Promoting Article 6 readiness in NDCs and NDC implementation plans

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Executive Summary

Article 6 of the Paris Agreement enables voluntary collaboration between countries, through market-based cooperative approaches under Article 6.2, a new crediting mechanism established by Article 6.4 and a framework for non-market approaches, defined in Article 6.8. Through transactions of internationally transferred mitigation outcomes (ITMOs), market-based cooperation allows buyer countries to meet their NDC (mitigation) targets at lower costs and can enable future higher ambition in mitigation actions. Seller countries can generate revenues and benefit from accelerated access to mitigation technologies that could not be mobilized through domestic resources. Adaptation actions are enhanced by financing through an earmarked tax on ITMO transfers and through adaptation co-benefits of the mitigation actions generating ITMOs. A necessary condition for mitigation and adaptation benefits is environmental integrity of transactions, including contribution to increased ambition and assurance of sustainable development of the activities. Non-market approaches cover most forms of international collaboration relating to climate finance, technology development and transfer as well as capacity building. Here, climate action can be scaled up by cooperating to enhance linkages and exploit synergies.

International cooperation will be crucial to enable NDC implementation. Although, as of June 2021, the 'Article 6 Rulebook' had not yet been adopted, countries are already considering and even piloting Article 6 cooperation, especially in the context of international carbon markets. In contrast to the Clean Development Mechanism (CDM) under the Kyoto Protocol, participation in markets under the Paris Agreement requires governments to develop and implement accounting and reporting procedures. Countries wishing to host Article 6 activities need to set up domestic processes for authorising such activities and the transfer of associated ITMOs, in line with the (yet-to-be-adopted) Article 6 Rulebook. It must be noted that transactions will involve different stakeholders and can take place among governments, among private sector actors or with the involvement of both. In all cases, governments will have a role in governing and monitoring carbon market transactions in the context of their NDCs to ensure environmental integrity and avoidance of double counting, as well as to safeguard NDC achievement.

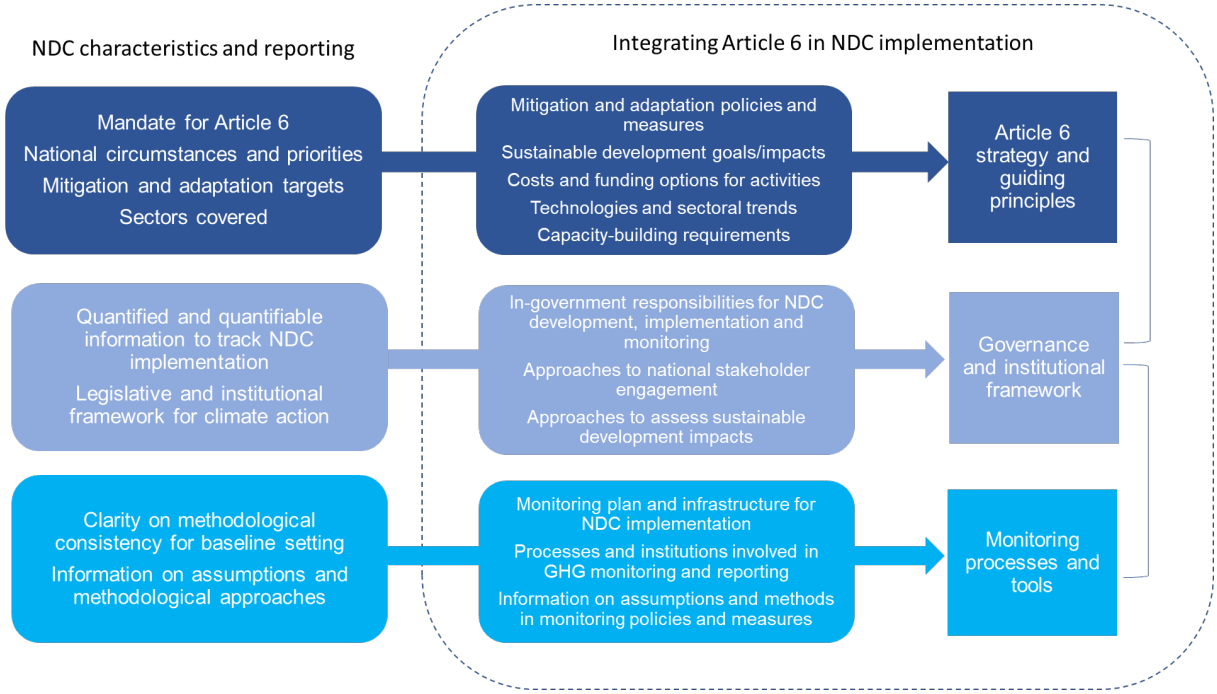
From a government's perspective, Article 6 readiness relates to three dimensions: (1) having in place the capacities and systems to engage in Article 6, including a strategy, and guiding principles; (2) an institutional framework to manage actual cooperation; and (3) related monitoring procedures and tools to assess outcomes from the cooperation. Thereby, Article 6 readiness is interlinked with a thorough understanding of NDC targets, NDC implementation plans and future NDC updates. Given limited international guidance under the PA, NDCs and targets therein vary in form and scope. Countries have also different levels of experience with formulating and accounting for international commitments on climate action and how to relate carbon market activities and accounting thereon to these international commitments. Therefore, our study aims at providing guidance on how countries can design NDCs and NDC implementation plans, and use the information presented therein, to promote their Article 6 readiness and enable pursuit of international market-based cooperation in a manner that ensures environmental integrity and promotes transformational change. At the same time, this study aims to inform public and private stakeholders how to take into account NDC targets and implementation plans when designing Article 6 cooperation, setting up related processes and implementing tools. We stress that readiness for Article 6 is not built overnight.

Countries may wish to prioritise capacity building for certain aspects and types of Article 6 engagement. The priorities in readiness-building may depend on the country-specific motivations and strategy for engaging in Article 6 cooperation, relating to market-based and/or non-market approaches. Regarding non-market approaches, countries may aim to receive or provide support, share experiences and learn from lessons shared by others. Regarding market-based cooperation, countries may want to act as seller or buyer of ITMOs; they may also run a mixed strategy trying to sell ITMOs at high prices while buying them at low prices. Governments can engage as sellers or buyers themselves, and they can also authorise public and private entities to engage in market-based cooperation as buyers and/or sellers. With regard to the latter, governments can proactively steer engagement or follow a laissez-faire approach, reacting to opportunities (or perceived risks) in an ad-hoc manner.

In this study, we develop an assessment framework for NDCs and NDC implementation plans that visualises the links between Article 6 readiness and overarching climate action commitments. To prepare for Article 6 cooperation, national Article 6 authorities must have information on the underlying assumptions, data and methodologies of NDC targets as well as the key policies and measures associated with NDC implementation. Good interagency coordination will be key to lay the groundwork for Article 6 cooperation that contributes to the long-term goals of the Paris Agreement and the countries' priorities. Guidance on the information needed to enhance clarity, transparency and understanding of NDCs is useful also for Article 6 readiness processes.

To promote synergies and harmonisation, it is important to recognise the linkages between NDC processes and Article 6 readiness. Figure 1 visualises the key interlinkages between the characteristics of the NDC, NDC implementation plans and Article 6 readiness which governments would need to consider.

Figure 1: Key linkages of NDC characteristics, implementation plans and Article 6 readiness



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Abbreviations

A6.4M	Article 6.4 Mechanism
A6.4ER	Article 6.4 Emission Reductions
BTR	Biennial Transparency Report
CARP	Centralised Accounting and Reporting Platform
CAT	Climate Action Tracker
CDM	Clean Development Mechanism
CMA	Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement
CTCN	Climate Technology Centre and Network
CO_2	Carbon Dioxide
COP	Conference of the Parties
DNA	Designated National Authority
ETF	Enhanced Transparency Framework
ETS	Emissions Trading Scheme
GEM	Green Economy Model
GHG	Greenhouse Gas
ICTU	Information to Enhance Clarity, Transparency and Understanding
IGES	Institute for Global Environmental Strategies
IPCC	Intergovernmental Panel on Climate Change
ITL	International Transaction Log
ITMO	Internationally Transferred Mitigation Outcome
KP	Kyoto Protocol
LEAP	Low Emissions Analysis Platform
LT-LEDS	Long-term Low Emissions Development Strategy
LULUCF	Land Use, Land Use Change and Forestry
MAC	Mitigation Marginal Abatement Cost
MO	Mitigation Outcome
MPG	Modalities, Procedures and Guidelines
MWh	Megawatt Hours
NDC	Nationally Determined Contribution
NMA	Non-market Approach
MATS	Mobilising Article 6 Trading Structure
MRV	Monitoring, Reporting and Verification
PA	Paris Agreement
PoA	Programme of Activities
RBCF	Results-based Climate Finance
REDD+	Reducing Emissions from Deforestation and Forest Degradation Conservation of Forest Carbon Stocks, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks
R&D	Research and Development
RMP	Rules, Modalities and Procedures
SD	Sustainable Development
SDG	Sustainable Development Goal
SEA	Swedish Environmental Agency
TCAF	Transformative Carbon Asset Facility
TEC	Technology Executive Committee
TNA	Technology Needs Assessment
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. Introduction

Nationally Determined Contributions (NDCs) set out individual countries' contributions to the objectives of the Paris Agreement (PA). Given the bottom-up nature of the PA, they are the main vehicles to formulate action to combat climate change, including mitigation and adaptation actions (the latter in the context of developing countries). Most NDCs are high-level documents that rely on national or sectoral climate strategies and are expected to be integrated with long-term low emissions development strategies (LT-LEDS). NDCs are to be updated, showing increased mitigation ambition, every five years. This 'ratcheting up' process is the cornerstone of the PA, given that currently the sum of NDCs is seen as inadequate to achieve the long-term goal of the PA to keep global warming 'well below' 2°C from preindustrial levels (UNEP 2020). As of June 30th, 2021, 85 countries provided an update to/revision of their first NDC (originally published in 2015-2016) and 9 countries the second NDC (UNFCCC 2021a).

Article 6 of the PA aims to enhance voluntary international collaboration to achieve NDCs, especially through cooperative approaches described in Article 6.2 and through a new crediting mechanism established by Article 6.4 (A6.4M), widely understood to be the successor to the Clean Development Mechanism (CDM) established by the Kyoto Protocol (KP). Market-based cooperation through transactions of 'Internationally Transferred Mitigation Outcomes' (ITMOs)[1] under the PA enables buyer countries to meet their NDC targets more flexibly and at lower cost compared to a purely domestic implementation. For both buyer and seller countries the lowering of mitigation cost on the one hand and the generation of resources for mitigation on the other hand can lead to higher ambition in their mitigation actions, if it environmental integrity and promotion of sustainable development through the underlying activities is ensured. A key feature of the market-based cooperation is the need to apply 'corresponding adjustments' for any transaction, i.e. the seller increases its emissions balance by the amount of ITMOs sold while the buyer reduces its emissions balance by that amount. Adaptation actions will be directly fostered through the earmarked 'share of proceeds', i.e. a tax on ITMO transactions, as well indirectly if mitigation actions have adaptation co-benefits. International cooperation can also follow non-market approaches (NMAs) as highlighted in Article 6.8. International rules for the operationalisation of Article 6 (the 'Article 6 Rulebook') are expected to be adopted at the COP26 climate conference in November 2021.

Participating in international carbon markets requires specific greenhouse gas (GHG) accounting and reporting procedures[2] to ensure that Article 6 activities respect environmental integrity, do not lead to double counting of mitigation outcomes, safeguard domestic NDC achievement and secure long-term sustainable development benefits for the host country. Especially host countries of Article 6

[1] Under the A6.4M, 'Article 6.4 emission reductions' (A6.4ERs) will be credited, which then become ITMOs when internationally transferred.

[2] Parties to the Paris Agreement are currently negotiating the possibility to trade mitigation outcomes measured in non-GHG metrics (e.g., renewable energy certificate trading). However, we do expect most international cooperation on mitigation to include the measurement and accounting of GHGs and focus therefore on GHG-related reporting and accounting.

activities/ITMO seller countries[3] need to ensure that domestic processes to authorise ITMO transactions are in line with these principles. Activities under Article 6 involve different stakeholders and can take different forms (e.g., transactions between governments, governments and private sector or exclusively between non-state actors). Private sector actors in seller countries are key for achieving mitigation under international carbon market mechanisms, as has been shown under the CDM (see Lütken and Michaelowa 2008). In this report, we focus on *governments* that report and account for international cooperation under the PA, in the context of the NDCs they communicate. We would like to note that our report equally addresses sale and acquisition of ITMOs and acknowledges the existence of mixed strategies, where countries and entities in these countries may sometimes be sellers and sometimes buyers. We also stress that private sector actors, especially in developed countries, may want to engage in international voluntary carbon market transactions to reach company level mitigation targets that are not directly linked to NDCs, LT-LEDS or domestic mitigation policy instruments. Depending on the outcome of the Article 6 negotiations, such transactions may have to be undertaken in the form of ITMOs with corresponding adjustments. In that case, private entities would probably play an important role under Article 6, but the demand for ITMOs from that market segment would not be linked to the NDCs of the countries the companies are located in.

The objective of this study is to provide guidance on how NDCs and NDC implementation plans, and the information presented therein, can be designed to promote Article 6 readiness if governments want to pursue international cooperation through carbon markets, while safeguarding environmental integrity and promoting transformational change.

Specific guiding questions for the preparation of the report include:

- How can countries interested in Article 6 collaboration build their 'readiness' to engage? What aspects should they consider in their strategy and institutional frameworks?
- Which Article 6 'readiness' aspects and features could countries consider in their NDCs if they are interested in Article 6 collaboration? What aspects of NDC or NDC implementation plans enable Article 6 collaboration?
- What aspects and features could countries consider in their NDC implementation processes to align their Article 6 strategy with their NDC implementation?

Chapter two provides a definition of Article 6 readiness. Chapter three elaborates on the three dimensions of readiness: strategy and principles, institutional framework and monitoring that should be in place – from the government's side – to prepare for international cooperation via Article 6. In chapter four, we explore the linkages between Article 6 and NDCs. Based on the analysis, in chapter five we discuss the features of NDCs that are most relevant for the promotion of Article 6 readiness. In chapter six, we propose a set of Article 6-related features that NDC implementation plans should consider as part of a country's Article 6 readiness phase. Based on the previous chapters, chapter seven presents the analytical framework with different elements that can be identified in NDCs and NDC

[3] In the rest of this study, we will speak of seller countries for countries that host mitigation activities under Article 6 and sell ITMOs from such activities.

implementation plans to signal Article 6 readiness. This analytical framework will form the basis for the assessment of current updated NDCs and selected NDC implementation plans in a follow-up study to this report.

We prepared the report based on a desk study of:

- decisions adopted by the Parties to the PA on NDCs and communication of information under the Enhanced Transparency Framework (ETF);
- the draft Article 6 negotiation texts as currently being discussed by Parties to the PA. We assume that at this advanced stage of negotiations these draft texts are a good indication for future rules but stress that 'nothing is agreed until everything is agreed';
- insights from early Article 6 piloting activities and grey literature developed for the purpose of providing guidance in Article 6 piloting;
- grey and academic literature on experience accumulated regarding the government's role in international carbon markets under the KP and the voluntary carbon market; and
- observations from developing country government approaches to NDC implementation strategies and experiences from international capacity building.

2. Defining Article 6 readiness

To make use of Article 6, governments are required to develop various policies, infrastructures and capacities that will enable international mitigation cooperation once the Article 6 Rulebook has been adopted by the Conference of the Parties serving as the meeting of the Parties to the PA (CMA). Countries need to have a good understanding of and be able to comply with the formal requirements to participate in Article 6 collaboration. This entails adhering to the Article 6.2 guidance on cooperative approaches, and/or the rules, modalities and procedures (RMPs) of the A6.4M. Furthermore, countries can engage in the framework and work programme on NMAs. Other relevant procedures are derived from the implementation rules of the PA (Paris Rulebook), adopted at COP24 in Katowice, notably the ETF and decision 18/CMA.1 on its operationalisation.

While there is no standardised definition, 'readiness' must enable host countries to strategically engage in Article 6 and allow both seller and buyer countries to transparently implement and account for ITMOs in a way that helps them achieve their NDC targets. Through these preparations, countries should be ready to implement Article 6 in a manner that safeguards the ambition and environmental integrity of the collaboration and promotes the achievement of the PA's objectives. We thus define Article 6 readiness as follows:

Article 6 readiness refers to countries having in place the capacities and systems, including a strategy, guiding principles, an institutional framework and related monitoring procedures and tools to make use of Article 6 collaboration in a way that suits their national context, through all components of Article 6 or selected ones.

Article 6 readiness is a dynamic process, involving different actors, activities and actions. Some early lessons on building Article 6 readiness can be learned from ongoing pilot activities (see Box 1).

Box 1: Observations on Article 6 pilot activities and their contribution to Article 6 readiness

Working towards Article 6 readiness

In parallel to the development of the Article 6 Rulebook, countries are engaging with Article 6 preparatory activities to strengthen their readiness for future Article 6 implementation. These preparatory activities can be classified into three categories (Greiner et al. 2020) and, so far, mostly focus on seller countries:

1. **Article 6 enabling activities** that aim to create a seller country infrastructure and a framework for implementing Article 6, including capacity building. Relevant initiatives include the Article 6 Support Facility of the Asian Development Bank, Mobilising Article 6 Trading Structure (MATS) and Designing Policy Approaches under Article 6 Programmes by the Global Green Growth Institute, supported by the Swedish Energy Agency (SEA), Norwegian Ministry of Climate and Environment and the World Bank Climate Market Club.
2. A second category is the development of **activities to be governed by Article 6** once its rules have been agreed. A key example is linking emissions trading schemes (ETSs), e.g., between the EU and Switzerland.
3. Finally, **pilot activities aiming to generate ITMOs and Adaptation Benefits** once Article 6 becomes operational, which seek to develop a framework for collaboration, establishing baselines, methodologies and the actual authorisation of the transfer of mitigation outcomes when the pilot moves to the implementation phase. The SEA, the ITMO purchase programme of the KliK Foundation and the Transformative Carbon Asset Facility (TCAF) are examples of entities that are piloting activities with the purpose of purchasing ITMOs.

These preparatory activities help to test Article 6 operationalisation and to build practical knowledge for both buyer and seller countries (ADB 2018). They also help to increase the understanding of how Article 6 links to NDC features that the Paris Rulebook currently does not consider (i.e., the role of the conditional component of NDC targets). Piloting puts into practice the development of country-specific positive lists, allocating mitigation outcomes to seller country government and project implementer, learning how to account for blended approaches and applying pricing approaches.

See Greiner et al. (2020): **Article 6 Piloting: State of Play and Stakeholder Experiences** for a full overview of ongoing Article 6 pilot activities.

3. Operationalising Article 6 readiness

To structure the different elements of Article 6 readiness and to enable an assessment of countries' capacities to engage in collaboration, it is helpful to understand Article 6 readiness from three dimensions. These include an Article 6 strategy and guiding principles, a governance and institutional framework and a monitoring infrastructure (Hunzai et al. 2021). While Article 6 engagement requires countries to develop and account for all three dimensions, the progression of the various elements is likely to have different timeframes, and can be developed at a different pace. To some extent, elements across the dimensions build on each other, whereas others can be developed independently.

While the appropriate approach is dependent on national circumstances, first generic steps for all countries may include having a political mandate for Article 6 engagement, integrating Article 6 collaboration in their NDC and related policy processes, and preparing for engagement. Setting up the governance and institutional framework requires technical and personnel resources and may take more time.

Here, countries can start by allocating roles and responsibilities and continue the development of this dimension by designing structures and processes for the operationalisation of Article 6, such as ITMO selection or approval processes. Finally, countries can decide at which stage, and to what extent, they wish to set-up their own monitoring infrastructure, as some functionalities in this regard will be provided centrally (e.g., the international registry).

Figure 2: Article 6 readiness dimensions

Source: authors based on Hunzai et al. (2021)

3.1. Article 6 strategy and guiding principles

The development of a national Article 6 strategy and guiding principles enables countries to ensure an inclusive and holistic approach to Article 6 collaboration. Countries need to define and outline how they intend to use Article 6 to have it contribute to their NDC targets, and how Article 6 will help to maintain or even increase their ambition (World Bank 2020a). Countries can engage as sellers, buyers, or through a mixed strategy to support NDC achievement. Countries can also take a proactive role, actively marketing themselves as ITMO sellers/buyers, or a reactive approach to Article 6 collaboration opportunities (by being open for cooperation when approached by an interested government or private sector stakeholder desiring to generate revenues from ITMO sales or acquire ITMOs under the voluntary carbon market). The different strategies that countries may adopt in their Article 6 collaboration are detailed in Table 1.

Table 1: Article 6 cooperation strategies and motives for governments

Table 1a: Generating ITMO supply or demand, or both?

Pure sellers	Pure buyers	Mixed strategy
• Maximising government revenues from credit sales • Mobilising investment into strategic sectors of the economy • Receiving technology transfer • Signalling readiness for being able to receive transfers from international climate finance • Reaching conditional NDC targets • Generating resources for more ambitious NDCs in the future • Maximising SD co-benefits (may be primary motive for engagement)	• Minimising net achievement costs for current NDC • Maximising future NDC ambition while domestic mitigation faces political/economic obstacles • Enhancing transparency and accounting for climate finance provided (in the context of pure RBF approach)	• Buying low: Minimising net achievement cost for current NDC • Buying low: Maximising future NDC ambition given political/economic constraints for domestic mitigation • Selling high: Mobilising investment/technological cooperation into strategic sectors of the economy • Selling high, buying low: Private sector has the best understanding about opportunities on international carbon markets and should be free to act

Table 1b: Degree of government engagement

Proactive engagement strategy	'Laissez-faire' engagement strategy
• Identifying elements or targets in the NDC and/or Sustainable Development Goals (SDGs) plans that the country wants to achieve through Article 6 cooperation • Proactive engagement with foreign government partners to set-up specific types of cooperation that contribute to NDC and/or SDG achievement • If seller: Proactive engagement with domestic private sector players that could implement mitigation activities • If buyer: Design of provisions to allow ITMO use in the context of domestic carbon pricing systems	• Reactive approach to Article 6 engagement, engagement based on interest from a foreign government or foreign/domestic private sector entity.

Note: Strategies can complement each other and can change over time

Source: authors

These different roles require tailored engagement strategies. As strategies may change over time, a differentiation of short, medium and long-term strategies is also relevant. Generally, mixed strategies are likely to become more common over time when different carbon markets get integrated and different forms of cooperation start to overlap. For example, a developed country may be a net seller in the context of a linked ETS, a buyer of credits in other sectors or user of credits in the context of providing Results-Based Climate Finance (RBCF) (and the other way around). An emerging economy may initially be a pure seller and shift to become a pure buyer as its ambition rises over-proportionally. As governments ratchet up their NDCs and introduce more and more carbon pricing systems covering the private sector, demand from companies under voluntary carbon markets could be replaced by demand to comply with carbon pricing systems.

As Article 6 collaboration can take place in different sectors and jurisdictional levels, having a national overview of potential market and non-market activities and their impact on national mitigation (or adaptation) targets is key for strategic engagement with Article 6 (see chapters five and six for further discussions).

On this basis, any Article 6 strategy should encompass an array of aspects that foster the integration of Article 6 in mitigation and low-carbon and resilient development at different levels and establish guiding principles and criteria for eligible Article 6 transactions. This includes:

- **Having a political mandate for Article 6 cooperation**. While not a formal requirement under Article 6.2, a mandate will enable the mobilisation of government stakeholders to manage and implement Article 6 and to collaborate with relevant stakeholders to develop an appropriate strategy. As the relevance of the Article 6 strategy may change over time, the nature of the political mandate may evolve. At the same time, a political mandate by itself is not sufficient to ensure Article 6 collaboration will get off the ground. Political circumstances may change, and to ensure long-term continuity and endorsement of Article 6 collaboration, a political mandate needs to be translated into policy documents and strategies (see below). A high-level political mandate (e.g., announced by the president or prime minister) is likely to be more effective in integrating Article 6 collaboration into a country's climate change policy framework and strategy, compared to an Article 6 strategy endorsed at a lower level of government, e.g., by the Ministry of Environment.
- **Understanding how Article 6 cooperation is embedded** into and relates to the achievement of the NDC, future NDC updates and LT-LEDS, as well as the achievement of sustainable development and Agenda 2030. This relates to the approach that countries will take in engaging with Article 6 (i.e.: as a buyer, seller or both; and through proactive or 'laissez-faire' engagement). It also relates to the design of domestic policy instruments to reach NDC targets, such as carbon pricing or regulation, and how to integrate Article 6 into these instruments, e.g., by allowing the use of ITMOs in the context of an ETS or a baseline and credit system, or to reduce a carbon tax burden. A country with a pure seller strategy may design mitigation policy instruments in a way to directly use them to generate ITMOs.
- **Considering and assessing domestic marginal abatement costs** and, depending on the chosen engagement strategy, specify prices for ITMO sale (floor prices) or acquisition (price caps). Here, a seller country needs to consider opportunity costs of undertaking corresponding

adjustments, and a buyer country needs to ensure that it gets ITMOs of the required quality at a competitive price, especially if public funds are used. Given that ITMO prices will be differentiated according to ITMO quality[4], especially in the context of Article 6.2, and will vary over time, a careful timing is crucial to ensure hedging of open positions and prevention of, for example, having to buy ITMOs at a distress price in the target year of the NDC. Countries that take a pro-active approach in engaging with Article 6 will need a more elaborate strategy to factor in Article 6 collaboration in their NDC implementation planning, whereas countries that take a more 'laissez-faire' approach could leave the decision to their private sector entities, especially if these are subject to a domestic carbon pricing system which allows use of ITMOs.

- **For sellers: Understanding and defining the potential and eligibility of mitigation outcomes from different sectors, activities and technologies** for Article 6 collaboration. Informing aspects of additionality of action and robust baseline setting in cooperation through crediting, or aspects of cap-setting in ETSs.
- **Planning how to engage with different stakeholders,** including the public and private sector, activity developers, civil society and local stakeholders.
- **Ensure compliance with Article 6 rulebook,** in particular the initial, annual and regular reporting of information to the UNFCCC, where information will be recorded in the Centralised Accounting and Recording Platform (CARP) and an Article 6 database therein.

Chapters four and five of this report further detail these aspects with a focus on linkages to the NDC.

This will help countries to adequately prepare for and implement Article 6, to ensure the environmental integrity of mitigation outcomes used by buyer countries and to avoid the risk of overselling mitigation outcomes that could have been directed to meeting NDC targets by the seller country (World Bank 2020a).

3.2. Article 6 governance and institutional framework

Having in place an institutional framework and governance process to build the technical capacities needed to implement Article 6 as well as track, account for and report on how this contributes to the country's NDC is the second dimension of Article 6 readiness. Seller countries need to be able to approve Article 6 activities and authorise associated transfers of mitigation outcomes. To make informed decisions, they need to understand the potential implications of these sales on their NDC. Buyer countries that want to have control of the quantity and quality of the acquired ITMOs also need a governance structure to prevent a 'wild west' situation where the government has no full overview of its net ITMO position and the quality of the ITMOs, especially if companies located in the country are very active buyers on the voluntary market. The draft Article 6 Rulebook outlines some overarching principles and provisions mainly for seller countries, but each seller needs to decide on the detail of its governance framework.

[4] Quality relates to the principles of environmental integrity (real, verified, additional, not double-counted) and sustainable development (e.g., do no harm) of underlying activities. While all ITMOs should meet the environmental integrity requirements, contributions to sustainable development may differ by project type or across activities. Quality differences may impact the prices of ITMOs, together with volumes, activity type, etc.

3.2.1. General framework

Regardless of whether they are seller or buyers, countries should designate a single **national authority for Article 6**, which would manage and coordinate the authorisation and administration of transfers of mitigation outcomes. This could be an existing authority that is charged with this new role, for example in the context of developing countries the designated national authorities (DNAs) for approval of CDM projects or in the context of developed countries national emissions trading authorities. Where needed, a new authority could be established. The designation of a national authority is currently a prerequisite for participation in the A6.4M.[5] Under Article 6.2, countries are requested to put in place arrangements for authorising and tracking ITMO transfers.[6] For the seller, authorisation is the key point to implement strategies regarding the type of activities able to generate ITMOs as well as regulation regarding pricing. This would reflect experiences with the CDM, where some DNAs provided approval letters subject to conditions, e.g., in China related to the minimum price for credit sales. For the buyer, the authorisation would also be the point to ensure the quality of the ITMOs is consistent with the national strategy, and to ensure that pricing regulation is complied with. 'Laissez faire' governments would want to apply a lean strategy but still need to ensure that they are able to track transactions.

For proactive governments, a central, national authority tasked with defining the processes and conditions for authorisation, or the conditions for acquisitions would probably be the starting point of governance for Article 6.2 and 6.4, as illustrated in Table 2.[7] If countries set up bilateral/club-based crediting frameworks under Article 6.2, this national authority would be the main entity to develop the legal and technical framework, including the full implementation of the Article 6 activity cycles. This includes tasks such as developing appropriate baseline and monitoring methodologies and identifying eligible technologies, e.g., through positive lists, having a national accreditation system for third party auditors and registering activities and credit issuances in national databases. Such an approach will generate high transaction costs and can only be recommended for larger countries with significant capacities in government. It should also be explored whether regional/club-wide secretariats could help poor countries with low capacities. It should be noted that some proposals for seller country responsibility under Article 6.4 also foresee important roles in baseline and monitoring methodology development / approval.

If they want to keep transaction costs low and do not fear negative repercussions on ITMO quality, countries may also opt to rely (fully or partially) on existing crediting frameworks and standards.

[5] Draft CMA decision on the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement. Annex. Para 26(c).

[6] UNFCCC 2019a, para. 4(c) and 4(d)).

[7] Given the completely different characteristics of NMAs under Article 6.8, we propose that engagement in NMAs should be governed by the same domestic processes that have been used to date for providing/receiving international climate finance and climate change-related technical assistance.

Table 2. Overview of responsibilities and tasks of a national Article 6 authority

Generic responsibilities			
Coordinate development of national Article 6 strategy (seller, buyer, mixed, proactive or 'laissez-faire') with all relevant stakeholders	Assign clear roles and responsibilities in the national governance framework in processes related to Article 6 cooperation	Coordinate with partner country governments and negotiate and sign bilateral/multilateral agreements	Ensure Article 6 cooperation respects the terms of engagement as set by the participating countries
Specific tasks (Minimum)			
Track issuance, authorizations, transfers, and acquisitions of all ITMOs, including (but not limited to) those associated with A6.4ERs	Compile information and report to Article 6 database; provide the regular qualitative information and apply corresponding adjustments to the national emission balance reported in the Biennial Transparency Report (BTR)	Invite stakeholder feedback where relevant and be the addressee of potential grievances from local stakeholders or stakeholders involved in Article 6 cooperation	Oversee auditors for validation/verification
Specific tasks (beyond the minimum ones, full, proactive engagement)			
Development of baseline and monitoring methodologies	Develop eligibility criteria. Decide on positive / negative lists for eligible activity types	Set up and manage national or regional accreditation schemes of auditors	Set up and administer national registry

Key steps to decide on strategy (every 5 years):

- Engage with relevant ministries / presidential or PM office /parliament and stakeholders (focus on private / academic / NGOs) regarding the key strategic elements of Article 6 engagement:
    - Decision on contribution of Article 6 to current NDC
        - Modelling of marginal abatement cost (MAC), ideally differentiated by sectors/subsectors
        - Domestic mitigation policy instruments and their linking to Article 6
    - Role of Article 6 in next NDC update, and impact on ambition of the NDC
        - Likely prices for ITMOs and benefit of Article 6 use for the country, given the projections for marginal abatement costs in the future
        - Possible policy instruments
    - Role of country as seller, buyer, or both
    - Application of proactive or 'laissez faire' strategy

Additional tasks in the context of the government acting as an ITMO buyer:		
Ensure consistency of acquired mitigation outcomes with the nationally desired quality, including methodologies applied	Keep track of amount and type of mitigation outcomes acquired and the type of national stakeholders involved	Engage with relevant ministries regarding the use of ITMOs in the context of domestic carbon pricing schemes and regulation as well as voluntary carbon market regulation

Additional tasks in the context of the government acting as an ITMO seller:			
Communicate conditions for approval of activity registration under the A6.4M and the conditions for authorization of international transfer under Article 6.2 and for A6.4ERs	Oversee methodologies, standards and guidelines applied in all forms of Article 6 cooperation. Liaise with national experts, ministries, or agencies to provide country specific parameters and data for methodological alignment with NDC and accounting against the NDC emission balance	Issue letters of approval for A6.4M activities (including transition of CDM activities) and letters of authorization for transfer both for Article 6.2 and Article 6.4 cooperation	Engage with relevant ministries regarding the generation of ITMOs through domestic carbon pricing schemes and regulation as well as how to oversee ITMOs sales related to voluntary carbon market use

Source: authors

The internal organisation of the national authority should depend on the potential scale of Article 6 engagement. Experience from the CDM shows that the creation of complicated, multi-institution structures leads to inefficiencies and high transaction costs. Therefore, we propose a set-up differentiated according to country type. Large countries with significant government capacity that run a proactive engagement strategy may want to apply the following structure (World Bank 2020a; Spalding-Fecher et al. 2021):

- An **(inter-ministerial) oversight body**, overseeing the definition and revision of the national Article 6 strategy, alignment with the NDC and implications for sectoral policymaking, as well as assuming coordination across government agencies and stakeholders. It would decide on high-level issues such as contribution of Article 6 to the current or updated NDC, design of domestic mitigation policy instrument linking to Article 6, approving bilateral agreements on Article 6 cooperation and deciding on price floors for ITMO sales/price caps for ITMO acquisitions.
- A **technical body**, overseeing technical aspects, such as assessment of marginal abatement costs and ITMO acquisition/sales pricing, alignment with GHG inventory and assessment and approval of methodologies and accreditation rules, especially if Article 6 cooperation includes the development of bilateral or multilateral crediting standards.

- An **administrative body**, tasked with the implementation of the rules, such as pre-approval and registration of activities in crediting mechanisms or authorisation of transfers.

Smaller countries with limited capacities and portfolio and countries with a 'laissez-faire' strategy can run Article 6 as they did with the CDM, with a small entity in one ministry.

3.2.2. Specific framework conditions for Article 6.2

To participate in cooperative approaches under Article 6.2, countries will need to **apply corresponding adjustments** to the national emissions balance of sources and sinks covered by the NDC, to avoid the double counting of mitigation outcomes and safeguard environmental integrity (UNFCCC 2019c, section III; World Bank, 2020b). For the seller country, applying corresponding adjustments entails subtracting the sold amount of ITMOs from its annual emissions balance (thereby adding the equivalent emissions). The buyer country will add the mitigation outcomes to its annual emissions balance accordingly (thereby lowering its net emissions).[8] This first requires countries to specify and quantify their national emission balance (see chapter four). Second, countries will have to determine how they will account for their adjusted national emissions balance when reporting on NDC implementation and achievement. Countries will have to consistently select and apply the chosen accounting method based on their type of NDC (whether single-year or multi-year, see also chapter 5.3).[9] An unresolved issue is how corresponding adjustments for exported ITMOs affect the achievement of NDC targets that were set conditional to the receipt of international support, which may include finance inflows from carbon markets.

3.3. Article 6 monitoring

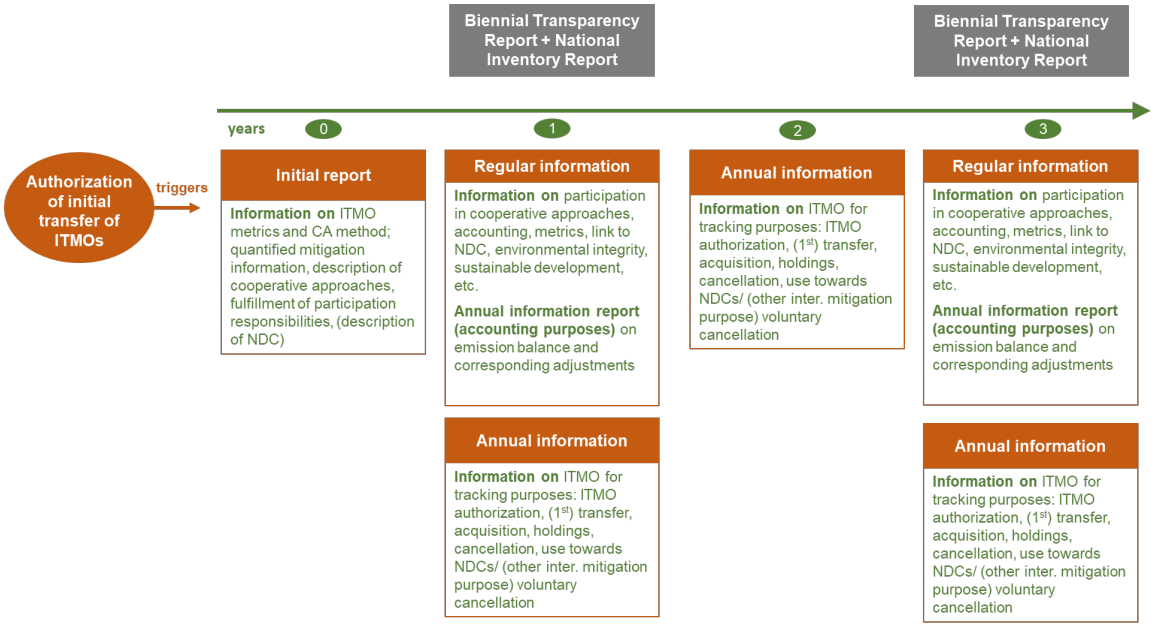
Countries need to be able to track, account for and report on the transfer of mitigation outcomes, which is a requirement that stems from the (draft) Article 6.2 guidance, as well as from the modalities, procedures and guidelines (MPGs) of the ETF – under which countries report on the progress of their NDC achievement as well as how their cooperative approaches meet relevant criteria. This has repercussions for the national authority on Article 6.

It is important to bear in mind that due to the absence of a centralised international oversight body under Article 6.2, transparency-related processes are crucial to ensure the environmental integrity of ITMOs and to generate trust among Parties. This transparency allows comparison countries' performances to be compared and their underperformance, as well as capacity gaps and constraints to be identified (Michaelowa et al. 2020a). As per the draft Article 6.2 guidance, countries must **report on cooperative approaches** as well as ITMO authorisations and transfers (UNFCCC 2019c, section IV). This includes initial reports on cooperative approaches upon the first authorisation of ITMO transfers and the submission of annual quantitative information on transfers and regular information in BTRs, with respect to participation requirements, safeguarding environmental integrity and following the rules for robust accounting (for a detailed discussion see Michaelowa et al. 2020a and Spalding-Fecher et al. 2021).

[8] UNFCCC 2019c, para. 9.

[9] UNFCCC 2019c, para. 8.

Figure 3: Reporting requirements as per the status of Article 6 negotiations



Source: authors based on Michaelowa et al. 2020a, p. 33

Countries should, therefore, establish or enhance their capacities for reporting and ensure that they are aware of the required information that is to be shared with the UNFCCC secretariat for the CARP. Countries must also integrate and synchronise Article 6 reporting with the reporting requirements for their GHG inventories and NDC implementation (see chapters five and six for further details). In addition, countries should ensure methodological consistency not only within the NDC but also across different approaches to Article 6 cooperation in a specific sector or regarding a specific activity type.

Countries will also need to develop **an infrastructure that records the necessary information for preparing and maintaining an NDC and a national inventory report** (see chapter five). Preparing, communicating and maintaining an NDC is a participation requirement for countries that want to collaborate through Article 6.2 and 6.4.[10] Article 6.2 also requires countries to provide the most recent national inventory report.[11] The fulfilment of these participation requirements must be demonstrated in BTRs. IPCC guidance for developing GHG inventory reports and carbon market methodologies are not always compatible. This may raise important practical questions when calculating the annual emissions balance that may require further guidance on how to align methodologies for inventories and carbon markets.

In addition, **countries need to set up or have access to a registry for tracking ITMOs.**[12] The registry needs to have the functionalities that enable countries to record and report the necessary information on ITMO transfers, including authorisation, (first) transfer, use towards NDC, authorisation for use towards other mitigation purposes and others. This information will be reported as part of the Annual and Regular Information to be provided. The UNFCCC Secretariat shall implement an international registry

[10] UNFCCC 2019c, para. 4(b); UNFCCC 2019b, para 26(b).
[11] UNFCCC 2019c, para. 4(e).
[12] UNFCCC 2019c, para. 29.

for countries that do not have their own registry, or do not have access to one that is able to perform these functions.[13]

Setting up a Monitoring, Reporting and Verification (MRV) infrastructure is costly, and few countries have done so. However, efforts to establish online tools are ongoing in many countries. For example, UNDP is supporting developing countries with the development of a digital MRV tool for tracking national emissions and NDC implementation under the Climate Promise Project, which aims at helping 100 countries enhance their national pledges in their NDC updates. Such MRV tools will be a helpful basis for tracking Article 6 cooperation and ITMO transfers. However, they cannot fulfil the function of a carbon market registry such as the CDM registry and international transaction log (ITL), in which credits can be transferred between accounts across borders, private sector stakeholders have access to accounts and serial numbers of credits and trades are recorded. The design and functionalities of the Art 6.4 mechanism registry and of the Article 6.2 CARP still need to be fleshed out to fully understand how host countries can connect to it. In the meantime, registry infrastructure is also being made available by independent carbon market standards such as Verra, the Gold Standard and the World Bank's Climate Warehouse. It remains to be seen what the role of these existing registries will be in Article 6 transactions.

As registries only track mitigation outcomes, it is advisable for participating countries to have a tool that tracks activities, both market-based and non-market, implemented under Article 6, to facilitate reporting. In its most basic form, this can be an Excel datasheet if there are only few activities. In the context of an integrated and mixed strategy of a country with a range of domestic carbon pricing instruments and engagement in several forms of international cooperation, infrastructure for tracking and monitoring must be more sophisticated, and able to be linked to other national registries through transaction logs.[14] Here, blockchain applications may play a role in securing transactions and increasing transparency in the future (for a discussion, see World Bank 2018 and Franke et al. 2020).

As the international transfer of mitigation outcomes directly affects countries' ability to achieve their NDCs, all Article 6 infrastructure and MRV tools should **be linked to national MRV systems for NDC implementation** (Kachi et al. 2020) (see chapter five). At the activity level, the MRV infrastructures required for engagement depend on the mechanism that will be used. Under Article 6.2, countries have a responsibility to set up and maintain MRV protocols and infrastructure to be able to generate real, verified, and additional ITMOs, or they can rely on existing standards that satisfy Article 6 requirements and criteria. Under the A6.4M, the MRV protocols for the activities and the mechanisms registry will support and deliver information for the MRV of activity emissions and resulting A6.4ERs, based on which host countries can ensure robust accounting.

[13] UNFCCC 2019c, para. 30.

[14] See ICAP (2021) for an update on developments of Emission Trading Schemes (ETS), which includes development of registries and linking of registries (e.g., the Swiss-EU registry link, the development of the Mexican ETS registry and the Chinese national registry and trading platform [under development]).

4. NDCs and their link to Article 6

4.1. International guidance on NDCs

NDCs can include targets, measures and/or actions that Parties to the PA pledge to combat climate change. Reflecting the bottom-up spirit of the PA, countries can to a large extent determine the format of their NDC, which has led to substantive variation in their form and content. As a result, understanding and comparing the ambition of NDCs is challenging (Pauw et al. 2018). To assist countries in formulating more comparable and consistent climate action pledges, several guidance documents have been published (see ICAT 2020, WRI and UNDP 2019 and WWF 2020). Yet, progress on streamlining the form and content of NDCs in international negotiations has been lagging due to the challenges of balancing comparability and preserving their bottom-up nature as well as the sovereign prerogative of countries on how to define their NDCs. Many countries have no interest whatsoever in their NDC being compared to that of other countries in a transparent manner. Still, some key decisions on NDCs and transparency were taken as part of the 'Paris Rulebook', as summarised in Box 2.

Box 2: COP24 progress and setbacks on NDC guidance

Progress achieved

- Adoption of guidance by the CMA on information to facilitate clarity, transparency and understanding (ICTU) of the mitigation sections in NDCs (UNFCCC 2018a);
- Strong encouragement for Parties to provide this information when communicating or updating their NDC ahead of COP26/CMA.3; and

Adoption of the modalities, procedures, and guidelines of the ETF (UNFCCC 2018b), which includes the requirement for Parties to consistently provide information on their NDC and progress in NDC implementation, including on descriptions of targets, progress tracking indicators, reference points, methodologies and/or accounting approaches, including methodologies associated with any cooperative approaches and information to avoid double counting under Article 6 (see full list in Annex B: ICTU on NDCs).

Pending guidance

- Postponement of decision on 'guidance on features of NDCs' to CMA.7 in 2024 (UNFCCC 2018a); and
- Postponement of decision on application of common timeframes for NDCs until 2031 (ECBI 2020b; ECBI 2020c; UNFCCC 2018d). However, Parties are continuing negotiations on this issue.

The lack of standard formatting requirements for NDCs makes the work of organisations which compile, evaluate, or compare NDCs indispensable for an enhanced understanding of climate pledges at the collective level, especially considering the global stocktake under Article 14 of the PA.[15]

Decisive dimensions where NDCs differ in terms of content include the implementation period, scope or type of mitigation targets. For instance, the choice of the base year has recently sparked debate since it can lead to substantive differences in the calculated GHG reductions, for example when

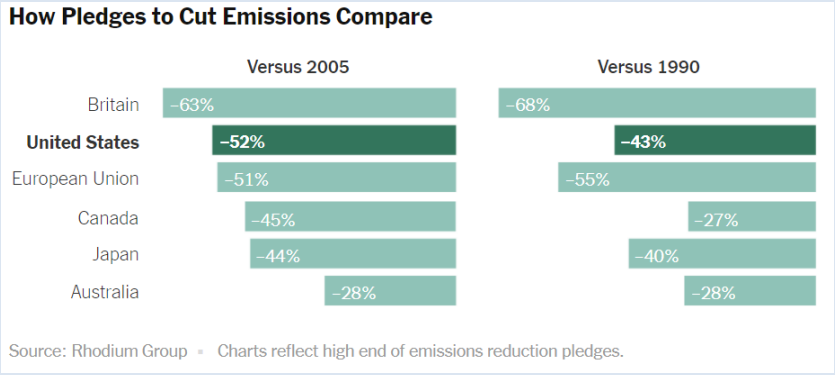
[15] Among others, the UNFCCC's interim NDC registry[15], the Institute for Global Environmental Strategies (IGES)[15] and the Climate Action Tracker (CAT)[15] publish up-to-date information on the latest NDC submissions, varying characteristics of NDCs or alignment with temperature warming trajectories of 1.5°C.

comparing the NDCs of the European Union with that of the United States (see Box 3). Moreover, even the document length of NDCs is another telling fact of their disparity, as they vary between a few pages to several dozen. A full overview of common characteristics that provide grounds for commonality or difference between current NDCs can be found in Annex A: NDC features.

Box 3: The relevance of comparable parameters in NDCs: example of the base year

NDC targets may be expressed as fixed level reduction targets, targets in reference to a base year, in reference to reductions in emissions intensity, relative to a business-as-usual scenario or based on projections of peaks in emission trends. Targets may also be expressed in non-GHG terms (e.g., renewable energy or energy efficiency targets). In any case, clarity on the targets is key to compare and understand NDC targets. One example, recently illustrated by the New York Times, is the difference between NDC targets that rely on and are expressed in relation to different base year emissions. For instance, the US pledges mitigation targets relative to 2005 emission levels, while the European Union measures mitigation against emission levels in 1990. A reduction of 52% of GHG emissions against a 2005 base year in the United States corresponds to a 43% reduction in emissions against a 1990 base year. For the EU, a reduction of 55% against a 1990 base year corresponds to a 51% of emission reductions compared to a 2005 base year.

Figure 4: Comparison of NDCs with harmonised base years



Source: Plumer and Popovich (2021)

4.2. The relationship between NDCs and Article 6 cooperation

Willingness to use market mechanisms is growing, as shown by many updated NDCs referring to Article 6 (Brandemann et al. 2021). If designed properly, market-based cooperation through Article 6 enables more ambitious NDC targets through a reduction in mitigation cost and a reduction of political opposition to stringent mitigation targets (Michaelowa et al. 2019a; Füssler et al. 2019). For seller countries, a convincing NDC with a sufficient level of detail can provide a first 'window of opportunity' to attract potential buyers. If the NDC includes deliberations on the conservativeness of and assumptions behind its baseline, it will send a message regarding high environmental integrity of potential mitigation outcomes (World Bank 2020b). In the context of buyer countries or countries with a mixed strategy, NDCs can signal the interest in specific types of international cooperation and investments. The NDC could, for example, specify a target volume for acquisitions, as is the case in the Swiss NDC and its underlying CO_2 Act.

Initially, Article 6 'friendliness' of NDCs could increase the likelihood of Article 6 piloting and, in the long run, promote full-scale Article 6 activities in the seller country, also in the context of carbon neutrality commitments (see section 5.1.1). However, stating interest in Article 6 cooperation in a country NDC alone is not sufficient to promote serious cooperation. For more credibility and higher attractiveness, specific information on the country's Article 6 strategy and, for the seller countries, methodological background information on additionality and baselines are needed in the NDC (or in other complementary policy documents). Conversely, in buyer countries, stating interest in Article 6 cooperation requires first and foremost a clear view regarding the share of ITMOs and domestic emission reductions in achieving the NDC.

The modalities of Article 6 cooperation can have an influence on the NDC formulation, especially if seller (or buyer) governments have experience with market-based cooperation. This may be the case if interest groups favor certain approaches, including from experiences under the CDM, results-based financing instruments (RBCF), NMAs or the explicit rejection of carbon markets. Given the foreseen routine in updating both NDCs and rulebooks, it is likely that the relationship between NDCs and Article 6 cooperation will evolve, especially once there is an established practice and both benefits and shortcomings of the new market mechanisms and other forms of cooperation become evident. In anticipation of this, different strategies of Article 6 engagement are discussed in section 4.2 below.

Lastly, in respect to NDC implementation plans (see chapter five), cooperation under Article 6 can become more concrete. One must, however, note the diverse frameworks under which NDCs can be implemented (UNDP et al. 2020), including a standalone implementation plan, detailed Annexes to an NDC and/or climate-specific laws or regulations.

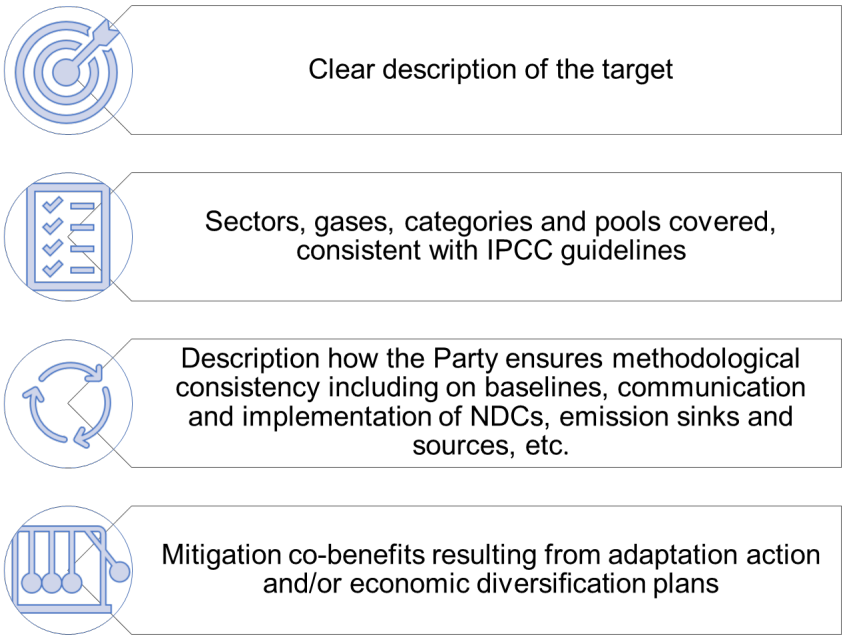
5. Promoting Article 6 readiness in NDCs

This section discusses features of NDCs that are most relevant for the promotion of Article 6 readiness (Table 3). Each feature supporting Article 6 readiness (column 'Feature included in NDC', Table 3) is then presented in more detail distinguishing between the three dimensions of Article 6 readiness, strategies and principles (chapter 5.1), governance (chapter 5.1.1) and monitoring (chapter 5.3.) In contrast to the preceding chapters, we now cover NMAs (Art. 6.8) in the context of various sub-sections and here speak of a 'supporter country' when a country provides financial or technical assistance in the context of an NMA and 'supported country' for a country receiving such assistance.

The analysis builds on earlier publications on Article 6 readiness (e.g., Füssler et al. 2015; Graichen et al. 2016; Howard et al. 2017) and recent literature regarding Article 6 governance and implementation in NDCs (e.g., Brandemann et al. 2021; Spalding-Fecher et al. 2021) as well as lessons learned from the first and updated (or second) NDC submissions. Moreover, the section explores how Parties can include explicit mandates or willingness to engage in Article 6 cooperation in their NDCs and considers different strategies of engagement as well as the different approaches required for Article 6.2, 6.4 and 6.8, where relevant. As laid out in chapter three, perspectives on strategic engagement in Article 6 can differ significantly, ranging from 'pure buying' to 'pure selling' or 'mixed' strategies.

Following UNFCCC guidance, an NDC should contain several central elements (Figure 5).

Figure 5: ICTU on NDCs



Source: authors based on UNFCCC 2018a

The NDC features presented here can conceptually be understood as 'enabling features' underpinning the three dimensions or 'meta-strategies' for Article 6 engagement presented in chapter three. An enabling feature means an NDC characteristic that involves certain aspects relevant for, but not limited to, Article 6 collaboration. For instance, a functional MRV system is a necessary infrastructure for Parties to enable and support tracking of the implementation of their commitments under the PA more broadly. Meanwhile, it supports a strategic engagement of host countries in market-based cooperation as the government can understand where, whether and in what sectors it is on track to achieve or is overachieving its NDC targets. It can also facilitate the government's engagement with the private sector and informs stakeholders of opportunities to mobilise finance for mitigation activities that go beyond the NDC measures and help raising ambition. Each feature is discussed in further detail below. In this chapter, we look at the information that is typically communicated in NDCs: high-level and strategic information on targets and emission pathways as well as key priorities in implementation. We turn to discuss relevant features of implementation-focused documents, strategies and plans in the following chapter six.

Table 3. Article 6 readiness elements in NDCs

Readiness dimension	Feature included in NDC	Relevance to Article 6 readiness
Article 6 Strategy and Guiding Principles	National circumstances and sustainable development	Allows international community to understand the long-term low-emission and sustainable development plans and priorities of a country, and embeddedness in national policy framework
	Clear scope and coverage demarcation of the NDC	• Allows seller countries to strategically engage with Article 6 • Allows collaborating countries to identify scope of international cooperation, and how to best support mid- and long-term policy objectives
	Indication of conditionality	• Helps collaborating countries understand which emission reductions, sectors or technologies are suitable for international transfer • Helps partner countries to focus on conditional targets in market- and non-market cooperation
	Quantifiable information on NDC targets and measures	• Informs seller country government on the opportunity costs of corresponding adjustments at the point of authorisation • Allows buyer country to understand the amount of ITMOs it must acquire to achieve its NDC with the support of market-based cooperation
	Indication on intention to use voluntary cooperation	• Signals mitigation opportunities (by seller country to buyers) • Signals intention to invest in international mitigation action (by buyer country to potential sellers) • Gives international community insight in potential size of Article 6 market • Signals interest in NMAs
Governance & Framework	National framework for climate action	Provides context for Article 6 governance
	Clarity on assumptions and methodological approaches	Provides insight into robustness of accounting
Monitoring	Quantification of NDC targets	• Provides insight into robustness of accounting • Informs projection of amount of mitigation outcomes host country can transfer • Enables alignment of GHG inventory and Article 6 accounting approaches • Gives insight into the relevant accounting method for Article 6 ITMO transfers and use (to be communicated in Article 6 initial report)
	Infrastructure for monitoring NDC implementation	Provides insight into robustness of accounting

Source: authors

5.1. NDC features informing Article 6 strategy and principles

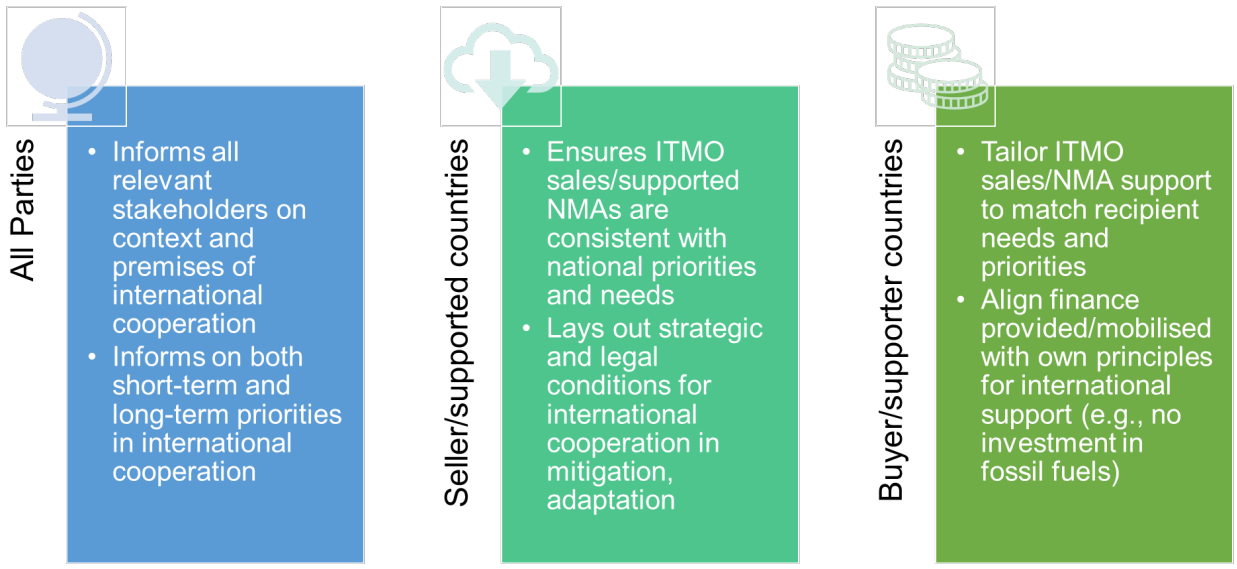
In this chapter, we discuss the NDC features that are most relevant to inform Article 6 strategy and principles.

5.1.1. National circumstances and sustainable development

According to Article 4.3 of the PA, NDCs need to be developed based on national circumstances and priorities of the countries, e.g., relating to Agenda 2030 and the SDGs. An NDC can describe relevant national circumstances and priorities to set the context for its commitments, for instance the key legislative frameworks in which climate policy is being pursued and the main mitigation potential or vulnerability of the country to the effects of climate change. These national circumstances set the context in which any Party engages in Article 6. This description allows the international community, the private sector and partner governments to understand the long-term low-emission and sustainable development plans and priorities of a country, and links the NDC with strategies, policies and frameworks to promote its socioecological and economic development. Some countries clearly state the links between each NDC target or measure and relevant SDGs in their NDC submission, e.g., Colombia and Costa Rica.[16]

This information is relevant for different Article 6 engagement strategies as follows:

Figure 6: Relevance of national circumstances and SD objectives for Article 6 strategy



Source: authors

[16] Through the report, examples of different countries' NDCs will be made. A thorough NDC and NDC implementation plans analysis of selected countries will be done in a subsequent empirical report. NDCs have been retrieved from UNFCCC (2021b).

5.1.2. Clear scope and coverage of the NDC

NDC coverage concerns the cross-section of the economy that is covered, i.e., the completeness of sector classification used in underlying modelling tools. The scope typically includes multiple categories, including relevant GHGs as defined by the UNFCCC or the type of action, i.e., mitigation, adaptation or both. As of 2021, 175 countries include economy-wide emissions reductions targets in their NDCs, whereas 14 countries referred to an exclusive sectoral-type target (e.g., Fiji, South Sudan) (IGES 2021). Some countries only include specific sectors, such as the energy sector (e.g., Qatar, Saudi Arabia), while other countries exclude specific sectors (e.g., Chile excludes LULUCF). Sectors are excluded for different reasons, including poor data, limited capacities, or lacking willingness to undertake mitigation actions. While the 2006 IPCC Guidance for National Greenhouse Gas Inventories is frequently used as a reference for sectors, the sectoral classification of submitted NDCs often deviates from the guidance due to the political distribution of responsibilities among line ministries in a country, among many other reasons.

Box 4: Article 6 Implications of excluding the LULUCF sector from NDCs

In the Kyoto Protocol, many Annex B countries opted to exclude the LULUCF sector from full national accounting because of methodological uncertainties. Likewise, NDC coverage of LULUCF is patchy. Out of 167 NDCs assessed by Fyson and Jeffery (2019), 121 NDCs cover LULUCF, but only 11 provide a LULUCF target that can be fully quantified using information presented or referenced in the NDC. As NDCs become economy-wide, this exclusion of LULUCF will not be possible for much longer, except for LDCs and SIDS, considering their special circumstances.

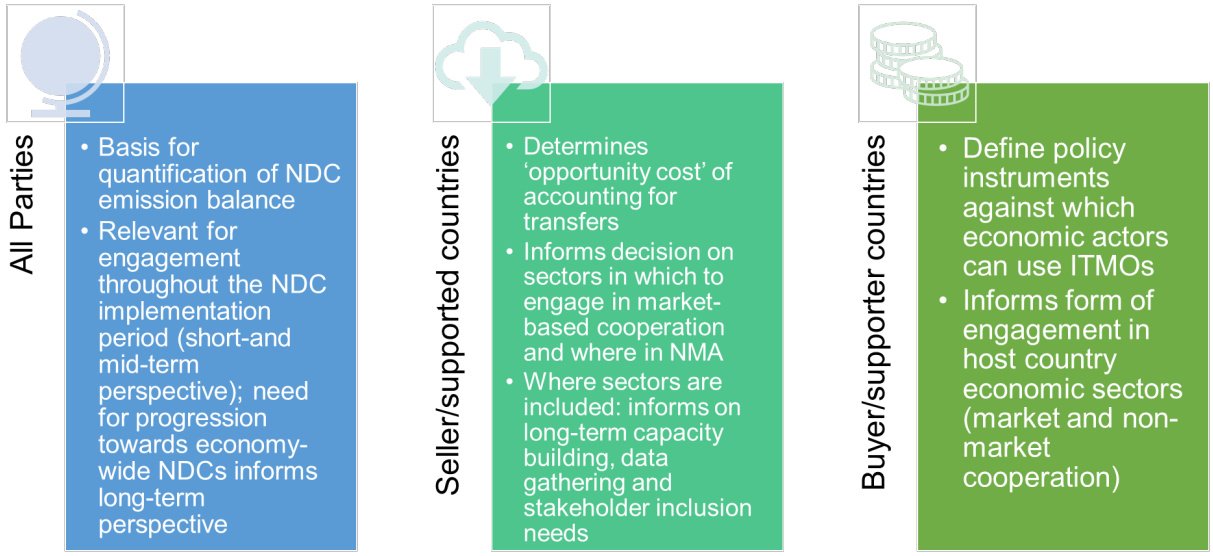
If the LULUCF sector is explicitly excluded, this has important repercussions for REDD+ activities, as these would be implemented 'outside the scope' of the NDC. This also has implications for activities that relate to biomass energy interventions (e.g., clean cookstoves that reduce the use of non-renewable biomass). If buyer countries want to exclude ITMOs from outside NDCs, they must do so not only for REDD+/reforestation projects, but also clean cookstove projects.

The GHG emissions or removals in sectors, gases, categories and pools covered by an NDC constitute the emission balance against which transfers of ITMOs are accounted. According to the latest draft negotiation texts on Article 6.2, seller countries will be required to apply a corresponding adjustment for ITMO transfers also from sectors or in relation to gases **not** covered by the NDC (some exemptions are being controversially discussed for the Article 6.4 mechanism) (ECBI 2020c). For seller countries, this means that any transfer from a sector not covered increases the opportunity cost of meeting the NDC in the sectors covered (Michaelowa et al. 2020b). Therefore, international cooperation in sectors not covered by an NDC target may be most suitable for non-market approaches to international cooperation as recognised in Article 6.8, including synergistic action in mitigation and adaptation through finance, capacity building and technology development and transfer. These considerations can be reflected in the strategy, e.g., through listing sectors and activities most suitable for different forms of cooperation.

For pure buyer countries, the opposite may be the case: economic actors in sectors not covered by the NDC or domestic mitigation policy instruments may be incentivised to purchase mitigation outcomes domestically or internationally (e.g., Switzerland has an obligation for fossil fuel importers to offset part of the carbon content of the imported transport fuel). Buyer governments that want to safeguard the

host Parties' NDC achievements may only allow ITMO purchases from sectors covered by the NDC of the seller government (e.g., Sweden, Switzerland in their current Article 6 pilot activities):

Figure 7: Relevance of clarity on scope for Article 6 strategy



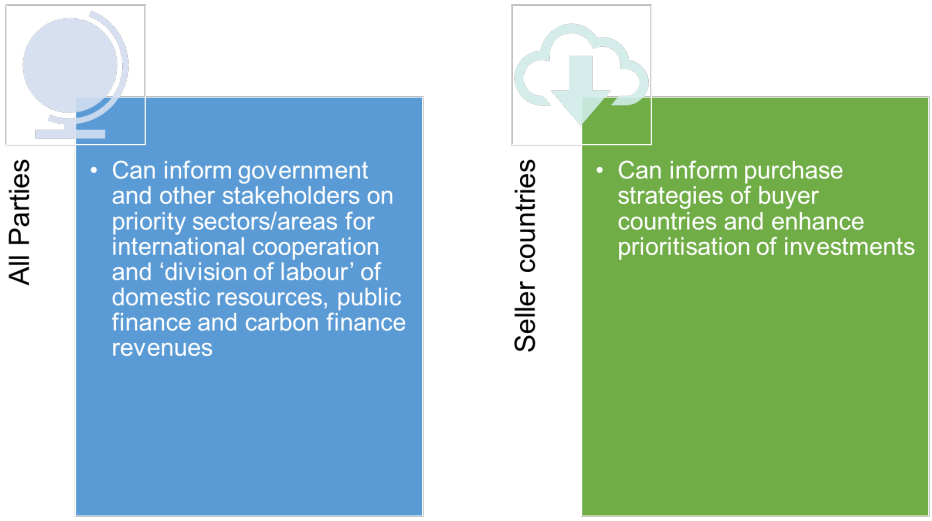
Source: authors

5.1.3. Description of conditionality of NDC targets

With few exceptions, most developing countries have included unconditional and conditional targets in their NDCs. Unconditional targets are generally understood as financed by domestic resource mobilisation, whereas conditional targets require international support (ECBI 2020a). However, the use of the terminology is not uniform. Some countries, such as Peru, state that international funding would be used to achieve their unconditional target. Others clearly identify how conditionality is understood (e.g., Mexico) or expand upon how they perceive the conditionality of action, e.g., by classifying the specific activities included in the NDC as either unconditional or conditional (e.g., Morocco, Rwanda and Senegal). For seller countries, demarcating conditionality at the activity level can inform both the government and its international partners on the areas where external support is needed and must be prioritised, both in the context of market-based and non-market approaches to international cooperation. Some host countries also explicitly envisage the use of market-based cooperation to achieve their conditional targets. For both activity developers and buyer countries, it is important to understand what part of the NDC the host country wants to achieve domestically, with public climate finance and where carbon finance may come in, so host countries' prerogative on NDC targets is protected. Some buyer countries have a clear preference to only obtain mitigation outcomes from the conditional components of host countries' NDCs, as they assume that unconditional elements will be achieved with domestic resources (e.g., Sweden, Switzerland) (SEA 2020, KliK Foundation 2020). However, it is worth noting that conditionality is only one additional indicator for determining whether an activity satisfies the requirement of delivering real, additional and verified mitigation outcomes that support (and would not undermine) NDC achievement of the host country. Looking into the conditional part of the NDC exclusively is therefore insufficient to determine what activities could be eligible for Article 6. Activity level baselines, additionality testing as well as the willingness of a country to make the corresponding

adjustment for the transferred mitigation outcomes of certain activities are more important and meaningful (Greiner et al. 2021) (for a discussion of methodologies for Article 6, see Michaelowa et al. 2020c).

Figure 8: Relevance of clarity on conditionalities for Article 6 strategy



Source: authors

5.1.4. Quantification of NDC targets and measures

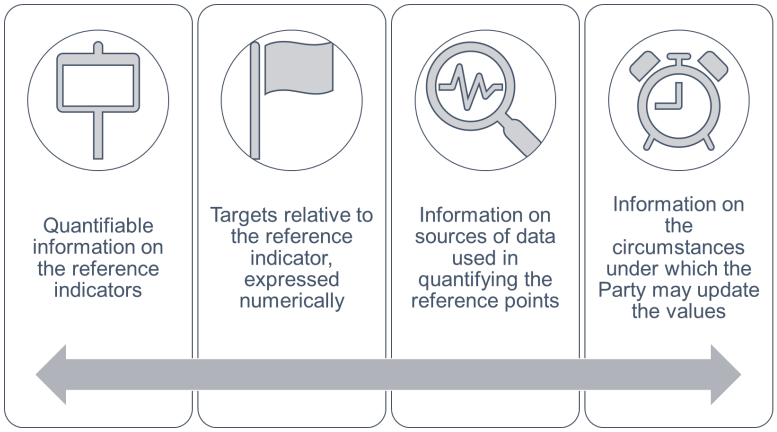
International guidance requires Parties to communicate necessary information for the tracking of progress in NDC implementation. NDC targets are typically formulated in the form of absolute emission reductions or mitigation potentials against a pre-determined business-as-usual scenario. The quality or environmental integrity of projected emission reductions which are included in NDCs largely depend on the quality of models and underlying methodologies used for their determination. Models used in NDCs vary depending on country, but have notably included the Low Emissions Analysis Platform (LEAP)[17], simple Excel-based calculations or in some cases, integrated assessment models like the Green Economy Model (GEM)[18]. Depending on the level of transparency presented in the NDC, the underlying methodologies can already indicate the level of environmental integrity of the NDC targets presented, especially for potential buying entities.

Moreover, Parties must report information that allows to track progress towards their NDC, e.g., through their BTRs (see Figure 9).

[17] For more information, see https://leap.sei.org/.

[18] For more information, see Bassi (2015).

Figure 9: Relevant indicators



Source: authors based on UNFCCC (2018a)

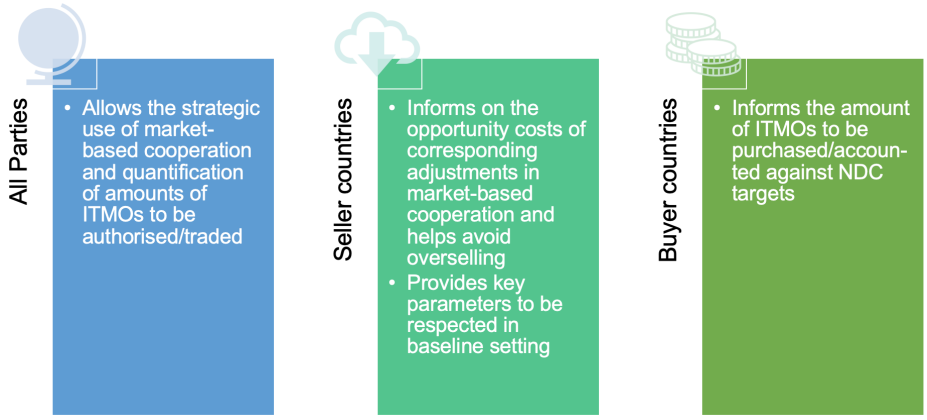
Beyond reporting on indicators and their reference levels, Parties must also report on methodologies and/or accounting approaches. This is particularly relevant as not all countries express their mitigation commitments in tCO_2e or other metrics of GHG emission reduction or removal. Some countries also communicate non-greenhouse gas targets or specified actions, rather than targets (e.g., Nauru, Niue) (IGES 2021). If these countries engage in ITMO transfers denominated in tCO_2e, a methodology for quantification of NDC targets must be communicated in the initial report as per the draft Article 6.2 guidance.

The information Parties submit on the quantification of their NDC targets informs the seller country government on the opportunity costs of corresponding adjustments at the point of authorisation, i.e., the quantitative 'impact' a corresponding adjustment will have on achievement of the target. For a buyer country, this information helps to understand the amount of ITMOs the country must acquire (or allows private sector actors to surrender) to achieve its NDC with the support of market-based cooperation.

The specification of quantified mitigation targets both at the sectoral level and their contribution to the national-level NDC targets helps Parties to strategically plan market-based cooperation. The more granular the information provided, the better participating Parties can identify the scope of international cooperation and where it can best contribute to its long-term objectives. For instance, sectoral targets also inform the development of reference scenarios and the setting of crediting baselines or emission caps in the context of Article 6 market-based cooperation. Integrating parameters derived from these targets into the baseline scenarios to create mitigation outcomes is a key tool for host countries to protect their NDC achievement and avoid 'overselling' (Ahonen et al. 2021).

While of lesser importance for NMAs, the quantification of NDC targets may support host Parties in identifying areas where international cooperation is most needed.

Figure 10: Relevance of quantified NDC targets for Article 6 strategy

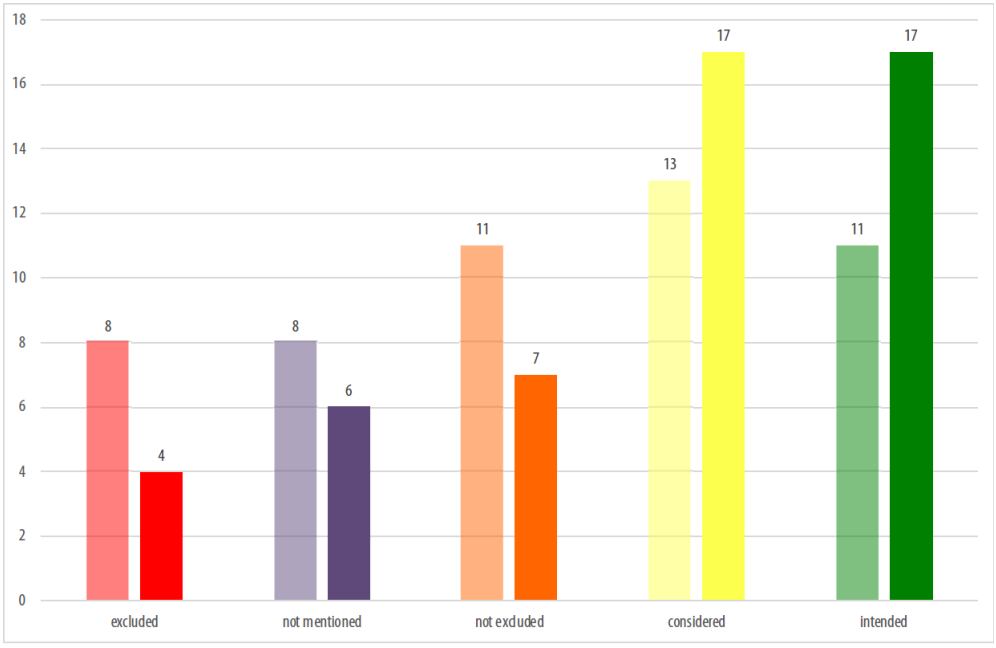


Source: authors

5.1.5. Indication on intention to use voluntary cooperation

International guidance advises Parties to indicate in their NDC if they intend to use voluntary cooperation under Article 6 of the Paris Agreement. The latest in the first BTR Parties must report whether they intend to use ITMOs towards their NDC. If so, Parties must describe how they avoid double counting in line with Article 6 rules[19] and apply robust accounting (UNFCCC 2018a; UNFCCC 2018b). UNFCCC (2021c) and Brandemann et al. (2021) analyse how Parties mention and refer to Article 6 in the updated NDCs and note an increasing interest of Parties in market-based cooperation.

Figure 11: References to market-based cooperation in first (left) and updated (right bar) NDCs



Source: Brandemann et al. (2021), p. 8. *Note: The main difference between "considered" and "intended" lies in stronger wording and more concrete actions in the latter case.*

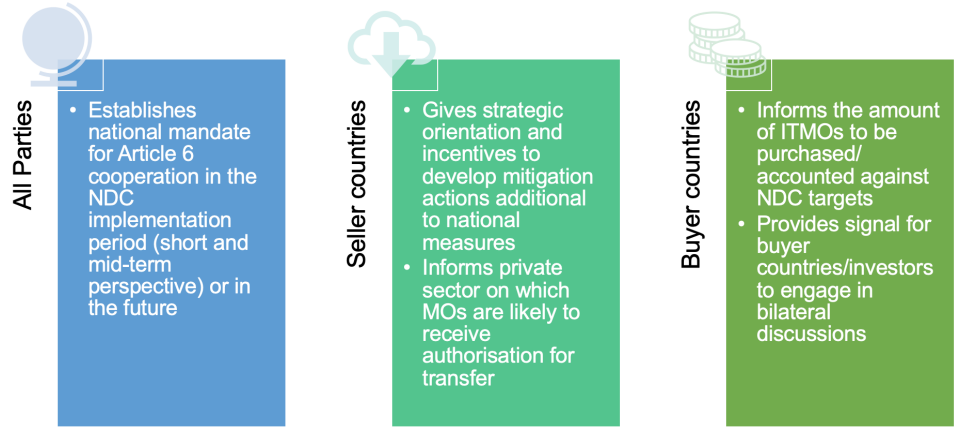
[19] UNFCCC (2018b), para. 76(d) of the annex.

So far, Parties have addressed these information requirements in a different manner. Some countries do not refer to Article 6 at all. Some other NDCs specifically state that Article 6 voluntary market-based cooperation will not be used to achieve NDC targets, e.g., the USA. Others state that Article 6 ITMOs will be used to achieve targets. Some buyer countries, especially industrialised countries, designate specifically which part of their mitigation target they want to achieve domestically or through international cooperation, i.e., by acquiring ITMOs (e.g., Switzerland[20]). Other Parties refer to achieving mitigation abroad, but do not specify the share of mitigation to be achieved domestically or internationally (e.g., Norway).

Some seller countries have made a general statement towards the use of Article 6 cooperation to finance domestic mitigation or enhance ambition thereof without providing much guidance (e.g., Colombia, Kenya, North Macedonia, Peru, Vanuatu). Other countries have provided more clarity, stressing the use of Article 6 finance for mitigation only to achieve the conditional targets (e.g., Cabo Verde). Few countries also express specific interest in non-market approaches (e.g., Armenia, Suriname) (Brandemann et al. 2021). Moreover, some countries detail measures they want to implement with international support, and some even detail measures in their NDC to be achieved in international market-based cooperation in this regard (e.g., Colombia in the forestry sector, see Government of Colombia 2020).

At the core of market-based cooperation under Article 6 is the respect of environmental integrity, and in that context in particular the avoidance of double counting. In this regard, some NDCs include a commitment or lay out the provisions to avoid double counting (e.g., Peru, South Africa, Switzerland) or reference the San Jose Principles[21] (e.g., Colombia, Costa Rica, Panama, Switzerland).

Figure 12: Relevance of Article 6 reference in NDCs for Article 6 strategy



Source: authors

[20] E.g., Switzerland's NDC states how much GHG emissions reductions could be achieved through Article 6 mechanisms (25%). It defines how corresponding adjustment are intended to be made towards multi-year targets and single-year targets. Moreover, it also indicates that ITMOs could be used by private or sub-state actors (Government of Switzerland, 2020).

[21] The San Jose principles for high ambition and integrity in international carbon markets (crafted in the Pre-Cop25 in San Jose, Costa Rica) aim at setting the basis for the creation of fair and robust carbon markets. They encompass 11 principles that ensure environmental integrity, avoidance of double counting and prohibit the use of pre-2020 units, among others (Government of Costa Rica 2020).

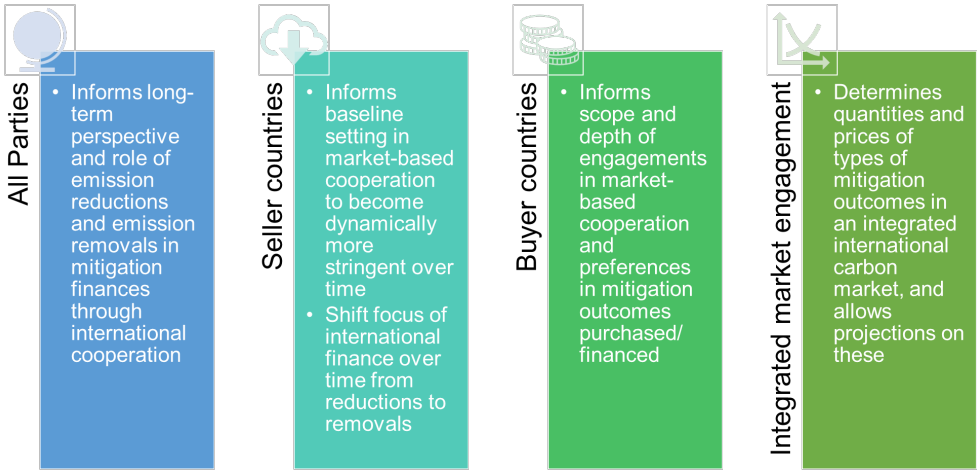
5.1.1. Carbon neutrality reference points and link to LT-LEDS

In addition to mitigation targets expressed in absolute (carbon budget) or emissions intensity terms, some countries integrate carbon neutrality targets and pathways into their NDCs. The earliest carbon neutrality commitments have been formulated for 2035 (e.g., Finland). However, most commitments relate to dates around 2050 and are enshrined in or will be translated to LT-LEDS. In general, carbon neutrality and net zero can be understood as a balance of sources and sinks in a country (see IPCC 2018), the full decarbonisation of sectors, or both. Sometimes, neutrality also explicitly involves balancing remaining emissions in-country with removals achieved in market-based cooperation. In many cases, approaches to GHG accounting over the long-term are still under debate, e.g., on the role of biomass, the advances on negative emission technologies, or the consumption- vs. production-based approach to counting domestic emissions. Carbon neutrality and net-zero goals only guide meaningful climate action if the underlying accounting approach is robust and transparent. Therefore, clarity on these targets and the approach to their quantification is crucial to orient the role of Article 6 cooperation in that context.[22]

Carbon neutrality targets can clearly lay out the scope in which buyer countries want to engage in international market-based cooperation to mobilise mitigation beyond their NDC or become 'net negative' at a certain point in time (e.g., see Government of Sweden 2020). But they can also orient the engagement of seller countries that want to use Article 6 cooperation to mobilise finance to achieve interim targets on the way to carbon neutrality faster than they could with domestic means (e.g., Costa Rica, see SEA and Perspectives 2021). For instance, these targets can also be integrated into baseline-setting for market-based cooperation, in serving as a reference point in a baseline that dynamically becomes more stringent over time and where parameters like an 'ambition coefficient' decline to the extent necessary for the emissions pathway to be in line with the carbon neutrality objective (for further discussion, see Michaelowa et al. 2021b and Hermwille 2020). Since these commitments are usually set for a date beyond the valid NDC implementation period, it is much more difficult to derive an emissions pathway or clear understanding of this target, thus, also to operationalise and reference it in Article 6 cooperation. In summary, carbon neutrality targets can (and likely will) play a major role for engaged selling or buying countries under Article 6. However, further clarity is needed.

[22] For further discussion, see IPCC (2018) for carbon neutrality in the context of the PA, Honegger et al. (2020) for a discussion of different concepts associated with the term carbon neutrality and associated impacts (German only), CDP (2020) for a discussion of the corporate sector under the science-based target initiative and a recent commentary by Rogelj et al. (2021) on net-zero targets.

Figure 13: Relevance of carbon neutrality commitments for Article 6 strategy



Source: authors

5.2. NDC features informing Article 6 governance

In their NDCs, many countries lay out the legal and institutional framework for formulating and updating their NDC. This national framework for climate action is also the context for Article 6 governance that must be embedded into the structures and processes of NDC implementation and monitoring.

In some cases (e.g., Colombia), the NDC contains reference to the lead responsible entities for the implementation and oversight of specific measures and or targets put forward. Any Article 6 cooperation that relates to these measures and targets would need coordination and consultation with these lead responsible entities. This allows seller (and buyer) countries to identify the relevant entities that need to be brought in by the national Article 6 authority.

In the case of Switzerland's NDC, specific references are made to other authorities (sub-state actors) and stakeholders (private sector) that can engage in Article 6 transactions, providing a clear understanding from the outset of who can acquire and use ITMOs.

Figure 14: Relevance of describing the legal and institutional framework of NDC development

Source: authors

5.3. NDC features informing Article 6 monitoring

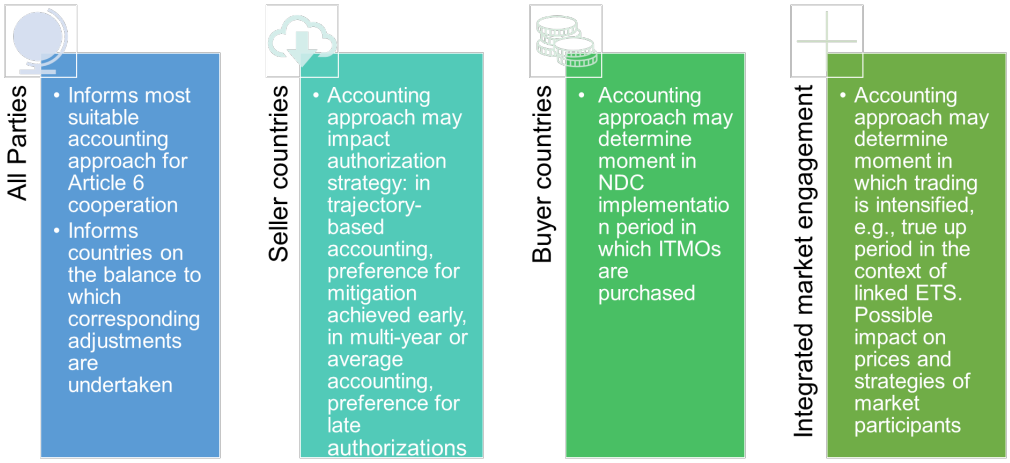
There are two pieces of information that are crucial for Article 6 accounting and monitoring: the information needed to construct the NDC emission balance and clarity on the target year(s) for mitigation targets included in the NDC.

The NDC emission balance is constructed based on the quantification of the emission sources and sinks covered by the NDC. This NDC emission balance should be comparable to the national inventories (Michaelowa et al. 2020a). If the NDC includes a quantified economy-wide target, the total GHG emissions reported in the national inventory can be used as reference value for accounting under Article 6. If countries trade mitigation outcomes expressed in other metrics than greenhouse gases (e.g.: renewable energy certificates measured in MWh of installed capacity), they will account against a quantified NDC balance of the relevant metric (e.g., the total amount of renewable energy produced in the country). The need for conversion in a GHG metric is still being negotiated.

NDC targets can relate to a single target year (e.g., 2030) or be expressed as a pathway that spans an entire period, called a 'multi-year-target'. The type of target determines the accounting method used to avoid double counting in market-based cooperation – a requirement for Article 6 cooperation. Countries with multi-year targets can directly compare the annually adjusted emission balance to the target level of the respective year in this multi-year target. Countries with single year targets can chose between two options: averaging ITMO transfers and accounting for the 'average ITMO transfer' in the final target year or constructing an accounting trajectory to allow for annual accounting.

The accounting approach informs the projection of the amount of mitigation a host country can export or a buyer country must acquire to meet its NDC target. The chosen approach should be aligned with the approach to derive the sectoral and national NDC targets. If a country has defined trajectories to set targets anyway, these trajectories can be used for accounting as per the Article 6.2 guidance, as well. An averaging approach is simpler to handle but may also involve greater uncertainties for host countries (for a discussion on this, see Greiner et al. 2019, Michaelowa et al. 2020b and Schneider and Siemons 2021).

Figure 15: Relevance of NDC scope and target years for Article 6 monitoring



Source: authors

6. Promoting Article 6 readiness in NDC implementation plans

As described above, NDCs are usually strategic documents. The development of NDC implementation plans supports countries to have a better clarity on how to achieve their targets, outline support they intend to provide to other countries, identify which support is needed to achieve the NDC targets and expand on how they intend to participate in Article 6 cooperative approaches. NDC implementation plans can 'carve out' a space for market-based cooperation under Article 6 that allow the necessary dimensions of Article 6 readiness to be embedded into an overarching strategy for NDC implementation. In addition, NDC implementation plans may include references to activities that contribute to enhancing a country's Article 6 readiness (e.g., capacity building). Moreover, NDC implementation plan information can later be used by countries for reporting under the ETF.

NDC implementation plans are not fixed documents and can take various forms. They can either be based on one policy document or can also refer to a bundle of policy instruments that aim to implement the NDC targets alongside other policy goals (UNDP et al. 2020). For example, climate change strategies, forest conservation strategies and renewable energy action plans and policies may be part of NDC implementation plans.[23] Implementation plan(s) may or may not be publicly available and they may culminate in specific laws, regulations, or policy incentives, but do not necessarily have to. They may evolve as governments track progress and observe the necessity to strengthen specific measures or to develop new and additional ones.

The development of NDC implementation plans requires strong national ownership and coordination across sectors and actors. In this chapter, we largely explore Article 6 readiness elements based on the guidance for NDC implementation prepared by UNDP et al. (2020). This report also highlights the need for broad stakeholder participation in development of such plans. It should be noted that currently only few countries have adopted comprehensive NDC implementation plans that map the path to full NDC achievement (e.g., Trinidad and Tobago's NDC Implementation plan, Vanuatu's NDC implementation roadmap, Vietnam's NDC implementation plan), but there are examples for strategies that can relate to different Article 6 elements (e.g. China's provincial and sectoral plans, the South Africa National Climate Change response, and Colombia's eight sectoral mitigation action plans).

Against this background, we propose a set of Article 6-related features that NDC implementation plans should consider as part of a country Article 6 readiness phase. Table 4 frames these features accordingly to the Article 6 readiness dimensions identified in chapter three.

[23] In addition, Parties have developed, or are developing, LT-LEDS that inform NDC implementation and updates to NDCs and give important strategic orientation to approaching international cooperation.

Table 4. Article 6 readiness elements in NDC implementation plans

Readiness dimension	Feature assessed	Relevance to Article 6 readiness
Article 6 Strategy and Guiding Principles	Policies and measures	• Provides clarity on the way to achieve NDC targets • Provides clarity on domestic policy measures and how they can be linked to international carbon markets • Informs additionality determination and baseline setting for seller country • Facilitates evaluation of methodologies for buyer countries
	Links of activities and policies to sustainable development	• Facilitates identification of synergies with sustainable development objectives
	Mitigation costs	• Helps seller decide what mitigation measures should be realized through international cooperation • Allows buyer to identify sectors where remaining emissions are too expensive to reduce, determine which implementable solutions are lacking or might require additional support
	Funding strategy	• Helps seller select appropriate mitigation activities to be funded through Article 6.
	Transparency regarding technologies and sectoral trends	• Helps stakeholders and buyers to support targeting the best available technology
	Capacity building needs assessment	• Helps identify relevant NMAs for capacity-building, and design Article 6 market-based activities in a manner that also delivers on high capacity-building co-benefits
Governance & Framework	Governance framework for NDC implementation	• Give confidence about proper operationalization of Article 6, ensuring strategic engagement in an environmentally solid manner
Monitoring	MRV and NDC tracking system	• Allows tracking progress

Source: authors

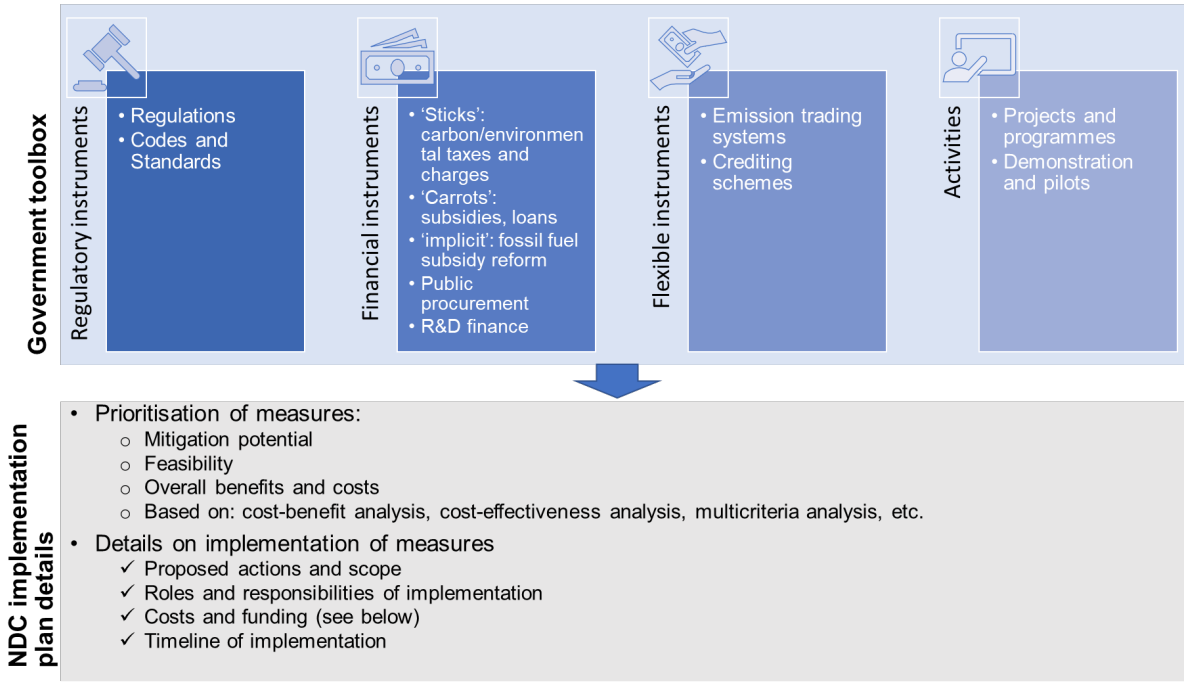
6.1. NDC implementation plan features regarding Article 6 strategy and principles

The mapping and concretisation of measures is the first step that informs further relevant features of NDC implementation plans to develop comprehensive Article 6 strategy and principles:

6.1.1. Policies and measures

Mapping of the existing policies and regulations in the NDC implementation plans provides clarity on the way to achieve the NDC targets. Considering both existing policies and regulations, with an understanding of their mitigation (and/or adaptation) impact, as well as all existing strategies or sectoral plans, the government can best prioritise and plan the policies, measures and activities that should be implemented to achieve the communicated NDC targets. The NDC implementation plan(s) document the existing and planned policies, explain the rationale behind their prioritisation or selection and provide details on their implementation (UNDP et al. 2020, UNDP and WRI n.d., see Figure 16).

Figure 16: NDC implementation plan on policies and measures



Source: authors, based on UNDP et al. 2020 and UNDP and WRI n.d.

Carbon pricing policy instruments with link to Article 6 market-based cooperation

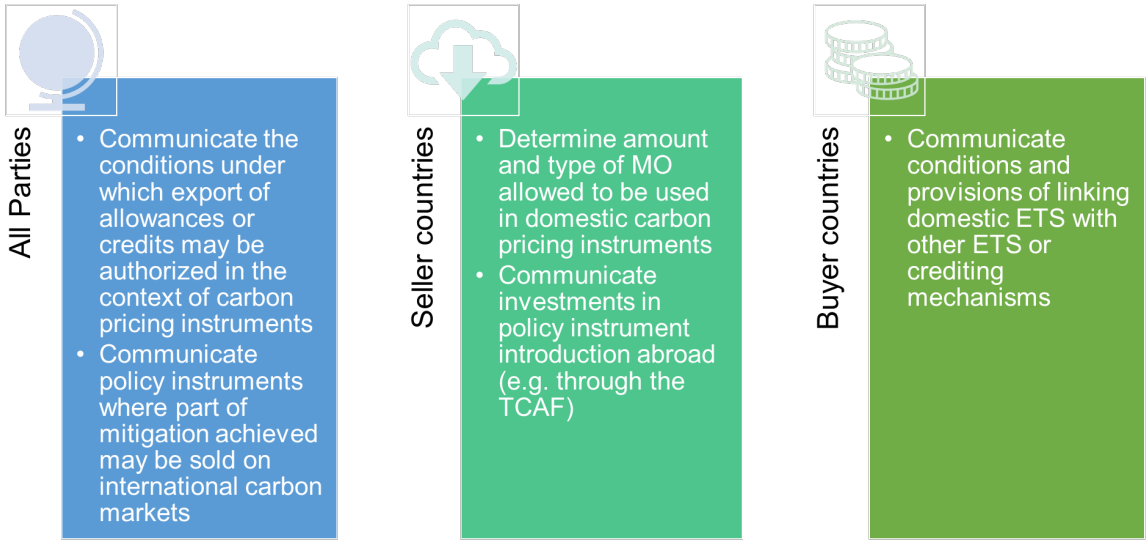
NDC implementation plans can provide clarity on carbon pricing, how such instruments can be linked to international carbon markets, and the impact this has on costs of compliance and on domestic levels of mitigation. The linking of carbon pricing to international carbon markets can occur through:

1. Linking the domestic ETS to other ETS (Integrated market strategy)
2. Allowing for the export of mitigation outcomes (credits and/or allowances) internationally, e.g., to be used in other ETS as well as other compliance or voluntary compensation schemes (seller country)
3. Allowing for international offsets in ETS or for offsetting against a carbon tax (buyer country)

Here, there are different decisions to take and communicate depending on the engagement strategy in international carbon markets. In addition, mitigation achieved domestically by other regulatory or financial instruments could be authorised for ITMO transfer through so-called policy crediting in return for financial support for the introduction of the policy instrument. While the move to policy crediting will be important to ensure Article 6 cooperation promotes sustained change in host countries, there are methodological and implementation challenges that hinder a widespread adoption of policy crediting to date (see Michaelowa et al. 2019b, Kreibich and Obergassel 2018).

In the mid- and longer-term perspective, governments will face the decision of which amount or which types of mitigation outcomes may no longer be available for 'sale' or 'use' and will be covered by domestic policy instruments, including carbon pricing. This has implications for compliance periods (buyer countries) and crediting periods (seller countries). An early decision and clarity on the long-term development of carbon pricing is helpful to increase investor security and ensure private sector actors (including programme developers, purchasers and intermediaries on the international carbon market), are adopting their strategies to fit overall policy development. Here, governments can communicate their vision in the context of their LT-LEDS.

Figure 17: Strategies to policy linking and crediting



Source: authors

Considering the impact of policies and measures in Article 6 market-based cooperation

Moreover, the identification of policies and measures for NDC implementation is important in the design of market-based cooperation. If a country hosts activities in crediting mechanisms, the consideration of relevant policies is a key requirement for additionality determination and baseline setting. Regarding additionality, the consideration of policies and measures facilitates the determination of regulatory additionality, meaning additionality to existing policies (Ahonen et al. 2021). Their consideration also facilitates additionality relative to NDC targets, to the extent that information is available on their contribution to the achievement of NDC targets. The lack of such information makes it difficult for programme developers and piloting actors to understand and set robust (crediting) baselines for prospective Article

6 activities, and for host country governments to assess the impact of authorisations of transfers of mitigation outcomes generated by a particular mitigation activity (see Westling et al. 2021). Under the PA, positive lists could be developed to define activities that in the given host country context are additional compared to a commercially viable activity, not mandated by policies and go beyond the mitigation required for the NDC and associated with measures of the host country. Activities under a positive list will be deemed automatically additional, hence confirming that activity types under Article 6 are not required by existent national or subnational regulations (Ahonen et al. 2021).

With knowledge of planned policies and measures and the timelines of their introduction, crediting baselines or crediting periods under Article 6 can be tailored to consider these, as well, and designed as a 'transition' mechanism to greater ambition levels (Michaelowa et al. 2020c; Ahonen et al. 2021). Identifying existing or planned carbon pricing policies and price levels can underpin floor prices for exporting of ITMOs. Moreover, carbon pricing policies can help to understand domestic abatement cost, as well as the cost differential to ITMOs.

For buyer countries, clarity on host country policies and measures helps in evaluating methodologies used to generate ITMOs and protects from buying 'hot air' and wasting scarce (public) resources.

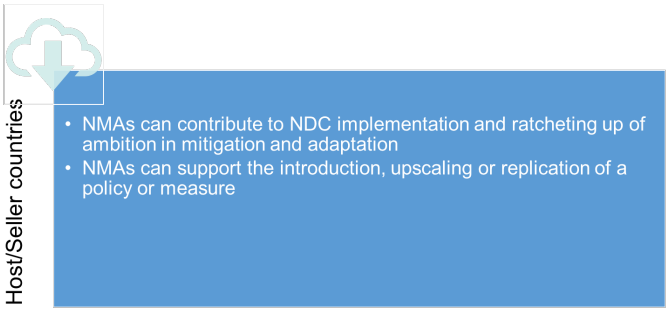
Guiding the prioritisation of NMAs in international cooperation

Through their NDC implementation plans, countries can identify concrete NMAs. NMAs can support the introduction, upscaling or replication of a policy or measure in host countries. As per the Article 6 principles, NMAs should also contribute to NDC implementation and ratcheting up of ambition in mitigation and adaptation.

Michaelowa et al. (2021c) recommend that Parties should:

- Identify concrete activities that are successfully implemented in their ongoing international cooperation and where sharing lessons learned or ways to replicate the approach in other contexts could help other countries scale up ambition (investor country perspective).
- Identify opportunities of engagement in activities proposed and promoted by the Article 6.8 work programme that are suitable for the given country context, e.g., the Adaptation Benefit Mechanism (host country perspective).
- Identify promising activities whose implementation is hindered due to lack of capacities, technical assistance and/or financial means and seek international collaboration through the Article 6.8 work programme (host country perspective).
- Identify activities where international cooperation can reduce costs or enhance ambition, e.g., bulk purchasing of efficient technologies (Müller et al. 2021) or international/regional harmonisation of efficiency standards (Michaelowa et al. 2021c).

Figure 18: Relevance of guiding prioritisation of NMAs



Source: authors

6.1.2. Clarity on assumptions and methodological approaches

Under the ETF, Parties will have to report on the assumptions and methodological approaches used to determine their NDC targets in their BTRs (see Annex B: ICTU on NDCs). This includes reporting regarding the accounting approach to track progress on the implementation of policies, measures and strategies. These features are particularly relevant to measure the level of stringency of baseline setting and hence the credibility of NDC targets derived from emission pathways. Furthermore, it is relevant that NDC baselines are considered by Article 6 carbon market methodologies for eligibility of ITMO generation (Michaelowa et al. 2020a; Michaelowa et al. 2020c). This transparency is key both for the host as well as the buyer country to exert due diligence in governance and oversight in Article 6 collaboration. For the host country, it is relevant to avoid lax crediting baselines or emission caps which make it harder to achieve an otherwise stringent overall NDC target. For buyer countries, it is crucial to avoid the risk of buying this 'hot air', the risk of buying credits issued against a baseline above a credible business-as-usual pathway (Michaelowa et al. 2019c). In the context of an integrated carbon market (e.g., linked ETS) it is very important to understand and harmonise standards and parameters across countries to prevent gaming risks of private sector actors involved.

Comprehensive methodological disclosure can hardly be found in NDCs, especially those of developing countries. In many cases, NDCs include only final mitigation potential estimates and explain the general procedure and intention. Specific background information necessary to evaluate the stringency of mitigation potential estimates frequently remains undisclosed, hidden in unpublished technical reports or in the hands of skilled ministries or specialised consultancies. In general, disclosure of technical details tends to be stronger when financial support of the international community is involved (e.g., through the NDC Support Facility at the World Bank). Disclosing assumptions and methodological approaches becomes ever more necessary for judging the environmental integrity of mitigation potentials as inconsistencies of underlying methodologies in first and updated NDCs become clearer, e.g., as is the case with current accounting approaches to energy-related emissions from biomass (Brack 2017). It is expected that many countries enhance the methodological comprehensiveness over time, as they improve their inventories and processes for data collection. Currently, it is very challenging to link activities or sectoral methodologies that are used in carbon markets to NDCs. For instance, in the future, the use of global warming potentials (GWP) to quantify mitigation outcomes should be consistent in Article 6 cooperation and NDC implementation of a country, ideally based on and harmonised with IPCC guidance and ETF requirements. Improving transparency on how NDCs targets are determined

and what assumptions and parameters lead to estimation of mitigation impacts of policies and measures will be important to ensure market-based cooperation can be a stronger mitigation delivery tool that goes beyond current NDC targets and paves the way for ratcheting up.

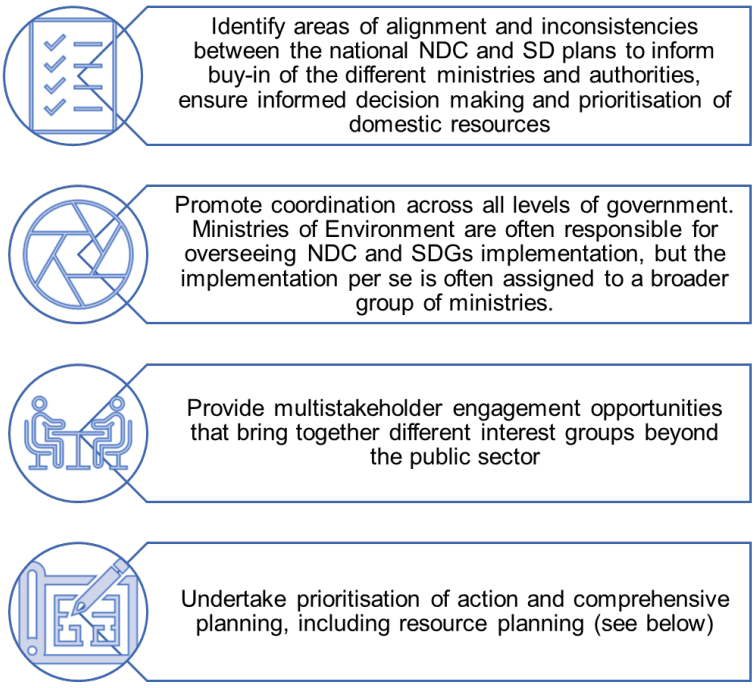
Figure 19: Relevance of clarity on assumptions and methodological approaches

Source: authors

6.1.3. Links of activities and policies to sustainable development

Governments can maximise synergies between NDC implementation and Sustainable Development (SD) goals and priorities, optimise mutual benefits and reconcile potential trade-offs by coordinating NDC and SD planning and prioritisation processes, including through the following steps (UNDP et al. 2020):

Figure 20: Steps to plan for NDC implementation



Source: authors based on UNDP et al. 2020

In addition, NDC implementation plans should outline how the country understand SD (e.g., if SD is equal to SDGs), as well as describe the criteria, parameters and processes used to assess activities' potential (both positive and negative) SD impacts and their contribution to SD in the host country.

Sustainable development is also a key feature of Article 6. Article 6.1 refers to promotion of SD as an overall objective to be followed by all voluntary cooperation approaches. However, there is no internationally agreed definition of SD (Holm et al. 2018; Holm et al. 2019). Operationalisation of SD provisions will differ across Article 6.2, Article 6.4 and Article 6.8 (Braden and Holm 2019). Regarding Article 6.2, participating Parties are required to report in their BTR how their cooperative approaches promote SD. The draft Article 6.4 negotiation text includes a few provisions on safeguards, stakeholder inclusion and promotion of SD, including the requirement to obtain a statement of the host country confirming that the Article 6.4 activity fosters SD in the host country (Braden and Holm 2019). However, there is no obligation to monitor, report and verify SD impacts.

The NMA framework established by the Paris Agreement and thereby the work programme shall facilitate the use of NMAs in the context of sustainable development and poverty eradication. There is, however, no further specification of how this will be operationalised in practice and whether this will require some assessment of the NMAs promoted or reporting by the governance of the NMA framework, which is likely to be a forum of Parties, supported by the UNFCCC Secretariat.

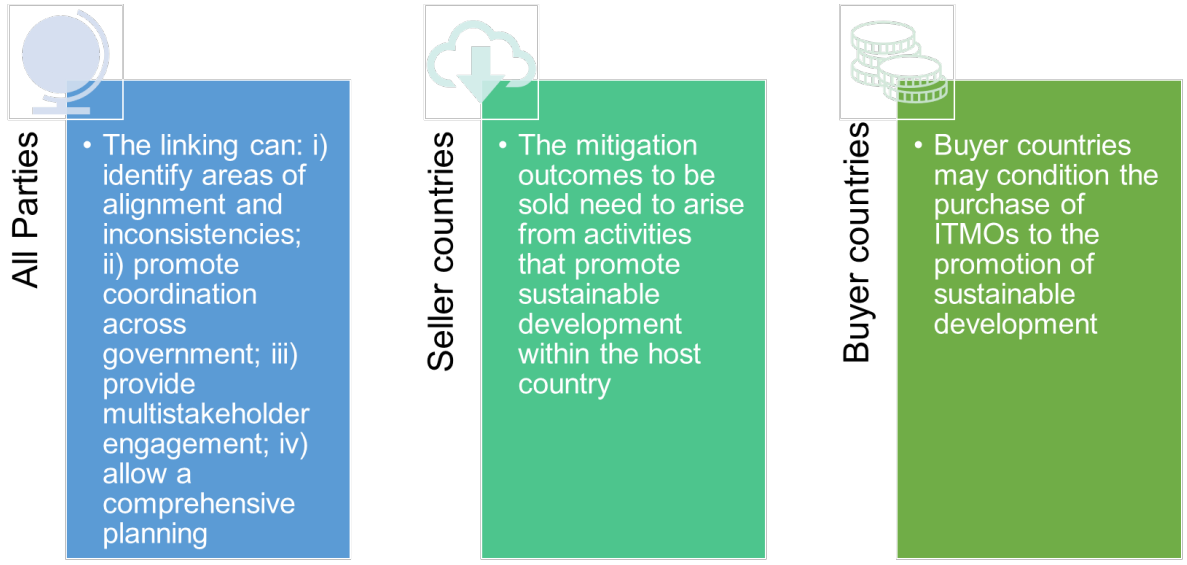
At the very least, Article 6 activities should apply the principle of 'do no (significant net) harm'. Local stakeholder involvement and thorough impact assessments are important safeguards in this regard. Related requirements, embedded into the overall governments' approach to multistakeholder involvement, can be included in Article 6 strategies for both market- and non-market based international cooperation.

Beyond safeguards, Article 6 collaboration can be informed by the linkages the host country government has identified between climate action and the achievement of its SDGs in their NDC implementation plans. If NDC implementation plans include indicators to track progress on delivery of SDGs (see below), these can be integrated as appropriate in MRV protocols for both market- and non-market measures. In market-based cooperation, SD assessment tools could be applied alongside methodologies for the mitigation impact.[24]

Buyer countries may make purchases of ITMOs conditional to the establishment of environmental and social safeguards and/or the monitoring of sustainable development impacts, as already pledged by the Parties to the San Jose principles.

[24] Notably, under the framework of the CDM, a CDM SD tool was developed. The tool could be used at any time in the lifetime of a CDM project or Programme of Activities (PoA) and could be updated upon changes in the co-benefits (Holm et al. 2018). Until 2021, 74 CDM SD co-benefits description reports were submitted to the UNFCCC (UNFCCC 2021b). Alongside the CDM tool, other SD tools have been developed, such as the Gold Standard for the Global Goals and ICAT Sustainable Development Methodology. These tools can provide useful parameters and indicators for countries aiming to identify Article 6 activities that promote sustainable development but may require the establishment of clearer links to NDC implementation plans and host countries' SD priorities (see also Michaelowa et al. 2020c).

Figure 21: Relevance of linking activities and policies to sustainable development



Source: authors

6.1.4. Estimation of costs and funding strategy

Many countries set their NDC mitigation targets and measures based on the estimated cost of abatement in different sectors and the implicit or explicit domestic carbon pricing levels. Mitigation costs are broader than just the costs of introducing specific technologies and techniques and should include consideration of additional institutional, human and information capacities to overcome barriers to introduction (UNDP et al. 2020). Mitigation costs can either be stated as overall total cost estimates, cost estimates by mitigation action or mitigation marginal abatement cost (MAC) curves, either expert-based or model derived. MAC curves have the advantage of easily illustrating costs and benefits of mitigation actions but have been found to easily conceal relevant assumptions behind baseline setting, technology use and additionality determination (LEAP 2020). Typically, NDCs do not include MAC curves, despite their potential of showcasing 'low hanging fruits'. In general, costs (or benefits) of mitigation actions can be estimated top-down (macroeconomic), bottom-up (technoeconomic), or a combination of both, in the best case (Raubenheimer et al. 2015). Top-down approaches have the benefit of considering possible spill-overs, e.g., the positive externalities of electrifying and expanding public transport, which can lead to reduced public health expenditures due to decreasing air pollution in urban areas. Such spill-overs are less likely to be captured in bottom-up approaches that only quantify the actual intervention cost.

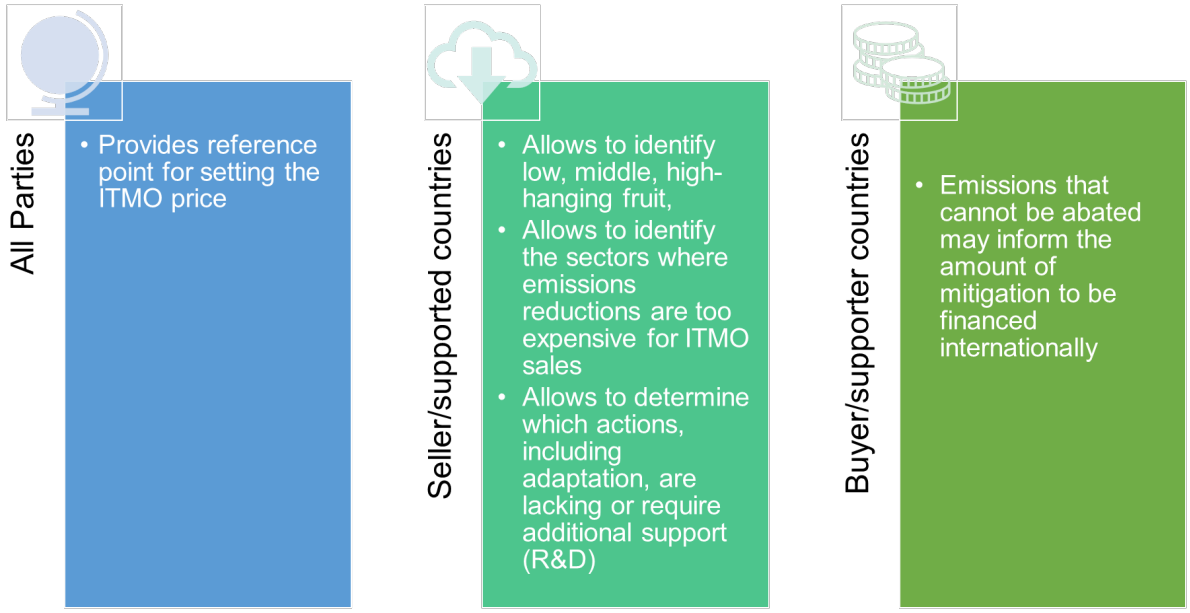
Transparency on abatement costs, accompanied by a good understanding of barriers to unlock negative costs, helps a host country decide what mitigation measures can be mobilised by domestic means, which ones are suitable for carbon markets approaches and which ones need international cooperation. 'Low-hanging' fruits should remain achievable with domestic resources to be counted towards a host country NDC, safeguarding NDC targets. Mitigation investments of private entities may strategically be leveraged for the 'middle-hanging fruit' and eligible to generate ITMOs while the very costly measures, the 'high-hanging fruit', could be tackled by governmental cooperation and approaches to blend carbon and climate finance (Michaelowa et al. 2019a).

Regarding carbon markets, a good understanding of mitigation costs provides the reference point for setting the ITMO price. Prices should not be lower than the cost of the mitigation measure nor the opportunity cost a corresponding adjustment imposes on the seller country (Schwieger et al. 2019). A seller country should not export mitigation at lower cost than the domestic carbon price levels necessary to achieve its NDC. Otherwise, countries risk selling their 'low-hanging fruit'.

Also, robust estimations of mitigation costs allow both seller and buyer countries to identify the sectors where remaining emissions are too expensive for market-based cooperation and determine which implementable solutions are lacking or might require additional support, for example through financing research and development (R&D) under Article 6.8. R&D can help identify how to drive down cost of a particular technology in the long run (Michaelowa et al. 2021c). For buyer countries, the information on the current level of emissions that cannot be abated may also inform the amount of mitigation to be financed internationally, e.g., in the context of carbon neutrality commitments beyond the NDC.

Finally, costs of adaptation measures required by a country should be estimated. This can inform seller country approaches to prioritise activities with significant adaptation co-benefits. Currently, funding for adaptation is scarce and relies mainly on grants. Hence, the Article 6.8 work programme can play an important role in advancing novel financial instruments, allowing to mobilise private finance and blended mechanisms (Michaelowa et al. 2021c).

Figure 22: Relevance of estimating mitigation and adaptation costs

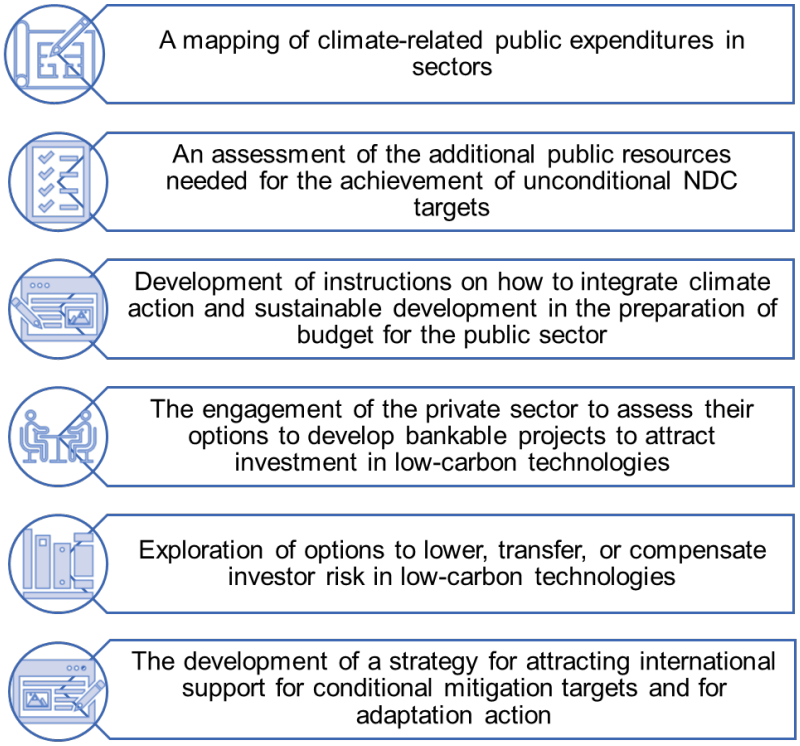


Source: authors

6.1.5. Funding strategy

Once NDC measures and associated costs are clearly outlined, it is important to identify possible sources of domestic, internal, private and public funding to cover the mitigation costs. The development of a funding strategy includes:

Figure 23: Steps to develop an NDC funding strategy



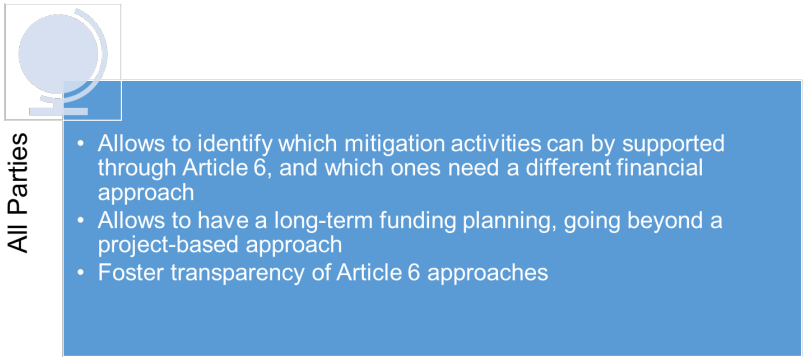
Source: authors based on UNDP et al. (2020) and UNDP and WRI (n.d.)

These are important steps, as NDC implementation plans often lack well-defined and comprehensive integration in domestic budget processes and are rarely based on a realistic estimation of costs. An integrated and comprehensive approach enables budgets to go beyond project-based and short-term time horizons. In addition, the finance strategies should aim at directing public investments where the greatest benefit to both climate action and sustainable development is expected (UNDP et al. 2020).

Countries such as Senegal and Rwanda have already undertaken a preliminary exercise and have included in their NDCs the funded needed for each conditional or unconditional target. To be able to make appropriate decisions regarding Article 6, financial needs need to be detailed for different sectors. Making available mitigation costs, as well as the financial needs, fosters transparency of Article 6 approaches, also providing a clear signal for buyer/investor countries.

Moreover, is important to be aware that carbon market approaches are not a silver bullet. Market-based mechanisms under Article 6 should be seen as one of many options available to countries for tackling climate change, specifically for mitigation activities that are associated with direct, quantifiable and 'MRV-able' mitigation outcomes. Hence, mapping different sources of finance and analysing how Article 6 activities interact or overlap (through blending finance) with other sources of climate international finance can allow optimal use of financial resources (Kachi et al. 2020).

Figure 24 Relevance of providing a funding strategy



Source: authors

6.1.6. Transparency on technologies and sectoral trends

Technology transfers lack resources, and in the past years, private investors have hardly engaged (Michaelowa et al. 2021c). The transfer of technology is key to achieve NDC targets related to mitigation and adaptation, and Article 6 can play a fundamental role in unlocking technology (ECBI 2020a). To do so, transparency is fundamental, and countries should harness NDC implementation plans to foster it. Other tools such as the Technology Needs Assessments (TNA)[25] or the BTR can also contribute to enhancing transparency.

NDC implementation plans should include a mapping of the technologies deployed in the country (e.g., the penetration rates of different technologies), ranked by their climate impact (e.g., emissions intensity). Also, they should expand on the assumption of the cost of specific technologies or techniques (which includes the management of technologies). If a country assesses the costs of promoting the best available technology it needs to achieve its NDC target, it can rely on technology learning rates that are calculated as percentage reduction in technology unit costs associated with each doubling of installed cumulative capacity. Country-specific rates that are regularly updated can help to assess the envisaged scale of deployment of certain technologies (UNDP et al. 2020).

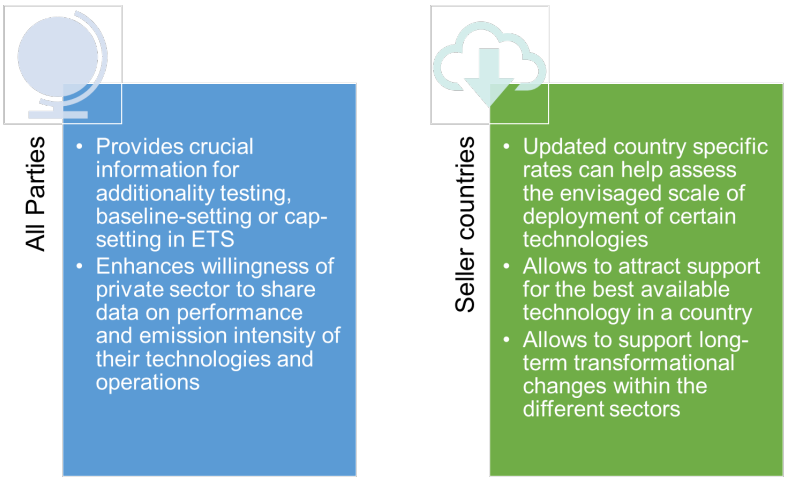
To promote Article 6 cooperation, information on technologies available, technology needs and associated costs should be provided or made public. This is important information for participating stakeholders and interested buyers to support targeting the best available technology in a country and thereby support long-term transformational changes within the different sectors. Technology needs assessments and sectoral strategies in this regard could be supported through non-market approaches to international cooperation (Michaelowa et al. 2021c).

In the context of market-based cooperation under Article 6, technology-specific information is crucial in additionality testing and baseline-setting or setting a cap in ETSs, e.g., through performance benchmarks or benchmarks derived from best-available techniques/technologies. On a different note, market-based cooperation can also act as a search function for abatement opportunities. By incentivising

[25] TNAs are supported by the Climate Technology Centre and Network (CTCN) and the Technology Executive Committee (TEC) for developing countries under the technology mechanism of the Paris Agreement.

carbon finance revenues, it enhances the willingness of the private sector to share data on performance and emission intensity of their technologies and operations.

Figure 25: Relevance of transparency on technologies and sectoral trends



Source: authors

6.1.7. Capacity building needs assessments

Climate change must be addressed from different angles and areas of expertise. It needs to be tackled by different sectors and on different levels (national, regional, local). It requires technical knowledge in a broad range of areas: adaptation, mitigation, forests, energy, climate finance and carbon markets. Moreover, to achieve NDC targets, speeding up implementation of mitigation and adaptation actions is key. All this requires countries to develop the necessary human capacities in terms of a sufficient number of government officials and representatives of other stakeholders with sound know-how (Bakhtiari et al. 2018).

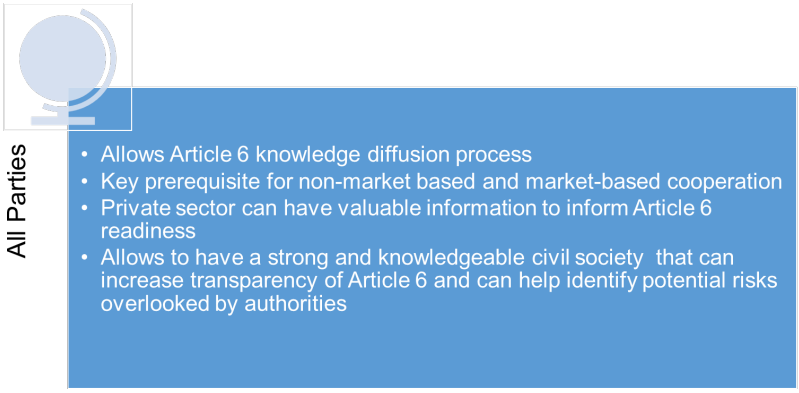
Therefore, in their NDC implementation plans, countries should assess what their needs of know-how are (e.g., institutional capacity for governance and coordination, know-how on modelling and evaluation, strategic capacity for systemic policy design and implementation) and how to address them (e.g., standard education and training, specialised capacity building, sharing of experiences) (Bakhtiari et al. 2018; CDKN 2016). Also, an assessment of key stakeholders that require capacity enhancement needs to be carried out, not only within the government, but also engaging other relevant stakeholders, such as academia, private sector and indigenous peoples groups. There are substantial experiences with CDM capacity building from which we can learn (Michaelowa 2005; Okubo and Michaelowa 2010).

On one hand, through the assessment countries can identify the specific capacities a country needs to enhance to properly engage in Article 6 activities. This includes identifying institutional capacity requirements by participating countries (e.g., on monitoring and reporting, or how to undertake corresponding adjustments). Regarding means of delivering capacity building, it implies assessing potential manners on how to enhance the knowledge, for example, through funding research for providing data and innovation. The assessment should also identify how to engage with relevant Article 6 stakeholders. Market-based cooperation should engage private sector participants, service providers (e.g., auditors), as well as civil society representatives. The private sector can have valuable information about the market

(previous CDM experiences, state-of-the-art technologies) that can help inform Article 6 readiness efforts. Also, having a strong and knowledgeable civil society can not only increase the transparency of Article 6 approaches but can also help to identify potential risks that might have been overlooked by authorities (Hunzai et al. 2021).

At the same time, assessing capacity building needs can allow countries to identify potential areas for NMAs. NMAs can trigger additional financial resources to cover capacity building needs. NMAs should focus on long-term generation of knowledge through 'learning by doing' (Michaelowa et al. 2021c). Capacity building processes, covered by NMAs, should focus on specific activities rather than having an overarching emphasis; for example, a programme aimed at transfer of know-how related to specific technologies such as rooftop solar photovoltaic or offshore wind (Michaelowa et al. 2021c).

Figure 26: Relevance of capacity building needs assessments



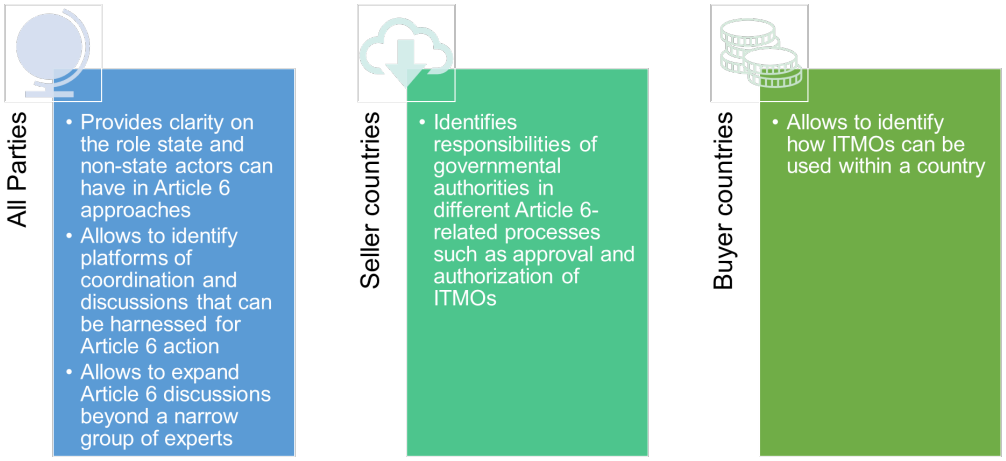
Source: authors

6.2. NDC implementation plan features regarding Article 6 governance

As stated in chapter three, the NDC implementation plan is (ideally) developed by the NDC responsible authority (e.g., Ministry of Environment) in coordination with the Ministry of Finance and the different sectoral ministries (e.g., energy, forestry, etc.) or public authorities. Often, NDC processes are led by a specific institution (e.g., a Climate Change Committee) that regroups these stakeholders, with the objective of improving coordination (UNDP and WRI n.d.). Ideally, the national Article 6 authority should be brought in when the NDC implementation plan is developed.

When developing the NDC implementation plan, the responsible authority should ensure that the three dimensions of Article 6 readiness are strongly embedded within: inclusion of the guiding principles for Article 6, putting together an institutional framework and setting up a monitoring system. In other words, these dimensions should guide the way for the development of the NDC implementation-related policies in terms of Article 6.

Figure 27: Relevance of Article 6 governance



Source: authors

6.3. NDC implementation plan features regarding Article 6 monitoring

In chapter four, the importance of targets and mitigation measures quantification was raised. This requires information delivered by good quality and up to date GHG Inventories and requires a functioning MRV system to track its progress. A robust MRV is key for an effective accountability of international transfers of emission reductions to avoid double counting. MRV systems can also contribute to building trust and enhancing transparency, generate comparable information and increase the likelihood of gaining international support for mitigation actions (South Pole 2020).

An economy-wide MRV system allows a general overview of the progress made and the likelihood of a country achieving its NDC targets. However, sectoral-based MRV systems provide more accurate information, allowing to identify where additional efforts should put in place. Therefore, for NDC implementation, countries may need to create or strengthen existing systems for collecting data and tracking progress. This requires governments to develop a comprehensive monitoring plan to track both the status of implementation and the observed impact (UNDP and WRI n.d.).

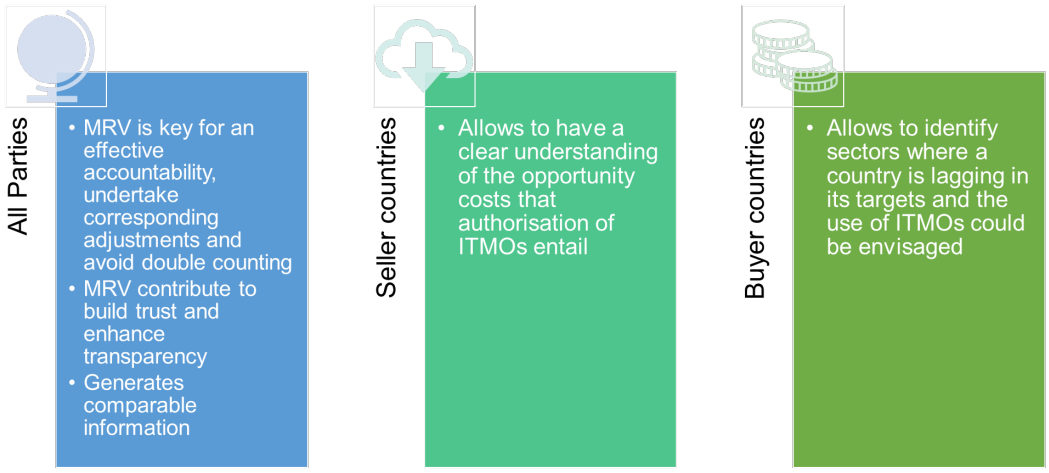
A key pillar in the NDC tracking system is a process that ensures and institutionalises regular updates of the GHG inventory data. In a broader sense, it allows countries to reconsider the role of affected sectors in the selection of NDC mitigation targets (UNDP et al. 2020). In the context of Article 6, it helps countries undertake corresponding adjustments to their NDC emission balance and have a clear understanding of the opportunity costs that authorisations of ITMOs for transfer entail.

In their BTRs, countries must report on the indicators they are using to track progress and on the values of these indicators. Indicators that allow for monitoring of mitigation, adaptation and sustainable development impacts can reinforce synergies in implementing the Paris Agreement and the 2030 Agenda (UNDP et al. 2020).

This is relevant for Article 6, because in those sectors where a country is lagging in its targets, the acquisition and use of ITMOs could be envisaged, whereas in sectors that are ‘overachieving’, carbon finance can be mobilised through export of ITMOs and be invested in ‘laggard’ sectors. Article 6 market-based cooperation also requires Parties to track authorisations and transfers and to account for

corresponding adjustments within their BTRs accordingly. Therefore, Article 6 tracking tools should be integrated into or strongly linked to the NDC tracking systems, so that a country is able to monitor progress in NDC implementation while keeping accounting implications of corresponding adjustments in mind.

Figure 28: Relevance of expanding on Article 6 monitoring



Source: authors

7. Analytical framework: how to assess Article 6 readiness?

This chapter presents the analytical framework built in the analysis of the previous chapters in this report. The analytical framework lists the different elements that can be identified in NDCs (Table 5) and NDC implementation plans (Table 6) that support different dimensions of Article 6 readiness. The analytical framework will form the basis for the assessment of current NDCs and selected NDC implementation plans in a follow-up study to this report.

Table 5: Analytical framework to assess Article 6 readiness in NDCs

Information in NDCs		Informs Article 6 readiness of countries		
Feature	**Elements**	**Strategy**	**Governance**	**Monitoring**
National circumstances and sustainable development	Description of relevant national circumstances and priorities	✓	-	-
	Links to relevant strategies, policies, and frameworks	✓	-	-
Clear scope and coverage demarcation of the NDC	Description of the target, target years and carbon neutrality reference points.	✓	-	-
	Description of sectors, gases, categories, and pools covered	✓	-	-
	Description of how the country will ensure methodological consistency, including baselines, between the communication and implementation of NDCs	-	-	✓
	Description of mitigation co-benefits	✓	-	
NDC targets	Description of conditionality of targets, or at activity level	✓	-	
	Quantifiable information on reference year, reference indicators, data used and update information	✓	✓	✓
	Quantification of the emission sources and sinks covered by the NDC	✓	✓	✓
Indication on intention to use voluntary cooperation	Statement on intention to use voluntary cooperation (buyer/seller, mixed)	✓	✓	-
	Reference to scope and focus of cooperation	✓	✓	-
Clarity on assumptions and methodological approaches	Disclosure of accounting methods for emissions and removals	-	✓	✓
	Disclosure of accounting methods for the implementation of policies, measures, and strategies	-	✓	✓
	Disclosure of sector-, category- or activity-specific assumptions for accounting	-	✓	✓
Infrastructure for monitoring NDC implementation	Reference to an infrastructure in place for monitoring NDC implementation	-	✓	✓

✓	*Strong link*	✓	*Weak link*	-	*No direct link*

Source: authors

Table 6: Analytical framework to assess Article 6 readiness in NDC implementation plan(s)

Information in NDC implementation plan(s)		Informs Article 6 readiness of countries		
Feature	**Elements**	**Strategy**	**Governance**	**Monitoring**
Policies and measures	Mapping of existing policies and regulations	✓	-	-
Links of activities and policies to sustainable development	Description of how country interprets sustainable development	✓	-	-
	Description of criteria, parameters, and processes to assess SD impacts	-	✓	✓
	Approach to multistakeholder involvement, including 'do no harm' requirement	✓	✓	-
Mitigation costs	Overall total cost estimates,	✓	-	-
	Cost estimates by mitigation action and/or mitigation marginal abatement cost (MAC) curves	✓	✓	-
Funding strategy	Mapping of climate-related public expenditures in sectors	✓	-	-
	Assessment of the amount of additional public resources that can be invested in identified and prioritised measures	✓	-	-
	Options to lower, transfer, or compensate investor risk in low-carbon technologies	✓	-	-
	Strategy for attracting international support (through Article 6)	✓	-	-
Technologies and sectoral trends	Information on technologies available, technology needs and associated costs	✓	-	-
Capacity building needs assessment	Assessment of the country's capacity building needs and related stakeholders	✓	-	-
Governance framework for NDC implementation	Identification of responsible national authority to lead on Article 6 cooperation, including mandate and process for approval of activities	-	✓	-
	Identification of key ministries and public agencies and the mandate and procedures for their engagement	-	✓	-
MRV and NDC tracking system	Inclusion of a comprehensive monitoring plan to track both the status of implementation of the NDC and the observed impacts	-	-	✓
	Establishment of a process that ensures and institutionalises regular updates of the GHG inventory data	-	-	✓

✓	*Strong link*	✓	*Weak link*	-	*No direct link*

Source: authors

8. Conclusions and recommendations

Article 6 collaboration takes place in the context of NDCs and associated plans and policies. In this report, we define Article 6 readiness as a dynamic process whereby countries first develop a strategy and then the governance capacities and systems to enable and benefit from Article 6 collaboration, and regularly update these elements.

An Article 6 strategy is informed by:

- The mandate enshrined (or not) in the NDC on international cooperation.
- The national circumstances and priorities in sustainable development communicated in NDCs.
- The targets and sectors covered by the NDC as well as policies and measures associated with NDC targets, their implications for sustainable development, associated costs and funding opportunities as laid out in NDC implementation plans.
- The in-country situation regarding technologies and sectoral trends, investment needs and capacity-building requirements as detailed in NDC implementation plans.

Article 6 strategies can look very different depending on the objectives of the government that is pursuing international cooperation under the Paris Agreement. Some countries may not engage in market-based cooperation, but instead, collaborate internationally in the fields of climate finance, technology development and transfer as well as capacity building under non-market approaches. In fact, most countries engage in such approaches to international cooperation, whether exclusively or alongside market-based approaches. Under Article 6 of the Paris Agreement, a work programme will be implemented to promote non-market approaches that can create linkages and enhance synergies across different means of implementation and in both mitigation and adaptation action. Countries can therefore identify their most relevant initiatives and promote these under the Paris Agreement.

Governments need to decide in their strategy whether their country wants to engage in international carbon markets under Article 6 as a buyer, a seller or both. The strategy also needs to define whether the government wants to apply a proactive approach, where it defines all key guardrails for transactions, including desired price levels or a 'laissez faire' approach where private sector actors decide whether to go for ITMO sales or acquisition. As strategies may change over time, a differentiation of short, medium and long-term strategies is also relevant. Generally, mixed strategies, where governments authorise both ITMO sales and acquisitions are likely to become more common over time when different carbon markets are integrated, and different forms of cooperation start to overlap.

Regardless of the strategy pursued, robust governance of Article 6 approaches and outcomes is crucial for securing the integrity and mutual long-term benefits of cooperation. Governance should be well embedded in national climate policy and based on information that is transparent, accurate, complete, comparable and consistent. Governments should define a relevant national authority or authorities for Article 6 governance. Generally, small countries with limited resources and engagement in Article 6 should follow the approach undertaken under the CDM where the approval authority generally was allocated to one ministry. Large countries wanting to strongly use international carbon markets through differentiated approaches should develop strong institutions that are able to take on all relevant tasks such as development of methodologies. This will require significant resources.

NDCs and associated plans and policies for their implementation constitute the framework conditions for engagement in international cooperation under the Paris Agreement. Information communicated therein needs to be considered by governments and non-state actors when designing market and non-market approaches to international cooperation. Thus, either public disclosure or good coordination and information sharing at national level is required to ensure all relevant government stakeholders prepare in a meaningful way for Article 6 cooperation. This is particularly crucial in countries with fragmented responsibilities and strong reliance on external expertise in the NDC development process.

The development of national Article 6 governance system is informed by:

- The governance framework for NDC implementation that identifies the key ministries and public agencies in NDC implementation and their respective mandates and procedures for engagement. The responsible national authority or authorities leading Article 6 cooperation should be embedded into this overarching governance framework.
- Quantified or quantifiable information on NDC targets against which opportunities and risks of international cooperation can be assessed.
- Approaches to assess sustainable development impacts of policies and measures, including those implemented in international cooperation.
- Approaches to national stakeholder engagement in NDC implementation, as described in NDC implementation plans and any national guidelines.

The system will ensure the monitoring of Article 6 cooperation to comply with reporting and accounting obligations in this regard. The development of monitoring processes and tools must consider:

- The information communicated in NDCs on how the country ensures methodological consistency, including on baselines, between the communication and implementation of NDCs.
- Quantified or quantifiable information on NDC targets against which opportunities and risks of international cooperation can be assessed.
- The information provided on assumptions and methodological approaches underlying the formulation of NDC targets, including accounting methods for emissions and removals, accounting for the implementation of policies, measures and strategies as well as the disclosure of sector-, category- or activity-specific assumptions.
- The monitoring plan to track status of implementation and observed impacts of NDC implementation and related infrastructure.
- The processes and institutions involved in regular updates of GHG inventory data.

Given that NDC implementation plans should provide detailed information on how the NDC – which is usually worded in rather general terms- is actually to be operationalized, we recommend that policies and measures should be developed in a way that clearly informs additionality determination and baseline setting for seller countries and facilitates evaluation of methodologies for buyer countries. This is particularly relevant for carbon pricing policies. A strong link of policies and activities with SDGs can support the identification of sustainable development benefits of Article 6 activities. A refined approach to assess mitigation costs as well as a detailed funding strategy allow entities to decide which activities should give rise to ITMO transfers. With regard to non-market approaches funding countries should identify successful activities in their cooperation portfolio that could be replicated, while host countries

could identify those activities that would have the highest chance of being successful in their context. The plans can also be useful in determining where capacity building needs with regard to Article 6 are situated.

Our assessment framework for NDCs and NDC implementation plans brings together these considerations in a structured manner. The assessment framework lists typical features of NDCs and NDC implementation plans and maps out how key elements of these features relate to the three readiness components of an Article 6 strategy, governance and reporting/monitoring.

For NDCs, the critical features include the description of national circumstances, the scope of the NDC and its targets. Further important features are the declaration to use Article 6 and the level of detail on assumptions and methodological approaches applied to define the NDC. For the NDC implementation plans the features discussed in the preceding paragraph are the most relevant ones, complemented with an assessment of technologies and the MRV/tracking system. Governments starting to engage in Article 6 cooperation may prioritise clarity and understanding of the key features of their NDCs and implementation plans and engage thereon with the relevant stakeholders.

We hope that this framework can guide government stakeholders involved in NDC planning and implementation processes in identifying which information and elements are relevant for international cooperation and where disclosure and granularity is needed. At the same time, the assessment framework can support government and non-state stakeholders directly involved in Article 6 cooperation in determining what information to look in participating Parties' NDCs when approaching international cooperation, subject to the rules and processes established under the UNFCCC for the PA.

In a subsequent study, we will undertake an empirical analysis of updated NDC submissions and in how far these NDCs promote Article 6 readiness both on a general level and through case studies of NDC and NDC implementation plans in three selected countries.

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Annex A: NDC features

Dimensions	Characteristics
Document length	• Between 3 and 57 pages
Time frame and/or implementation period	• Starting between 2005 and 2030 • Ending between 2025 and 2050 • Choice of base year for GHG pathways
Type of coverage	• Sectoral coverage • Economy-wide coverage
Scope	• Sectors, e.g., based on IPCC classification or own classification • Gases, e.g., CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3 • Measures only • Mitigation and adaptation • Mitigation only • Adaptation only (including mitigation co-benefits of adaptation in some cases)
Type of mitigation targets	• GHG targets vs. non-GHG targets (e.g., RE capacity) • Reference points • Single year vs. multi-year targets • Absolute (e.g., budget) vs. relative (e.g., intensity) GHG reduction targets • Mitigation potentials vs. compatibility with 1.5°C pathways • Carbon neutrality goals • Conditional vs. unconditional targets
Reference to the use of market mechanisms	• International market-based cooperation (Article 6) • Regional carbon markets • National carbon markets • Exclusion of the use of international market-based cooperation to achieve NDC targets
Needs	• Financial needs, e.g., expressed through conditionality of action • Technological needs, e.g., through technical assistance or technology transfers
NDC elaboration process	• Top-down, e.g., ministry-driven, donor-or consultancy driven • Bottom-up or "hybrid", i.e., strong stakeholder inclusion
Policy and/or legal integration	• Integration of/into Low emission development strategies (LEDS) • Integration of/into national climate policy plans or legislation • Integration of/into sectoral plans or roadmaps • No integration – NDC as standalone document

Source: authors based on IGES (2021)

Annex B: ICTU on NDCs

Item	*Description*
Information to submit to describe the NDC	▪ Targets and description, including target type(s): economy-wide absolute emission reduction, emission intensity reduction, emission reduction below a projected baseline, mitigation co-benefits of adaptation actions, economic diversification plans, policies, and measures, other ▪ Target years or periods, single-year, or multi-year targets ▪ Reference points, levels, baselines, base years or starting points and respective values ▪ Time frames and/or periods for implementation ▪ Scope and coverage, including sectors, categories, activities, sources and sinks, pools, gases
Qualitative and quantitative indicators to communicate in order to track progress against these indicators	▪ These indicators could be: net GHG emissions and removals, percentage reduction of GHG intensity, hectares of reforestation, percentage of renewable energy use or production etc. ▪ For each selected indicator, the Parties must provide the relevant reference points, levels, baselines years or starting points. ▪ For each indicator, the Party needs to describe how the indicator is relevant for the NDC
A description of methodologies used in the context of NDC targets and indicators, including in cooperative approaches[25]	▪ Key parameters, assumptions, definitions, data sources and models ▪ Intergovernmental Panel on Climate Change (IPCC) guidelines used ▪ Metrics used ▪ Any sector-, category- or activity specific assumptions, methodologies, and approaches ▪ Any conditions and assumptions relevant to the achievement of the NDC

Source: UNFCCC (2018)

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