g. 2025 or 2030.

One of the fundamental issues is comparability across NDCs that use multi-year budgets and those that use single-year targets.[29] Single-year targets, as contained in many INDCs, mean a country needs to achieve the specified level of emission only in the respective single target year, e.g. 2025 or 2030. As there is no obligation for emission reductions outside this single year, or indeed for the country's cumulative contribution to global efforts, countries with single and multi-year targets do not have a common basis for using ITMOs. For instance, exports of ITMOs from sectors covered by the NDC but outside the single-year target, do not increase the level of required abatement for the country to achieve its target, as they do for countries with multi-year targets.[30, 31, 32, 33]

Single-year targets also limit a country's incentive to apply rigour in generating emission reductions for transfer. If a transfer is not accompanied by a genuine reduction in emissions, the country will later have difficulty in achieving its NDC. Single-year targets may allow a country to generate emission reductions over multiple years which are then all counted towards the single-year target. This would not be possible if the country had been covered by an emission budget for each year leading up to the single-year target.

[29] Schneider, L. et al. (2015)
[30] Füssler, J., et al. (2015)
[31] Graichen, J. et al. (2016)
[32] Schneider, L. et al. (2016)
[33] Schneider, L. and Ahonen, H-M. (2015)

To address this, the CMA guidance could request the use of multi-year, contiguous emission budgets. This means that a mitigation target would apply to each year of the NDC period, not only the single target year. While transferring units across countries may still allow countries to use different 'vintages' for the same year, having a clear budget for each year would increase the stringency of using emission reduction units towards NDC goals.

If mandating such multi-year periods and associated budgets is not politically feasible, it could at least be encouraged. Alternatively, countries may provide their expectations of the trajectory of emissions over the NDC period and leading to the single-year target. By specifying emissions in each year, this would provide information on the emission budget for the full NDC period, although it may have less status than a formal multi-year emission budget. Trajectories could be provided as supplementary information to the NDC, perhaps in the context of publishing NDC implementation plans, and would not require a revision of the NDC itself.[34]

Japan is of the view that accounting for varying target types should be further elaborated, including the relation of single- and multi-year targets. **New Zealand** suggests work is needed on ways to reconcile single-year targets with multi-year budgets. The **International Emissions Trading Association (IETA)** has emphasised that an ETS requires anyway that single-year targets be transformed in annualised targets.

Most NDCs refer to a timeframe up to 2030, although some refer to a period up to 2025. Using common 10-year emission budgets would aid transparency and comparability and the longer timeframe would allow for greater certainty in investments. These may be difficult to agree and may risk locking in low levels of ambition. A five-year period may, however, be used to review progress compared with the objective of the Paris Agreement and the need for increasing ambition, and could therefore be considered a 'mid-term stocktake'. Synchronisation could happen gradually at bilateral or plurilateral levels.

Table 2 summarises possible CMA guidance on NDC timeframes.

Table 2
How to increase comparability in NDC targets and timeframes?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Comparability across multi-year and single-year targets	• Request countries to at least publish emissions trajectory information for the first NDC cycle • Encourage or request the use of multi-year, consecutive emissions budgets in future NDCs
Common implementation timeframes for NDC	• No common timeframe is considered necessary • NDCs are revised every 5 years and are applicable for 5 or 10 years (e.g. an NDC could be revised in 2023 for the period from 1 January 2025 to 31 December in either 2029 or 2034) • NDCs are revised every 5 years and are applicable for at least the following 10 years (e.g. an NDC could be revised in 2023 for the period 1 January 2025 to 31 December 2034)

[34] Expected emission trajectories and other means of establishing greater comparability between single and multi-year NDCs are discussed in Section 4.8.

3.3 How to clarify NDC scopes and move towards economy-wide targets?

NDCs may cover entire economies or be limited to specific sectors. In some cases, the precise scope of emissions falling within or outside NDC targets or actions is not fully clear. Countries have an opportunity to provide greater clarity on this in the course of their planning for the implementation of their NDCs.

Article 4.4 establishes a principle of developed countries using economy-wide targets, with developing countries moving towards them. However, this is only likely to happen progressively and may never cover all countries, as Least Developed Countries (LDCs) and Small Island Developing States (SIDS) are exempted from this principle. There could be a clear schedule by which NDC period all or most countries should set economy-wide NDC goals.

The scope of NDC actions and targets has implications for how countries are able to generate ITMOs, or the extent to which they may wish to transfer ITMOs to other countries. An ambitious NDC may incentivise the host country to limit the export of emission reductions from sectors covered by the scope of the NDC and from activities outside the scope of the NDC, where the country anticipates that these may be needed for domestic use towards its NDC. Any existing crediting activities being considered for continuation under Article 6, such as some CDM activities, may have to undergo a review of their baseline and additionality in light of national policies pledged in NDCs.

Japan has called for guidance to facilitate moving all NDCs towards economy-wide emission reduction targets, covering all sectors and gases. The Environmental Integrity Group (**EIG**)[35] calls for all sectors and gases to be reflected, including the land sector. The **EU** suggests clarifying how accounting should address reductions occurring outside the coverage of NDCs.

Table 3 summarises possible CMA guidance on NDC sectoral scope.

Table 3
How to clarify NDC scopes and move towards economy-wide targets?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Clarification of sectoral scope of NDCs	• Request clarification of the sectors and gases covered in NDCs, where needed
Movement towards economy-wide targets	• Establish a process to support the move towards economy-wide targets in future NDC cycles

3.4 How to clarify conditionality of NDCs?

Many countries have sought to clarify in their NDCs the actions they intend to implement unconditionally without external support, and the actions they intend to be conditional on support being made available by other countries. However, there is no guidance on how to define conditional and unconditional elements in NDCs. Hence, the boundary between these categories is ambiguous in many NDCs. However, it is worth noting that 79% of all submitted INDCs included conditional components. Most of these contained both conditional and unconditional targets, although circa 20% of INDCs submitted before COP21

[35] The EIG is a UNFCCC party group that includes Mexico, Liechtenstein, Monaco, the Republic of Korea and Switzerland.

included *only* conditional targets. Many INDCs did not clearly distinguish between conditional and unconditional components.[36]

Market approaches are one form of support, together with other forms of climate finance, capacity building and technology transfer, that contribute to enabling such conditional actions. Market approaches, however, are a specific type of international support, as there are consequences regarding which country should be able to claim credit for the mitigation achieved. A particular question that is also not clear yet is whether it is possible to seek international support for actions which were originally noted in the NDC as unconditional.

Canada suggested that countries should "itemise" conditional and unconditional elements, and "specify conditions" for NDCs. The **EIG** suggests that international support can "detect additional mitigation potential", thereby establishing a link to increasing ambition by supporting conditional pledges. **Japan** considers it "preferable that [NDCs] include unconditional contributions (which do not contain support as a condition) alongside with conditional ones in their NDCs". The **EU's** view is that NDC diversity reflects national circumstances, but that this also poses challenges for aggregating NDCs.

Market mechanisms could be used to support conditional parts of NDCs, although the countries involved would need to determine which NDC to count the resulting emission reductions against. Market mechanisms may also serve as MRV instruments, where the resulting units are cancelled in exchange for the provision of climate finance. In this case, the emission reduction may be counted towards the NDC of the host country, as the unit would not be used to offset compliance obligations of other countries. Table 4 summarises possible CMA guidance on conditionality of NDCs.

Table 4
How to clarify conditionality of NDCs?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Clarification of the conditionality of NDCs	• Provide CMA guidance to clarify the meaning of conditional and unconditional components of NDCs • Clarify the conditional and unconditional components of NDCs

[36] Weischer, L., et al. (2016)

4. Accounting for NDCs and ITMOs

This section identifies issues and possible guidance that could be specified at the CMA level for accounting for NDCs and ITMOs.

The accounting for NDCs refers to the assessment of countries' progress towards the fulfilment of the contributions they have pledged through their NDCs. As such, accounting is directly linked to the nature of those pledges and determines what may contribute to their achievement.[37]

As discussed in Section 2.4, the Paris Agreement already confirms that ITMOs arising in the context of cooperative approaches may be used in achieving NDCs and that the same applies to emission reductions resulting from the UNFCCC-governed mechanism under Article 6.4. These transfers need to trigger adjustments symmetrically in the transferring and acquiring countries in order that no double counting occurs and that the transfers are counted appropriately in each country's NDC.

Arrangements for ITMOs accounting therefore need to work within the wider context for the accounting of NDCs. The **EU** describes this as ITMO accounting being additional to NDC accounting, only applicable to countries proposing to participate in such cooperative approaches, and building upon the broader framework of NDCs, transparency and compliance. With this in mind, **Brazil,** the **EU, New Zealand** and **Australia** advocate that the guidance on ITMO accounting should form a module of guidance that is additional but consistent with the wider NDC accounting guidance under Article 4.13.

The methods and levels of precision required for NDC and ITMO accounting will depend on NDC types as well as other factors such as data availability and capacity. Some countries, including **AILAC, CARICOM, Ethiopia** and the **EU,** suggest the guidance may require differences in approach for different NDC types, although **Australia** notes a need for consistent treatment.

4.1 What should constitute ITMOs?

Article 6.2 provides limited guidance on what should constitute ITMOs. It allows that their scope can include all outcomes of mitigation actions that are both internationally transferred and used for the purpose of achieving NDCs. However, several key issues are left open by Article 6.2, the resolution of which

[37] Hood, C., et al (2014)

will be significant for the degree of complexity that the accounting system and national implementation will need to deal with.

As discussed in Section 2.4, two levels of interaction between countries are distinguishable in relation to ITMOs:

- The transfer itself and its 'tracking' in both countries
- The reflection of transfers in the 'accounting' of NDCs through 'corresponding adjustments' in the participating countries.

Several countries appear to suggest that the role of Article 6.2 is to ensure the appropriate accounting and meeting of the other safeguards set out in the Article, but that the linkage of trading systems and cross-border acceptance of crediting systems remains the responsibility of the countries themselves. The **AGN** believes that ITMOs are bilaterally or plurilaterally recognised outcomes that are not automatically fungible globally. **Brazil** sees that attempts to manage linkages between cooperative approaches would be impractical and would limit countries' policy space.

These views seem consistent with allowing the first level of interaction between countries—transfers and their tracking—to be regulated by countries at the level of the cooperative approaches. Mitigation outcomes would be internationally transferred between them, with these ITMOs then needing to be reflected as accounting adjustments at the country level—as a dependent but separate second level of interaction between countries that is reported to the UNFCCC.

Should the accounting system focus on ITMOs quantified in GHG terms?

The reference to "mitigation outcomes" in Article 6.2 does not restrict the nature of ITMOs to a particular metric or form of 'unitisation'. This allows for greater diversity in transfers, in keeping with the nationally determined nature of NDCs.

Some further definition can, however, be derived from the purpose and context of ITMOs. If they are to be countable towards the achievement of NDCs, ITMOs will need to:

- Be quantified in a manner that is comparable to the relevant NDCs of both the transferring and acquiring countries, and hence able to result in an 'adjustment' relevant to the NDC
- Have a form that is amenable to being transferred and tracked, in particular if they are to be traded on secondary markets.

While Article 6.2 is open in principle to ITMOs being denominated in a non-GHG metric, in practice most NDCs are denominated in GHG terms, including all NDCs that clearly state an intent to engage in ITMOs (see Sections 2.3 and 2.4). Many countries, including **AILAC, Brazil, CARICOM, Ethiopia, Japan,** and **New Zealand**, have suggested that ITMOs used towards the achievement of NDCs should be expressed in GHG metrics, either directly as emissions or as legally defined units. **Ethiopia** has suggested that non-GHG ITMOs should not be allowed, as the GHG impact of these actions should instead be calculated and this may be used for the actual transfer.

The accounting system would be considerably more complex if it were to accommodate non-GHG ITMOs and there is not yet a demonstrated need for such transfers. The accounting guidance to be developed under Article 6.2 could therefore be limited to GHG ITMOs. This would be in keeping with the call in Article 4.4 for all countries to have, or move towards, economy-wide emission reduction or limitation targets. It would also simplify the negotiation of the accounting guidance, making it more feasible that it can be completed by the CMA in December 2018. The guidance could be extended later to cover non-GHG ITMOs if this appears warranted.

Are 'units' needed or can emission reductions be transferred directly?

Experience to date with transfers of mitigation outcomes that can count towards emission targets has been with 'units' defined by regulated programmes and issued under them:

- ETS define and issue 'allowances' to represent the allowable emissions under an emissions cap and allocate them to participating entities
- Crediting systems, including those under the Kyoto Protocol, ETS-related offset protocols, and standards in the voluntary market, define and issue 'credits' to represent emission reductions or removals that have been achieved by specific mitigation activities beyond a defined baseline or reference level of emissions[38]
- The Kyoto Protocol and its implementing decisions defined specific Kyoto units and various modalities for their issuance[39]

All such units are denominated in GHG terms, typically metric tonnes of CO_2 equivalent (tCO_2e) emissions, although there have been regional, metric and imperial differences.

As these units are given legal standing by the laws and regulations adopted when establishing ETS or crediting programmes—and can also be accepted by other ETS programmes—there may be no need for specific units to be established through CMA decisions as was done for the Kyoto Protocol. The CMA could, however, have a role in facilitating unit comparability and fungibility across ETS and crediting systems by calling for them to use common unit characteristics, such as the use of tCO_2 equivalent emissions and common global warming potentials (GWPs).[40]

ITMOs may also be denominated directly in emissions reductions or removals, using a measure such as tCO_2e, without allowances or credits needing to be first issued. Such transfers would still need to be tracked and would still result in corresponding adjustments. They may require a less elaborate legal basis at

[38] Credits are sometimes directly referred to as 'offsets', although this term denotes the use of credits rather than the credits themselves.

[39] Assigned amount units (AAUs), removal units (RMUs), emission reduction units (ERUs) from JI, certified emission reductions (CERs) from the CDM, and temporary and long-term CERs (tCERs and lCERs) for afforestation and reforestation activities under the CDM. AAUs and RMUs are in effect 'allowances' while the other Kyoto units are 'credits'.

[40] These GWPs are revised periodically by the IPCC and, to date at least, different countries have been able to use different GWPs. If different GWPs are used to calculate emission reductions, transfers would no longer be comparable and may not be compatible with the NDCs for which the corresponding adjustments are being made.

the national level than allowances and credits, but this may also reduce their applicability and attractiveness at the entity level.

However, conducting ITMOs with units would offer more flexibility in the longer term. As they can be easily associated with serial numbers and organised in 'blocks' of units, they can be easily tracked when they are transferred onwards multiple times or when the blocks are split and sent in different directions. As a result, the direct transfer of emissions and removals may be more likely in cases of direct government-to-government transfers, often taking place on a more one-off basis and perhaps linked to a specific investment or support programme outside the scope of established ETS or crediting systems.

Brazil, Ethiopia, Japan and **New Zealand** have specifically referred to ITMOs occurring on the basis of units.[41] **New Zealand** and **AILAC** have suggested that ITMOs may also be transferred on an emissions basis.

Are transfers made in the context of the Article 6.4 also to be considered ITMOs and covered by ITMO accounting?

Although Articles 6.4 – 6.7 do not refer specifically to ITMOs, they do refer to emission reductions in a host country being used by another country to fulfil its NDC (Article 6.4) and two countries not being able to lay claim to the same reduction for the purposes of their NDC achievement (Article 6.5).

Many countries do not distinguish between transfers relating to different parts of Article 6. In the view of **AILAC,** the **EIG** and **New Zealand**, the Article 6.4 mechanism should govern the generation of Article 6.4 credits while the accounting rules under Article 6.2 should govern the international transfer and accounting of these credits. In this case, the mechanics of the accounting adjustments between Article 6.2 and 6.4 would be the same.

Brazil has expressed that, while emission reductions under Article 6.4 can be used for NDC achievement alongside ITMOs under Article 6.2, the accounting guidance under Article 6.2 should not cover Article 6.4 emission reductions. This appears to be because **Brazil** sees Article 6.2 applying to mitigation action within the scope of NDCs and Article 6.4 applying to activities that "go beyond policies and measures envisioned by the host country", and hence are outside the scope of the host country's NDC. As a result, while emissions reductions generated under Article 6.4 would show in a country's national emissions inventory, their transfer to another country would not require a corresponding adjustment to the host country's NDC because it comes from outside the sector scope of that NDC. There is a key difference of views on this matter, which may hinder progress being made on the accounting system.

[41] **Brazil** suggests that countries participating in ITMOs need to establish emissions budgets or trajectories against which internationally recognised allowances may be transferred. For **Brazil**, ITMOs are different from units established for ETS and crediting systems. See Section 4.7.

Table 5
What should constitute ITMOs?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Choice of metrics for ITMOs	• Emissions based on CO_2 equivalence • Units (allowances and credits) established by countries under their cooperative approaches, based on CO_2 equivalence • Non-GHG-based outcomes
Choice of GWPs used to establish CO_2 equivalence	• No common GWPs is to be mandated • Common use of GWPs contained in the latest published IPCC Assessment Report prior to the start of each NDC round
Relationship of transfers under Article 6.4 to ITMOs	• Different treatment for transfers occurring under Article 6.2 and 6.4 • A universal approach to any international transfers under Article 6 that may be used for NDC achievement

4.2 What information needs to be tracked?

The avoidance of double counting in any of its forms—double claiming, double issuance, double use and double coverage—requires up-to-date and authoritative information regarding the origins and current holding of the ITMOs. How easily and unambiguously this information may be accessed will have a significant impact on the perceived integrity of the ITMOs.

The choice of information that should be tracked along with ITMOs depends on the policy rules that are to be implemented. At its most basic, avoiding double claiming requires ITMOs to be uniquely identifiable. This may be easily achieved when dealing, for example, with two countries engaging in a government-to-government support programme that results in one transfer per year or per NDC period. It would be considerably more difficult to track emission reductions if, for instance, they are transferred by entities in a secondary ETS market comprising of multiple countries. However, serial numbers and unit block structures have been designed to track transfers at this level. These can be relied upon for these more complex ITMOs cases, in order to track ITMOs as a basis for determining what corresponding adjustments are needed.

Other information that may need to be associated with ITMOs may include the country, mechanism and activity in which the emission reduction originates, whether this is inside or outside of the scope of the host country's NDC, the year (or 'vintage') of the reduction and, if appropriate, information relating to the permanence of the emission reduction or removal.

Such information may be contained within, for example, project documentation submitted as part of the registration of a crediting activity. It can also be integrated with a serial number assigned to the credit, in order to make it more readily accessible and ensure that the information cannot be disassociated from the credit itself. As discussed above, such methods may not be needed for simpler circumstances in which transfers occur but would quickly become necessary as the complexity of the transfer arrangements grow.

Table 6
What information needs to be tracked?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Unique identification of ITMOs	• Requirement that ITMOs are to be uniquely tracking by countries • Requirement that the unique tracking of ITMOs is to occur via unique serial numbers • Establishment of universally applicable guidance for the definition of unique serial numbers, as part of the Article 6.2 guidance
Information to be tracked in association with ITMOs	• Country/ies in which the mitigation action takes place (and, if different, where the emissions or reductions originate) • Mechanism/programme through which the ITMOs are generated and transferred • Activity generating the reduction (if relevant) • Whether the emissions or reductions originate inside or outside the scope of NDCs • The period and year (vintage) against which the allowance is allocated or the credit is generated • Non-permanence information (if relevant)

4.3 What tracking systems are needed?

The systems needed for tracking ITMOs will vary according to the nature and level of a country's engagement in ITMOs. For a country engaging in few transactions, perhaps focused mostly on a government-to-government nature, a public record or simple database may be sufficient. For countries operating with units and providing for entities to participate in ETS or crediting systems, electronic transaction registries are likely to be needed for the tracking of the units and ITMOs. These registries would need to be connected electronically in accordance with agreed communication protocols and transaction processes.[42]

Countries differ in their views on whether the UNFCCC needs to be involved with either guidance or implementation of these systems. While the accounting system is concerned with adjustments rather than the transfers themselves, there may be merit in UNFCCC engagement to:

- Ensure the quality of information on transfers (on which corresponding adjustments are based)
- Facilitate the global compatibility of tracking systems, given the impact this can have in facilitating cooperative approaches.

The network of transaction registries can have higher or lower degrees of centralisation. In a centralised system, country registries would connect via a central hub, which could function only as a hub for communications and facilitator of the links, or could perform as a 'transaction log' by monitoring or validating transactions and serving as an independent source of non-confidential information on transfers.[43] A transaction log could implement only

[42] Partnership for Market Readiness & Forest Carbon Partnership Facility (2016)

[43] This latter role has been performed by the international transaction log (ITL) under the Kyoto Protocol.

technical checks relating to communications protocols or could add policy-relevant checks determined by the CMA.[44] A centralised system could support a transparent and efficient global tracking infrastructure for ITMOs.[45] There are advantages to this approach through commonly accepted rules, regular data reconciliation, and potentially enhanced scrutiny.[46] For those countries that have already established registries under the Kyoto Protocol and linked them with the ITL, the continued use of this system, with modifications, may decrease overall complexity and establishment costs.[47]

In a decentralised system, independent registries might establish a net of bilateral or plurilateral links between themselves (peer-to-peer communications).[48] Specific country groupings or 'carbon clubs' involved in trading could go further by establishing their own communications hubs and validation functions, which could link to other registries or hubs outside these groups. Countries could report periodically on their transfers and tracking systems, possibly using common reporting formats.[49] This decentralised option could provide more independence and flexibility to countries in implementing registries to suit the maturity and complexity of the market instrument they need. It may be more difficult to establish linkages across the broader set of registries, however, given that harmonisation is not built in from the outset.

An option between the centralised and decentralised models discussed above would be a voluntarily opt-in system. This could be a more centralised system following UNFCCC specifications and with connections to a central UNFCCC transaction log. Countries could establish their own registries or they could voluntarily choose to join the UNFCCC network, where this simplifies and reduces costs of running independent registries and/or where the country seeks the broad connectivity and acceptance that this would offer them. This opt-in system would maintain a certain level of centralisation and degree of standardisation for countries that wish it, while allowing flexibility for other countries to pursue alternative operational infrastructures.[50]

While Parties converge in the view that transfers and the use of ITMOs against NDCs should be identified and transparently reported to prevent double counting, the majority has not yet been specific in relation to the type of operational infrastructure that should underpin transfers and the appropriate level of centralisation or decentralisation of this infrastructure. In general, however, Parties favouring greater international oversight under Article 6.2 also refer to the need for a more centralised tracking system (e.g. **CARICOM, African Group, Brazil, EIG, South Africa** and **Singapore**).

Some Parties also refer to ITMOs exclusively as GHG units, which leads to an operational infrastructure in the form of registries and transaction logs (**Japan,**

[44] Prag, A, et al. (2011b)

[45] The EU went a step further in 2012 by integrating all EU Member State registries into a single Union Registry. This registry provides for central issuance and allocation, as well as efficient circulation of allowances. Each country in the EU-ETS maintains a national registry section within the Union Registry.

[46] Prag, A, et al. (2011b)

[47] UNFCCC (2016)

[48] OECD & IEA (2016)

[49] Information to be submitted could include issuances, retirements, international transfers, and banking. See reference UNFCCC (2016).

[50] Prag, A. et al. (2013)

Brazil, Ethiopia, and **Singapore**). **Brazil**, for instance, notes that ensuring that a tonne of CO_2e is not used twice can only be achieved by means of an international transaction mechanism to forward units to different registries. Other countries either highlight the benefit of using common units or explicitly clarify that ITMOs could be expressed both in units or in tonnes of CO_2e (**AILAC, New Zealand**). Hence, it is possible that these countries would support hybrid solutions for tracking system; for instance, an opt-in structure for using a central UNFCCC transaction log combined with comprehensive common reporting guidelines for ITMOs. **Brazil** has made specific reference to this option and advocates a "multilateral registry" made available by the UNFCCC for countries wishing to use it.

Table 7
What tracking systems are needed?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Degree of centralisation or decentralisation in registries	• Peer-to-peer registry networks, with guidance (e.g. unit features, serial numbers, transaction types and processes, registry standards) but no central hub • Opt-in option for a centralised system of registries and a central hub with guidance (as above, maybe more prescriptive) • Mandatory centralised system of registries and a central hub with guidance (as above, maybe more prescriptive)
Central hub	• No central hub • Central record of reference levels and adjustments, populated through reporting • Central transactions record • Central transactions log

4.4 What adjustments need to apply?

With respect to the second level of interaction between countries in relation to ITMOs that was set out in Section 2.4—the reflection of transfers into the accounting of NDCs—Article 6.2 requires robust accounting to be applied to, *inter alia*, avoiding double counting when international transfers are made. Decision 1/CP.21, paragraph 36, states that this avoidance is to be ensured on the basis of corresponding adjustments made by countries "for" anthropogenic emissions by sources and removals by sinks covered by their NDCs. This is to avoid the possibility that a reduction or removal may be 'double claimed' by both countries. This is sometimes referred to as 'double-entry bookkeeping'.

How are corresponding adjustments to apply?

For countries with GHG-based NDCs, the corresponding adjustments will need to be made in GHG terms and applied to either:

- Method 1: Emissions. That is the record of a country's emissions and removals, as reported in national inventories.
- Method 2: Emissions budgets. That is a country's 'budget' of allowable emissions implied by NDC targets.

On the emissions side (Method 1), adjustments would not change the inventory itself, as this must remain intact as a record of the country's actual emissions, but could instead be shown in parallel tables as an adjustment to the 'inventory emissions' to arrive at 'accounted emissions'. The relationship of inventory and adjusted emissions is illustrated in Figure 2.

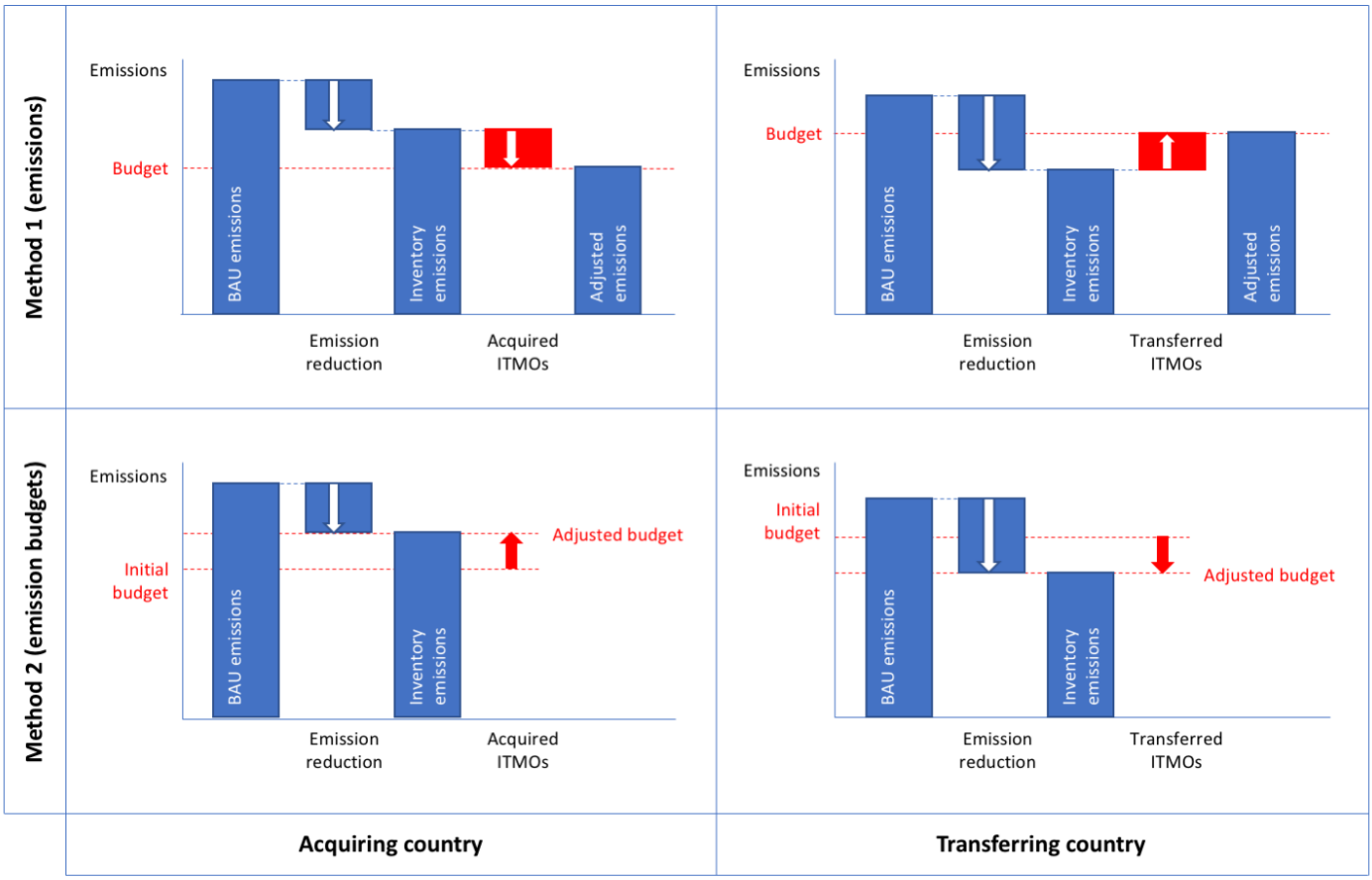

Figure 2
Corresponding adjustments applied on the basis of emissions (top) and emission budgets (bottom) (own graphic)

Method 1 is shown in the top half of Figure 2. A country acquiring emission reductions from another country uses these to meet its NDC target instead of reducing its own emissions, and would adjust its emissions downwards by the acquired quantity of emission reductions. The transferring country, although it had reduced its emissions sufficiently below its NDC target to free up a surplus for transfer to the other country, must now add the transferred emission reductions back to its inventory. The transferring country is no longer able to claim its emission reduction for itself towards its own NDC, as it has transferred these emission reductions to the other country. The adjustments made by the acquiring and transferring countries therefore 'correspond', and there is no double claiming of the emission reductions.

In Method 2, the budget of emissions allowed by the NDC targets is first calculated. This 'initial budget' can then increase or decrease as an 'adjusted budget' on the basis of acquired or transferred ITMOs. (This is shown in the bottom half of Figure 2). When acquiring an ITMO, a country adds to its emissions budget and is able to emit more during the NDC period; the

transferring country must, however, subtract the corresponding amount from its emissions budget in order that no double claiming occurs.[51]

These methods of applying the corresponding adjustments to emissions or emission budgets are equivalent to each other. Both meet the requirement of the environmental integrity that there is no increase in aggregate emissions as a result of the ITMO. In fact, it is not necessary that all countries adopt the same method, or that both countries participating in an ITMO adopt the same method, or even that a country use one method exclusively. It is possible, for example, that a country may adjust the emissions side for government-to-government transfers while adjusting emission budgets for an ETS.

Given this equivalence of the results from two methods, there may be value in adopting one method for the purposes of reporting on countries' ITMO accounting. Countries would still be free to adopt either approach, or a mix of approaches, for their internal or bilateral purposes. For example, international reporting may use the emissions basis of Method 1 accounting and countries may adopt a unit-based approach for their own purposes through implementing and/or using ETS and crediting systems.

The **EU** and the **EIG** appear to support Method 1. The **EU** suggests that an "accounting balance" based on actual emissions may have advantages in simplicity and environmental integrity compared to a budget derived from an NDC, and the **EIG** observes that additions and subtractions from a country's reported emissions in the inventory should be provided separately through biennial reports. **Brazil** appears to favour the budget-oriented approach of Method 2, arguing that NDCs should constitute a pool of "quantified contribution units" which can be added to and subtracted from a country's budget.

Article 6.3 requires the authorisation of participating countries for the ITMOs to be used towards the achievement of NDCs. Given that this is about use rather than transfer, 'participating countries' may be understood to relate to the countries originating the ITMOs and those wishing to use them towards their NDCs, irrespective of how many countries the ITMOs may pass through on their way between them. These would be the same countries needing to apply corresponding adjustments. Such authorisation could take many forms, and it is not clear that guidance at the UNFCCC level is needed for this.

As discussed in Section 4.1, it is expected that most, if not all, ITMOs will be denominated in GHG metrics. The emissions impact of mitigation actions can be calculated, even when motivated by NDCs expressed in non-GHG metrics.

When are corresponding adjustments not needed?

The discussion above represents a basic model of corresponding adjustments. Several situations may require variations on this approach in which adjustments may need to not correspond.

First, some transfers may not need adjustments in the transferring country, despite needing them in the acquiring country. For example:

[51] This is the approach taken to double-entry bookkeeping adopted for the Kyoto Protocol, which took the additional step of unitising allowable emissions into allowances and credits (in the form of the six Kyoto units) rather than only dealing with emissions.

- When the transferred emission reductions originate in sectors/emissions outside of the NDC scope of the transferring country, as the transfer is not relevant to an NDC in the transferring country. It may, however, still be useful for the transferring country to adjust its inventory emissions for the transfer made, while making clear that this does not affect the achievement of any NDCs. This would reflect that the emission reduction is being used by another country and may help build institutions and capacity which are useful for expanding the scope of NDCs over time.

- When the scope of emissions in the transferring country are within the NDC scope but the reductions themselves do not lead to the national inventory emissions being lower, due to the use of higher-tier IPCC methodologies which are not sufficiently granular to reveal these reductions. Under these circumstances, inventory emissions have not been reduced by the activity or the ITMO, so the avoidance of double counting does not require any reductions to be added back to the transferring country's inventory. Such reductions would, however, only be small and requiring a corresponding adjustment would be an incentive to improve the use of inventory methodologies over time.[52, 53]

Second, some transferred mitigation outcomes may not require any corresponding adjustments as the ITMOs are not to be used for NDC achievement in the acquiring country. Mitigation outcomes could be transferred between state or provincial-level trading systems to meet compliance obligations at that level, or could be transferred by companies on the voluntary market, without the national governments entering into bilateral agreements or providing the required Article 6.3 authorisations.

In such cases, the transferring country would benefit from the lower emissions in its inventory, and an easing of its achievement of its NDC. The acquiring country, on the other hand, would forego the opportunity to use the acquired emission reductions for its NDC purposes, which may make it more difficult for it to achieve its NDC. The fact that the transfers had taken place would be ignored in the NDC accounting and no double counting would occur. The choice to forgo the use of acquired ITMOs against NDCs may be made for various reasons, such as the volume of transfers being small, the net flow of transactions being negligible, or prevailing political factors.

The cases outlined above indicate the need to elaborate on the basic model of corresponding adjustments shown in Figure 2 and raise situations where adjustments may not always need to correspond symmetrically in two countries. They reinforce the usefulness of clearly distinguishing the accounting of ITMOs from the transfer of ITMOs (see Section 2.3), as the adjustments can be defined within the accounting guidance while allowing the transfers themselves to proceed as needed for the purposes of the relevant ETS and crediting systems.

[52] Alternatively, accounting guidance could require that sectors in which ITMOs are generated must be shown in the national emissions inventory, through the use of the appropriate tier for that sector.

[53] Spalding-Fecher, R., et al (2017)

What other adjustments may be needed?

Article 6 addresses cooperation and the consequent transfers of mitigation outcomes between countries. The emphasis placed on the avoidance of double counting is to ensure that no two countries lay claim to the same emission reduction, but it also ensures that the appropriate comparison is made for each country between the emissions levels represented by its NDC and the actual, ex-post level of emissions achieved during the NDC period. This is a concern relevant also to the accounting references made in Article 4.

Transactions other than transfers may also impact on this comparison, and potentially also on double counting, and may require further adjustments to be incorporated into the accounting system for NDCs:

- A country may make emission reductions outside of the scope of emissions covered by its NDC and use them for its own NDC. For this to be reflected in NDC accounting, the emissions to be compared against the NDC would need to be adjusted downwards (Method 1) or the emissions budget would need to be adjusted upwards (Method 2), with no adjustment being relevant for the emissions outside the scope of the NDC. This transaction would be internal to the country but its impact would be the same as an international acquisition of a mitigation outcome.

- Portions of emissions budgets may be cancelled so that they may not be used for NDC achievement or compliance with any other targets.[54] For this cancellation to be reflected in NDC accounting, the emission budget would need to be adjusted downwards.[55]

- Portions of emission budgets could be banked into a future NDC period, for potential use against the future NDC instead of the current NDC.[56] For this to be reflected in NDC accounting, the emission budget of the current NDC period would need to be adjusted downwards and the emission budget of the future NDC period would need to be adjusted upwards.[57]

These cases raise situations in which adjustments are needed only in one country. However, they also raise an intertemporal dimension in which adjustments need to correspond across time instead of across countries.

What should trigger adjustments?

Article 6.2 refers to cooperative approaches needing to “apply robust accounting” if they involve ITMOs that are used towards NDCs. However, a strict interpretation of this principle can result in uncertainty and possibly may even compromise the integrity of the accounting system. It will need to be decided how strictly this principle should be applied. Alternatives include:

[54] This may be undertaken by entities to implement voluntary offsetting or by entities or governments to strengthen levels of mitigation in a country.

[55] This sub-paragraph and the next discuss adjustments only in terms of emissions budgets (Method 2), as this is the relevant context in which cancellations and banking would occur.

[56] This could be undertaken by entities banking surplus holdings at the end of an ETS compliance period into the next ETS compliance period (where this compliance period is in the next NDC period) or by governments with surplus holdings at the end of an NDC period.

[57] The opposite would be the case if borrowing were to be allowed.

- Adjustments could be triggered when ITMOs are used towards an NDC. A process would be needed for the originating country to be informed that the ITMO had been used against an NDC, otherwise it cannot know whether it can no longer rely on these emission reductions for its own NDC. Under this approach, the originating country would not make an adjustment when the ITMO had been cancelled or banked into a future NDC period in another country, when in fact the originating country should no longer benefit from the emission reduction and would be double counting reductions.

- Adjustments could be triggered when ITMOs are either used towards an NDC, cancelled or carried over by another country. A process would need to inform the originating country of these events. No double counting would arise but, until it is informed, the originating country would face uncertainty over whether it may use the reductions

- Adjustments could be triggered for the originating country by its transfer of the ITMO. This may be in advance of the corresponding adjustment being made by the acquiring country but there would be no uncertainty for the originating country and no danger of double counting arising. In effect, this would recognise that, in allowing the transfer to go ahead, the originating country no longer expects to use the emission reductions that are being transferred. This approach has potential to significantly simplify the accounting system.

The above options also question whether all adjustments need to correspond symmetrically. In the third alternative, the originating country would make its adjustment without knowing whether the acquiring country will use the ITMO for its NDCs and accordingly make the corresponding adjustment. There would be no risk of double counting and the atmosphere would benefit if the second adjustment is not made.

In addition, even where adjustments are ultimately symmetrical under the third alternative, they may be undertaken at different times by the countries involved. This will need to be managed within the reporting of adjustments and progress towards the achievement of NDCs and in whatever processes are established to consolidate and reconcile the adjustments after they have been reported. However, this would not be more difficult than the other alternatives above.

Table 8
What adjustments need to apply?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Basis on which corresponding adjustments are applied	• Inventory emissions (Method 1): adjustments shown separately and parallel to the inventory data • Emission budgets (Method 2): adjustments shown against allowable emission budgets based on NDCs • A mix of both methods above • Non-GHG metrics
Basic manner of applying the corresponding adjustments	• Inventory emissions basis: subtract from the acquiring country's emissions inventory; add to the transferring country's emissions inventory • Emission budget basis: add to the acquiring country's emissions budget; subtract from the transferring country's budget (if inside NDC scope) OR add to the transferring country's inventory emissions (if outside NDC scope where no budget is set)
Cases where corresponding adjustments may not be needed	• Transfers from sectors/emissions outside of the NDC scope of the transferring country • Emissions initially reduced in the transferring country (within the NDC scope) do not show in its national inventory • Acquired emissions are not used to help achieve the NDC of the acquiring country
Cases where other adjustments may be needed	• Emission reductions outside of the NDC scope are used for the country's NDC • Cancellation of ITMOs • Banking of ITMOs
Trigger for adjustments	• Use towards NDCs • Use towards NDCs, cancellation or banking • Transfers to another country

Article 6.2 states that the robust accounting is to be "consistent with" guidance adopted by the CMA, which diverges from the more typical decision language of "in accordance with". This may leave some scope for the accounting guidance to contain less prescriptive detail.[58]

4.5 How should transfers with ICAO be treated?

The CORSIA adopted by ICAO is expected to be a net purchaser of emission reductions from sectors covered by the Paris Agreement.

As discussed in Section 2.4, it may be possible to treat the international aviation sector as a separate 'country' in its relations with NDC and ITMO accounting. In

[58] This has also raised questions as to whether ITMOs can be transferred if the CMA is unable to, or delayed in, adopting such guidance. Given the bottom-up nature of NDCs and the recognition that countries may use cooperative approaches and ITMOs, there may be little to hinder a country from conducting its own accounting if no guidance has been adopted by the CMA, although the difference between "consistent with" and "in accordance with" may not have a significant legal difference in this regard.

this case, this sector would use the guidance on ITMO accounting under Article 6.2, including the application of corresponding adjustments.

Under the Method 1 accounting discussed in Section 4.4, an ITMO sent to an airline operator and used against its emission obligation under CORSIA would result in international aviation emissions being adjusted downwards (thus helping the sector to meet its target) while the inventory emissions of the transferring country under the Paris Agreement would be adjusted upwards (thus avoiding the reduction being used towards two targets). If the ITMO originated in sectors outside the scope of the transferring country's NDC, it would still reduce international aviation emissions but would not be added to the emissions of the transferring country.[59]

The airline operator would be one emitter in a 'country' of emitting airlines. The ICAO aspirational goal of holding sectoral emissions constant from 2020 onwards would be the equivalent of an NDC target for a country under the Paris Agreement. In this manner, the risk of double counting of emissions between the UNFCCC and ICAO would be avoided.

Different levels of engagement could be envisaged between the two systems. With little engagement, ITMOs or units could be cancelled in Paris Agreement registries and new units could be created in an ICAO registry system. The ITMO accounting guidance could require an adjustment for all transfers out of Paris and into ICAO, therefore eliminating any chance of double counting.

Greater levels of engagement between Paris and ICAO could be undertaken, potentially sharing the following:

- Consistent application of the accounting guidance under Article 6.2 in relation to corresponding adjustments.
- Use of CO_2 equivalent terms, using common GWPs as defined most recently by the IPCC.
- Coherence in registry systems, potentially with the country-level registry functions foreseen under CORSIA being integrated with country-level registries operational in the context of the Paris Agreement.
- Linkage between the ICAO central registry and any central log or reporting system established under the Paris Agreement.
- Agreement on a system for unique serial numbers and information to be associated with ITMOs (see Section 4.2), for application across the CORSIA and the Paris Agreement.

Table 9
How should transfers with ICAO be treated?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Paris-ICAO relationship	• Separate systems but with defined 'touchpoints' • Encourage integrated system with ICAO using the accounting guidance under Article 6.2 and linking registries to Article 6 systems and countries

[59] As discussed in Section 4.4, it may be beneficial that such transfers nevertheless be added to the transferring country's national inventory in order that the global aggregation of inventories is not under-estimated and to avoid a disincentive to increasing the scope of NDCs. This would not impact on the achievement of the country's NDC.

4.6 Are eligibility requirements needed?

Requirements could be defined for the system and processes that countries need to implement if they wish to engage in ITMOs for use in achieving NDCs. Such requirements would be intended to underpin the integrity of the accounting system but would not apply to countries not wishing to use ITMOs. It has also been raised that countries should demonstrate the stringency of targets under their NDCs or specific cooperative approaches (see Section 3.1).

The Kyoto Protocol established eligibility requirements for Annex B Parties relating to systems for accounting and national inventories: that the country is a Kyoto Party that had completed the steps to calculate its target, that it had in place national systems for preparing inventories and a national registry for tracking transfers, and that it was up-to-date in submitting the latest required reports on its inventory and accounting. All Annex B Parties met these requirements and, when issues were found through Kyoto's review system, any shortcomings were generally quickly resolved.

CARICOM has proposed "foundational requirements" for countries generating and using ITMOs: quantified NDCs for the relevant period; establishment and review of baselines; established registries for tracking or use of a centralised registry; presentation and independent review of annual emissions inventories; and the application of common accounting rules, common metrics and common delivery cycles. Without referring explicitly to eligibility requirements, **Norway** observes that participation in Article 6.2 cooperative approaches "will often require" quantification of NDCs and timely submission of inventories. Similarly, **Brazil** understands that, in addition to establishing registries, Parties wishing to trade ITMOs should turn their NDCs into a pool of "quantified contribution units".

It would also be necessary to define the point at which the eligibility requirements would apply or, in other words, what can only be done after demonstrating their fulfilment. Requiring eligibility before generating and transferring ITMOs may help ensure that only quality ITMOs are available for transfer. Requiring eligibility at the point of using the ITMO towards NDC achievement (as manifested in the corresponding adjustment being applied) would, on the other hand, allow more flexibility to the implementation of ITMOs while still maintaining the rigour of NDC accounting.

Table 10
Are eligibility requirements needed?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS

Possible eligibility requirements	• No requirements
	• Requirements
	  ○ Inclusion of quantified pledges in NDCs
	  ○ Review of the baseline/target
	  ○ Systems and up-to-date reporting for emissions inventories
	  ○ Systems and up-to-date accounting and reporting for ITMOs
	  ○ Stringency of targets under NDCs or cooperative approaches

Point of application (functions allowed after meeting requirements)	• Generation and transfer of ITMOs • Acquisition of ITMOs • Application of corresponding adjustment to recognise use of ITMOs towards achieving NDCs

4.7 How should any restrictions on linking be taken into account?

In some cases, countries may wish to remain open to a flow of units between countries, but may want to limit it. Governments may do this for entity-based trading or crediting systems and may be motivated for a number of reasons; for example, to incentivise domestic emission reductions, or adjust for perceived differences in the quality of credits, without reducing the liquidity of the market.[60]

Several means are available to countries wishing to implement such limits:

- Quotas, which can limit absolute levels of units being acquired in a country, perhaps as a percentage of a target or effort to reach a target
- Discount rates, which use a conversion factor to increase the quantity of units from other countries that need to be surrendered for compliance with an emissions target. Such rates do not need to be agreed with the other country but both countries could apply the same or different discount rates to each other. They are also known as 'trading ratios'.
- Exchange rates, which also use a conversion factor but apply it symmetrically so that the countries on either side of the exchange use the same rate.[61] Such rates would need to be agreed by both countries and this raises questions about how they are set and by whom.

Quotas would not impact on individual transfers or adjustments, as they focus on aggregate volumes.

Discount and exchange rates would, however, impact on the corresponding adjustments to be made. For a discount rate of 2:1, country A would transfer 200 units and adjust its emissions budget downwards by 200 units, while country B would receive the full 200 units but would adjust its emissions budget upwards by 100 units and cancel the remaining 100 units.

In practice, exchange rates may be more difficult to implement as they would require agreement from all the respective countries, or at least agreement on institutional arrangements that set the rates, and it may be difficult to keep the exchange rates within an optimal range over time that maintains an incentive to undertake ITMOs while ensuring that overall abatement goes down rather than up. This impact is easier to achieve with discount rates.[62]

Table 11
How should any restrictions on linking be taken into account?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Accounting for discount and exchange rates	• Do not allow them • Clarify adjustments in case of discount and exchange rates, including adjustments for units remaining after the use of units in achieving NDCs

[60] Lazarus, M. et al (2015)

[61] This is similar to exchange rates for foreign currencies.

[62] Lazarus, M. et al (2015)

4.8 How can ITMOs for single-year targets be made more representative?

As discussed in Sections 2.3 and 3.2, many NDCs contain single-year targets that carry no obligation for emission levels outside this single year, or indeed for the country's cumulative contribution to global efforts. As a result, countries with single- and multi-year targets do not have a common basis for using ITMOs, and the difference between such countries becomes greater when they use ITMOs. A net acquirer of ITMOs with a single-year target, for example, may well need more acquisitions if it were accounting over a multi-year period.

Section 3.2 discusses the means to make the NDCs more comparable, by countries moving over time to multi-year NDCs. Prior to that, other measures may be needed to address the current NDC cycle. Some options have been suggested that focus on making the transfers from the single year of the target more representative of activities over a longer time period:

- Averaged ITMO activity. In addition to the year of the single-year target, ITMOs may also occur in other years when, for example, some sectors are covered by a trading system that is linked to other countries. Averaging the ITMO activity over several years—for instance, the year of the single-year target and the previous one or two years—may be more representative of ITMOs that might have taken place in a typical year under a multi-year target. This is, however, very dependent on the volume of transfers in the years prior to the single year target and how extensive the use of transfers is outside the single-year target.

- Linearised ITMO activity. This approach would take the transfers made in the single year of the target and spread them in linear fashion from the base year until the single target year, adjusting them for the level of mitigation that was already occurring in the base year. This would therefore linearise the growth in ambition embodied in the NDC on top of the prior mitigation effort that was occurring.

These methods, however, focus only on making the transfers in the single target year more representative for that country. They do not seek to make single-year target countries comparable with multi-year target countries. This would require expectations for emissions over a multi-year period to be established. Some options have been suggested for this as well:

- Linear trajectory estimates. A trajectory could be estimated by a linear path between the base year emissions and the emissions expected in the single year target. This could be used to derive an emissions budget for a multi-year period.

- Expected emission trajectories. Countries could indicate the emissions they expect to occur in each year. This could be informed by emission budgets for covered sectors under any ETS the country has in place but would have coverage equivalent to the full NDC. This could be used to derive an emissions budget for a multi-year period.

The option coming closest to countries with multi-year emission budgets is clearly the last one using expected emission trajectories. It would benefit from having been determined by the country itself but, crucially, would not amount to a commitment to a specific multi-year budget or a goal for the country's NDC.

Table 12
How can ITMOs for single-year targets be made representative?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Improved representation of ITMOs in the context of single-year targets	• No modalities • Averaged ITMO activity • Linearised ITMO activity • Emissions budgets using linear trajectory estimates • Emissions budgets using expected emission trajectories

4.9 Who may use an ITMO if an NDC is not achieved?

In the event that a transferring country subsequently fails to achieve its NDC, the status of transferred ITMOs could be in question. They could be either retracted by the transferring country ('buyer liability') or continue to be used by the acquiring country ('seller liability').

Generally speaking, 'buyer liability' for transferred ITMOs has a very negative impact on the predictability and reliability of the transfers. If the acquiring country were to have ITMOs retracted, it may be left in a difficult position vis-à-vis its NDC achievement through no fault of its own and the transferring country would have little incentive to ensure that it only transfers mitigation outcomes that it does not need itself. In a situation where many ITMOs had been transferred, it may also not be clear which ITMOs should be retracted. In addition, buyer liability can exert downward pressure on prices as buyers seek to compensate the risk of retraction, reducing carbon price signals and the effectiveness of carbon markets in abating emissions.

CMA guidance could be agreed to regulate this issue. Alternatively, the issue could be regulated through the bilateral agreements underlying ITMOs or, more generally, ETS linkages. Such bilateral agreements could be used to negotiate hybrid positions between the strict seller and buyer liability options.

Table 13
Who may use an ITMO if an NDC is no achieved?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
ITMO liability for non-achievement of NDCs	• Acquiring country keeps and uses the ITMO (seller liability) • Transferring country retracts and uses the ITMO (buyer liability)

4.10 What degree of intertemporal transfers is appropriate?

Flexibility to move parts of mitigation pledges between NDC periods has potential to optimise mitigation costs over spans of time that are longer than the current NDC period, in particular when unforeseen changes in national or economic circumstances occur. Such changes may make units surplus to requirements in the current period. However, this may weaken mitigation ambition in future periods, especially if the current surplus arises because current NDC or ETS targets are not sufficiently stringent.

There may therefore be interest in limiting the banking that can occur between NDC periods. Under the Kyoto Protocol, banking was limited to a percentage of each country's emission budget. Such a percentage limit could also be applied to NDC targets, although this would bear no relationship to the degree of mitigation effort made and would offer little protection against the surplus having arisen from non-stringent NDC targets.

Alternative means of limiting banking may include tying the amount of possible banking to:

- A proportion of the over achievement of the NDC. This would allow banking to increase with the size of the surplus, on the assumption that the surplus is a result of effective mitigation effort, although there is no safeguard against the surplus being due to non-stringent NDC targets

- A proportion of the difference between average national emissions prior to the NDC period and during the NDC period. This would allow banking to increase with the success in reducing emissions, but would also tie the maximum banking level to the real change in emissions, irrespective of how high or low the NDC target had been set.

More generally, the differences in the timeframes of NDCs create differences for the time periods that units are valid for without having been banked. For example, where a unit originating in a country with an NDC period until 2030 is transferred to a country with an NDC period up to 2025, it could remain usable against the new NDC:

- During the year ('vintage') in which the emission reduction occurred

- Until the end of the NDC period of the originating country (2030)

- Until the earliest of the end dates for the NDC periods the originating or acquiring countries (2025)

- Until the end of a fixed number of years (e.g. five years) beyond the year of the emission reduction.

A variant on banking called for by some Parties is that surplus units from the pre-2020 period of the Kyoto Protocol could be banked for use with post-2020 NDCs. **Brazil** and other countries appear to support this view in relation to CDM credits. Such banking may respect the investments made by the private sector in CDM activities and may allow a faster scaling up of mitigation activity under Article 6. Concerns around not diluting the current NDC ambition may, however, lead to allowing such banking but limiting its scope on the basis of:

- Eligibility filters, such as activity type (projects or programmes of activities), technology type, region, or the vintage of registration or issuance dates (e.g. after adoption of the Paris Agreement)

- Conditions that may be applied, such as crediting period length or other conditions, additionality demonstration or discounting.

Borrowing refers to forgoing the capacity to emit under a future NDC in return for being able to emit more in the current NDC period. This may be motivated by mitigation costs rising very high in the current period. There may, however, be concerns that future targets may, in practice, not be made stronger, especially where such targets are not yet committed to or where future governments may not allow the strengthening to occur. Such concerns meant that borrowing was not allowed under the Kyoto Protocol.

Table 14
What degree of intertemporal transfers is appropriate?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Limits on banking	• No limits • Limit banking to a percentage NDC budgets • Limit banking to a proportion of the over-achievement of the NDC • Limit banking to a proportion of the difference between average national emissions prior to the NDC period and during the NDC period
Validity of ITMOs without banking	• During the year in which the emission reduction occurred ('vintage') • Until the end of the NDC period of the originating country • Until the earliest of the end dates for the NDC periods the originating or acquiring countries • Until the end of a fixed number of years (e.g. five years) beyond the year of the emission reduction
Counting pre-2020 action towards post-2020 NDCs	• Allow only for CDM activities migrating into Article 6 • Apply discounting of credit volumes • Not allow at all
Limits on borrowing	• Specify limits (e.g. percentage of NDC target) • Not allow borrowing at all

4.11 How should accounting results be reported?

The Paris Agreement establishes an enhanced transparency framework for action and support under Article 13 that is to build on and enhance the transparency arrangements under the Convention. With regard to action, the purpose of the framework is to "provide a clear understanding of climate change action […], including clarity and tracking of progress towards achieving countries' individual NDCs under Article 4".

Article 13.7 specifically requires all countries to regularly submit a "national inventory report" and "information to track progress made in implementing and achieving its NDC". Decision 1/CP.21, paragraph 90, elaborates that countries are to submit this information at least as frequently as a biennial basis, except for LDCs and SIDS, which may submit the information at their discretion. Articles 13.11 and 13.12 clarify that the information submitted under Article 13.7 is to be subject to a "technical expert review" process, which is to include a consideration of the "implementation and achievement" of NDCs.

This reporting and review under the transparency framework, together with guidance for ITMO and NDC accounting, amounts to a governance framework for transfers and their consequent accounting. These aspects need to be

integrated coherently under the wider systems and processes currently being developed for the operationalisation of the Paris Agreement as a whole.

The form, content and frequency of reporting for the tracking of NDC progress has not yet been clarified. Guidance will need to be decided in the modalities, procedures and guidelines for the transparency framework currently being developed under the APA work programme based on decision 1/CP.21, paragraph 91. However, the SBSTA work programme under Article 6.2 to develop accounting guidance is likely to be useful in determining what is needed for the effective functioning of Article 6, in a manner that demonstrates environmental integrity, transparency and comparability. These bodies will need to coordinate their conduct of these work programmes.

The information reported under the transparency framework for the tracking of progress in achieving NDCs may need to address:

- Cooperative approaches under Article 6 that the country has implemented or is engaging in, including how they meet the “shall” safeguards included in Article 6.2
- Systems or processes the country has implemented to track and account for its Article 6 activities and transactions, as well as any changes made to these systems and processes over time
- International transfers and use of ITMOs towards NDC achievement, as well as any cancellation or banking
- Status of NDC achievement after the NDC period has ended.

New Zealand has suggested that countries choosing to use cooperative approaches need to report on this activity via biennial reporting, including on the “shalls” in Article 6.2. The **EU** distinguishes between the information to be reported on the basis of timing: “initial information” to say upfront how Article 6 guidance has been implemented domestically; “updated information” needed to track progress in implementing and using ITMOs and to facilitate regular corresponding adjustments, including on any updates on accounting and registries and on the issuance, transfer and holding of ITMOs; and “final information” to finalise information provided earlier and to “settle” corresponding adjustments in relation to NDCs.

In this context, it will be important to clarify what accounting steps constitute the use of ITMOs towards NDCs. Broadly speaking, this could refer to:

- Putting aside ITMOs over the course of NDC periods for use in achieving NDCs. This would need to clarify which NDCs that ITMOs are being used against, and would imply that these ITMOs cannot be transferred further to another country, and also cannot be cancelled or banked. This would enable adjustments to be made during the NDC period, if necessary on the basis of net transfers, and would enable the tracking of a country’s “progress made in implementing and achieving its NDC” (Article 13.7). Putting aside ITMOs in this way would be important if it is to be the use of ITMOs that triggers the accounting adjustments (see Section 4.4)

- Calculating total ITMOs for the NDC period after the NDC period has finished. Until that point, it may be possible to know how many ITMOs countries have acquired, but it would not be known which they intend to use towards their NDCs (as opposed to being transferred further, cancelled, banked, or simply not used). Adjustments would be made after the NDC period and it would not be possible with certainty to track progress in achieving NDCs on biennial or more frequent basis.

This choice is essentially about whether to build up clarity over time or only at the end as to how countries are advancing on the achievement of their NDCs. If the first approach above is adopted, there may be advantages in reporting on transfers and adjustments on an annual basis rather than a biennial one. As well as being more frequent, annual periods are more flexible with regard to the different timeframes of NDCs, as NDC periods are always multiples of one year. While decision 1/CP.21, paragraph 90, provides for reporting to be made more frequently than a biennial basis, it would be possible to limit this annual submission only to information on ITMOs and other relevant transactions, while other reporting under Article 13.7 could remain on a biennial basis.

Further issues would need to be resolved with regard to reporting: [63]

- Whether adjustments may be provided on the basis of emissions (see Method 1 in Section 4.4) or emissions budgets (see Method 2 in Section 4.4), or either, or both.

- The nature of ITMO data to be reported. This will form the basis for the calculation and reporting of adjustments. It could be reported as individual or aggregated ITMOs. Alternatively, information relating to ITMOs could be provided on the basis of ITMO (or unit) holdings (or net changes in holdings) across 'country pairs', as this would take into account onward transfers that may have occurred.[64]

- The format to be used to standardise the reporting made by countries. This can specify precisely what information needs to be provided.

Each country possesses and reports only information on transfers it has directly participated in and its own ITMO or unit holdings. No single country can have complete information on where its ITMOs were subsequently transferred to or which country holds them at the end of a reporting period. The information on ITMOs and accounting adjustments made by each country will need to be independently compiled and assessed to provide a publicly available overview of ITMOs and accounting, as well as to ensure that no double claiming has taken place. There may also be a need to reconcile any differences in views

[63] By way of reference, transactions under the Kyoto Protocol are reported annually on an aggregated basis, as defined in the standard electronic format (SEF). For countries they have transacted with over the period, countries submit one aggregated number for transfers and one aggregated number for acquisitions. All non-confidential information on Kyoto transactions is, however, also maintained by the UNFCCC secretariat as the administrator of the ITL.

[64] For example, the corresponding adjustments made for transfers between countries A and B would need to take account of any onward transfer of country A's units from country B to country C. It may become quickly unmanageable to display such transfer information, whereas it would be relatively easy for countries to simply report their holdings of ITMOs (or units) from other countries. This would allow changes in the net holdings in countries A, B and C over the reporting period to be calculated, which would reflect the final net transfer positions of each country towards each other. Such reports could be automatically generated from registries. Clearly, such a system would require confidence in the tracking of the transfers that led to the unit holdings at the end of the period.

among countries regarding specific ITMOs. This information could then be made available to the work of the technical expert review.

This is a role that would need to be carried out centrally, most likely by the UNFCCC secretariat and possibly with support from a central communications hub or transaction log for registries. The complexity of this process and implications of mistaken ITMOs or adjustments needing to be reversed or compensated, may reinforce the usefulness of reporting transfer and other relevant transaction information on an annual basis.

Table 15
How should accounting results be reported?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Information to be reported and its timing	• Cooperative approaches under Article 6 that the country has implemented or is engaging in, including how they meet the “shall” safeguards included in Article 6.2 (prior to and during the NDC period) • Systems or processes the country has implemented to track and account for its Article 6 activities and transactions, as well as any changes made over time (prior to and during the NDC period) • International transfers and use of ITMOs towards NDC achievement, as well as any cancellation or banking (during the NDC period) • Status of NDC achievement after the NDC period has ended (after the NDC period)
Accounting steps for use of ITMOs towards NDCs	• Putting aside ITMOs over the course of NDC periods for use in achieving NDCs • Calculating total ITMOs for the NDC period after the NDC period has finished
Other reporting issues	• Choice of emissions basis or emission budgets as a basis for adjustments (see Section 4.4) • The nature and aggregation of ITMO information to be reported to support the adjustments data • The format to be used to standardise the reporting made by countries
Processing of reported information	• Independent compilation and assessment to reconcile any differences and ensure that no double claiming has taken place • Publicly available overview of ITMOs and accounting, also available to the work of the technical expert review under Article 13.11

5. Ensuring environmental integrity in ITMO generation

This section identifies issues and possible guidance that could be specified at the CMA level to guide the generation of ITMOs, with a focus on principles and standards necessary to safeguard their environmental integrity.

Cooperative approaches under Article 6 should be designed to allow for higher ambition in countries' mitigation and adaptation actions (Article 6.1). In addition, countries involved in cooperative approaches shall "promote sustainable development and *ensure environmental integrity* and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the CMA" (Article 6.2).[65]

The accounting discussed in Section 4 is a key defence of environmental integrity in relation to transfers. However, it has few tools to directly address the quality of the mitigation outcomes themselves. This concerns the rigour and robustness of programmes and activities underlying emission reductions. In this context, baseline setting, additionality, and MRV become starkly relevant.

The scope of NDCs may be important in relation to these areas. In the case of ITMOs originating inside the scope of NDCs, host countries have an inherent incentive to generate and transfer ITMOs only where the emission reductions truly occur, otherwise it will make the achievement of its NDC more difficult. When ITMOs originate outside the scope of NDCs, this incentive is weaker and it may be justified to increase the level of international oversight and scrutiny over the generation and quality of the ITMOs.

5.1 What guidance is needed on baselines?

A baseline scenario is a counterfactual emission scenario against which emission reductions are counted. It provides an estimate of what emissions would have been in the absence of the effort to reduce emissions—based on a certain methodology and set of assumptions—and serves as a reference level to define mitigation goals and targets.[66, 67] International standards have gone to

[65] Negotiations on whether CMA guidance is needed for the non-accounting safeguards contained in Article 6.2 are on-going. In this section, we consider only the possible CMA guidance options that may be provided in relation to environmental integrity and robust ITMO generation.

[66] Broekhoff, D., and Bosi, M. (2012)

[67] Prag, A., et al. (2011a)

great lengths to ensure conservative baseline methodologies and robust carbon accounting. Through these standards, baselines may be constructed through different means, including developing business-as-usual (BAU) scenarios, projecting historical emissions, or defining performance benchmarks.[68]

Which means are most appropriate, supported by which methodologies and assumptions is, however, a normative choice—at least to some degree. For example, approaches to baseline setting under Activities Implemented Jointly (AIJ), the predecessor of the CDM and JI, reflected that baselines should always decrease over time. In a world aiming for zero emissions by around 2075,[69] it may make sense that the amount of credits which can be earned from mitigation action decreases, since any mitigation action should become common practice over time.

For cooperative approaches falling within the scope of NDCs, ensuring environmental integrity requires that crediting baselines take into account unconditional targets or actions pledged in host-country NDCs. There are, however, several challenges to baselines being compatible with NDCs.

First, any overestimation in NDC baseline scenarios may cascade down to baselines set at the level of cooperative approaches and eventually to ITMOs. In turn, these ITMOs may 'contaminate' other more robust NDCs and undermine collective mitigation efforts under the Paris regime.

Second, translating NDCs into baselines at the level of cooperative approaches will often require apportioning national pledges to different sectors and sources. Most NDCs, however, are not transparent with respect to how BAU emissions have been estimated. Also, many NDCs do not indicate an expected emissions path over time but merely state a headline figure for reductions intended at the end of an NDC cycle (e.g. 2030). In this sense, translating NDCs into appropriate metrics to be used at the level of cooperative approaches would raise of a number practical complexities. This includes the need for baseline emission levels for each year for which ITMOs could be generated, as well as appropriate sectoral and sub-sectoral specification in NDCs.[70, 71]

This sort of quantification exercise would go a long a way in assisting the collective understanding of NDC pledges and would be useful outcomes in the reporting and review of progress in achieving NDCs (Articles 13.7 and 13.11 of the Paris Agreement, see Section 4.11). It might mean, however, that some sort of eligibility or foundational requirements, as discussed in Section 4.6, may be necessary for countries wishing to use ITMOs in achieving their NDCs.

Irrespective of whether the cooperative approach falls within or outside the scope of NDCs, the needs for environmental integrity, comparability and exchangeability (in particular, for secondary market considerations) may make it

[68] Baseline setting within trading systems has also been subject to development and ongoing discussion. Free allocations based on historic emissions were found to reward historically inefficient installations. Full auctioning, on the other hand, raised discussions on leakage and the competitiveness of industries facing stricter climate regulation. In the EU, partial free allocation based on industrial efficiency benchmarks, like the 10% best-in-class installations, emerged as the temporary compromise.

[69] UNEP (2016)

[70] Spalding-Fecher, R., et al (2017)

[71] Cames, M. et al. (2016)

beneficial to have common international guidance that promotes comparable methodological approaches; for instance, defining robust data and emissions factors. Box 1 illustrates a practical example of the range of possible ways in which grid baselines could be established in line with an NDC. Guidance from the CMA could clarify the relation between NDCs and baselines at the level of cooperative approaches. Countries would then need to transpose this guidance into the design of their cooperative approaches.

Table 16 summarises potential options for guidance by the CMA.

Table 16
What guidance is needed on baselines?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Degree of guidance related to baseline setting	(i) No CMA guidance on baseline setting (ii) CMA guidance only on baseline setting for ITMOs not covered by the NDC (iii) Define general principles for baseline setting at the level of cooperative approaches and which reflect NDC pledges. This may also include the development of a facilitative process that consolidates methodologies. (iv) Use guidance available from the Article 6.4 mechanism or request countries to demonstrate equivalence with it.

Under option (i) (Table 16), the CMA would be silent on baseline setting for cooperative approaches. This option would allow the highest degree of freedom to countries in setting their baselines and determining how to use their NDCs as a reference point. Increasing ambition through cooperative approaches would thus be left entirely to countries. This option may increase the risk of overestimated crediting baselines, particularly in countries with less stringent NDCs or in sectors outside of NDCs. Here, sellers and buyers willing to transfer ITMOs would (bilaterally or plurilaterally) define the standards of integrity and quality expected from mitigation activities. It is possible that some cooperative arrangements and ‘carbon clubs’ may be willing to create strong and replicable models for the international community, while others may be more lenient and flexible in their rules, particularly in times of pressure to achieve NDCs.

With option (ii), CMA guidance is considered only for sectors outside the NDCs. As noted above, sectors not included in the NDC may require a higher degree of oversight and scrutiny over the quality of ITMOs being produced. This may also serve as an incentive for countries to expand the scope of their NDCs. A practical solution could be that those mitigation activities may need to follow future modalities under Article 6.4.

Option (iii) foresees common principles for baselines under cooperative approaches which would reflect NDC pledges. These may address, for instance, principles and/or minimum standards on transparency, methodologies, assumptions, data sources, periods of validity, and different levels of aggregation of sources. This could go further by establishing a process for consolidating or reviewing baseline methodologies from different cooperative approaches. This could also include methodologies for trading programmes and government-to-government approaches making use of, for example,

standardised baselines or technology-related baselines.[72] Any process of consolidating baseline methodologies could be facilitative in nature, but could be restricted to those methodologies that are deemed consistent with the established general principles.

Under options (ii) and (iii) the CMA could, for instance, articulate general guidance on the development of standardised parameters. Standardised baselines could define the reference emission levels for a range of similar mitigation actions, potentially covering several jurisdictions. An example is the Cement Sustainability Initiative: several cement companies have joined forces to determine the carbon intensity of their global production and have used these to set a sector-wide target.[73] Their historical emission level can be considered a baseline or sector-wide benchmark. This information could eventually support an international trading system for the cement sector with global coverage.

Option (iv) would make use of internationally accepted guidance from the Article 6.4 mechanism, thereby providing a quick and multilaterally accepted way of assuring the credibility of baselines under Article 6.2 cooperative approaches. Guidance could be used as it stands or could be drawn upon and amended as needed. It would need to be seen how applicable this guidance will be for Article 6.2 approaches. There may also be other value in this approach, for example, in broadening and harmonising approaches to baselines across cooperative approaches and carbon markets.

Box 1
Grid baselines based on NDCs in practice

Suppose a country has a 100% coal-based power sector. In its NDC it defined an unconditional renewable energy target of 80% and a conditional target of 100% renewables by 2030. Article 6.2 could incentivise the implementation of the 20% constituting the difference between the two. There are several alternative options for defining the baseline emissions relevant to this 20% renewable energy capacity:

1. When applying the concept of a forward-looking scenario and the carbon intensity of the grid in future years, the baseline would start with 100% coal-fired power sector, scaling down to 80% by 2030.

2. Stepping away from the concept of the carbon-intensity of the grid and merely looking at the power capacity which the added renewable energy capacity replaces, the baseline is and remains 100% coal until the last percentage of renewable energy capacity is commissioned.

3. When applying the logic of the CDM, the baseline depends on a weighted average of the build and operating margin. The build margin describes the carbon intensity of newly added—or planned—capacity and the operating margin of the carbon intensity of the grid in previous years. The build margin would be 100% renewable and the operating margin 100% coal-fired, provided that the start of the Article 6.2 activity is no later than the start of the implementation of the policies and measures which aim for achieving the NDC.

[72] For non-emissions metrics as baseline units, see Prag, A., et al. (2011a)

[73] For further information on the Cement Sustainability Initiative, refer to: www.wbcsdcement.org

4. If the baseline assumes that the renewable energy target in the NDC will be achieved, the baseline could also be fixed at an energy mix of 20% coal and 80% renewable throughout the crediting period of the activity under Article 6.2.

5.2 What guidance is needed on additionality?

The concept of additionality means that the emission reductions would not have happened without the mitigation action in question having been implemented. It confirms that the incentive provided is a decisive factor in the choice to implement the mitigation action. Similar to the discussions on baselines above, additionality may also take on different contours under the Paris Agreement. Although additionality is not an explicitly mentioned for Article 6.2, it is arguably central to the obligation to ensure environmental integrity of ITMOs.

One possible interpretation could be that only mitigation actions not already foreseen in a country's unconditional NDC may be considered additional. As the unconditional component of an NDC tends to describe what the national government already pledges to achieve without international support, additional mitigation activities would possibly have to go beyond the requirements in these stated policies and measures. This is in line, for instance, with **Brazil's** views on additionality in the context of the Article 6.4 mechanism.

Without further articulation of NDCs, however, it may be difficult to assess additionality on the basis of policies and measures stated in NDCs. As NDCs are political commitments, actual measures implemented may differ substantially to those initially stated. When NDCs are not ambitious, relying on these to determine additionality can also be misleading. Furthermore, NDCs may not be underpinned by the relevant sector information and granularity of data to determine additionality. As NDCs expand in scope, they may also become a less suitable yardstick against which to assess additionality.[74]

Despite technical difficulties, a CMA decision outlining a common definition of additionality could strengthen the quality of ITMOs from crediting activities.[75] First, it could reduce the risks of producing ITMOs which do not represent an actual mitigation effort. As discussed earlier in this Section, this would be particularly important if ITMOs outside the scope of NDCs are allowed. Second, it would help focus international support on mitigation opportunities which are not yet sufficiently incentivised domestically. Finally, from the perspective of a country acquiring ITMOs, it could ensure effective use of mitigation finance and make it possible to achieve more emission reductions with a given amount of international support.

In their submissions on Article 6.2 guidance, the **EIG, New Zealand,** and **Ethiopia** were among the countries that referred to additionality in the context of Article 6.2 and environmental integrity.[76] The **EIG** highlighted that common guiding principles should be applicable for both Article 6.2 and Article 6.4 and

[74] Cames, M. et al. (2016)

[75] In a trading system, comparing the emissions of all installations to a common benchmark avoids the need for additionality testing. The challenge, however, is to set the benchmark level such that the system creates sufficient scarcity of allowances to incentivise mitigation action.

[76] The EIG also explicitly stated that Joint Implementation has faced integrity questions related to additionality and this should be avoided in the design of cooperative approaches.

these would involve establishing that mitigation outcomes are additional, verifiable, permanent and real. **Ethiopia**, in turn, emphasised that ITMOs need to be "additional in all senses" and suggested that international oversight on measures leading to ITMOs would also be required.

Table 17 summarises potential options for guidance by the CMA.

Table 17
What guidance is needed on additionality?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Degree of guidance related to additionality	(i) No CMA guidance on additionality (ii) CMA guidance only on additionality for ITMOs not covered by the NDC (iii) Provide a common definition for additionality and related principles (iv) Provide different guidance on additionality, taking into account whether ITMOs are from sectors covered by the NDC or not (v) Use guidance available from the Article 6.4 mechanism or request countries to demonstrate equivalence with it.

Whereas option (i) (Table 17) considers the possibility of no CMA guidance at all, option (ii) assumes no CMA guidance on additionality when ITMOs are generated within NDCs, as this would theoretically imply in a zero-sum game. Indeed, the argument could be made that the application of a common additionality concept for activities under Article 6.2 is not needed if (a) ITMOs originate from a crediting mechanism within the scope of the NDC of the host country (as the NDC pledge could be deemed akin to a cap on emissions); and (b) the NDC is sufficiently stringent. However, as assessing the stringency of NDCs and quantifying the risk of hot air is a technically and politically complex task, not factoring in the risk of non-additional ITMOs in CMA guidance could potentially undermine the credibility of the entire system.

A suite of measures at both UNFCCC level and the level of cooperative approaches may be needed to reduce the risk that hot air goes undetected. At the UNFCCC level, as noted in Section 3, ever-increasing transparency through strong common reporting and review guidelines can boost confidence in target ambition. Furthermore, a common definition of additionality—as well as common guidance on baseline setting and conservativeness of methods, and assumptions to estimate BAU scenarios in the context of NDCs—could also help countries to prevent trading of hot air ITMOs.

Moreover, the experience from the Kyoto Protocol has shown that leaving the definition of additionality entirely to countries can lead to lower environmental integrity. Some experts and countries (e.g. **EIG**) have noted that the flexibility to assess additionality by themselves under JI Track 1 procedures, coupled with weak reduction commitments, may have allowed some countries to monetise surplus allowances, or hot air, as JI credits.[77] Under the Paris Agreement, a

[77] Kollmus, A., et al (2015), UNFCCC (2016)

similar situation could occur if BAU emissions are inflated or if NDC target levels are set above BAU emissions.[78]

Option (iii)—providing a common definition for additionality—could be politically feasible while remaining technically relevant for ensuring consistency on the quality of ITMOs being produced and exchanged. Additionality could, for instance, be defined as emission reductions beyond a baseline that reflects NDC (unconditional) pledges. It is important, however, that CMA guidance be further articulated in order to avoid or limit the risks of perverse incentives. Ambitious climate policies would limit the scope of mitigation action that could be considered additional, which may lead countries to refrain from strengthening their climate policies within NDCs.[79] Under the Kyoto Protocol, the CMP decided that baselines should take into account relevant national and/or sectoral policies and circumstances.[80] Old (and still on-going) discussions related to the application of e+/e- policies in the assessment of additionality and possible perverse incentives may resurface again.

Option (iv) would provide different additionality guidance, taking into account whether ITMOs originate from sectors covered or not by the NDC. When distinguishing the principles applicable for additionality of ITMOs within and outside the NDC, CMA guidance could, for instance, include a range of approaches that are (a) simple, standardised and conservative (for ITMOs being generated within NDCs) and (b) more detailed and individualised (for ITMOs being produced outside the NDC).

For example, a detailed demonstration of additionality could, in some instances, be replaced by positive lists or by making certain activities additional if they outperform a defined emission baseline. Replacing an additionality demonstration on a case-by-case basis with positive lists could reduce delays in assessment and overall transaction costs and could potentially be more suitable for ITMOs being produced within the scope of NDCs.[81, 82]

Option (v) would entail drawing from modalities and definitions made available in connection to the Article 6.4 mechanism. CMA guidance would not seek to prescribe a certain additionality test to be used under cooperative approaches, but would instead guide countries to build on certain additionality features developed under Article 6.4 or to demonstrate equivalence to these features.

5.3 What guidance is needed on MRV?

Monitoring, Reporting and Verification (MRV) aims to ensure that emission reductions are real, additional, long-term and verified. The MRV procedure determines the climate impact of a project, programme, or policy and is typically described in tonnes of CO_2e mitigated or sequestered in the case of baseline and crediting mechanisms—or in actual emissions in each reporting period, in

[78] Note that economic decline can also create 'windfall' emission reductions. The economic situation in the EU has been a reason for the EU ETS having surplus allowances, leaving little incentive for companies to reduce emissions beyond what their lower production levels already avoided.

[79] Arens, C. ed. (2016)

[80] See Decision 3/CMP.1

[81] Many have also noted that the outcome of a detailed additionality test provides little guarantee for rewarding additional activities only. See, for instance, Shishlov, I. and Bellassen, I. (2012)

[82] On the other hand, the use of pre-established lists for additionality has also been subject to criticism, as a positive list could open the door to too many activities which may not need an extra incentive. See, for instance, Michaelowa, A. (2001)

the case of emissions trading programmes. For government-to-government transactions, MRV becomes relevant if the transaction is underpinned by actual mitigation activities in one of the countries.

In general, principles applicable to MRV are very similar in that they typically address how to measure and transparently report emissions in a consistent manner and how to verify emissions against a common verification standard. In most cases, actual emissions are compared against a certain reference or benchmark to determine emissions reductions generated or the number of allowances which should be surrendered to a regulatory authority.

MRV received significant attention from countries in their SBSTA submissions, as well as during CMA negotiations. Countries that seem to prefer a higher degree of centralisation and stronger international guidance also appear to favour CMA guidance on the creation process of mitigation outcomes. For instance, the **EIG**, **Singapore** and the **AGN** appear to favour a common set of MRV principles applicable to both Article 6.2 and 6.4.

In turn, several countries indicate a preference for less specific CMA guidance for Article 6.2, such as **Japan, Australia, Norway,** and **Canada**. This more flexible approach appears to entail greater reliance on disclosure, reporting and, in some cases, review to demonstrate consistency with CMA guidance; yet it avoids prescriptive standards on the generation of ITMOs. For instance, **Norway** observed that "environmental integrity would first and foremost be ensured through the ambition and clarity of the NDCs and the system for monitoring, reporting and review of information (…) which should be covered by the transparency and accounting guidance". **Japan** stated that the scope of guidance for Article 6.2 should be limited to accounting, whereas ensuring environmental integrity and transparency should be carried out under the responsibility of the countries engaging in the cooperative approaches.

For ITMOs generated within the scope of an NDC, countries would, in theory, have an incentive to be conservative in determining the number of ITMOs which can be transferred in response to a mitigation activity under Article 6.2. Too many ITMOs would make it more difficult for a government to achieve its NDC pledge. This incentive would allow for sound national approaches to MRV, and may require less CMA guidance. As with baseline setting and additionality, however, the ambition of an NDC is an important factor. If there is a lot of surplus emission or hot air in an NDC, the incentive to be cautious with ITMO generation becomes weaker.

Once more the discussions on possible eligibility or foundational requirements to engage in ITMOs become relevant (see Section 4.6). Some have suggested that Article 6.2 transactions may only be desirable in sectors where national inventories are detailed.[83] National inventories, however, seldom provide the level of granularity needed to support activity or mechanism-level accounting. National approaches to monitoring and reporting on GHG emissions often use data at higher aggregation levels—such as the differences between import, export, and changes in stocks—as a way to estimate the GHG emissions from the combustion of fossil fuels. That provides no, or very limited, means to extract information at activity or sector level.

[83] Spalding-Fecher, R., et al (2017)

In any case, robust oversight at the domestic level and at the level of cooperative approaches will likely be required to ensure adequate governance of cooperative arrangements. This may include clearly defined and transparent procedures on allocation of responsibilities among participant entities, appropriate gathering and management of data, non-compliance procedures (where applicable), as well as quality assurance and internal review processes. A register or registry may also be extremely useful to avoid double claiming and usage of ITMOs, and to properly account for different (and possibly overlapping) mitigation efforts, including NAMAs, CDM and Article 6.4 activities, and other cooperative arrangements (see also Sections 4.1- 4.3). Domestic and cooperative efforts should then be complemented by some degree of international oversight under Article 13 of the Paris Agreement.

Similar to baseline and additionality, securing the environmental integrity of ITMOs generated from actions outside the scope of NDCs would probably require more CMA guidance on MRV. Since the host country has no mitigation pledge for sectors outside the NDC, there is less incentive to be conservative in the generation and transfer of ITMOs. This is an argument to align Article 6.2 MRV guidance more with guidelines under Article 6.4.

Table 18 summarises potential options for guidance by the CMA.

Table 18
What guidance is needed on MRV?

SUB-ISSUE	POTENTIAL CMA GUIDANCE OPTIONS
Degree of guidance related to MRV approaches	(i) No CMA guidance (ii) Define general principles for setting MRV approaches at cooperative level. This may include the development of a facilitative process that consolidates existing and new MRV approaches (iii) Use guidance available from the Article 6.4 mechanism or request countries to demonstrate equivalence with it (iv) Apply the notion of tiers, offering a menu of options that are tailored to different levels of national capacity.

As with baseline setting, having no CMA guidance (option (i), Table 18) would allow countries to freely design MRV procedures in a way which is in line with national preferences. In some countries, installation operators might already be reporting on their GHG emissions to comply with environmental regulations or in response to clients or international standards.

However, completely heterogeneous MRV approaches would make it difficult to achieve comparability and exchangeability of ITMOs. In addition, the MRV approach is an important element in defining the credibility of the ITMOs. A common basic standard for MRV would help improve data quality and consistency and eventually the acceptability of ITMOs.

Under option (ii) the CMA would define common MRV principles applicable to the design and development of cooperative approaches, which could include, among others, *transparency, completeness, conservativeness, accuracy and reliability* of data. It could also specify supporting principles, such as materiality, continuous improvement, independence and impartiality of verifiers, basic

publicity and information disclosure recommendations. In this respect, **New Zealand** has also suggested a number of possible principles, among others, that: the transfer and use of ITMOs not result in an increase of global emissions; emissions reductions are real, measurable, verifiable, additional, and permanent; and that there are national systems for data management and the provision of public information.

This option would still leave it up to the different countries to put principles into practice in a variety of guidelines and methodologies at the level of cooperative approaches. It allows countries to develop their own protocols, set default values and standardised templates, and to find optimal trade-offs between costs and level of assurance.

If further articulation is desirable, option (ii) could, in addition to setting basic principles, establish a facilitative process for consolidating monitoring methodologies in a clear and accessible manner. This could, for instance, consolidate existing methodologies into a common set of recognised MRV approaches from the CDM, JI, voluntary market standards, sectoral reference levels, ISO standards, and other existing crediting and trading systems.

In turn, option (iii) would make explicit that (certain) internationally accepted guidance under Article 6.4 is to inform the development of MRV standards for cooperative approaches.[84] This could span issues such as use of proxies, frequency and timing of monitoring/verification, minimum report content, independent auditors, stakeholder consultation, among others. Similar to baseline setting discussed above, MRV guidance under Article 6.4 could be used as it stands or could be drawn upon and amended as needed.

It would also need to be seen how applicable this type of MRV guidance will be for Article 6.2 approaches. Guidance under Article 6.2 may, for instance, request countries to demonstrate a similar level of quality but may be less elaborate than guidelines under Article 6.4. That is, cooperative arrangements establishing bottom-up crediting mechanisms could demonstrate a similar degree of rigour, but still apply simpler and more straightforward processes.

Finally, option (iv) proposes that CMA guidance make use of ‘tiers’, combining the different options mentioned above. A tier-based approach would allow for different levels of stringency, accuracy, and suitability to national circumstances. Under this approach, countries would be able to choose from a menu of baseline and MRV-related principles and standards varying in levels of detail and prescription, in line with domestic institutional and financial capacity. As capacities related to data management, program administration and reporting systems grow, countries would be able to progress to higher tiers.

The use of tiers is common not only under IPCC accounting guidance but also under the CDM. Some CDM methodologies have been consolidated, allowing project developers to use certain proxies or default values where direct measurement was technically challenging. Another argument for the use of proxies is that the growing body of data on emission reductions from projects allows the standardisation of parameters and lower transaction costs.

[84] For instance, **AILAC** suggests exploring common instances or instruments to ensure robust accounting under both Article 6.2 and 6.4 and **Brazil** observes that mitigation outcomes under Article 6.2 and 6.4 must be fully comparable and fungible.

6. Conclusions

The Paris Agreement was crucial in setting a new global direction and commitment to climate action to meet ambitious long-term temperature goals. However, as is clear from the discussion in this report, many complex and interlinking issues concerning NDCs and Article 6 still need to be resolved. It is also inevitable that many more issues will arise before COP 24, at the end of 2018, will be in a position to recommend the full rule-set of the Paris Agreement to the CMA for consideration and adoption.

Section 2.1 highlighted three principles referred to repeatedly in the Paris Agreement and decision 1/CP.21: environmental integrity, transparency and comparability. These principles are related and need to underpin countries' actions, their impacts and the information on these to be made available.

These principles are also important to well-functioning and efficient cooperation among countries, in particular in the more complex forms such as those implemented through trading and crediting systems. These carbon market approaches have proven to be catalysts for private sector investments and strong incentives for entrepreneurs and investors to search for cost-effective mitigation options. Under the Paris Agreement, such cooperation takes on new dimensions in that all countries become potential hosts and investors in mitigation activities and can operate across a potentially wide-ranging set of nationally established, decentralised market approaches.

What direction for Article 6.2?

Diversity can be a springboard of innovation and the NDCs and Article 6 are well positioned to promote this. However, the NDC and Article 6 issues discussed in this report suggest that too much diversity, or diversity in the wrong places, may in practice hinder the effective operation of carbon markets.

Three themes of future carbon markets stand out among the various issues and options for NDCs and Article 6.2 and are worth considering further:

- **Harmonisation** in core functions underlying cooperation can be promoted through principles and key elements of the guidance, perhaps also including systems and infrastructure. This can facilitate and promote effective cooperation and carbon markets. It needs to begin with clear and comparable NDCs and to be further built upon with compatible yet flexible tracking systems that set an unambiguous basis for a simple, effective and universal accounting system. These can help give confidence in the system of transfers and the NDCs they count

towards, but there is also a need for means to maintain quality levels in the generation of the ITMOs themselves.

- **Ambition** is key not only for giving carbon markets a role in climate action, but also for underpinning their integrity. Ambitious targets and broad coverage of sectors in NDCs give countries an inherent incentive to ensure any mitigation outcomes they transfer to other counties are real and long-term, otherwise they will face difficulties later when demonstrating achievement of their NDCs. This incentive is crucial in the decentralised and nationally determined approach to Article 6.2 in which there will always be limits to top-down guidance and stronger forms of international oversight.

- **International governance** in relation to Article 6.2 needs to find a role that balances flexibility in the national implementation of cooperative approaches with demonstrating environmental integrity to the international community. The reporting and technical expert review under the transparency framework will have a key role for accounting, but their role on other aspects of environmental integrity may need complementing through other forms of international oversight or facilitation of high ambition and integrity. Governance could be addressed in the UNFCCC by equipping the technical expert review sufficiently or establishing a new body to perform this role, or possibly through other country-to-country collaboration outside the UNFCCC where they can demand of each other high targets and high quality.

Ambition and international governance represent in some ways a trade-off. Ambition can increase demand and bring out more supply but, in a way that makes supplying countries more conservative, reinforces quality and strengthens price signals. Strong ambition can therefore reduce pressures to have strong forms of international governance; seen conversely, international governance may need to be stronger when ambition is not present or when it is not possible to gain assurance that it is present or will be present in the future. Striking an appropriate, long-term balance for Article 6.2 will be difficult.

Building for ambition

The discussions on the guidance to be given by the CMA for Article 6.2 are already considering a range of options for international governance. What is less tangible are features and incentives for stronger ambition that may possibly be integrated into the NDC and Article 6 guidance.

These could include measures to ensure sufficient transparency of NDC targets and BAU emission scenarios, including through the information, methodologies, and assumptions used. This can allow a fuller assessment and communication of the stringency of countries' targets and actions. It is also possible to encourage more ambitious domestic policies and ETS targets that go beyond countries' NDCs, without needing to change the NDCs themselves, although care is needed that these extra efforts do not merely displace other planned actions.

There may also be means to support developing countries in expanding the scope of their NDCs, in line with the encouragement of Article 4.4 for countries to move over time towards economy-wide emission reduction or limitation

targets, and increase the comprehensiveness of their emission inventories. This would increase the range of mitigation action and bring it under the inherent incentive of countries for ITMOs to represent real reductions.

A further measure could be to require emission reductions originating outside of sectors or sources covered by NDCs to be made via the Article 6.4 mechanism. This would help address concerns that the host country faces a weaker incentive to ensure reductions are real, while also creating an incentive for countries to expand their NDCs to include previously uncovered emissions.

It would also be possible to extend the concept of "overall mitigation" from the Article 6.4 mechanism to cover also the cooperative approaches under Article 6.2. Such overall mitigation could be achieved by net mitigation approaches or by linking carbon market mechanisms more to results-based climate finance that does not seek credits for use in offsetting.[85] Driving this wedge between emission reductions achieved and their use towards targets can increase mitigation ambition and help establish equivalence between Article 6.2 and 6.4.

Finally, the accounting guidance could link the ability to make transfers to a country's progress in achieving its NDC target or reducing its emissions. This could be indicated by comparing actual emissions data and trends to NDCs or to historical or BAU levels of emissions.

Finding balance in CMA guidance

The CMA guidance on Article 6.2 will have to walk a fine line between those wishing to retain full flexibility for the national implementation of carbon markets and those advocating common and elaborated guidance and/or strong international governance to facilitate carbon markets and safeguard integrity. Table 19 illustrates a possible way to treat key issues across the areas of NDC features, transfers, accounting and ITMOs generation which may facilitate and promote the effective use of carbon markets in operationalising Article 6.

Collectively, these responses to the questions posed in this report represent one way forward—one that can be varied in many different ways. They tend more towards coordinated or harmonised approaches but seek at the same time to not unnecessarily limit national implementation. The level of comfort that countries and stakeholders will have with such an approach will also depend on the balance of ambition and international governance that can be struck.

[85] The emission reductions not used for offsetting purposes would need to be cancelled to give effect to the overall mitigation (otherwise they would be available for use by someone else).

Table 19
An illustrative way to balance CMA guidance on NDCs and carbon markets under Article 6

NDC features	Transfers and tracking
• Promote clarity on NDC coverage of sectors and emissions • Promote clarity on conditional and unconditional NDC components • Use multiple year targets and emission budgets, or provide expected emission trajectories • Make available information to support assessments of target stringency	• Use a GHG metric (e.g. tCO_2e), based on common GWPs • Establish common standards for tracking systems, including basic transaction types, universal serial numbers, and inclusion of key activity information in serial numbers • Provide centralised registry infrastructure and a transaction log, and allow countries to opt-in to use it on a voluntary basis • Specify seller liability for ITMOs in event of NDC non-achievement
Ensuring robust ITMO generation	**Adjustments applied for NDCs**
• Set principles for baseline setting, taking account of NDC pledges • Set common definitions and principles for additionality assessments, also taking account of NDC pledges • Set principles for MRV approaches • Promote use in Article 6.2 of guidance available from the Article 6.4 mechanism • Require ITMOs from outside the scope of NDCs to be generated via Article 6.4 • Promote the integration of measures to achieve overall mitigation	• Ensure clear and universal adjustments for transfers, cancellation and banking • Ensure basic eligibility criteria are met before ITMOs may be used for NDCs • Ensure a universal accounting system across all transfers under Article 6 • Ensure country reporting on cooperative approaches and systems implemented, with annual transaction information • Undertake reporting on adjustments on a single basis (emissions or budgets) • Ensure clear rules for any banking, borrowing or use of pre-2020 outcomes

Variations on the individual measures included in Table 19 are, of course, possible. Generally speaking, CMA guidance that is more harmonised in nature will generally offer greater transparency and overall predictability for carbon markets. In doing so, it may offer greater clarity and comparability of the ambition in NDCs, greater confidence in the integrity of cooperative approaches and ITMOs, and stronger acceptance by participating private sector entities.

Guidance by the CMA that offers a less harmonised view of carbon markets will generally leave more scope for countries to interpret the guidance. This can encourage new ways of achieving mitigation. Many countries would implement cooperative approaches with high integrity but measures to identify cases of poor environmental performance would still be needed. Such guidance would also risk extending market fragmentation still further, with fewer opportunities for cost-efficient mitigation and less overall predictability for markets.

The task until the end of 2018 to develop and agree the CMA guidance on NDCs and Article 6 is a challenging one. While “nothing is agreed until everything is agreed”, making effective progress in developing the rule-set may require some early understandings to be reached to allow the negotiations to then focus on specific directions and elaborate those. In this context, it would appear beneficial to reach early understandings on the following issues:

- Whether the guidance on accounting under Article 6.2 should focus on ITMOs expressed in GHG metrics, at least in the first instance. A need for ITMOs to be measured in non-GHG terms has not yet been demonstrated but would significantly complicate and slow the development of the guidance.

- The scope of activities under Articles 6.2 and 6.4. For example, whether the Article 6.4 mechanism may only address emission reductions originating outside of the scope of NDCs, and whether cooperative mechanisms under Article 6.2 may also address such reductions. Until countries have a common understanding of this scope, it may be difficult to make progress with the development of accounting guidance.

- The favoured means of delivering confidence in the environmental integrity of cooperative approaches under Article 6.2. For example, whether stronger forms of international oversight or greater focus on ensuring high ambition in carbon markets is preferred.

- The manner in which the adjustments under the accounting system need to work. This is a largely technical field but one which is essential for the safeguards under Article 6.2. The mechanics of the necessary NDC and ITMO accounting need to be better, and more widely, understood for countries to have collective comfort in moving ahead.

These points by no means span all the issues needing agreement by the end of 2018. However, early progress and understanding in these areas may help unlock the further negotiation of the broader set of NDC and Article 6 guidance that needs to be resolved for the full Paris Agreement to be operationalised.

Annex 1: UNFCCC work programmes

Relevant UNFCCC work programmes

Cluster	Reference	Request	Body	Deadline
1. NDCs	Decision 1/CP.21, para 26	Further develop guidance on features of NDCs	APA	CMA 1
2. NDCs	Decision 1/CP.21, para 28	Develop further guidance for the information to be provided by Parties to facilitate clarity, transparency and understanding of NDCs	APA	CMA 1
3. NDCs	Decision 1/CP.21, para 29	Develop modalities and procedures for the operation and use of the public registry for NDCs referred to in Article 4.12	SBI	CMA 1
4. NDCs	Decision 1/CP.21, para 31	Elaborate, drawing from approaches established under the Convention and its related legal instruments as appropriate, guidance for accounting for Parties' NDCs	APA	CMA 1
5. NDCs	Article 4.10	CMA 1 is to consider "common time frames for NDCs"[86]	-	CMA 1
6. NDCs	Article 4.11	The CMA is to adopt guidance on how a Party may "at any time adjust its existing NDC with a view to enhancing its level of ambition"	-	CMA[87]
7. International cooperation	Decision 1/CP.21, para 36	Develop the guidance referred to under Article 6.2 … including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by their NDCs	SBSTA	CMA 1
8. International cooperation	Decision 1/CP.21, para 38	Develop rules, modalities and procedures for the mechanism established by Article 6.4	SBSTA	CMA 1
9. International cooperation	Decision 1/CP.21, para 39	Undertake a work programme under the framework for non-market approaches to sustainable development referred to in Article 6.8 with the objective of considering how to enhance linkages and create synergy between, inter alia, mitigation, adaptation, finance, technology transfer and capacity-building, and how to facilitate the implementation and coordination of non-market approaches	SBSTA	CMA 1

[86] No specific work programme was established by decision 1/CP.21 for this matter.
[87] It was not specified which CMA session is to address this matter and no specific work programme was established by decision 1/CP.21.

Cluster	Reference	Request	Body	Deadline
10. Finance	Decision 1/CP.21, para 55	The COP is to initiate, at COP 22, a process to identify information to be communicated biennially by Parties, in accordance with Article 9.5, with regard to the provision of financial resources	COP	CMA 1
11. Finance	Decision 1/CP.21, para 57	Develop modalities for the accounting of financial resources provided and mobilised through public interventions in accordance with Article 9.7	SBSTA	CMA 1
12. Transparency framework	Decision 1/CP.21, para 91	Develop common modalities, procedures and guidelines, as appropriate, for the transparency of action and support, building on experience from the arrangements related to transparency under the Convention, and elaborating on the provisions in this Article 13, and define the year of their first and subsequent review and update, as appropriate, at regular intervals	APA	CMA 1
13. Global stocktake	Decision 1/CP.21, para 99	Identify the sources of input for the global stocktake	APA	CMA 1
14. Global stocktake	Decision 1/CP.21, para 101	Modalities for the global stocktake	APA	CMA 1

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