

Article 6 readiness in updated and second NDCs

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Final report

Freiburg, Germany, 27 October 2021



Executive Summary

By July 31st, 2021, 88 countries¹ had submitted their updated NDCs. Despite a rising number of long-term carbon neutrality commitments, the ambition levels in these NDCs still fall too short to be compliant with the temperature goals of the Paris Agreement. According to the synthesis report on the updated NDCs (UNFCCC 2021c), global emissions would rise from 52.4 billion tCO_{2e} in 2019 to 54.8 in 2025, and 55.1 in 2030, putting the world on a warming path reaching 2.7°C by 2100. The largest emitter, China, had not submitted an updated NDC, neither had India.

International market-based cooperation through Article 6 of the Paris Agreement can provide a tool to enhance countries' climate ambition, by incentivizing cost-efficient mitigation and channelling (private sector) resources towards low-carbon development. 77% of the countries (68 countries) who submitted, updated, or revised their NDC between July 2019 and July 2021 foresee the use of international market-based collaboration under Article 6, with just over half of these countries expressing strong interest in Article 6. This number is higher than in the first round of NDCs. Almost half of the NDC submissions mentioning Article 6 originate from sub-Saharan Africa or Latin America. Article 6 is perceived as particularly relevant for low-income and/or vulnerable countries, who see ITMO transfers as a tool to mobilize resources for purposes that include meeting NDC targets that are conditional on international support.

While the rules on Article 6 of the Paris Agreement are yet to be finalized,² several countries that are keen to collaborate through Article 6 have started to get Article 6 'ready'. **Article 6 Readiness** is defined as "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" (Michaelowa et al. 2021a). Getting Article 6 'ready' is not a task exclusively for countries that look to sell ITMOs: independent of whether a country looks to become an ITMO buyer, seller, or pursue a mixed strategy, developing Article 6 readiness is key for enabling strategic engagement with the mechanisms. However, due to the continued absence of an Article 6 Rulebook and a roadmap for operationalization of the Article 6.4 mechanism, countries struggle to understand what exactly it means for them to be 'Article 6 ready'. Many countries also opt to wait for more certainty before fully operationalizing the different readiness dimensions. At the same time, engagement with Article 6 piloting can offer experiences with readiness efforts, upon which more comprehensive capacity building can build once the Article 6 Rulebook is finalized.

This study aims to contribute to developing a better understanding of how Article 6 readiness can be built in the context of NDCs, to prepare for the authorization, transfer and acquisition of ITMOs, and for embedding Article 6 readiness into NDC development. It assesses to what extent the updated NDCs of countries anticipating Article 6 engagement include features and information that provide a robust basis for Article 6 collaboration: an Article 6 strategy, governance framework, and monitoring infrastructure. To do so, we conducted an interpretive text analysis of NDCs submitted to the UNFCCC Secretariat between 31 July 2019 and 31 July 2021. This was complemented by an in-depth assessment of national strategies, implementation plans and related Article 6 activities in Colombia, Ethiopia and Vietnam, conducted through desk research and semi-structured interviews, and strategies for Article 6 engagement by buyers Japan, Sweden and Switzerland through desk research.

We find that the updated NDCs show strengthened Article 6 readiness across the board compared to the first round of NDCs, submitted in the run-up to the Paris Agreement. However, about a quarter of the countries does not specify the type of Article 6 strategy pursued: whether they are looking to exclusively buy or sell ITMOs, or to pursue a mixed strategy of buying and selling. There is also an imbalance between the number of countries looking to buy (~7%) and sell (~60). Among both sellers and buyers, there are big differences between countries in the type and extent of Article 6 readiness indicators. While the articulation of a **dedicated Article 6 strategy** in an NDC remains rare among both sellers

¹ 87 countries (including the United Kingdom) and the EU27.

² Parties are looking to finalize the rules of Article 6 at the COP26 in Glasgow, November 2021.

and buyers, it shows a country's willingness and enhances its visibility and credibility for participating in market-based cooperation. An increasing number of seller countries demarcate unconditional and conditional NDC targets, the latter requiring international funding. But few seller countries define how Article 6 is to contribute to the conditional targets, and some seller countries even say that Article 6 should support unconditional target achievement, a premise clearly not in line with the basic understanding that unconditional targets will be funded by domestic resources. In less than 50% of the 68 NDCs that reference the use of markets, there is a clear link to the GHG reduction target under the NDC, e.g., by quantifying the contribution of Article 6. Beyond stating the shape and objectives of the strategy, countries can communicate conditions and safeguards to Article 6 engagement in their NDC. 33 countries make such a link, for example to the San Jose Principles (6%), national criteria or processes for engagement that ensure that cooperation matches the host country's NDC, and the promotion of sustainable development (67%). Few countries identify specific sectors for which they foresee Article 6 engagement to play a role.

Both seller and buyer countries will need an **institutional framework to effectively govern, track and report on Article 6 transactions**, and ideally NDCs would specify such governance structures, institutional frameworks and stakeholder management approaches. About three quarters of countries describe their NDC implementation governance and have had a participatory process in the NDC update. But only about one third of all countries that intend to use Article 6 specifically describe institutional arrangements or tools for NDC monitoring or tracking, in accordance with the requirements of the Enhanced Transparency Framework. No country defines how it would keep track of, account for and report on the transfer of mitigation outcomes in line with the enhanced transparency framework rulebook adopted at COP24 in Katowice.

The limited signs of Article 6 readiness in NDCs of both sellers and buyers, in particular in relation to institutional frameworks and monitoring infrastructures, can be attributed to the unfinished Article 6 Rulebook, but also to the fact that NDCs only give a high-level summary of the preparatory work that a country may be undertaking. NDC implementation plans, policy formation processes, or other less formalized policy processes are often undertaken without being explicitly referred to in an NDC. Nearly all NDCs provide reference to such strategies, which enhance the credibility of NDC targets and form the basis for implementing related measures. A good understanding of the progress made in these contexts requires an in-depth review for each country.

Despite the fact the picture of Article 6 readiness provided by current NDCs is likely incomplete, the analysis indicates that many countries are at this stage not ready to engage with Article 6, and seller countries may be facing a number of common 'readiness needs'. The three seller country case studies indicate the need to take steps that will make Article 6 an integral part of policy-planning, and to better understand the relationship between Article 6 collaboration and NDC implementation. This requires cross-ministerial collaboration, and the designation of an Article 6 Authority that can ensure coordination of different support structures and policy processes across collaboration partners. There is an opportunity for prospective seller countries to leverage existing knowledge from CDM involvement, the development of Nationally Appropriate Mitigation Actions (NAMAs) and REDD+ engagement, for example by enhancing and strengthening existing national MRV systems in line with the Article 6 requirements. For buyer countries, main readiness challenges relate to identifying the capacity needs of collaboration partners and streamlining support for Article 6 readiness with other ongoing climate policy processes and developments in the host country. Duplication of such work by competing buyers, which often happened during the CDM, needs to be avoided.

While much of the information provided in country's NDCs does not yet, and cannot, have the level of granularity to set up robust Article 6 collaboration and ensure environmental integrity, it is crucial to ensure that the overview NDC document is underpinned by a robust Article 6 strategy. This requires capacity-building. Given that NDCs and the Article 6 Rulebook will evolve in parallel, continuous refinement is required to ensure that Article 6 strategies in NDCs are meaningful for both sellers and buyers and international carbon markets can fulfil the promise to contribute to an ambition increase in line with the long-term target of the Paris Agreement.

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This work has been commissioned by the Swedish Energy Agency (SEA) in the context of a framework project on analysis and method development regarding Article 6 of the Paris Agreement. Please note that the views expressed in this report are those of the authors and do not represent any official position of the SEA.

Abbreviations

10YDP	Ethiopia 10-Year Development Plan
A6.4ER	Article 6.4 Emission Reductions
AFOLU	Agriculture, forestry, and land-use
AGN	African Group of Negotiators
BAU	Business-As-Usual
BTR	Biennial Transparency Report
BUR	Biennial Update Report to the UNFCCC
CAT	Climate Action Tracker
CCB	Climate, Community and Biodiversity Standards
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
Ci-Dev	World Bank Carbon Initiative for Development
CMA	Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CRGE	Ethiopia's Climate Resilient Green Economy
CO ₂	Carbon Dioxide
COP	Conference of the Parties
CVF	Climate Vulnerable Forum
DNA	Designated National Authority
E2050	Colombia's long-term strategy
EEC	Vietnam Energy and Environment Consultancy Joint Stock Company
EFCCC	Ethiopian Environment, Forest, and Climate Change Commission
ETF	Enhanced Transparency Framework
ETS	Emissions Trading Scheme
EU	European Union
GCF	Green Climate Fund
GDP	Gross Domestic Product
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GoC	Government of Colombia
HFCs	Hydrofluorocarbons
ICAO	International Civil Aviation Organization
ICTU	Information to Enhance Clarity, Transparency and Understanding
IDEAM	Institute of Hydrology, Meteorology and Environmental Studies in Colombia
IGES	Institute for Global Environmental Strategies
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
LDC	Least Developed Countries
LIFE-AR	Least Developed Countries Initiative for Effective Adaptation and Resilience
LT-LEDS	Long-term Low Emissions Development Strategy
LUCF	Land Use Change and Forestry
LULUCF	Land Use, Land Use Change and Forestry
MADD	Mitigation Activity Design Document
MADS	Ministry of Environment and Sustainable Development (Colombia)
MAIN	Mitigation Activity Idea Note
MATS	Mobilizing Article 6 Trading Structure Program
MOF	Ministry of Finance
MOIT	Vietnam Ministry of Industry and Trade
MONRE	Vietnam Ministry of Natural Resources and Environment
MOPA	Mitigation Outcome Purchase Agreement
MPG	Modalities, Procedures and Guidelines
MPI	Vietnam Ministry of Planning and Investments
MRV	Monitoring, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NCCC	Vietnam National Committee on Climate Change

NDC	Nationally Determined Contribution
PA	Paris Agreement
PDC	Ethiopia Planning and Development Commission
PMR	World Bank Partnership for Market Readiness
PoA	Programme of Activities
REDD+	Reducing Emissions from Deforestation and Forest Degradation Conservation of Forest Carbon Stocks, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks
RENARE	Registry for emission reductions in Colombia
SDG	Sustainable Development Goal
SEA	Swedish Energy Agency
SEI	Stockholm Environment Institute
SIDS	Small Island Developing States
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VNECC	Energy and Environment Consultancy Joint Stock Company
WFR	Warsaw Framework for REDD+

1. Introduction

The Paris Agreement (PA) defines the ambitious target of limiting global temperature increase to 1.5°-well below 2°C from preindustrial levels. Through its bottom-up framework, every participating country defines its greenhouse gas (GHG) mitigation and potentially also adaptation targets and actions in a nationally determined contribution (NDC). Every five years, Parties to the PA are required to either submit a more ambitious new NDC for GHG mitigation or update existing ones. Whereas the first new and updated NDCs were originally due by 2020, considering the COVID-19 pandemic, the Secretariat to the United Nations Framework Convention on Climate Change (UNFCCC) extended the deadline for Parties to do so prior to COP26 until mid-year 2021. By 31 July 2021, many Parties had submitted new or updated NDCs, including major emitters such as Brazil, Canada, the European Union (EU), Indonesia, Japan, Russia, and the United States. However, many countries, including several major emitters including China, India, Saudi Arabia, and South Africa, had not yet communicated a new or updated NDC at the time of writing this report. Particularly alarming is the fact that large emitters like Brazil and Mexico have reduced the ambition of their NDC, which goes against the 'progressive ambition' principle of the Paris Agreement.

According to UNFCCC (2021c), the sum of NDC pledges is an emission reduction of 12% in 2030 compared to 2010. 70 countries indicated carbon neutrality goals around the middle of the century. Projecting the emissions path until 2100, a temperature increase of 2.7° is estimated, lower than the level reported in the past but still far away from the Paris Agreement goal.

Closing the global ambition gap will require rapid transformation of all sectors of the economy. International market-based cooperation can be a tool to support and accelerate this transition. Cooperation incentivizes undertaking mitigation where it is most cost-efficient, can help channel resources towards mitigation, and facilitate private sector involvement. For international cooperation to deliver on these expectations and mobilize mitigation in line with the PA's long-term target, Parties are negotiating the rules governing Article 6 of the PA, which defines two approaches for voluntary cooperation and international transfer of mitigation outcomes. The conclusion of these negotiations had to be deferred twice due to lack of consensus, with the 26th Conference of the Parties (COP26) to the UNFCCC in November 2021 set as a new deadline.

In its official synthesis report on the NDC updates, the UNFCCC Secretariat (2021c) summarizes initial information on the use of market-based mechanisms under Article 6 in new or updated NDCs. The report finds that 83% of the revised NDCs express that a country is considering at least the possibility of using international market mechanisms, compared to 66% under the first round of NDCs.³ In addition to the UNFCCC Secretariat, other reviews such as Brandemann et al. (2021) conclude from the analysis of submitted NDCs that Parties are increasingly open to market-based cooperation. However, they also observe an imbalance between prospective sellers and buyers on the market, with a lack of potential buyers of internationally transferred mitigation outcomes (ITMOs). It must be stressed that

³ A revised UNFCCC synthesis report will be released on October 17 ahead of COP26 covering all NDCs submitted until 12 October.

Parties are referencing Article 6 cooperation in their NDCs, although as there is as yet no agreed Article 6 ‘Rulebook’, statements are often vague on the role of markets (Brandemann et al. 2021).

Due to the continued absence of the Article 6 Rulebook, Parties struggle to understand what it means to prepare for market-based cooperation under the PA. The present study builds on a previously published paper that conceptualizes Article 6 readiness. In this paper (Michaelowa et al. 2021a, p.10), we define Article 6 readiness as 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*”. We then discuss how countries can operationalize cooperation under Article 6 and how such cooperation can be linked to practical implementation of NDCs.

Against this backdrop, the objectives of the present study are to:

- Assess to what extent the updated NDCs of countries that intend to participate in Article 6 include information that are a good basis for building readiness for Article 6;
- Develop a better understanding of how Article 6 readiness can be built in the context of NDCs, based on a broad assessment of the international NDC ‘landscape’ and selected in-depth country case studies;
- Give guidance for embedding Article 6 readiness in NDC implementation.

We apply the previously developed conceptual assessment framework (Michaelowa et al. 2021a) and use a new database which compiles information on first and updated NDCs submitted to the UNFCCC between 31 July 2019 and 31 July 2021, which mention openness to participate in market-based approaches. The information in the database was cross-checked with material compiled by various actors, including the Institute for Global Environmental Strategies (IGES) and the NDC Explorer developed by the German Development Institute, the African Centre for Technology Studies and the Stockholm Environment Institute.

It should be noted that there is limited guidance and harmonization of NDCs, which are by definition “nationally determined” (see a detailed discussion in Michaelowa et al. 2021a), which hampers the comparability of the results and consistency of the analysis. Nevertheless, our analysis clarifies features of NDCs that are found to be promoting Article 6 readiness. Understanding these features can help governments identify gaps, opportunities, and strategize for building Article 6 readiness.

Building on this broad assessment, this study elaborates on Article 6 readiness by presenting three in-depth case studies on Colombia, Ethiopia, and Vietnam developed using material beyond NDCs as well as insights from semi-structured interviews with government representatives responsible for Article 6 and/or NDC development. Lastly, differences, and commonalities of “buyer” countries (Japan, Sweden, Switzerland) active in Article 6 piloting are discussed.

The study ultimately aims to contribute to improve the understanding of NDC features that are relevant for the implementation of Article 6 cooperation on the ground, so that international carbon markets can emerge as a relevant tool to increase the level of mitigation ambition around the world.

2. Assessment of Article 6 readiness in updated and second NDCs

Our assessment of Article 6 readiness looks at the guiding principles, governance, and institutional framework as well as monitoring for Article 6 for the subset of first or updated NDC submissions as suggested by Michaelowa et al. (2021a). The stepwise methodology that was applied to conduct the assessment as well as its limitations is explained in Annex A: Methodology and limitations.

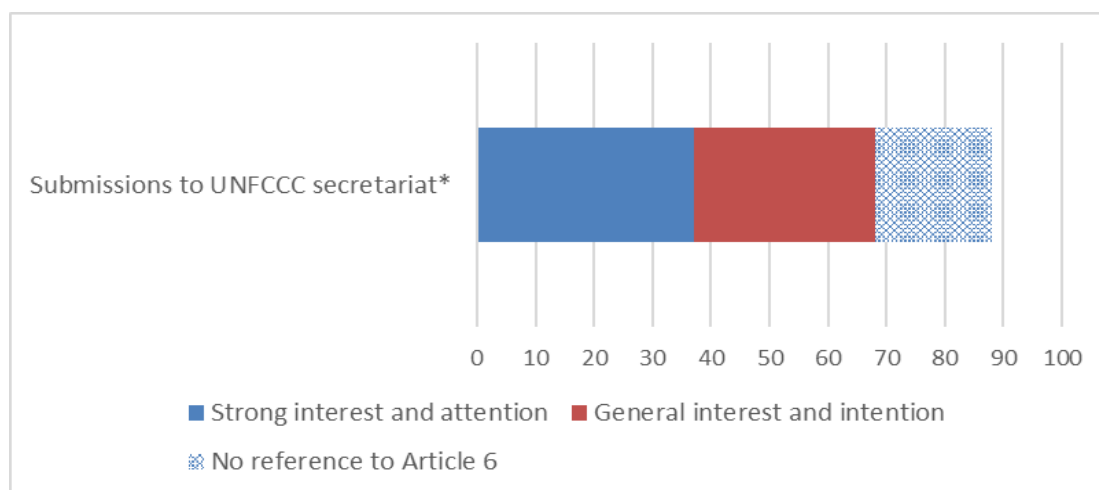
2.1. Consideration of Article 6 and related national strategy in NDCs

The articulation of a dedicated Article 6 strategy in an NDC shows a country's willingness and enhances its visibility and credibility for participating in market-based cooperation. Countries can either engage through Article 6 as pure sellers, pure buyers, or through a mixed strategy which may include both, the purchase and sale of ITMOs, to support NDC achievement (Michaelowa et al. 2021a).

2.1.1. Consideration of Article 6 in NDCs

In our database (Michaelowa et al. 2021b), we differentiate between the 31 countries that expressed a "general interest and consideration" of a future engagement in Article 6, and those (37 countries) that state a "strong interest and intention" in Article 6 participation (Figure 1). This difference in tone in the NDC submission was labelled as "intention of use" versus "possibility of use" in the official synthesis report (UNFCCC 2021b).

Figure 1: NDCs submitted including respective consideration of Article 6 cooperation



Note: (*) = Between the observation period 31 July 2019 and 31 July 2021. The EU (and the 27 member states) is counted as one Party.

Source: authors

Table 1 illustrates how the categorisation was done based on textual analysis. Strong or elaborate language can signal a certain level of readiness to participate in market-based mechanisms under Article 6, such as the development of market and institutional frameworks, or specification of priorities, sectors, or conditions for transfer. Specific language may further indicate proactive engagement of the government, whereas less specificity may point to a "laissez-faire" approach in which the Article 6 participant's engagement is based on the interest from outside government or private entities. Overall, most countries that only consider future cooperation under Article 6 remain rather general in their

NDCs. Another reason for rather generic language could be due to uncertainty over the outcome of negotiations on Article 6 rules. However, some clearly define conditions that need to be fulfilled for them to engage. It is also relevant to note that if a country does not mention Article 6 in its NDC, this does not mean it will never engage in such cooperation, nor does it mean that every country that is intending to use Article 6 will authorise transfers.

Table 1: Level of articulation to participate under Article 6 and exemplary NDC text passages

Category	Example NDC text passage
“General interest or attention”	“may explore potential markets that allow higher mitigation ambition (...)” (Nepal, 2020). “Israel is (...) is following Article 6 negotiations so that this option remains open should it be relevant in the future.” (Israel, 2021)
“Strong interest and intention”	“Zambia intends to use voluntary cooperation under Article 6 (...)” (Republic of Zambia, 2021) “Nigeria is committed to contributing to discussions on international cooperation through Article 6 of the Paris Agreement. Discussions are underway for support for the development of a national carbon pricing/market framework that will enable Article 6 outcomes” (Federal Government of Nigeria, 2021)

Source: authors

2.1.2. Articulation of Article 6 strategy and links to NDC target

Countries may already specify whether they are considering engaging as pure sellers, pure buyers, or through a mixed strategy which may include both, the purchase and sale of ITMOs, to support NDC achievement (Michaelowa et al. 2021a). Using interpretative text analysis, relevant sections in the NDCs were screened for comparison with the following definitions:

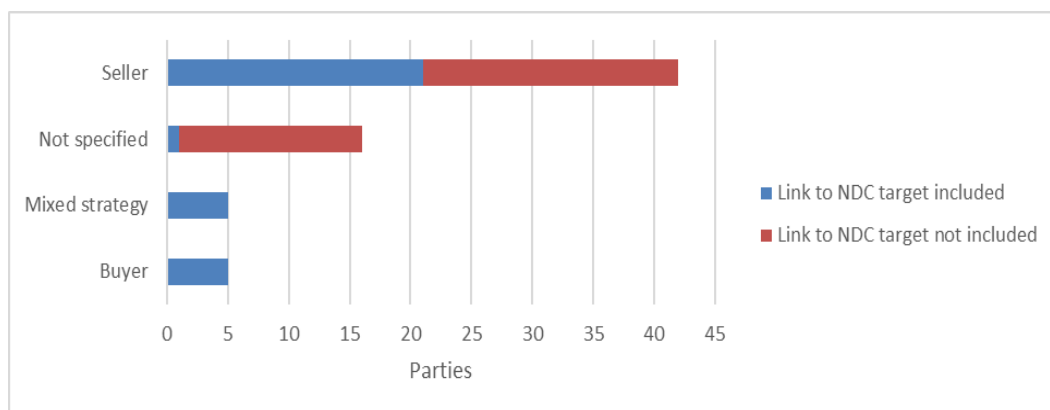
- **“Seller”**: indicates that a Party wants to use Article 6 to mobilize finance for mitigation or raise the ambition of the NDC by meeting a conditional target through the revenues from ITMOs.
- **“Buyer”**: indicates that a Party wants to use Article 6 to achieve GHG reduction targets through the purchase of ITMOs and/or wants to support GHG reduction abroad.
- **“Mixed strategy”**: indicates that a Party wants to engage in both, selling and buying activities.
- **“Not specified”**: indicates that a Party does not (or not clearly) indicate how it wants to use Article 6.

While we focus on market-based forms of international cooperation, 11 countries specify in their NDCs that they intend to pursue non-market approaches in voluntary cooperation, such as those promoted in Articles 6.8 and 6.9 of the Paris Agreement. For instance, Guinea expresses that it wants to engage in non-market approaches and seek synergies between mitigation and adaptation in the context of sustainable development. Suriname stresses that of the different forms of international cooperation available under Article 6 of the Paris Agreement, it will especially consider those under Article 6.8.

About 25% of the 68 countries do not specify clearly how they will eventually engage under Article 6, leaving their current or prospective engagement open or vague (see Figure 2). More than half of the countries pursue a selling strategy (~60%) and only 7% are pure buyers. Moreover, in less than 50% of the 68 NDCs, there is a clear link to the GHG reduction target under the NDC, e.g., by quantifying the contribution of Article 6 such as in the cases of Mexico or Vietnam. Such a link is particularly important in anticipation of corresponding adjustments (CA) for NDCs under Article 6, in which seller countries will have to add the sold amount of mitigation outcomes to their emission balance, while buyer countries can deduct the mitigation outcomes from their net emissions balance used to report on NDC achievement (UNFCCC 2019a).

While countries generally express openness towards Article 6 engagement, we find that many Parties do not provide a clear strategic direction of their engagement under Article 6 and several prospective sellers do not specifically link potential contributions of Article 6 to achieving the NDC target, confirming the analysis by Brandemann et al. (2021).

Figure 2: Distribution of Article 6 strategies among Parties and link to NDC target



Note: This analysis does not include time horizons of countries' Article 6 strategy as none of the analysed NDCs expressly distinguished between short, medium, or long-term strategies.

Source: authors

Out of all the countries that refer to Article 6 cooperation, 14 countries, i.e., 31% of the 45 countries with a conditional NDC target, specifically state that they consider international market-based cooperation as an avenue to achieve their conditional targets. Mexico expects that transfers of mitigation outcomes will support the country in increasing its mitigation target to 36% (from 22% of emission reductions compared to a BAU scenario), which corresponds to the entire conditional target for GHG reductions. Zambia's NDC target is fully conditional upon international support and the country does consider voluntary cooperation under Article 6 to be such form of international support.

2.1.3. Conditions and safeguards to guide Article 6 engagement

While half of the countries only include very concise references to Article 6 cooperation, 33 countries link their reference to Article 6 to objectives and conditions for engagement. Both Colombia and Panama refer to the San José Principles for engagement in carbon markets in their NDC, whereas many other signatories to these principles do not. Argentina lists national criteria for the engagement in Article 6 that relate to the integrity of the market-based cooperation, their support to Sustainable Development Goals (SDGs) and on building capacities and the requirement to guarantee respect for national and regional legislation, inter alia. Sao Tomé and Príncipe stresses that market mechanisms will bring strong incentives for private sector engagement. Senegal requires that emission reductions achieved in market-based cooperation must be shared among Senegal and the partner countries. In addition, Senegal stipulates that carbon market projects should help to finance adaptation, thereby hinting that Senegal will make authorization dependent on a provision of a "share of proceeds" or revenues to the benefits of adaptation finance.

Only 15 countries, i.e., 22% of the total, specifically mention the promotion of sustainable development in the context of Article 6 cooperation. For instance, Guinea wants to use cooperative approaches to provide a complementary response for its needs regarding sustainable development.

Several Latin American and Caribbean countries are announcing the development of a specific legislation or regulation for engagement through Article 6. Barbados will put forward legislation which specifies that all mitigation achieved will “belong to the crown” unless otherwise specified, which is a reference to the requirement of all activity developers in carbon markets to request authorisation for the transfer of carbon credits or allowances. Four further countries from Latin America (Argentina, Brazil, Dominican Republic, and Paraguay) specifically state that in the absence of an authorisation or recognition by the government, any mitigation achieved in their jurisdiction will count towards NDC achievement. Paraguay announced that it is developing a registry for mitigation actions, also to regulate ownership of carbon credits. Furthermore, Peru’s NDC mentions that the government is preparing the domestic conditions for Article 6 engagement, relating to institutional arrangements, regulations, and procedures. These will also ensure that these conditions guarantee that cooperation increases the ambition of the NDC and promotes sustainable development.

Both Kenya and Nigeria have also announced the development of national institutional frameworks to govern Article 6 engagement.

Box 1: Article 6 strategy of the European Union and its member states

The EU has stated that it does not intend to purchase international credits for the achievement of its NDC (Brandemann et al. 2021). However, the EU does not wholly exclude the use of market mechanisms, as the EU has linked the EU Emissions Trading System (ETS) to the Swiss ETS and potentially other ETS. The linking of ETS between jurisdictions is identified by Greiner et al. (2020) as a form of Article 6.2 cooperation under the Paris Agreement as it is designed for mitigation outcomes to be transferred across borders through trading between entities covered under either the domestic ETS or the linked ETS. The linking of EU ETS to other ETS schemes thus suggests the EU intends to adopt a mixed strategy where the EU may authorize and account in line with Article 6 rules the international transfers of allowances under the linked schemes (Michaelowa et al. 2021a). In addition, the EU does not explicitly exclude the option of purchasing of international credits by member states to go beyond the NDC target, as Sweden is considering, or as a means of verifying mitigation impacts through cancelling credits.

2.1.4. Article 6 references by region and country development status

The geographical distribution of the NDCs contained in the database shows that almost half of the NDC submissions with reference to Article 6 originate from sub-Saharan Africa or Latin America (Figure 3). Moreover, the 54% share of lower middle-income countries, Least Developed Countries⁴ (LDCs) as well as Small Island Developing States⁵ (SIDS) in all NDCs in the database is a salient feature. Of these 37 submissions we classified 24 - concentrated in sub-Saharan Africa - as having “strong interest or intention” of engaging under Article 6. With about two thirds, the share of updated NDC submissions with strong language on Article 6 is therefore disproportionately high in poorer or particularly vulnerable countries. This indicates that Article 6 is perceived as particularly relevant for lower-income and/or vulnerable countries who want to generate revenue from the sale of ITMOs. LDCs and SIDS face

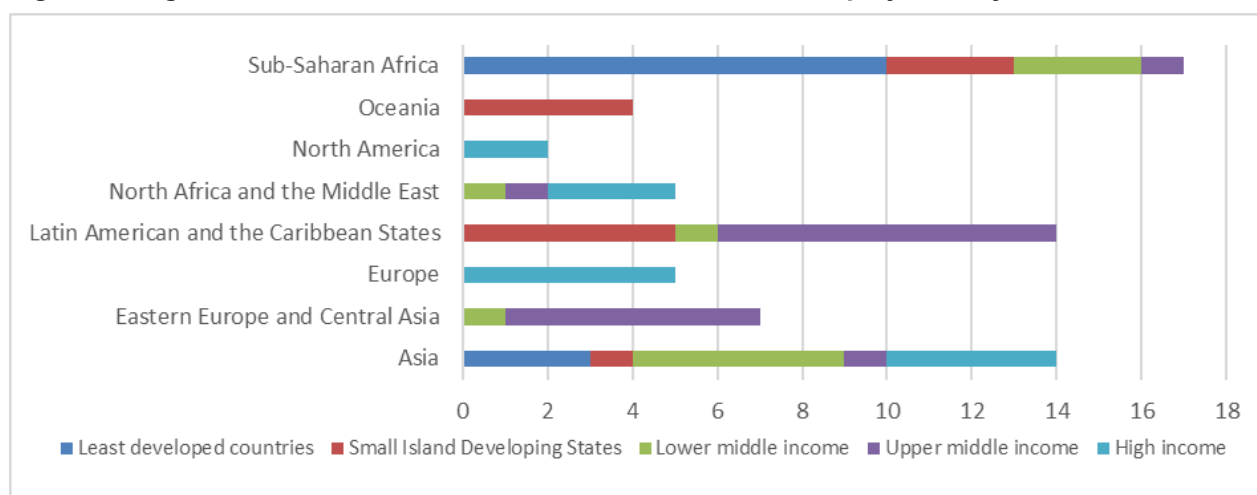
⁴ See <https://data.worldbank.org/region/least-developed-countries-un-classification>

⁵ See <https://sustainabledevelopment.un.org/topics/sids/list>

significant challenges in engaging with international carbon markets, as their emission levels and therefore mitigation potential is low, private sector engagement difficult, most technologies are imported, and governance capacities are lacking (the latter is not true for SIDS with higher income levels).⁶

In the dataset, 14 out of the 59 Non-Annex B countries (24%)⁷ specifically mention the experiences with the CDM. For example, Bhutan, Rwanda, and the United Arab Emirates explain that they are building on their experience with the CDM. South Sudan states its intention to pursue CDM activities. Senegal confirms its support for a transition of the portfolio of CDM activities, while Sao Tomé and Principe also mentions that they support the use of pre-2020 Certified Emission Reductions (CERs) from the CDM.

Figure 3: Regional distribution of NDCs in the dataset and break-up by country classification



Source: authors

Lower-income and vulnerable countries in the medium term expect to receive carbon finance through engagement in international market-based cooperation; in the short term they may be reluctant to sell until all Article 6 rules are clear. Among the top ten largest emitters of GHGs, the dominant CDM host countries China and India have not yet submitted an updated NDC. China has developed domestic carbon market instruments, with an ETS, a national and subnational crediting schemes. In addition, demand from Chinese companies for voluntary purposes is rising. China's role in international carbon markets may therefore change over the medium term from a supplier of mitigation outcomes to a buyer. India, despite receiving support under the Partnership for Market Readiness, is currently not developing mandatory domestic carbon markets. However, it has set up mechanisms for trading renewable energy

⁶ In the draft rules, modalities, and procedures for the crediting mechanism established under Article 6.4 of the Paris Agreement, the special circumstances of these countries are recognised and will have to be considered in implementation. Under the Kyoto Protocol and the Clean Development Mechanism (CDM) established therein, extensive reforms to promote small-scale and programmatic activities, reduced transaction costs while bi- and multilateral cooperation builds capacities of host countries. This spurred development of CDM activities in poorer countries in the second commitment period of the Kyoto Protocol. However, this coincided with a collapse of prices on the international carbon market and many- in particular African countries- were not able to benefit substantially from their engagement in the CDM.

⁷ Only countries without emissions targets under the Kyoto Protocol (so-called Non-Annex B countries) were eligible to host CDM activities.

and energy efficiency certificates and is interested in transitioning its portfolio of ongoing CDM activities. Indonesia, participating both in the CDM and in the Joint Crediting Mechanism (JCM), has submitted a revised NDC and is considering continuing to engage in international carbon markets as a “seller” of mitigation outcomes even while discussing a domestic ETS.

On the buyer side, except for Japan, Sweden and Switzerland (see chapter 4), there is little indication of significant compliance-driven demand for mitigation outcomes from other countries, except for transfers happening in linked ETS. This leads to an imbalance of prospective supply and demand that already characterised the second commitment period of the Kyoto Protocol and to a funding gap to achieve higher ambition in mitigation action in many countries relying on the authorization of transfers to mobilise finance. An overview of the relevant NDC sections of the largest emitters that have submitted an NDC in the past two years is provided in **Annex B: References to Article 6 cooperation by top 10 emitters**.

2.1.5. Sectoral scope of Article 6 engagement

Only a few countries mention specific sectors in relation to considered or intended Article 6 engagement, and many of those mention the forestry sector. Colombia, for instance, specifies that it plans to make use of cooperative approaches under Article 6.2 to achieve a goal of halting deforestation by 2030 that goes beyond the NDC. Saint Lucia mentions a national REDD+ programme in the context of information on Article 6. The country has also decided not to include mitigation targets related to forest cover due to the uncertainties of eligibility under Article 6. South Sudan also states its intention to access finance through international carbon markets and pursue REDD+ activities. Guinea and Lao mention investments in renewable energy.

2.1.6. Further NDC features informing Article 6 strategy

Michaelowa et al. (2021) identified several relevant NDC features which underpin the strategic orientation of countries wishing to participate in market-based approaches under the Paris Agreement, e.g., regarding the scope and coverage of the NDC or the specification of NDC mitigation targets. Such items may influence the eligibility of mitigation activities for participation under Article 6 and an empirical understanding of them is therefore critical for Article 6 readiness. Table 2 summarizes these additional NDC features which can facilitate Article 6 participation. In a complementary analysis in Annex C: Complementary analysis, these results are presented graphically.

Table 2: Analysis of key characteristics underpinning Article 6 strategy in NDCs

NDC feature	Main result
Type of target	93% include single-year targets, which will require the choice of a specific accounting method to make accounting for the transfer or use of ITMOs consistent with NDC implementation.
Target year	79% refer to 2030 as their target year. In the absence of a decision on common time frames, a common NDC implementation period facilitates robust accounting in international carbon markets.
Carbon neutrality reference point	66% do not reference a carbon neutrality target. About one third reference 2050 as their carbon neutrality reference point. Carbon neutrality reference points can inform reference levels for Article 6 cooperation and ensure market-based cooperation is consistent with the long-term priorities.

NDC feature	Main result
Type of coverage	88% apply an economy-wide approach which facilitates robust accounting and avoids activity-level analysis of whether the activity is covered -or not- by NDC targets.
Methodologies and assumptions	85% make some reference to their methodologies and the assumptions used – however typically leave out quantitative assumptions behind models or data. Such information is however important to design market-based cooperation that contributes to NDC implementation of the host country.
Mitigation co-benefits of adaptation action	The majority (56%) indicate mitigation co-benefits of adaptation action, which is a good basis to promote synergies of adaptation and mitigation actions.
Mitigation policies and measures	84% refer to specific mitigation policies or measures which are relevant for the regulatory additionality of market-based cooperation. The more detailed information provided, the easier it is to identify mitigation opportunities beyond the NDC (for sellers) or to identify the amount of ITMOs necessary to ensure compliance (for buyers).
Sectors, gases, and pools excluded	84% either do not mention or omit specific sectors, gases or pools due to methodological uncertainties and data gaps or due to special contextual circumstances (in the case of SIDS and LDCs). Accounting rules for activities in sectors outside the NDC are still contentious in the negotiations, as there are risks to robust accounting.
Conditionality	Two-thirds include conditional targets in the analysed NDCs, however only few of them directly state that market-based cooperation will contribute to the achievement of this target.
Information on reference points, data, and indicators	87% include specific reference points, e.g., a base year for the calculation of baselines. Such information is important for the quantification of NDC targets and the quantification of other baselines.
Quantified NDC targets	Nearly all (94%) include quantified emission reduction targets in the NDC, which is a precondition for robust accounting for transfers of mitigation outcomes.
Quantified sectoral NDC targets	The majority (56%) do not dis-aggregate quantified emission reduction targets in the NDC at sectoral level. This information is relevant for host countries to understand mitigation achieved in sectors that must be retained for NDC implementation, and which mitigation can be authorized for transfer.
Mention of national circumstances and sustainable development priorities	85% embed their NDC into national circumstances and integrate NDC attainment into broader sustainable development objectives. The more specific the policy priorities of the host countries, the better it can fulfil its responsibility to ensure mitigation actions do respect and promote sustainable development.
Links to relevant strategies, policies and frameworks	Nearly all (93%) provide reference to national strategies, policies and/or frameworks at national level. This can enhance the credibility of the targets.

Note: For a definition of terms used in this table please refer to **Annex C: Complementary analysis**.

Source: authors

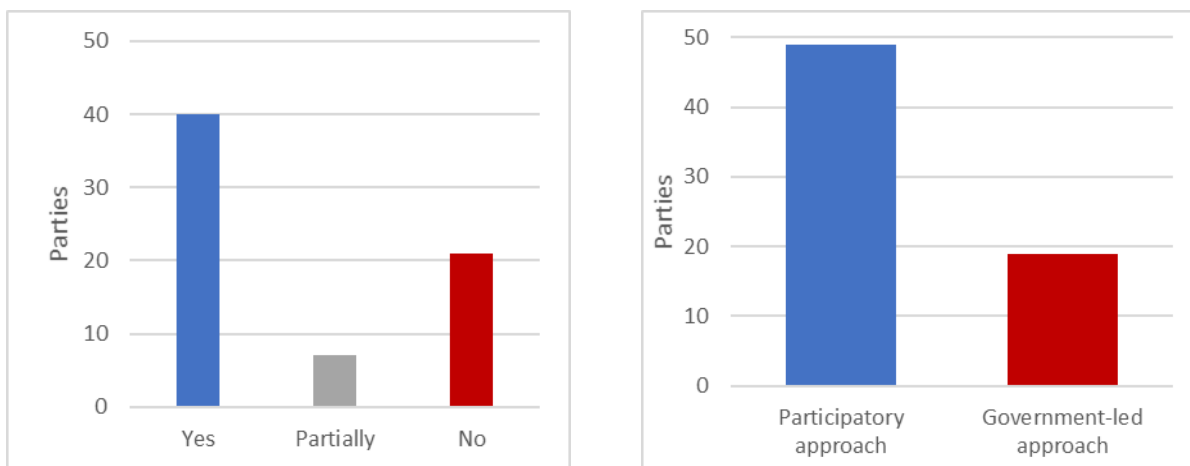
2.2. NDC features informing Article 6 governance

Parties need an institutional framework to effectively govern Article 6 transactions which is an integral part of successfully participating under market-based cooperation under the Paris Agreement. While seller countries prospectively need to approve ITMO generation and authorize transfers, buyer countries will want to have in place suitable structures to control both the quality and quantity of acquired

ITMOs, e.g., through a single designated authority responsible for the administration of mitigation outcomes whose set-up depends on country context and capacities (Michaelowa et al. 2021a).

With the final Rulebook on Article 6 still pending, there are few existing institutional structures with direct links to Article 6 governance in place. The first round of NDC updates provided an opportunity for Parties to state their plans of governing Article 6 in the broader context of NDC implementation governance, sustainable development as well as stakeholder management. Some countries already communicated that they will engage in building the institutional framework for Article 6 engagement (see above). Against this backdrop, we evaluated to what extent NDC approaches address implementation governance structures as well as stakeholder management (Figure 4 and Figure 5). An elaborate description of such approaches is interpreted as signalling robustness and clarity on the institutional framework into which governance of Article 6 cooperation must be integrated.

Figure 4: Description of NDC implementation governance **Figure 5: NDC update process and implementation**



Source: authors

In the analysis of the dataset, we distinguish between NDCs with no, fragmented or elaborate descriptions of the governance structure for NDC implementation (see Figure 4). Descriptions of governance-related structures varies substantively across submission documents, from passing references to responsible government entities (e.g., Peru) to dedicated sections or chapters on governance arrangements (e.g., Argentina or Morocco). Whereas most countries do refer to their NDC implementation governance, a significant number of Parties does not. This does not mean, however, that those Parties do not have such structures in place.

Moreover, looking at the approach to stakeholder management, the results show that most Parties took up narratives of participatory NDC updating processes and/or the inclusive governance of NDC implementation (Figure 5). Some differences between Parties are impossible to capture in binary categories, and also, one must note the limitations resulting from text analysis and/or expert judgement only without being able to verify, on a country-by-country basis, to what extent a diverse group of stakeholders has been involved, and governance applied, throughout the NDC updating process. The involvement of the private sector in NDC preparation processes can be an indicator for the ability of the governments to

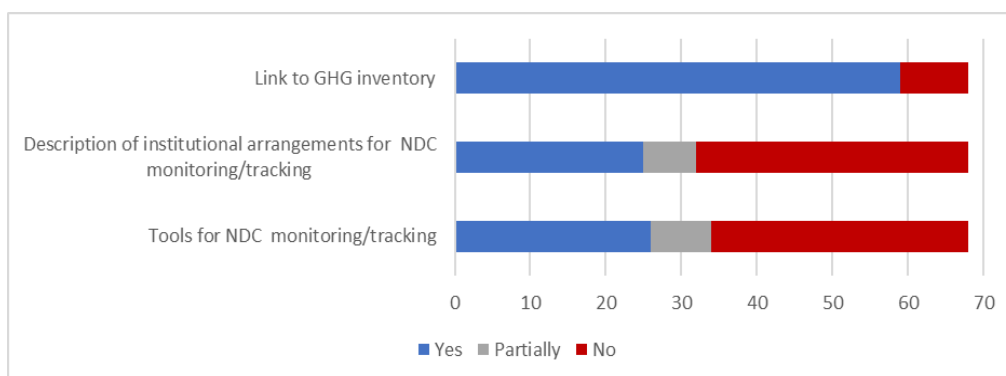
engage private sector in Article 6 cooperation as either buyers or sellers. For prospective “seller” countries, the engagement and mobilization of private sector actors implementing mitigation actions that go beyond the countries’ NDC targets will be crucial for Article 6 strategy fulfilment.

2.3. NDC features informing Article 6 monitoring

In the context of Article 6, Parties must be able to keep track of, account for, and report on, the transfer of mitigation outcomes following the (draft) Article 6.2 guidance (UNFCCC 2019a, section IV) as well as the Modalities, Procedures and Guidelines (MPGs) under the Enhanced Transparency Framework (ETF), which will be fully operational as of 2024 (UNFCCC 2018). Especially in the absence of an international oversight body, national-level entities ensuring a high degree of transparency will be essential for generating trust among Parties, e.g., in the environmental integrity of mitigation outcomes (Michaelowa et al. 2021).

This dimension of Article 6 readiness therefore pays attention to specific NDC features underpinning readiness for targeted monitoring systems. To achieve this, we evaluated the subset of NDCs regarding the extent to which tools for NDC monitoring were referred to: how far specific institutional monitoring arrangements to conduct such analysis are described as well as whether the NDC links to national GHG inventories (Figure 6).

Figure 6: NDC features informing Article 6 monitoring arrangements



Source: authors

Thereby, the submitted NDCs with reference to Article 6 were differentiated based on their depth of reference to a GHG inventory. A clear reference is a link made between the base year emissions and the emissions data as per the GHG inventory, or if the country specifies that it will account for NDC achievement against the respective GHG inventory; this was the case for 59 countries. A partial reference is when the country only includes limited and cursory mentions to the GHG inventory. Only about one third of all Parties in the subset specifically describe institutional arrangements or tools which ought to be deployed for monitoring or tracking purposes of the NDC. However, such arrangements will be crucial for governments engaging in Article 6, both sellers and buyers, to understand the implications of accounting for Article 6 transfers of mitigation outcomes on the achievement of and compliance with the NDC targets. Many countries may begin to establish these arrangements during NDC implementation, but the ability to do so, and the required access to emissions data on a regular basis, is likely to become a key bottleneck and hurdle for many countries with limited capacities that wish to engage in market-based cooperation under Article 6.

3. Case studies on Article 6 readiness in “seller” countries

3.1. Zooming in on Colombia, Ethiopia and Vietnam

This chapter presents three case studies of countries that are looking to become ‘sellers’ of Article 6 mitigation outcomes. The case studies have been selected to represent:

- Countries that have explicitly communicated their interest to become Article 6 sellers and have actively started to prepare for future Article 6 collaboration through exploring engagement opportunities, building domestic (collaboration) structures, and/or pilot activities.
- Located across three different continents (Asia-Pacific, Africa and Latin America).
- Represent different stages of and approaches to Article 6 readiness and cooperation⁸.

3.2. Colombia

Colombia has vast experience as a host for CDM projects and is one of the first countries to be engaging with Article 6 pilots. Its domestic approach to mitigating climate change currently includes a carbon tax with a linked offsetting scheme, and an ETS, currently under development (World Bank 2020b). The updated, more ambitious NDC reiterates the interest of the Government of Colombia (GoC) to participate in international cooperation under Article 6, with a commitment to environmental integrity endorsed by the San José Principles. The case study is based on desk research coupled with inputs from officials from the Ministry of Environment and Sustainable Development (MADS), including the Article 6 negotiator from the Ministry, and the official in charge of green finance from the Ministry of Finance in several engagement rounds throughout 2021.

Colombia's experience with carbon markets, its comprehensive legal and policy framework for climate change, as well as its participation in Article 6 piloting and readiness activities provide a solid starting point for potential Article 6 collaboration. At the same time, the country will need to take several steps to be able to strategically engage. Colombia is currently at the stage of exploring how to make use of Article 6 collaboration, adopting a ‘wait-and-see’ approach until the Rulebook is finalized before further developing the required strategy, governance structures and MRV infrastructure, and committing to transactions.

Table 3. Overview of Article 6 readiness dimensions in Colombia

<i>Dimension</i>	<i>Elements</i>
<i>Article 6 strategy</i>	<ul style="list-style-type: none"> • No formal strategy in place, updated NDC explicitly refers to intention to cooperate in Article 6, and to reach net-zero deforestation. • Scope and coverage are well-defined in NDC, including a series of quantified mitigation actions and its co-benefits in terms of SDGs. • Long-term strategy (E2050) has been developed and integrated into the NDC.
<i>Institutional framework</i>	<ul style="list-style-type: none"> • No legal framework for Article 6 in place yet. • Designated Article 6 authority not yet formalized. • Initial draft of 10 high-level accounting rules for mitigation activities laid out in NDC, including need for corresponding adjustment and additionality. • Ample experience with market-based mechanisms and engagement in Article 6 pilots; existing roles, responsibilities and processes developed under CDM likely to be transitioned to Article 6 context.

⁸ Readiness to engage is not a linear process and engagement in carbon market cooperation may be subject to changes in political considerations and circumstances in the respective countries which are not analyzed or considered in this study.

Dimension	Elements
<i>MRV framework & infrastructure</i>	<ul style="list-style-type: none"> • Elaborate MRV system compliant with UNFCCC standards, including registry for emission reductions (RENARE), national GHG inventory system (SINGEI), the accounting system for emissions reductions and removals of GHGs and the forests and carbon monitoring system (SMByC). Need to adapt existing system to Article 6 requirements, and to develop an ITMO registry and a transaction registry. • Technical capacities in place to develop baselines and methodologies in line with Article 6 requirements, country receives international support for strengthening the MRV system and enhancing transparency in accounting.

3.2.1. Key links between the NDC and Article 6 readiness

NDC overview

With the submission of its updated NDC in December 2020, the GoC declared climate change a national priority. It committed itself to limit GHG emissions to 169 Mt CO₂e in 2030, which is equivalent to a reduction of 51% by 2030 (relative to business as usual, BAU), and stated its intention to become carbon neutral by 2050 (Government of Colombia 2020). The new target implies a considerable rise in ambition from the Colombian INDC, which pledged to unconditionally achieve a 20% reduction of emissions by 2030, with a potential increase to 30% conditional on international support (Government of Colombia 2015). The updated NDC, however, does not specify if the new target is unconditional or conditional on support. The rationale for this strategy is to have more flexibility in deciding the mitigation activities which can be financed by international funds, avoiding having to earmark activities with the lowest marginal abatement costs for ITMO sales (information obtained from interviews).

The NDC identifies a portfolio of 148 measures on national, regional or private sector level that are (or will be) covered in the Integral Sectoral Plans for the Management of Climate Change (PIGCCS - Planes Integrales de Gestión de Cambio Climático a nivel Sectorial) (Government of Colombia 2020). The NDC covers all the economic sectors in Colombia (Government of Colombia 2020), and the MADS is negotiating with the different ministries a minimum contribution of 20% emissions reduction from each sector (information obtained from interviews). However, there is no update on the outcomes of these negotiations nor on the individual mitigation goals for each sector.

The AFOLU sector is the country's primary source of emissions (55%), followed by the energy sector (35%) (Pulido et al. 2019). One of the leading environmental challenges in the country is deforestation, with a deforestation rate of 158.894 ha in 2019 (Government of Colombia 2020). This is particularly relevant given that 50% of the country is covered by natural forests (MADS n.d.). The updated NDC heavily relies on mitigation in the AFOLU sector to achieve its target, while policies for reducing fossil fuel dependence on the energy and transport sector are considered inadequate (CAT 2020d).

In its updated NDC, the GoC declares its intention to use Article 6, stating it will apply the environmental integrity approach of the San José Principles (Government of Colombia 2020). However, the upcoming Article 6 Rulebook will eventually determine if Colombia will use the mechanisms under Article 6 to meet its NDC target or solely to go beyond it (information obtained from interviews).

Article 6 strategy can be built on previous experience with carbon instruments

Over the past years, Colombia has developed ample experience with carbon pricing and market mechanisms as policy tools to reduce domestic emissions. The country introduced a carbon tax of

approximately USD 5/t CO₂ in 2017, allowing covered entities to partially meet their tax obligation by offsetting emissions with carbon credits from anywhere until end 2017, and credits originated in Colombia thereafter, from both CDM and voluntary carbon market standards. Between 2017 and 2020, the tax has raised over USD 340 million and approximately 38 million credits have been used against the tax (Directorate for Climate Change and Risk Management of the MADS 2020). 54% of credits come from afforestation and reforestation and another 19% from REDD+, the remaining 27% from the energy sector. The largest project certifier in the market is Verra, accounting for 34% through the Verified Carbon Standard (VCS) and VCS and Climate, Community and Biodiversity Standards (CCB); 14% of offsets come from CDM projects (Asocarbone 2021). In 2019, about 80% of the 2 million CERs generated by Colombian CDM projects were used to offset the carbon tax (UNFCCC 2019b).

To prepare for the next generation of carbon markets under the Paris Agreement, Colombia has started to pilot Article 6, including in collaboration with the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the SEA, and the Global Green Growth Institute (GGGI). The pilots focus on different emission sources, such as nitric acid plants, buildings, landfills, energy and agricultural sectors.

Despite explicitly stating an interest to engaging with Article 6, the GoC has not developed an Article 6 strategy yet, and is hesitant to do so before the Article 6 Rulebook is finalized. However, the updated NDC includes a number of elements that will help shape and inform the development of such strategy:

- The NDC has a single year target for 2030 (Government of Colombia 2020), with a progress evaluation to be carried out in 2025 to adjust for potential deviations from the mitigation scenario (information obtained from interviews).
- The scope and coverage of the NDC are clearly stated, including economy-wide emissions and the six GHGs (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆).
- The document quantifies emission reduction potential for specific measures or, in some cases, sectors.
- The updated NDC includes detailed information on the calculation of the baseline scenario. Factors taken into account for this calculation include population projections, expected GDP growth, estimated impact of the COVID-19 pandemic on the economy, deforestation models, as well as hydro-carbon supply and production scenarios. Furthermore, seven new emissions categories have been included in the baseline calculation⁹. However, the updated NDC does not include all GHG removals by carbon pools at a national level due to information gaps at national level¹⁰.
- The NDC aligns the specific mitigation measures with the SDGs to which they contribute, thus highlighting and clarifying the synergies and co-benefits.

⁹ These new categories are: Other Energy Industries; Mining (excluding fuels) and Quarrying; Pipeline Transport; Forest Land Remaining Forest Land; Land Converted to Forest Land; Wetlands; Non-CO₂ GHG Emissions from Biomass Burning (Government of Colombia 2020).

¹⁰ The excluded carbon pools are: Wetlands: Páramo (high altitude moorland); Wetlands: Wetlands (except emissions from power generation in dams); Wetlands: Seagrass; Settlements: Urban trees; Forests: Removals from natural forest remaining forest. Furthermore, as in the first NDC, removals from natural forest remaining natural forest that are not the result of a restoration process are not accounted for given that they are not considered anthropogenic removals (Government of Colombia 2020).

- Beyond the period covered by the NDC (2020-2030), the document refers to Colombia's long-term strategy (E2050), showing an integrated approach across different policy paths, into which an Article 6 strategy could be embedded. The E2050 sets the carbon neutrality target by 2050 (Government of Colombia 2020).

The updated NDC specifies the intention to use Article 6.2 or other mechanisms that generate ITMOs to reach net-zero deforestation by 2030. This target is established as complementary to the NDC target of reducing the deforestation rate to 50,000 hectares per year by 2030 (Government of Colombia 2020). In addition, although not specified in the NDC, other Article 6 opportunities could derive from the numerous operational CDM projects, in case a transition is allowed, and the initiatives generating credits for the domestic carbon market.

A number of elements relevant for an Article 6 strategy for Colombia are not yet clearly defined. For example, the updated NDC states that Colombia is in the process of quantifying the costs and the financing structure needed to implement the NDC, which will provide the necessary information for a first estimate of national budget allocation and the magnitude of required private and international resources (Government of Colombia 2020). Another key element of an Article 6 strategy would be the integration of international cooperation in other climate plans and policies, which is currently missing, as well as the definition of the NDC implementation costs, funding opportunities and resource challenges.

Institutional set-up

The MADS leads the climate change policy in Colombia, including the initial efforts to implement the Paris Agreement and the elaboration of the country's NDCs. Additionally, the MADS acts as the Designated National Authority (DNA) for CDM projects (UNFCCC n.d.). Since the creation of the Commission for Climate Change in 2016, this technical body is responsible for designing policies, principles and actions, and for approving the NDC updates (MADS 2020a). Despite the leadership of the MADS, it is unclear at this stage if it will become the designated Article 6 authority, given that the GoC has not yet issued an Article 6 mandate.

In addition to the MADS, other ministries are increasingly getting involved in climate change policy, such as the Ministry of Finance and the National Planning Department. The coordination of the inter-ministerial collaboration represents a challenge to the GoC in the context of climate policy development and implementation, requiring improvements in the delimitation of roles and responsibilities (information obtained from interviews). Colombia's NDC shows some progress in this regard, explicitly appointing particular ministries as lead responsible entities for specific measures or targets, thus, partially clarifying roles and responsibilities (Government of Colombia 2020).

A minimum level of cooperation exists between the units responsible for inventories, MRV, and reporting to UNFCCC. The Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) is responsible for the Biennial Update Report (BUR), National Communications to UNFCCC and GHG inventory. Additionally, IDEAM leads the overall MRV system, for which responsibilities are shared with the MADS, the National Planning Department and the Agricultural Rural Planning Unit of the Ministry of Agriculture (information obtained from interviews).

In terms of processes for approval of activities and transfers for Article 6, Colombia will likely continue to use the procedures and capacities established to approve CDM projects and PoAs, for which the Climate Change Directorate within the MADS is responsible (information obtained from interviews). However, the procedure is still to be formally decided, as well as roles and responsibilities, once the transition process from CDM to Article 6 is defined. Furthermore, a transaction registry and a consolidated approach for transfers needs to be developed. Currently, only a national registry for the carbon tax is in place and with a wide scope for improvement. For example, the World Bank strongly recommends the inclusion of public institutions such as the MADS and IDEAM in the carbon tax management, which to date have not been involved (World Bank 2020c).

Colombia has proposed an initial draft for ten accounting rules with its updated NDC, relating to corresponding adjustments (exported ITMOs will no longer counted towards the domestic target), additionality, guidelines for awarding emissions to each sector, the responsibility of the owner of an initiative to guarantee the independence and competence of the verifier, the exclusion of mitigation outcomes with vintages prior to 1 January 2015¹¹ or which belong to categories not included in the NDC, and the requirement that mitigation outcomes must have been produced within five years before the date of the NDC target date (MADS 2020c). Whereas the current accounting rules equate to high-level principles, further specifications will be developed once the COP agrees Article 6 implementation guidelines (information obtained from interviews).

Stakeholder collaboration and private sector engagement

There are no processes or activities for stakeholder collaboration and private sector engagement specific to Article 6. However, stakeholders from the MADS and other ministries are engaged in discussions around Article 6 implementation. Further capacity building may be needed to support this process. In terms of private sector engagement, there is an ongoing dialogue on carbon markets in the context of the offsetting mechanism for the carbon tax, as well as the involvement of the private sector in Colombia's climate change policy. This wider engagement could set the ground for future Article 6 collaboration (information obtained from interviews).

The intensity of these interactions is low, and efforts are needed to transition to more structured and systematic collaboration. An example of more structured engagement between the government and private sector stakeholders is the series of webinars organized by the MADS and other organizations to raise awareness of the benefits of carbon markets in the context of the carbon tax offsetting mechanism, which includes sessions focusing on the private sector (MADS 2021a).

MRV infrastructure

The MRV system is defined by Resolution 1447 of 2018 and managed by IDEAM under the guidelines of the Directorate of Climate Change and Risk Management of the MADS. The MRV system comprises the registry for emission reductions (RENARE), the accounting system for emissions reductions and

¹¹ There is an exception to this rule for mitigations activities implemented prior to this date if they can demonstrate their dependence on carbon finance for their continued operation. This rule builds upon Resolution 1447 which regulates the emissions registry RENARE. The Resolution stated that from 2020 forward, no GHG mitigation results older than five years can be reported in RENARE (MADS, 2020c).

removals of GHGs, the forests and carbon monitoring system (SMBByC) and the national GHG inventory system (SINGEI). RENARE has been operational since September 2020. Results-based-payment programmes, other offset activities, or initiatives demonstrating the achievement of the national mitigation goals are required to register in RENARE. It registers mitigation activities, NAMAs, REDD+ and CDM activities within the country to obtain information and manage and evaluate the results of mitigation efforts (MADS 2020b). RENARE will be used to register Article 6 transactions once it is made compatible with the reporting requirements for Article 6 and the ETF (information obtained from interviews). The transactions registry will need to consider the relationship between the transactions under the carbon tax and its offsetting mechanism, the future ETS, and any international transactions.

Colombia has demonstrated technical capacity for defining clear baselines and methodologies, as well as willingness to make data and modelling tools used in constructing NDC emission pathways and target setting publicly available, which will form an important resource in developing Article 6 collaboration. The updated NDC provides a brief description of the baseline and reference scenario, while further details are available separately. Despite current capacity, additional efforts will be needed to adapt baselines and methodologies in line with Article 6 requirements. To date, methodologies from private carbon market standards have prevailed in the generation of offsets for both the voluntary markets and carbon tax compliance.

In terms of implementing the national crediting framework, the GoC will follow the guidelines defined at the international level.

3.2.2. Continued preparation for Article 6 readiness

Colombia has received international support through a number of programmes to strengthen data collection and development regarding sectoral emissions, reference scenarios and impact modelling, strengthen MRV capacities and infrastructure, enhancing transparency, enhance policy design, including sectoral mitigation strategies, the country's Solid Waste Management NAMA, and the ETS.

In addition, the country is participating in several Article 6 pilot activities which are contributing to Article 6 readiness by identifying capacity needs and supporting capacity development, including:

- The 'Designing Policy Approaches Under Article 6' programme led by GGGI which aims to develop policy approaches that could potentially generate Internationally Transferred Mitigation Outcomes (ITMOs) and is pursuing the implementation of concrete policy crediting approaches. Colombia is one of eight scoping countries (Greiner et al. 2020).
- Mandated by the Swedish Energy Agency (SEA), in 2018, South Pole discussed Colombia's sustainable development priorities and activities for this NDC period with the MADS. Based on this discussion, two Article 6 pilot projects were designed to identify emission reductions in the agriculture and energy sectors. The pilot projects on rural solar energy and biodigesters in industrial wastewater facilities are meant to formulate best practices and discuss ideas that inform the design and implementation of Article 6 (South Pole 2020).
- The NewClimate Institute, in coordination with the Colombian Ministry of Housing and the MADS, identified the construction of Net-Zero Energy Buildings as a promising emission reduction option for a virtual Article 6 pilot (Kachi et al. 2020).

- As part of the Nitric Acid Climate Action Group initiative, the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is offering the GoC and nitric acid plant's operators technical assistance to equip plants with nitrous oxide abatement technologies, monitoring and reporting, as well as providing financial support to overcome investment burdens (Greiner et al. 2020).
- Finally, through the German Environment Agency, Germany also supports a social housing development project in Colombia aiming at identifying measures that could incentivize emission reductions by providing result-based finance or sharing generated emission reductions with investors finance (Greiner et al. 2020).

So far, the pilot activities have not moved beyond the initial stages of exploring opportunities for engagement. They contribute to a basis for Article 6 collaboration by enhancing the availability of granular data, identifying opportunities for collaboration, and engaging a wide range of stakeholders in the development of activities and programmes. It will be important to coordinate the different capacity building support trajectories the country is engaged in, to avoid a duplication of efforts and leverage capacities. The actual implementation of Article 6 transactions will require the development of an Article 6 strategy by Colombia, as well as the further adaptation of the infrastructures and institutional framework, in particular with regard to establishing consistent arrangements and approval procedures for ITMO transactions and registry operation.

3.3. Ethiopia

Over the years, Ethiopia has emerged as an active proponent for participating in carbon markets at the international level, emphasizing the importance of environmental integrity and ambition. Domestically, this has been evidenced through its participation in international market-based instruments, including the CDM, VCM and even early Article 6 piloting (JCM). The clear interest to participate in voluntary cooperation under Article 6 has most recently been reiterated in the NDC update. This case study explores the Article 6 readiness in Ethiopia based on existing institutional arrangements, MRV infrastructure and previous carbon market experience (summarized in Table 4).

For this case study analysis, desktop research has been complemented by information gathered in the process of supporting Ethiopia's NDC update, providing input into EFCCC (2021) and related interaction with representatives from the Environment, Forest, and Climate Change Commission (EFCCC).

The **preliminary findings** indicate Ethiopia is in a good position to harness previous carbon market experience from CDM and VCM in addition to initial Article 6 experience. However, new requirements for Article 6 participation related NDC accounting mean that Ethiopia will need to strengthen the country's institutional capacities and infrastructure for effective MRV, private sector engagement and coordination of climate change activities at both national and sub-national level to maximize the potential benefits.

Table 4. Overview of Article 6 readiness dimensions in Ethiopia

<i>Dimension</i>	<i>Elements</i>
<i>Article 6 strategy</i>	<ul style="list-style-type: none"> • Ethiopia expresses a strong interest in participating under the market-based mechanisms and intends to sell ITMOs to finance its conditional targets. • Ethiopia's strong role in the LDC and African Group of Negotiators (AGN) negotiation blocs can contribute to the finalization of Article 6 rules, based on Ethiopia's experience in the carbon market. • A domestic carbon market is planned to contribute to the unconditional target, which would safeguard the domestic NDC achievement and secure long-term sustainable development benefits.
<i>Institutional framework</i>	<ul style="list-style-type: none"> • The fundamental transformation of the economy resulting from ambitious NDC targets and implementing climate change activities would benefit from a legislative framework that defines the role of the institutional responsibilities for achieving the NDC more clearly. Coordinating a large number of ministries and agencies is a new requirement and may thus create challenges in implementing EFCCC's current mandate. Still, relevant sector ministries have functional climate change directorates that already serve as counterparts for technical issues relating to the respective sector. • The CRGE facility is tasked with resource mobilization for the NDC and is comprised of both the technical (EFCCC) and financial arms (Ministry of Finance). • EFCCC has begun readiness activities but requires additional institutional capacity and staffing in order to establish and maintain the required oversight of Article 6 activity cycle functions within the national authority overseeing Article (e.g., GHG accounting, baseline and monitoring methodologies and managing the registries/database). • The planned private sector liaison office in the EFCCC mentioned in the NDC update creates an opportunity for Ethiopia to ensure effective to private sector engagement in the ongoing Article 6 piloting activities and strengthen the actors' capacities to engage in the anticipated Article 6 mechanisms
<i>MRV framework & infrastructure</i>	<ul style="list-style-type: none"> • A carbon market profile and database were developed for Ethiopia in 2020 on which an interim registry /Article 6 database can build for tracking ITMOs in Ethiopia as Article 6 piloting commences. • Ethiopia has initial CDM, VCM and Article 6 piloting experience that can be used to the extent possible to develop procedures for establishing baselines and additionality to ensure environmental integrity as encapsulated in the NDC update. • Ethiopia intends to submit a first Biennial Transparency Report (BTR) to the UNFCCC this will need to expand the necessary MRV tools including the development of a new GHG inventory in line with the BTR reporting timelines.

3.3.1. Key links between the NDC and Article 6 readiness

NDC overview

Ethiopia's updated NDC – which is one of the few globally that has been rated as “Almost Sufficient” by the Climate Action Tracker (CAT 2021)¹² - was developed on the basis of key national climate and development policies including the first NDC , Ethiopia's Climate Resilient Green Economy (CRGE) mid-term review, the emerging 2050 Long Term Low Emission Development Strategy (LT-LEDS), the Green Legacy Initiative, and Ethiopia's 10-Year Development Plan (10YDP) for the period between 2021 until 2030.

Ethiopia commits to reduce its business-as-usual (BAU) emissions projection of 403.5 million tCO₂eq in 2030 by 68.8% combining unconditional and conditional action (FDRE 2021). This corresponds to an absolute reduction of 277.7 million tCO₂eq in the year 2030. The conditional NDC target is strengthened by 4.8% compared to the previous NDC (Belay et. al 2021). The unconditional target is set at 14% below BAU emissions, or a reduction of 56 million tCO₂eq, using domestic resources only. While the unconditional target is rated by the CAT as “1.5°C Paris Agreement compatible”, the conditional target is rated as “highly insufficient” citing that international support towards this target will lead to an increase in emissions, especially if Ethiopia does not increase the scope of the conditional target beyond the land sector (CAT 2021). At the same time, the ambition level of the conditional target is

¹² This rating which was based on the update summary of the NDC submitted by Ethiopia in December 2020 indicates that Ethiopia's climate commitments are not fully compatible with the Paris Agreement's temperature limit of 1.5°C but could be improved with modest strengthening of the country's policies and actions.

unusually high compared to other LDCs and carbon markets will play a critical role in delivering NDC implementation, which is contingent on substantial contributions from the international community (Beyene 2021). The GHG mitigation targets were derived from the politically defined sectoral output targets defined in Ethiopia's 10YDP and other relevant sectoral policy or strategy documents. The emissions target levels for 2025 and 2030 in both the unconditional and conditional mitigation pathways were extracted from the yearly emission projections provided by Ethiopia's new Green Economy Model (GEM).

The updated NDC formulates for the first time a dedicated climate change adaptation section including concrete actions. The ambition level is consistent with Ethiopia's history of strong climate policy efforts and leadership, among others, in the LDC Initiative for Effective Adaptation and Resilience (LIFE-AR) and the Climate Vulnerable Forum (CVF). Reasons for the updated BAU scenario as well as different mitigation pathways compared to the first NDC include the use of an updated livestock inventory, updated GWPs and improved consistency with the IPCC 2006 guidelines which fed into Ethiopia's GEM.

The updated NDC consists of an economy wide NDC target covering all relevant sectors, namely land use change and forestry (LUCF), industry, energy, livestock, managed soils and waste sectors. It currently covers CO₂, CH₄, N₂O, PFCs, SF₆ and NF₃, but Ethiopia commits to explore further ambition increases in terms of the scope of GHGs covered, e.g., on hydrofluorocarbons (HFCs). This may become particularly relevant in the context of ongoing government initiatives on sustainable cooling and the Kigali Amendment to the Montreal Protocol (FDRE 2021; EFCCC 2021). Also, noteworthy is the significant potential mitigation contribution from the LUCF sector to sequester emissions and become a large net sink by 2030 under the conditional pathway. This target is underpinned by the extensive reforestation and restoration activities increasing national forest cover to up to 30% of the national territory by 2030. At the same time, the livestock sector is by far the largest source of emissions, contributing 45% of base year and 48% of projected BAU emissions in 2030.

The updated NDC shows Ethiopia's strong commitment to continue its participation in carbon market opportunities governed by Article 6 of the Paris Agreement. Carbon market participants have also already begun to initiate piloting activities in Ethiopia, thus putting Ethiopia in a well-placed position to harness its substantial mitigation resources through the sale of emissions credits from mitigation action to facilitate its NDC implementation.

Article 6 strategy; link to NDC and other climate policy documents

Ethiopia expresses a strong interest in participating in the market-based mechanisms under Article 6 of the Paris Agreement, and even encourages interested Parties to enter cooperation. We therefore classified its approach to Article 6 as 'strong interest and intention'. Moreover, Ethiopia engages in a pure 'seller strategy' which, reflecting its income status as an LDC, means that it participates in Article 6 to sell domestically generated ITMOs with regards to raising funds to meet its conditional targets. At the same time, Ethiopia also considers using carbon market instruments domestically. The following text passages summarizing Ethiopia's intention to participate under Article 6:

“Ethiopia expresses a strong interest for voluntary cooperation in emerging international carbon markets governed by Article 6 of the Paris Agreement. Ethiopia sees carbon markets as instruments to increase mitigation ambition and places high importance on environmental integrity through robust

accounting as well as the promotion of sustainable development. Ethiopia therefore invites interested Parties to explore engaging in cooperative approaches” (FDRE 2021, p.31)

Ethiopia further plans to implement a domestic carbon market to ensure domestic NDC achievement defined in the unconditional target and secure long-term sustainable development benefits. Beyond Ethiopia’s experiences in market mechanisms including under the Paris Agreement, Ethiopia also considers exploring additional carbon market instruments, such as the International Civil Aviation Organization’s (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSA). As the national carrier Ethiopian Airlines is the largest airline in Africa, this could generate substantial demand which is likely to be covered from domestic carbon credit sources. The strategic orientation notably builds on Ethiopia’s carbon market experience which has so far been collected under the CDM as well as through voluntary carbon standards such as Gold Standard and Verra.

In the past, carbon market activities have been developed in several sectors, including forestry, household energy efficiency (e.g., improved cookstoves), renewable energy projects and the solid waste and wastewater (please refer to Annex D: Activities relevant to Article 6 cooperation in Ethiopia) (Tewari et al. 2017). Notably, despite significant efforts, Ethiopia has not been able to substantially scale up individual activities and effectively harness to the mitigation potential and ambition set by CRGE and the NDC. While single CDM projects have piloted innovative technologies in afforestation, waste management and industry (leather), these have not generated significant volumes of finance and are yet to be replicated (EFCCC 2021). The NDC update notes the need to clearly identify mitigation potential that can be met with domestic and international carbon market support, as a crucial step for participation in future carbon market opportunities. This can be achieved through reflection on Ethiopia’s previous market mechanism experiences that fell short of fulfilling the country’s previously established potential.

The transitioning of existing activities under CDM and voluntary carbon standards to Article 6 of the Paris Agreement presents an opportunity for Ethiopia to develop its carbon market opportunities by building on existing activities and frameworks. Once multilateral rules have been agreed, Ethiopia will need to establish a process for activity transition aligned with UNFCCC guidance to ensure the activities are compliant with the PA and further meet the goals of environmental integrity and promote sustainable development.

Institutional set-up

The Environment, Forest, and Climate Change Commission (EFCCC) is responsible for the overall coordination of climate change policy and serves as the UNFCCC national focal point. The EFCCC acts as the CDM DNA and Green Climate Fund (GCF) national designated authority in the Resource Mobilization Directorate and hosts the Carbon Market Committee which was set up to boost Ethiopia’s participation in the carbon market (Hoch et al. 2021). Furthermore, it coordinates the country’s reporting to the UNFCCC, formulates environmental laws and standards, and oversees the implementation of sectoral programmes including the CRGE and NDC strategies. The CRGE strategy, adopted in 2011 (FDRE 2011), is a main building block in the country’s orientation towards a green economy. The CRGE strategy recognizes carbon markets as a crucial instrument to raise international financing support for Ethiopia. Other (sectoral) strategies have further been developed in line with the CRGE outlining the priorities for action particularly in the agriculture and forestry, water and energy, and

transportation sectors. The CRGE has further been mainstreamed into the second Growth and Transformation Plan (GTP II, 2015/16–2019/20) which has now been succeeded by the 10YDP 2021 until 2030. However, Ethiopia's is yet to adopt comprehensive climate legislation.

While the Article 6 governance framework in Ethiopia is yet to be formalized, the EFCCC has garnered initial experience in CDM, Joint Crediting Mechanism (JCM) and Article 6 cooperation and is likely to take lead of Article 6 implementation (Hoch et al. 2021; EFCCC 2021). For instance, the EFCCC can build on the experience as DNA including project evaluation providing the CDM Letters of Approval required during CDM registration. The DNA has also been actively engaged in the NDC update process and the supporting accounting and MRV frameworks. However, further capacity building is required to define NDC accounting procedures and reporting, and other processes geared towards Article 6 implementation e.g., ITMO authorization once the Article 6 rules are finalized.

One important institution is the CRGE Facility, established in 2013, which facilitates the delivery of CRGE strategic objectives and further serves as the national climate financing vehicle. The facility's board is composed of the Ministry of Finance (MoF) and the EFCCC which coordinate technical implementation, resource mobilization and monitoring and evaluation. Other government agencies involved in the CRGE Facility include the Planning and Development Commission (PDC) that facilitates planning processes and has played a role in engaging stakeholders on climate-related issues e.g., for the 10YDP (CAT 2020a). It is further responsible for reporting on progress towards SDGs (Hoch et al. 2021). As Ethiopia has indicated interest in carbon market activities that generate sustainable development outcomes in its NDC update, EFCCC will likely cooperate with the PDC for reporting SDG benefits of Article 6 activities. The CRGE Facility is governed by various bodies including an inter-ministerial steering committee (representative ministers), management committee (co-chaired by state ministers) and the facility secretariat (technical and finance teams) that reflect diverse regional and sectoral involvement in CRGE implementation.

Private sector engagement is deemed important for climate finance and implementation of the CRGE Strategy. However, an evaluation of the government's private sector engagement strategy for the CRGE has been found it to be ineffective (CAT 2020a). Notably, Ethiopia successfully mobilized the private sector to promote sustainable energy access through its CDM programs, which Michaelowa et al (2020) attribute to the direct link between the Programme of Activities (PoAs), Ethiopia's NDC and the country's carbon neutral aspirations. In its NDC update, Ethiopia states a desire to achieve active private sector engagement by establishing a private sector liaison office (or officer) in the EFCCC under the CRGE Facility, for resource mobilization and building technical partnerships (FDRE 2021). Whether the liaison office/officer will be used to harness private sector engagement within the context of Article 6 activities is at this moment unclear.

MRV Infrastructure

The MRV practices are enshrined in the Climate Resilient Green Economy (CRGE) strategy (FDRE, 2011) and have shown dynamic progress since then with support by various donor agencies. An MRV Directorate was set up in the EFCCC which is responsible for the national and sub-national MRV reporting of CRGE activities in addition to national communications to the UNFCCC (Tewari et. al. 2017). Despite improvements in institutional capacity and practices since then Ethiopia is yet to develop a

consolidated national MRV framework for mitigation actions (Tewari et. al 2017; EFCCC 2021). The directorate is further faced with staffing challenges and insufficient capacity which will impact its ability to track the progress made towards achieving the NDC in line with international best practices and guidelines, e.g., IPCC (EFCCC 2021). The NDC update identifies the need to strengthen the country's MRV infrastructure and institutions as part of Ethiopia's capacity and technology needs (FDRE 2021).

Ethiopia submitted National Communications to the UNFCCC in 2001 and 2016. The Second National Communications included a GHG inventory for the 2013 calendar year (Tewari et. al 2017). However, to date, Ethiopia has not submitted a BUR to the UNFCCC against the backdrop of the flexibility given to LDCs under Article 13 of the Paris agreement to report at their discretion. Ethiopia commits to submitting BTRs to achieve international best practices in the updated NDC and to continue to show climate leadership (FDRE 2021). This implies Ethiopia will need to develop a new, comprehensive GHG inventory in line with the BTR reporting timelines. Building capacity of the MRV Directorate and other entities in the NDC MRV tracking and production of the BTR will need to be prioritized to meet the more complex MRV requirements, including for corresponding adjustments resulting from ITMO transfers. As part of the NDC update process, an excel based "NDC Tracker" was developed in a collaborative effort among various stakeholders (EFCCC 2021). The tracker matches mitigation actions to indicators and clearly defined responsibilities and is intended to support the tracking of NDC achievement in Ethiopia.

Ethiopia has established a national registry for its CRGE strategy; however, this does not methodologically compile information relevant for the transfer of mitigation outcomes which will be relevant for Article 6. (Hoch et al. 2021). In 2020, under the framework of the East African Alliance, a carbon market profile and database was developed for Ethiopia highlighting carbon market data for the country. There is potential to build on this existing database in the future as an interim registry database for tracking ITMOs as Ethiopia engages with early mover buyer countries and Multilateral Development Banks (MDBs) under bilateral Article 6 cooperation, prior to UNFCCC carbon market infrastructure (e.g., registry) being available. An overview of the profile further indicates that Ethiopia has engaged in the use of existing registries such as the JCM registry and registries related to VCM such as Verra and the Gold Standard (Hoch et al. 2020).

Ethiopia's updated NDC emphasizes the importance of effective accounting rules to ensure environmental integrity of participating in carbon markets. Ethiopia has had experience in developing CDM standardized baselines for institutional improved cookstoves applicable to several institutions (Michaelowa et al. 2020) which signal the scaling up potential of Ethiopia's CDM programs. Ethiopia can use this experience to build Article 6 capacity, to the extent possible to develop procedures for establishing baselines and additionality to ensure environmental integrity. Ethiopia has also gained initial experience through Article 6 piloting activities as highlighted in the subsequent **Fehler! Verweisquelle konnte nicht gefunden werden.** Hoch et al. (2021), however, note that additional institutional capacities may be required to enable the performance of the required oversight of Article 6 activity cycle functions (e.g., baseline and monitoring methodologies and managing the registries/database).

3.3.2. Continued preparation for Article 6 readiness

Some noteworthy activities of Ethiopia's engagement include:

- Given its status as an LDC, the country's mitigation potential and large conditional NDC target, Ethiopia has relative flexibility to export carbon credits and has garnered interest from international buyer countries for bilateral cooperation such as Switzerland through various frameworks that facilitate ITMO transfers such as the KliK Foundation. This could set apart Ethiopia as a frontrunner by building up capacity for Article 6 activities such as authorization of ITMO transfers. (EFCCC 2021, p. 117).
- The World Bank has recently announced the roll out of the Standardized Crediting Framework (SCF) to the wider Ci-Dev portfolio which includes Ethiopia. Worth noting are the Ethiopia Clean Cooking and the Ethiopia Off-grid Electrification with Renewable Energy CDM PoAs, managed by the Development Bank of Ethiopia, that have signed contracts for CERs from biogas and solar PV household appliances until 2024 which can be scaled up further. Currently, Ethiopia is considering the development of a domestic carbon market, which can also be used to enhance the unconditional contribution by compensating domestic emissions (Hoch et. al 2021, EFCCC 2021, p.127). This would allow the mitigation outcomes generated under these markets to count towards only towards the achievement of Ethiopia's NDC targets, however details on the exact contribution are yet to be clarified.
- The Mobilizing Article 6 Trading Structure (MATS) Program, an initiative between the SEA and GGGI launched are developing two mitigation activities in Ethiopia, with the goal of completing transactions of ITMOs. This will improve Ethiopia's capacity to develop governance frameworks for Article 6 engagement including measures to ensure environmental integrity (GGGI 2020).
- Ethiopia's interest in Article 6 is further exemplified by the prominent role in the LDC Group and African Group of Negotiators (AGN), which are important negotiation groups in Article 6 negotiations (Tewari et. al 2017), and through its continuous participation, supports the finalization of the Article 6 rules in readiness for its participation in the next generation of carbon markets. The updated NDC further recognizes the importance of peer-to-peer learning in readiness for carbon markets and climate finance (FDRE 2021).
- Currently, Ethiopia is a member of the Eastern African Alliance on Carbon Markets and Climate Finance, which facilitates regional peer exchange and learning in readiness for the new market mechanisms under Article 6 including public and private sector capacity building activities.

To build up on this initial readiness and expand Ethiopia's engagement under Article 6, Ethiopia would require additional government and international support or investment in the following areas:

- Expand in-country MRV and accounting capacity and infrastructure: Article 6 reporting promises more complexity than CDM, particularly through requiring alignment with NDC accounting. Consequently, Ethiopia's domestic procedures and tools need to be further developed and harmonized with reporting (BTR) and NDC accounting, requiring assessment and capacity building of current institutions responsible for MRV processes.

- An explicit mandate to establish a designated national institution responsible for climate change activities will further ensure active engagement in the implementation of the CRGE and NDC and ultimately in the oversight of Article 6 mechanisms.
- Strengthen domestic institutional capacity: existing institutions, including the EFCCC, require additional capacity and staff resources to build on the existing foundations from previous carbon market engagement and facilitate Ethiopia's participation in Article 6 by developing required authorization and accounting procedures and institutional arrangements. Ongoing piloting developments around bilateral cooperation with buyer countries and institutions establish a starting point to prepare Ethiopia for Article 6 through building up capacities for Article 6 oversight such as establishing procedures for approving activities and authorizing ITMO transfers.
- Ineffective private sector engagement on climate change issues in general and the implementation of the CRGE has been identified. However, in the past Ethiopia has successfully mobilized the private sector for its CDM PoAs. A robust engagement with the private sector that can help to unleash new technologies and methods that can support Ethiopia's emission reduction targets will be crucial for Article 6. The increasing number of competitive calls for proposals for Article 6 pilot activities by buyer countries such as Switzerland indicate it is important for Ethiopia to support domestic private bidding organizations e.g., to develop proposals to such tenders, which often play a crucial role in the selection process. The establishment of the private sector liaison office (or officer) in the EFCCC as stated in the NDC update provides an avenue to engage and offer technical support to private sector actors to participate in the Article 6 mechanisms.

3.4. Vietnam

The strong experience of Vietnam in the CDM and the VCM and its confirmed intention to continue using international carbon markets under the Paris Agreement make Vietnam a relevant case study for the Asia region. For this study, desk research, complemented by two interviews with a private sector and a representative from the Ministry of Natural Resources and Environment was undertaken.

Vietnam can tap into its experience with carbon markets and mitigation undertaken in various sectors, as well as link engagement in Article 6 to its development of a national ETS and crediting system. The specific country approach for engaging through Article 6 has not been fully defined but is expected to be clarified in further regulations based on the decree on carbon markets to be adopted before the end of 2021. Additional work in terms of institutional arrangements, targeted capacity building, and engagement of private sector actors will have to follow. Still, Vietnam's overestimated baseline scenario and lack of ambition of its NDC could hinder its participation in Article 6 approaches, as buyer countries might perceive this as a risk of acquiring "hot air", if additional safeguards are not put in place.

Table 5. Overview of Article 6 readiness dimensions in Vietnam

Dimension	Elements
<i>Article 6 strategy</i>	<ul style="list-style-type: none"> • Vietnam considers using Article 6 cooperation to achieve its conditional NDC targets. Therefore, the government will develop a “roadmap” for Article 6 engagement. • National authorities are adopting a “wait and see approach” until the Article 6 rulebook is adopted, and many issues are left open (e.g., transition of CDM and JCM portfolio). • The government is preparing a decree on carbon markets, in particular domestic carbon pricing instruments. The decree will also include orientations for Article 6 engagement, to be detailed in further ministerial regulations. The government is considering making domestic Article 6.4ERs eligible in the national ETS. • Private sector engagement in Vietnam is missing given mixed experiences under the CDM and lack of capacities and understanding of the implications of Article 6.
<i>Institutional framework</i>	<ul style="list-style-type: none"> • MONRE is responsible for NDC implementation and establishment of ETS and crediting mechanism. It is dependent on the engagement of key line ministries including MOIT (energy sector), MPI and MOF that often lack expertise and political will to engage in climate policy. • Engagement of public authorities has historically been contingent on international support provided. There is support available to national authorities for promotion of NDC implementation, domestic carbon market development and enhancement of MRV capacities, which also strengthens Article 6 readiness.
<i>MRV framework & infrastructure</i>	<ul style="list-style-type: none"> • The revised Law on Environmental Protection established a mandate to develop an MRV system for the planned ETS that will take effect as of 2022. The law also creates a mandate for entities to report their emissions every two years as well as produce annual GHG plans (ICAP n.d.). This offers significant potential for synergies for robust reporting and accounting under Article 6 if the provisions of the law are properly enforced.

3.4.1. Key links between the NDC and Article 6 readiness

NDC overview

In its updated NDC, submitted in July 2021, Vietnam moved from a sectoral approach where the IPPU sector was excluded to an economy wide NDC. Under this updated NDC CO₂, CH₄, N₂O and HFCs are covered, but PFCs and SF₆ are excluded. While the BAU of the updated NDC submission uses a more recent year as the base year – 2014- in comparison to the first NDC which used 2010 data, it does not rely on the latest 2016 GHG inventory which was included in the BUR 3 submitted in April 2021.

The NDC includes unconditional and conditional quantified targets for 2025 (interim) and 2030 (target year) and includes quantified targets for different sectors. As per its unconditional target, the country expects to reduce an equivalent to 52.9 million tCO₂eq by 2025, and 83.9 million tCO₂eq by 2030, corresponding to a reduction of 9% compared to BAU. The conditional target for 2030 aims for a total emission reduction of 250.8 million tCO₂eq, equivalent to 27% reduction against BAU. The CAT (2020b) rating for Vietnam NDC continues to be ‘critically insufficient’ as the BAU scenario is seen as exaggerated and the target would be achievable with the policies already in place (CAT 2020b¹³, CAT

¹³ For example, the new NDC does not include a reference to compromise of 20% reduction in emissions intensity per unit of GDP, as per it was stated in the previous NDC. This additional target was 4% more ambitious than the new NDC.

2020c¹⁴). Furthermore, Vietnam's climate targets are contrasted by its intentions to continue relying on coal power¹⁵.

No references to a long-term strategy have been included in the NDC. However, by the end of 2020, the government is planning to release an update to its climate change strategy (currently valid until 2020) with a time horizon of 2050 to sketch out the long-term vision of the country (information obtained through interview).

The lack of ambition in Vietnam's NDC could hinder its participation in Article 6 market mechanisms, as other Parties to the Paris Agreement may perceive this as a risk of acquiring "hot air". It is likely that in such scenarios, Parties cooperating with Vietnam may require further activity-specific safeguards related to additionality testing and baseline-setting and will not accept baselines derived from NDC targets.

Article 6 strategy can be built on previous experience with carbon instruments

Vietnam states that its unconditional NDC target "can be raised up to 27% by international support through bilateral as well as multilateral cooperation and the **implementation of new mechanism under the Paris Agreement**" (Government of Vietnam 2020, p.4). These new mechanisms include "the implementation of market and non-market mechanism under Article 6 of the Paris Agreement" (Government of Vietnam 2020, p.9). All line ministries are convinced of the importance of Article 6 to implement additional mitigation commitments (information obtained through interview).

While being criticized internationally for the lack of stringency in its NDC, MONRE as the UNFCCC focal point is hesitant to engage in Article 6 activities as it faces difficulties in understanding how to ensure that activities approved do go beyond the unconditional commitments and is concerned with the risk of overselling. MONRE would favour being able to undertake Article 6 activities that are clearly outside the scope of the NDC but is concerned with accounting implications. Therefore, it will strive to develop an understanding of what measures and activities can be linked to the conditional targets (information obtained through interview).

Vietnam is planning to develop a "**roadmap of cooperation mechanisms under Article 6 of the Agreement**" to promote the implementation of the updated NDC (Government of Vietnam 2020, p. 29). The decree on the implementation of the environmental protection law will set some general guidelines in this regard that will be refined if an agreement on Article 6 rules is reached at COP26. MONRE is planning to prepare several ministerial decrees for engagement with the Article 6.4 mechanism through

¹⁴ The country has been implementing since 2010 a set of measures aimed at improving energy-saving, and energy efficient and promoting the development of renewable energy sources (Government of Vietnam 2020). As of December 2020, a total of 7.4GW of rooftop solar capacity had been connected to the national power system, with 4GW of solar PV rolled out in less than two years, driven mainly by private investors (IEEFA 2021, ASEAN n.d).

¹⁵ The recently adopted Power Development Plan VIII (PDP8), continues to prioritize fossil-based power plants for the decade 2020/2030, with almost 17 GW to be provided by new coal-fired plants (IASS Potsdam 2021), financed mainly through public and private investments from Japan, China and South Korea (China dialogue 2020, Chen et al. 2021). According to GlobalData, coal will provide roughly 39% of the country's total power generation by 2030 (Murray 2021). However, the criticism towards these projects have recently led to Japanese Institutions such as Mitsubishi Corp, to reconsider some of their investments (Reuters 2021).

circular or technical guidance, whereas engagement under Article 6.2 is likely to be governed by different bilateral agreements with some limited overarching framework conditions (information obtained through interview). Currently, however, the government is prioritizing the development of domestic carbon market instruments by 2022 and will only focus on this roadmap in the future, despite ongoing technical assistance of the Asian Development Bank in this regard (information obtained through interview).

According to the new Environmental Protection law adopted in November 2020, Vietnam plans to establish a domestic ETS, a crediting mechanism and an MRV system. The law specifically allows the inclusion of domestic and **international** offsets (ICAP 2021, n.d.). The associated draft regulation has recently completed the second round of consultation with relevant ministries and public stakeholders and will be adopted by the end of 2020 (information obtained through interview). According to the country's planning, the pilot system will start in 2025 and by 2027 it is expected for the mechanism to be fully in place (WB 2021). The intention to use international carbon markets approaches builds upon the country's existing experience. Several market and non-market-based instruments have been used in the country (see Annex E: Activities relevant to Article 6 cooperation in Vietnam) and Vietnam can draw on lessons learned from these past experiences to inform the Article 6 roadmap development process.

While the private sector of the country was very active in the CDM, it is saddled with a big portfolio of unsold CERs (Michaelowa et al. 2021c), and private stakeholders are now likely keen to transition their activities to Article 6 mechanisms. However, national authorities have yet to adopt a position on how they will promote the transition of these activities. Waiting for the Article 6 rulebook, the government is currently not granting letters of approval for the registration of new CDM activities, shifting engagement of private sector in carbon market activities away from the CDM and to independent standards that certify credits for the voluntary carbon markets (information obtained through interview). In the medium term however, MONRE expects the country to engage with the Article 6.4 mechanism, building on the experiences gathered under the CDM (information obtained through interview).

Concerns about corruption, an overlap of roles within the government, competition between ministries (MONRE vs. MPI) lack of data, lack of cooperation among government agencies for data sharing, lack of sufficient relevant skills across a significant group of government officials are some of the critiques that were raised towards Vietnam's Government in the CDM era (Nguyen et al. 2011, Smits and Middleton 2014, Smits 2017). Article 6 governance would require good coordination between parties, clarity of roles and an avoidance of rent-seeking behaviour. Robust civil society participation and engagement - almost non-existent during the CDM era - should also be promoted (Smits 2017).

Institutional set-up

Vietnam has developed a climate governance architecture for adoption and implementation of climate policies and regulations¹⁶, creation of institutions and coordination bodies. Still, governance

¹⁶ Relevant strategies and policies related to climate change include: National Target Programme to Respond to Climate Change (2008-2020); National Strategy on Environmental Protection to 2020 (2012); National Climate Strategy to 2020; National Climate

arrangements remain fragmented, with overlapping and competing roles across ministries, and a lack of willingness to cooperate among them (Smits 2017).

Though several relevant climate change mitigation strategies have been adopted, they have been operationalized and implemented at a slow pace (Vieweg et al. 2017). In general, engagement in mitigation policies and activities has been a donor-driven process at the level of the Vietnamese government and dependent on the availability of resources.

The National Committee on Climate Change (NCCC) led by the Prime Minister and established in 2011 is the main climate change advisor of the Vietnamese government as per its legal mandate. However, the Committee's political power seems to be limited and it is perceived as a symbolic institution. Powerful ministries, such as the MOF, seem to not attach importance to the committee (Strauch et al. 2018).

MONRE, through its Department of Climate Change (DCC), is the leading ministry responsible for the coordination and tracking of relevant climate policy and related implementation. MONRE is also the designated authority for CDM and NAMAs and it is the focal point to the UNFCCC. In the case of the CDM, the government did aim to exert control over the approval processes driven by a rent-seeking behaviour (Smit 2017, Nguyen et al. 2011). MONRE reviews and plans climate budgets but is not the leading agency for climate change related budget allocation (Strauch et al. 2018). MONRE's role has been strengthened in the recent Environmental Protection law and it will be the leading agency in implementing domestic carbon pricing instruments as well as tracking and monitoring NDC implementation (Information obtained through interviews). Nevertheless, its overall steering mandate has been compromised by roles in mitigation policy being assigned to other ministries over the years. The Ministry of Planning and Investments (MPI) is the focal point for the Green Climate Fund and developed the Green Growth Strategy. More recently, the GGGI is cooperating with the Ministry of Industry and Trade (MOIT) in the program of developing policy approaches under Article 6 of the Paris Agreement, funded by the government of Norway. In addition, MOIT is leading a program on transformation of the energy sector and recipient of technical assistance in this regard¹⁷ (Information obtained through interview). MOIT played a key role influencing the NDC mitigation targets in the first NDC submission (Vieweg et al. 2017)¹⁸. MONRE as UNFCCC focal point, however, is having challenges in coordinating and keeping track of the ongoing pilot activities that line ministries are undertaking with different partners (Information obtained through interview). To ensure a coordinated and aligned engagement in Article 6, these coordinative processes would have to be strengthened.

Change Action Plan 2012-2020; National green Growth Strategy to 2020; National Green Growth Action Plan (2014-2020); Resolution Active response to climate change, improvement of natural resource management and environmental protection (2013); Revised Law on Environmental Protection; Plan for Implementation of the Paris Agreement (2016).

¹⁷ However, technical experts working with MOIT have experienced difficulties in engaging with subordinated agencies (e.g., the electricity regulation agency) and lack of interest from those in climate policy and carbon market instruments (Information obtained through interview).

¹⁸ Additional climate change-related relevant line ministries exist, who, overall, are responsible for developing and implementing plans for their respective areas (Vieweg et al. 2017). The Ministry of Finance (MoF) has a major role in capital allocation and has a crucial role in the energy sector because it formulates the energy sector taxation and tariff (Vieweg et al. 2017). The Ministry of Construction (MOC) is coordinating waste sector action and the Ministry of Agriculture and Rural Development (MARD) plays a key role in REDD+.

The relevant technical capacities, human resources, and proper institutional arrangements are still missing to ensure Vietnam can exercise the oversight on international carbon market engagement as foreseen in Article 6 of the Paris Agreement and the draft rulebook. This also relates to the promotion and safeguarding of sustainable development, which is a responsibility of the host country (Information obtained through interview). The experiences under the CDM and the JCM allowed the country to gain experience in crediting mechanisms. However, governance structure under these mechanisms, especially under the CDM, were not as complex as the ones required for the approaches under Article 6 (Smit 2017).

MRV Infrastructure

The national GHG inventory for 2016 is the latest one developed in the country. It was a MONRE-led process carried out through the national inventory system created in 2015 (Government of Vietnam 2021). Recently, in April 2021, Vietnam submitted its third BUR presenting updates in compliance with the UNFCCC requirements. Jointly with the BUR 3 the country submitted the report on GHG emission reduction from REDD+ for the period 2014-2018.

Over the years, Vietnam has been promoting the creation of a national MRV system through different regulations¹⁹. In its updated NDC, the country stated that its domestic Enhanced Transparency Framework would include an MRV system for mitigation and adaptation and would also monitor the mobilization of resources (Government of Vietnam 2020). By the start of 2022, Vietnam is scheduled to have a legally binding document defining in detail the different responsibilities of ministries, sectors, localities, organizations, and individuals for monitoring mitigation actions (Government of Vietnam 2021, information obtained through interview).

In the updated NDC and the BUR 3, the country has explained in further detail how the MRV system is expected to operate at all levels²⁰ (Government of Vietnam 2021). Moreover, “the MRV system will serve as a legal basis for the establishment and development of carbon markets, piloting the carbon credit and quota trading system, applying carbon pricing tools in line with national conditions and international practices” (Government of Vietnam 2020, p. 75).

Vietnamese private sector actors developed capacities to monitor and report emissions and emission reductions in the energy sector and more specifically, when it came to hydropower activities as implemented under the CDM, but a significant share of them have been lost due to the crisis of the CDM

¹⁹ In 2012, Vietnam defined a legal basis for the development of an MRV system at the national and sectoral level. Later, the Plan for Implementation of the PA, adopted in 2016, also incorporated as one of its primary missions the development and operation the national MRV system, and line ministries were assigned with the development of sectoral MRV systems (Government of Vietnam, 2017). However, line ministries were unwilling to develop MRV systems without access to funding. Recently, the revised Law on Environmental Protection included a mandate for the MONRE to design an MRV system for the ETS to be set in place (ICAP n.d.). At the subnational level, building on a multi-year project funded by JICA, the city of Ho Chi Minh is currently piloting a local MRV system (JICA 2017) and other local authorities have the mandate to explore a possible operationalization of such instruments.

²⁰ The NCCC will act as the Steering Committee in charge of promoting coordination among ministries and sectors and the MONRE is assigned as the coordinating agency for the national MRV system and its operation. The MRV system will encompass the local, sectoral, and national levels and cover both mitigation and adaptation activities (Government of Vietnam 2020).

market²¹. Domestic companies, such as VNEEC, shifting to the voluntary carbon markets after the CDM crisis and gaining expertise in related MRV activities have helped to build internal capacities of the country in these matters. The monitoring and accounting capacity in other sectors beyond energy and levels (e.g., national) remained less developed (Healy 2017). Over the years, donors, such as the Partnership for Market Readiness (PMR) aimed to support the country in improving its accounting capacities in sectors with a high mitigation potential (e.g., waste). Recently, the capacities for MRV in the transport sector were strengthened in the context of a GIZ-funded project (Eun Oh et al. 2019).

In the context of monitoring and tracking Article 6-related activities, MONRE is planning to develop a database of transactions that cover both ETS-related transactions and international transactions. MONRE identified that in the context of the CDM there was a lack of feedback of information on the status of activities and CER transfers after activities had been approved and wants to strengthen oversight on transactions of units. MONRE is also considering strengthening monitoring and reporting of sustainable development impacts, learning from JCM partner countries (Information obtained through interview).

On a different note, for the MRV system to be effective, data collection, sharing and cooperation across agencies need to work. Different levels of governments (e.g., local, regional) and sectors need to be mobilized to provide information, which can be challenging. Situations where ministries are unwilling to share data or ask for money to do so will hinder the development of a robust system and increase related transactions costs (i.e., the Japan International Cooperation Agency and MONRE had to develop their GHG baselines from scratch due to reluctance of other ministries to cooperate) (Smits 2017).

3.4.2. Continued preparation for Article 6 readiness

Several institutions have provided – and continue to provide – support to different carbon market-related matters in Vietnam²², contributing to strengthen Article 6 readiness efforts of the country. We have

²¹ A vibrant private sector community was developed during the Vietnam CDM take-off phase, with international companies opening offices in the country or partnering with Vietnamese consultancy firms (VNEEC being a daughter company of key Swiss carbon market activity developer South Pole) (Smits and Middleton 2014). However, most of these companies disappeared or significantly reduced their staff after the CDM collapse (Smits and Middleton 2014). Many consultants reallocated to other areas of work, setting back donor-funded capacity work (Smits 2017).

²² Institutions such as the NDC Partnership, GIZ, UNDP, WB, UNICEF, and UN Women supported the NDC review and updating process. The WB, WRI and SNV are currently supporting the country's efforts to incorporate NDC targets into the provincial level plans with a gender sensitive approach (NDC Partnership 2020). Since 2015, the PMR has provided, inter alia, support for the development of carbon markets-related studies, strengthening of capacities, piloting NAMAs (mainly in the waste and steel sector) and developing a roadmap for national and international carbon markets. Vietnam has raised its intention to participate in the Partnership for Market Implementation (PMI), the successor of the PMR (Vietnamnet 2021). The Asian Development Bank is providing technical assistance through reports and capacity-building training courses for public and private stakeholders through its Article 6 Support Facility (Information obtained through interview). Moreover, the Government is receiving support from GGGI on capacity building-related issues, as well as advice on how to develop and ETS through a policy approach under Article 6, in the context of the programme on developing policy approaches under Article 6, funded by Norway (GGGI n.d.). Under the JCM, there are discussions to transition ongoing activities to cooperation under Article 6.2 of the PA. However, due to the Covid-19 pandemic, there is a delay in the elaboration of the latest update of the bilateral agreement, now expected to be published ahead of COP26. In the short term, Vietnam will focus on developing the legal and technical guidelines for Article 6

also identified gaps in the Article 6 readiness process in Vietnam that require further attention from the government and that could also be considered as potential areas for donor support.

Strengths identified are:

- The country has expressed its clear intention to use Article 6 to develop a roadmap for engagement. The current domestic regulations for market-based instruments (both an ETS and a crediting mechanism) can provide a good basis to build this roadmap. If caps (in the ETS) and baselines (in the crediting scheme) are linked to unconditional NDC achievement, the government can build on the data and knowledge to understand what mitigation going beyond the unconditional NDC can be authorized for transfer. Also, MRV systems to be built for the domestic ETS and crediting mechanism have significant synergies with the ones required for Article 6.
- Building on REDD+ readiness experience. Vietnam became the first country in Asia to complete the Warsaw Framework for REDD+ (WFR) at the end of 2018 and this REDD+ development can also inform Article 6 processes within the country. Article 6 institutional arrangements and enhancement of coordination between governments offices can use as a reference the ones set for the REDD+ MRV and the Safeguards Information System (SIS). Moreover, the Government can also take into accounts lessons learned from REDD+ participatory processes that promoted engagement of local communities, civil society organizations and NGOs. This requires, however, that institutions administering REDD+ in Vietnam share their experiences with MONRE and private sector carbon market actors.

Gaps identified are:

- Due to an absence of specific opportunities and clear long-term or sustainable development benefits, the government is following a “wait and see” approach, slowing down Vietnam’s engagement in Article 6 readiness processes.
- MONRE has a limited legal mandate, political power, and funds to oversee and manage both domestic and international carbon market engagement, as well as to foster inter-ministerial coordination processes. MRV capacities in the country are limited, especially in non-energy sectors, such as agriculture, forestry, and land-use (AFOLU). Limited domestic public resources, including budget and human resources, hinder the possibility to develop a proper MRV system across the different line ministries (Tänzler et al. 2019). Also, the country is missing an institutionalized and up to date GHG inventory collection process.
- Private sector capacities and engagement is lacking so far. The private sector actors active in the CDM and voluntary carbon markets lack an understanding of the challenges and opportunities Article 6 and related new carbon market segments bring. Incentives for private sector actors to engage in international carbon market have not been designed yet, limiting their contribution to, for example, financial gaps. The uncertainty regarding the use of CERs from CDM projects in

engagement and build capacities of line ministries. Thereby, focus will be on the renewable energy and forestry sector for the immediate future (Information obtained through interview).

Article 6 approaches and the lack of a position of the country also discourages private sector engagement.

- Several technical assistance and capacity-building activities are occurring, but a proper donor support coordination is lacking, leading in some cases to overlapping of funds for certain activities and lack of funding for others.

3.5. Case study insights

Ethiopia has hosted several CDM projects and has shown in its NDC strong interest in Article 6 approaches. Its intention is also reflected in the number of Article 6 pilot projects that the country is hosting and in its active role as part of the AGN. Vietnam had an even more active participation in carbon markets in the Kyoto Protocol era than Ethiopia and has as explicitly mentioned its intention to use Article 6 in its NDC. However, the lack of clarity in the Article 6 rules has currently focused Vietnam's effort on the design and implementation of a domestic ETS while Article 6 readiness activities are taking a back seat. Colombia also has broad experience with market-based mechanisms, especially a pioneering offset mechanism which is part of its carbon tax law. While having declared its intention to use Article 6, Colombia follows a similar passive approach as Vietnam, awaiting the finalisation of Article 6 rules before determining its strategy.

The country case studies presented in this chapter provide insight into the strengths and the remaining gaps that require attention to prepare for Article 6 collaboration. Whereas all countries have very different national circumstances as to the political system, economic structure and sectoral mitigation potential and have taken slightly different routes so far, a number of common 'readiness needs' can be identified across the board:

Figure 7: Article 6 Readiness Needs identified by the case studies



Source: authors

- Making Article 6 an integral part of policy planning, by better understanding the relationship between Article 6 collaboration and NDC implementation, ensuring inter-ministerial collaboration (which seems to be generally highly challenging given the weak power basis of ministries coordinating NDC development), collecting relevant data and developing robust mitigation or decarbonization pathways.
- Enhancing and strengthening existing national MRV systems in line with the requirements of the Paris Agreement and Article 6 rulebook.
- Designating an Article 6 Authority and ensuring that it can coordinate different support structures and policy processes across potential collaboration partners, donors, ministries and other involved parties.
- Increasing the visibility of opportunities generated by Article 6 collaboration, engaging the private sector and other relevant stakeholders throughout the process. To do so, adequate incentives for Article 6 engagements need to be designed.
- Building upon REDD+ readiness experience to inform development of MRV systems in the LULUCF sector, to develop stakeholders' engagement plans and to leverage knowledge on how to coordinate across ministries.
- Preventing uncoordinated donor approaches leading to duplication of some activities, while financing gaps exist for other ones, repeating the experience with CDM capacity building in the early 2000s.
- Actively participating in the Article 6 negotiations to the extent possible to ensure country experiences are reflected in the Article 6 rules to maximize the benefits of Article 6 engagement.

4. Article 6 readiness in “buyer” countries

This chapter provides a high-level overview of the Article 6 readiness of those countries seeking to potentially buy mitigation outcomes generated through Article 6. Until 31 July 2021, ten countries have indicated in either their updated NDC or elsewhere that they are interested to acquire Article 6 credits as part of their climate strategies. This number does not include the EU and US, who have at this stage declared not to make use of Article 6 for meeting their mitigation targets. Three of these countries, Sweden, Switzerland and Japan, have started to develop an Article 6 strategy and are already actively engaging with partner countries. Other countries have indicated that they may use ITMOs to achieve their mitigation targets but have yet to develop their strategies further (see Annex F).

4.1. Preparing for purchasing Article 6 outcomes

Sweden. The Swedish mitigation contribution to the Paris Agreement is incorporated in the European Union’s NDC, which outlines that the EU will achieve its 55% net reduction by 2030 through domestic measures only. In addition to this EU target, Sweden has a zero net emissions target for 2045, and milestone targets of 63% emission reductions by 2030 and 75% emission reductions compared to 1990 by 2040 (Swedish Environmental Protection Agency 2020). The Swedish Energy Agency has a mandate to purchase ITMOs achieved outside Sweden for up to 8% of the 2030 target, and 2% of the 2040 target (Swedish Environmental Protection Agency 2020).

Beyond meeting its emission reduction target, Sweden aims to contribute to increasing the global mitigation ambition and the overall level of low emissions development in cooperating countries through its ITMO purchases. The purchase strategy focuses on energy related emissions in middle-income countries, with a total purchase volume per Mitigation Outcome Purchase Agreement (MOPA) of 1-10 million ITMOs, generated between 2021 and 2030. The strategy excludes REDD+, LULUCF and activities that involve nuclear or fossil fuel related power generation and is restricted to ITMOs from sectors covered by the NDC of the selling country.

Sweden is currently in dialogue with a number of potential partner countries on structuring transactions, setting up an infrastructure for corresponding adjustments, and identifying capacity needs, with the aim of completing transactions of ITMOs linked to a corresponding adjustment. It issued its first global call for proposals in December 2019. The country selected six proposed activities for Article 6 collaboration and engaged them for the development of detailed project plans. Sweden considers capacity building (as part of a transaction collaboration) a key element to ensure the quality of ITMOs purchased. The country partners with the GGGI and has set up the MATS Program²³ to continue to identify and structure mitigation activities and support countries in establishing governance frameworks and developing capacities to operationalize international mitigation collaboration under Article 6. In this process of exploring and developing opportunities for Article 6 collaboration, connecting the dots (NDCs, NDC targets, activity baselines, additionality) has proven challenging. There is a high level of interdependency between Article 6 collaboration and refining an updating NDCs, but these processes often take place

²³ Mobilizing Article 6 Trading Structures (MATS), implemented jointly by the Swedish Energy Agency and the Global Green Growth Institute.

in parallel and at different speeds. In an effort to better understand how methodologies developed in the context of the CDM can be utilized for Article 6 collaboration, the country has assessed existing methodologies against the Article 6 framework (see overview in Westling et al. 2021)

Switzerland. Until June 2021, Switzerland had two mandates for sourcing ITMOs on the basis of which the country started preparing to acquire ITMOs through Article 6 transactions: to achieve its NDC emission reduction target, and for importers of fossil motor fuels to partially compensate their emissions through offsets. Both mandates are affected by the recent rejection of the Revised CO₂ Law (Swiss Confederation 2020a) in a referendum on 13 June 2021. This rejection was unexpected as all except one political party on the right wing had supported the law. However, the right-wing party ran a successful campaign stoking the fears of petrol and airplane tickets becoming unaffordable. At the same time, a strong role for international carbon markets is rejected by the left side of the political spectrum, which led to the capping of the ITMO imports for compliance purposes, which in turn angered the right-wing parties, who called for a stronger role of international carbon markets.

With regard to the first mandate, 25% of the Swiss NDC emission reduction target (50% reductions by 2030 compared to 1990 levels) may be achieved through ITMO purchases, as per the country's Revised CO₂ Law. This mandate is currently no longer in place, and Switzerland currently does not have a quantified national emission reduction target beyond 2021. The international declared NDC target of 50% emission reductions by 2030 compared to 1990 continues to apply, meanwhile, a new parliamentary process is required to replace the Law, which may take several years.

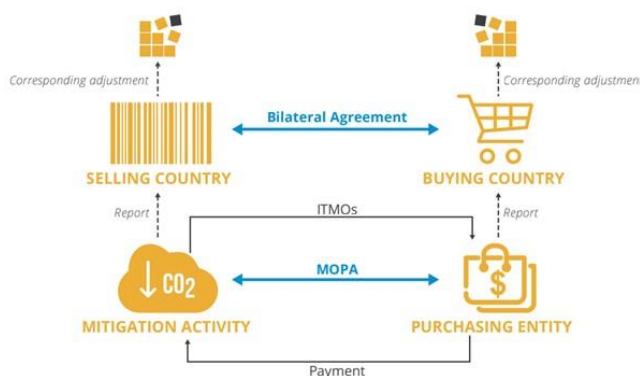
With regard to the remaining target, subject to decisions by Parliament and popular referendum, the Swiss Federal Council is mandated to determine the extent to which international certificates from international mitigation efforts can be counted towards the Swiss target, as well as the eligibility requirements (Swiss Confederation 2020a). In its most recent NDC, Switzerland communicated that until international guidance is adopted under the UNFCCC, the country commits to apply the San José principles for high ambition and integrity in international carbon markets in order "to apply robust rules that avoid any form of double counting, ensure environmental integrity and promote sustainable development, including the protection of human rights, and not to use pre-2020 units towards the achievement of its NDC" (Swiss Confederation 2020b). The recently rejected law and the draft regulation providing detailed implementation rules (Swiss Confederation 2021) had proposed to exclude fossil fuel related investments, nuclear energy, hydro >20 MW, solar and wind projects outside of LDCs, projects in industrial plants that do not apply best available technology, destruction of non CO₂ gases without energetic use, waste management without recycling or energetic use, biological sinks or REDD+ and projects not in line with Swiss foreign policy. It also defined eligibility requirements related to investment additionality, requiring activities to demonstrate continued operation after the end of their crediting period, the submission of an authorization request not more than three months after activity start, and requiring 30 years duration for both geological and biological sinks. These rather strict conditions reflected the uneasiness of the political class regarding international carbon markets.

The Revised CO₂ Law was set to provide a second mandate for purchasing ITMOs, as it requires importers of fossil motor fuels to compensate up to 90% of their emissions. For this, ITMOs could be used to fulfil 85% (80% from 2025 onward) of their obligation. For the period 2021 to 2030, this was

expected to amount to 34 million tCO₂e (KliK 2020). The KliK Foundation fulfils this obligation on behalf of the Swiss Petroleum Association.

In anticipation of this requirement, the KliK Foundation has been building a portfolio of international mitigation activities to comply with the offset obligation and is currently supporting six Article 6 pilot activities. The path towards an Article 6 transactions comprises a public and private sector track. Based on a pre-selection of proposed Mitigation Activity Idea Notes (MAINs), selected project developers are invited to develop a Mitigation Activity Design Document (MADD) and engage with relevant governmental agencies in both the host country and Switzerland to prepare the activity. Moving towards the next step of activity implementation requires the authorization of both the Swiss and host country government, based on a bilateral agreement negotiated between the partnering countries, which acts as an ‘umbrella’ for Article 6 collaboration. As a final step to operationalize an Article 6 transaction, a Mitigation Outcome Purchase Agreement (MOPA) needs to be signed between KliK and the project developer to implement the transaction (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).

Figure 8: Overview of the KliK transaction structure



Source: Greiner et al (2019), p. 31.

The Swiss government enters into a bilateral agreement with the host country, defining the overall framework for cooperation. KliK, as a private entity, enters into a purchase agreement (MOPA) with the project developer.

At the time of writing this report, Switzerland has signed three bilateral agreements, with Peru, Ghana and Senegal, governing the recognition and calculation of transferred emission reductions, and minimum quality requirements to ensure environmental integrity. Moreover, mitigation outcomes may only be counted towards Switzerland’s mitigation target if the contribute to raising mitigation ambition in the host country. No MOPA has yet been concluded, and the bilateral agreements do no mean that project proposals from these countries automatically qualify for ITMO transfers. Each individual mitigation activity would still need to go through KliK’s competitive tendering process, and bilateral authorization as per the bilateral agreements (KliK 2020). In August 2021, Switzerland announced that the bilateral agreements will also provide a framework for voluntary carbon market transactions, functioning as a safety net for voluntary and compliance buyers that look to purchase credits which have been correspondingly adjusted to avoid double counting.

Japan. Japan has been pursuing international mitigation collaboration through its Joint Crediting Mechanism (JCM) since 2013. The JCM was set up in parallel to the CDM to create an alternative framework for international collaboration that facilitated the transfer of low-carbon technologies and support low-carbon development, building on the experiences of the CDM. Today, the mechanism aligns with the latest guidance on Article 6.2 and has established partnerships with 17 countries (METIJ and MOEJ 2021). Japan estimates to reduce between 50 and 100 million tCO_{2e} by 2030 through the JCM (Japan NDC 2020) but these expected emission reductions are not accounted for in their current NDC target, which is a reduction of emissions by 46% below 2013 levels. JCM collaboration aims to enhance the ambition of Japan's NDC and achieve the partner country's NDC (IGES 2016).

JCM collaboration is highly institutionalized. The Ministry of Environment implements the system, which has selected 14 eligible sectors (based on CDM sectoral scopes) and seven eligible GHGs for collaboration. To implement the collaboration, a Joint Committee is set up with each partner country that acts as a governing body to oversee projects in host countries, and develops rules, methodologies and guidance for cooperation. The Joint Committee also determines the allocation of emission reductions between the project participants, based on their contribution to the reductions or removals (ADB 2019). The institutionalized set-up of the JCM is well suited for transactions under Article 6.2. The bilateral authorization of the first transfer of mitigation outcomes, as well as project-level authorization, can be arranged through the Joint Committee (IGES 2021).

The JCM has different funding routes, with implications for the allocation of emission reductions. So-called 'JCM Model Projects' are funded by the Japanese Ministry of Environment and require that at least 50% of the issued JCM credits should be allocated to the Japanese Government; the rest are then allocated between the partner country and the project participants (ADB 2019). 'JCM Demonstration Projects' are on the other hand managed by the New Energy and Industrial Technology Development Organization (NEDO, affiliate Ministry of Economy, Trade and Industry), and the Asian Development Bank operates a Japan Fund for JCM to support further collaboration.

In its strategy, Japan is increasingly prioritizing projects with larger GHG emission reduction volumes (ADB 2019). Moreover, currently, emission reduction credits are issued by the participating governments to the project participants. In the context of the Paris Agreement, transactions may shift to the government's collaborating, considering the need of host countries to achieve their NDC (ADB 2019). Japan is also supporting partner countries in building capacities to implement the JCM in the context of Article 6. The Ministry of Environment provides capacity-building services as part of JCM project development to enhance the understanding of JCM rules and guidance, and MRV methodologies. Japan is also engaged with the Asian Development Bank's Article 6 Support Facility for the implementation of JCM projects.

4.2. Comparing buyer strategies

Like Article 6 seller countries, preparing for Article 6 means that buyers need to have a clear strategy for their collaboration. Buyers will generally have a pro-active approach to source mitigation outcomes, whereby getting ready 'domestically' for Article 6 transactions mainly entails mandating an entity to implement the strategy, looking for collaboration opportunities and engaging with potential partners to

understand their capacity needs. The Article 6 buyers discussed in this chapter show a number of similarities and differences in their preparational approaches so far.

Figure 9. Overview of steps for Article 6 readiness in buyer countries



Source: authors

Defining the strategy. Upon defining an interest to collaborate through Article 6, fleshing out the role that Article 6 collaboration will play in achieving or increasing mitigation targets is a crucial next step. This includes defining the volume of ITMOs the country is looking to source, the type of collaboration it wants to pursue (in terms of activity types, project or program size), envisaged price levels, and how mitigation outcomes will need to be allocated. Importantly, the strategy will determine the capacities and infrastructures required domestically to implement Article 6 collaboration. The three countries discussed in this chapter have defined the ITMO volumes that they are looking to source, how ITMOs will be used, and a set of eligibility requirements. They all have also designated the roles and responsibilities of different entities involved in rule-setting and implementation under the umbrella of the strategy. There are differences between the strategies of the three countries. For example, Switzerland is retaining flexibility regarding the use of ITMOs, and has communicated that although credits cannot be transferred out of Switzerland, they can be used by both public (at different levels) and private entities (headquartered in Switzerland) (KliK 2020). This matches the transactional set-up, where private entities are the buyers of ITMOs, albeit covered by the bilateral agreement between the governments of Switzerland and the activity host country. The recent announcement that voluntary transactions can also be implemented under the same bilateral umbrella, fits this logic. On the other hand, the Swedish government will use the ITMOs towards its national target, and in the JCM the allocation of credits is determined on a case-by-case basis, depending on how the activity is funded.

Engaging with potential partners. With a solid understanding of their strategy, all three buyers have started to actively reach out to and engage with potential partners to identify and develop mitigation activities that suit their objectives. This outreach may involve conversations and negotiations with the partner country and project developers to explore opportunities, getting insight into (funding) needs for capacity building, and studies to understand the mitigation impact of an activity and to determine the pricing of ITMOs. For all three countries, there is a strong focus on understanding capacity needs in the partner country as part of the engagement.

Setting up the framework for collaboration. Formalizing the (legal) framework for collaboration is a final preparational step for buyers to acquire ITMOs. The three buyer countries discussed in this study have taken different approaches in this regard. Japan applies a relatively standardized, institutionalized approach across its JCM partners, which involves setting up a Joint Committee in which the different partner countries and project participants involved are represented. Switzerland has to date signed three more loosely defined 'Implementation Agreements' under which relevant (private) stakeholders from the collaborating countries will make future decisions and plans. Sweden has not yet signed a

formal collaboration agreement but is conducting a number of dialogues with potential partner countries to further explore how a framework for collaboration will look.

5. Conclusions and recommendations

The updated NDCs reflect strengthened Article 6 interest and readiness across the board compared to the first round of NDCs submitted upon the conclusion of the Paris Agreement. An increasing number of countries is communicating their interest to participate in Article 6, albeit mostly on the seller side. 77% of countries who submitted, updated or revised NDCs between July 2019 and 2021 foresee the use of international carbon markets under Article 6, with half of these countries expressing strong interest in Article 6. Only 7% of these countries can be classified as 'pure buyers', the others are looking to engage with Article 6 as a seller or through a mixed strategy, but for some these strategies are not elaborated. Almost half of the NDC submissions with reference to Article 6 originate from sub-Saharan Africa or Latin America, and the analysis points towards the observation that Article 6 is perceived as particularly relevant for low-income and/or vulnerable countries.

Some countries are making clear links to their climate targets, elaborating how Article 6 will contribute to achieving these targets. At the same time, it can be observed that relatively little information considered relevant for Article 6 readiness is provided in the NDCs. While a majority of the 68 countries (~75%) specifies whether they want to engage as "seller" or "buyer", less than 50% of them, establish a clear link to the GHG reduction target under the NDC, e.g., by quantifying the contribution of Article 6. Regarding both aspects, the situation is not better for buyers than for sellers.

This limited reflection of Article 6 readiness in NDCs for both seller and buyer countries can be attributed to different factors. First, NDCs are only providing a glimpse of the preparational work that a country may be undertaking to facilitate NDC implementation and engagement in Article 6 collaboration. NDC implementation plans, policy formation processes, or other less formalized policy processes may be ongoing without being explicitly referred to in an NDC. Nearly all NDCs provide reference to such national strategies, which enhance the credibility of NDC targets. The three case studies of seller countries in this report furthermore give some insight into the preparational work that governments are engaging in to build the necessary monitoring infrastructures, engage stakeholders and allocate responsibilities, as well as additional efforts required to enable well-informed sales. Our short assessment of the three most advanced buyers shows that also for buyers, a thorough strategic engagement is required and just hoping to buy the required quantity of ITMOs 'at short notice' may not work. A complete picture of a country's Article 6 readiness -for both buyers and sellers- requires a further deep-dive into the full domestic policy framework related to NDC implementation. At the same time, it is true that many countries do not seem to be ready to engage in Article 6 in the short term, which is currently more relevant for buyers. The continued uncertainty about the outcome of the Article 6 negotiations is holding countries back from further developing their Article 6 strategies, capacities and infrastructures, in particular on the seller-side. These countries generally adopt a wait-and-see approach, preferring to ramp-up their preparational efforts only once the Article 6 requirements are clearer. Whereas piloting Article 6 is helping both buyer and seller countries understand what is needed to strengthen their readiness, taking steps to formalize roles, plans and commitments requires more regulatory certainty.

The ability to monitor and track both NDC implementation as well as Article 6 cooperation, and the required access to emissions data on a timely and regular basis, may prove a key bottleneck and hurdle for many seller countries with limited capacities that wish to engage in market-based cooperation under Article 6. While the vast majority of NDCs make some reference to their methodologies and assumptions used, the information is often not fully transparent, leaving out quantitative assumptions behind models or data. Moreover, the majority do not disaggregate quantified emission reduction targets at sectoral level. This applies not only to sellers but also to many buyers.

Depending on the strategy a country adopts (seller, buyer, mixed approach), and the role a country foresees for Article 6 to meet its targets, limited readiness may reduce the ability of countries to strategically make use of Article 6 collaboration once the mechanism becomes operational. Preparing for a mixed strategy of both acquiring and selling mitigation outcomes may be particularly demanding, as such a strategy requires a robust understanding of abatement costs across sectors, the interplay between different sectoral interventions, and the ability to regulate and track the international transfers across the economy while not putting off private sector actors.

From the analysis undertaken and summarized in this report, we distil the following recommendations:

- 1. Robust Article 6 collaboration needs granular and in-depth understanding of key sectors and related NDC targets.** Much of the information provided in countries' NDCs does not have the level of granularity required to set up robust Article 6 collaboration. Proving environmental integrity eventually depends on detailed activity-specific information, and requires a hands-on regulatory approach, as experience with determining CDM project additionality has shown. Whereas in some cases this type of information is provided in supporting documents, this is not always the case. Article 6 pilots are showing how such information needs can be developed on a case-by-case basis, through cooperation between the partner countries. Importantly, the process of developing of obtaining the relevant information should be directly linked to collection of information informing NDC implementation and needed for reporting under the enhanced transparency frameworks. Moreover, it is imperative to build on existing knowledge and data generated at more disaggregated levels, through countries' experience with the activities under the CDM, JCM, VCM or the development of NAMAs.
- 2. There is a clear need for making capacity-building an integral element of Article 6 collaboration, to enable parties involved to engage strategically with the Article 6 carbon market approaches.** Ensuring inter-ministerial collaboration at the national level of both sellers and buyers, which allows partner countries to make Article 6 collaboration an integral element of NDC and low-carbon development policy planning, supports countries in establishing a holistic approach to collaboration. Here a lot of patience is required as powerful ministries need to be convinced that the coordinator of NDC implementation that currently has low power will play a key role in future development of the country. Also here, capacity building efforts do not need to start from scratch. Harnessing the capacities built in the context of collaboration through the CDM at all levels – from programme developers, over auditors to DNAs - can speed-up preparational efforts and may reduce the ex-ante cost of an Article 6 transaction.

3. **Both buyer and seller countries should engage with organizations that can help prepare the groundwork for Article 6 readiness, replicate approaches between countries and ensure the harnessing of synergies between different initiatives.** Importantly, partner countries should be aware of, and transparent about, multiple Article 6 partnerships that may be set-up and elaborated in parallel. This will prevent duplication of capacity-building efforts that plagued early efforts of capacity building for the CDM, as well as enable different entities involved in Article 6 collaboration to build on each other's' experience. For example, the West African and Eastern African Alliances for Carbon Markets and Climate Finance, are supporting the coordination of Article 6 readiness activities in its 16 member countries. Similar Alliances are being considered in other regions.
4. **For prospective “seller” countries, the engagement and mobilization of private sector actors that implement mitigation actions that go beyond the countries' NDC targets will be crucial for the Article 6 strategy to work out.** Such engagement should be considered through different phases of preparing for Article 6 collaboration, to build a robust basis for collaboration.
5. **For prospective “buyer” countries, an update of the institutional structure applied under the Kyoto Protocol for purchases of CDM and JI credits and Assigned Amount Units is required.** Many countries had a relatively ad-hoc approach under the Kyoto Protocol, while others like Ireland, the Netherlands, Norway, Sweden, and Switzerland had developed a clear strategy. Investing in the political buy-in of key stakeholders is important to enable the development of long-term strategies, partner-country engagement, and purchase commitments. As the Swiss example has shown, the best Article 6 buyer strategy is in vain if the population and politicians are not convinced that climate change mitigation is important and international carbon markets are an important part of a robust national mitigation strategy. The scale of Article 6 collaboration asks for long-term certainty for all stakeholders involved, and broad-based support and engagement can shield collaboration from domestic (political) changes that could otherwise slow down or stand in the way of continued engagement.

As past experiences have shown, international carbon markets need to be continuously reformed and innovated in order to be seen as meaningful contributors to increased mitigation ambition. Unless both sellers and buyers develop robust, politically palatable strategies and involve all key stakeholders, the significant potential of international carbon markets to mobilize cost-effective mitigation cannot be harnessed. As markets are key to enabling higher ambition in the future, reaching the long-term target of the Paris Agreement, funders and experts alike need to engage to remove barriers.

6. References

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7. Annex

Annex A: Methodology and limitations

We draw on NDCs submitted to the secretariat of the UNFCCC between 31 of July 2019 and 31 July 2021 which foresee the use of market mechanisms under Article 6 in the context of their NDC achievement.²⁴ Over this period, a total of 88²⁵ NDCs were submitted to the UNFCCC, 68 of which (77%), indicate openness to participate in Article 6 mechanisms. The subset was identified through a keyword search.²⁶ This subset is composed of seven first NDCs, 54 updated first NDCS and seven second NDCs. This procedure permits to delineate, **in a first step**, NDCs which reference to Article 6 in the context of their NDC from those without any reference or specific exclusion of engaging in cooperation under Article 6.

We restricted the analysis to NDCs submitted from mid-2019 onwards because only these submissions have been informed by the Katowice decisions of December 2018, most importantly the modalities, procedures, and guidelines (MPGs) for the Enhanced Transparency Framework (ETF) as well as the Information to Enhance Clarity, Transparency and Understanding (ICTU) for NDCs. These decisions have clarified what countries need to report in their NDC, at least on the level of principles. However, comparability of NDCs remains low and is likely to improve only with the first Biennial Transparency Reports (BTRs) from 2024 onwards.

In a second step, by means of interpretative text analysis and expert judgement the subset of NDCs indicating willingness to participate in international carbon markets was analysed with regards to characteristics Michaelowa et al. (2021a) identify as relevant for readiness for Article 6, including strategy, governance, and monitoring arrangements. Criteria and indicators for this analysis were chosen with the aim of maintaining the highest degree of comparability among NDC submissions. The analysis is limited to the NDC texts and does not take into consideration other national strategies, implementation plans or documents that might elaborate on Article 6 strategies²⁷. Combining step one and two, we yield a comprehensive set of data (in the following ‘the database’, Michaelowa et al. 2021b) with 53 indicators for the 68 NDCs. With regards to enhancing comparability of the results, where possible, we aimed to define binary (e.g., Yes/No) responses.

In a third step, we zoom into three selected case studies for Colombia, Ethiopia, and Vietnam combining desktop research with semi-structured interviews of responsible government officials and stakeholder representatives. In the case studies, we focus on other national strategies, implementation plans

²⁴ The analysis also includes the NDCs of Angola, Brunei Darussalam, Philippines, Russian Federation, Senegal, and South Sudan which submitted their “first NDCs” as these NDCs are also informed by the ICTU guidelines. The first NDC of the United States of America since rejoining the Paris Agreement is also included in the analysis.

²⁵ The EU (and the 27 member states) excluding the UK is counted as one Party.

²⁶ The terms used are: “Article 6”, “market mechanism”, “cooperation”, “market”, “cooperative approach”, “JCM”, “CDM”. For NDCs submitted in other languages than English, these key words were translated into the respective language used. Note that the subset excludes countries which mention Article 6 but expressly exclude participation in market mechanisms, such as Tonga.

²⁷ While the analysis was limited to the subset of NDCs, the analysis also considered where explicitly mentioned in the NDC, further information on the variables under study included in other reports submitted to the UNFCCC e.g., when a country mentions the description of the national circumstances and sustainable development is elaborated in its National Communication.

or documents on whose basis national Article 6 readiness can be assessed. To understand readiness on a global scale, such an exercise should be undertaken for all countries that desire to participate in international carbon markets. This allows to overcome the limitation that the database only considers country's NDC text,

and not NDC implementation plans and detailed documents specifying the concrete activities, responsibilities, and technical feasibility in the national mitigation strategy.

NDCs are often high-level documents which just outline strategies. They are typically the result of lengthy national-level negotiations among stakeholders and based on reports and data that is not publicly available. The latter may better reflect the status of discussions on carbon market participation than the short mention in the NDC text. But so far, few dedicated NDC implementation plans have been published (Michaelowa et al. 2021a). Finally, we would like to note that engagement in market-based cooperation is a learning by doing process and the actual engagement of a country may deviate from how it is presented textually.

Annex B: References to Article 6 cooperation by top 10 emitters

Party by share in global GHG emissions in 2018	Reference to Article 6	Classification by authors
China* (26.1%)	First NDC was submitted in September 2016 and therefore not part of the database. The NDC contains no reference to international carbon markets nor Article 6 of the Paris Agreement.	-
United States (12.7%)	"At this time, the United States does not intend to use voluntary cooperation using cooperative approaches referred to in Article 6.2 or the mechanism referred to in Article 6.4 in order to achieve its target. Should the United States decide to use such voluntary cooperation towards achievement of its target or to authorize the use of internationally transferred mitigation outcomes towards the NDCs of other Parties, it would report on such use or authorization through its biennial transparency reports and consistent with any guidance adopted under Article 6"	Classified as "General interest and attention" and "Mixed strategy", as both potential use of ITMOs is not excluded (acting as buyer) as is authorization of transfer of ITMOs on the international carbon markets (acting as seller)
EU (27) (7.5%)	"The EU's at least 55% net reduction target by 2030 is to be achieved through domestic measures only, without contribution from international credits. Norway, Iceland and Liechtenstein have been participating in the EU ETS since 2008, and an agreement linking the EU and Swiss emissions trading systems entered into force in 2020. The EU is continuing to explore the possibilities to link the EU ETS with other mature and robust emissions trading systems. The EU will account for its cooperation through the EU ETS with these and any other Parties in a manner consistent with the guidance adopted by CMA1 and any further guidance agreed by the CMA"	Classified as "Strong interest and intention" and "mixed strategy" (See Box 1 for further explanation).
India* (7.1%)	First NDC was submitted in October 2016 and therefore not part of the database. The NDC contains no reference to international carbon markets nor Article 6 of the Paris Agreement.	-

Party by share in global GHG emissions in 2018	Reference to Article 6	Classification by authors
Russia (5.4%)	“The Russian Federation recognizes the importance of voluntary cooperation in nationally determined contributions to potentially increase the ambition of mitigation and adaptation actions. The possibility of using voluntary cooperation in the implementation of the nationally determined contribution will be considered by the Russian Federation following the adoption by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement of the rules, conditions and procedures for the mechanisms referred to in Article 6 of the Paris Agreement.”	Classified as “general interest and intention”
Japan (2.5%)	“JCM and other international contributions: Japan establishes and implements the JCM in order both to appropriately evaluate contributions from Japan to GHG emission reductions or removals in a quantitative manner achieved through the diffusion of low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions in developing countries, and to use them to achieve Japan’s emission reduction target”	Classified as “strong interest and intention” and “Buyer”
Brazil (2.2%)	“The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable: Yes, when appropriate. Any transfer of units from mitigation results obtained in the Brazilian territory within the framework of the UNFCCC, the Kyoto Protocol or the Paris Agreement will be contingent on prior and formal consent by the Brazilian Federal Government.”	Classified as “General interest and attention” and “Seller”
Indonesia (2.0%)	“Furthermore, Indonesia welcome[s] [sic] bilateral, regional and international cooperation in the NDC implementation as recognized under Article 6 of the Paris Agreement, that facilitate and expedite technology development and transfer, payment for performance, technical cooperation, and access to financial resources to support Indonesia’s climate mitigation and adaptation efforts towards a climate resilient future”	Classified as “Strong interest and intention” and “Seller”
Iran* (1.7%)	Iran submitted an Intended Nationally Determined Contribution in November 2015 and is therefore not part of the dataset. The INDC does however mention participation in market-based mechanisms at the national and international levels for achievement of the unconditional emission reduction (Islamic Republic of Iran 2015).	-
Canada (1.5%)	“The Pan-Canadian Framework on Clean Growth and Climate Change prioritizes action to reduce emissions within Canada, but also recognizes that internationally transferred mitigation outcomes (ITMOs) could complement domestic efforts and contribute to sustainable development abroad. Canada will continue to advocate for strong international rules for ITMOs to ensure environmental integrity, transparency and the avoidance of double-counting, consistent with Article 6 of the Paris Agreement, as well as participants’ respective obligations on	Classified as “General interest and attention” and “Buyer”

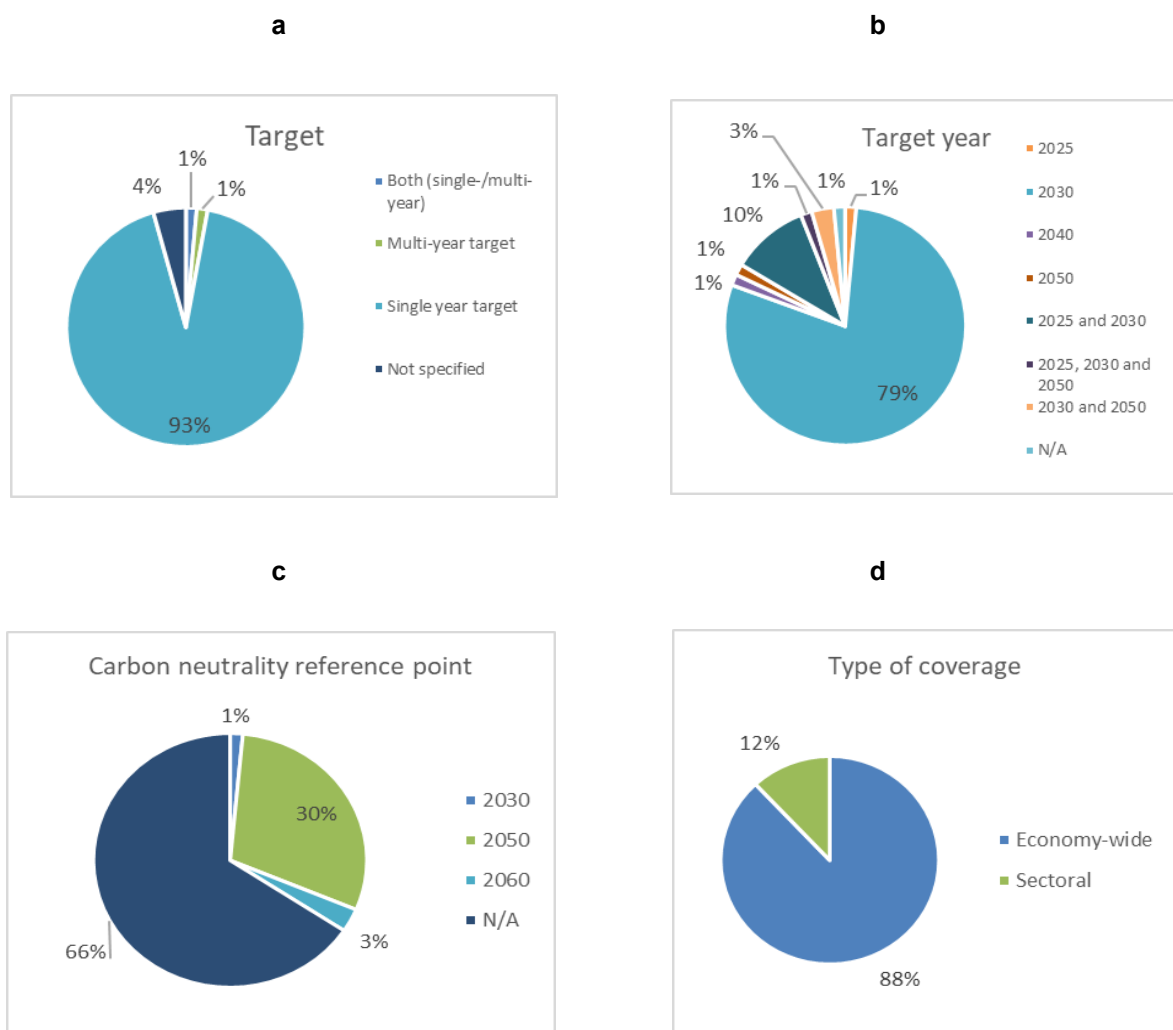
Party by share in global GHG emissions in 2018	Reference to Article 6	Classification by authors
	human rights, the rights of Indigenous Peoples and gender equality. Canada will continue to work with international and subnational partners to ensure robust accounting of all international cooperative approaches authorized by the participating Parties to the Paris Agreement”	

Note: (*) = No NDC submission between 31 July 2019 and 31 July 2021

Source: NDCs (except Iran's INDC) retrieved from UNFCCC (2021a), share of global GHG emissions taken from WRI (2020).

Annex C: Complementary analysis

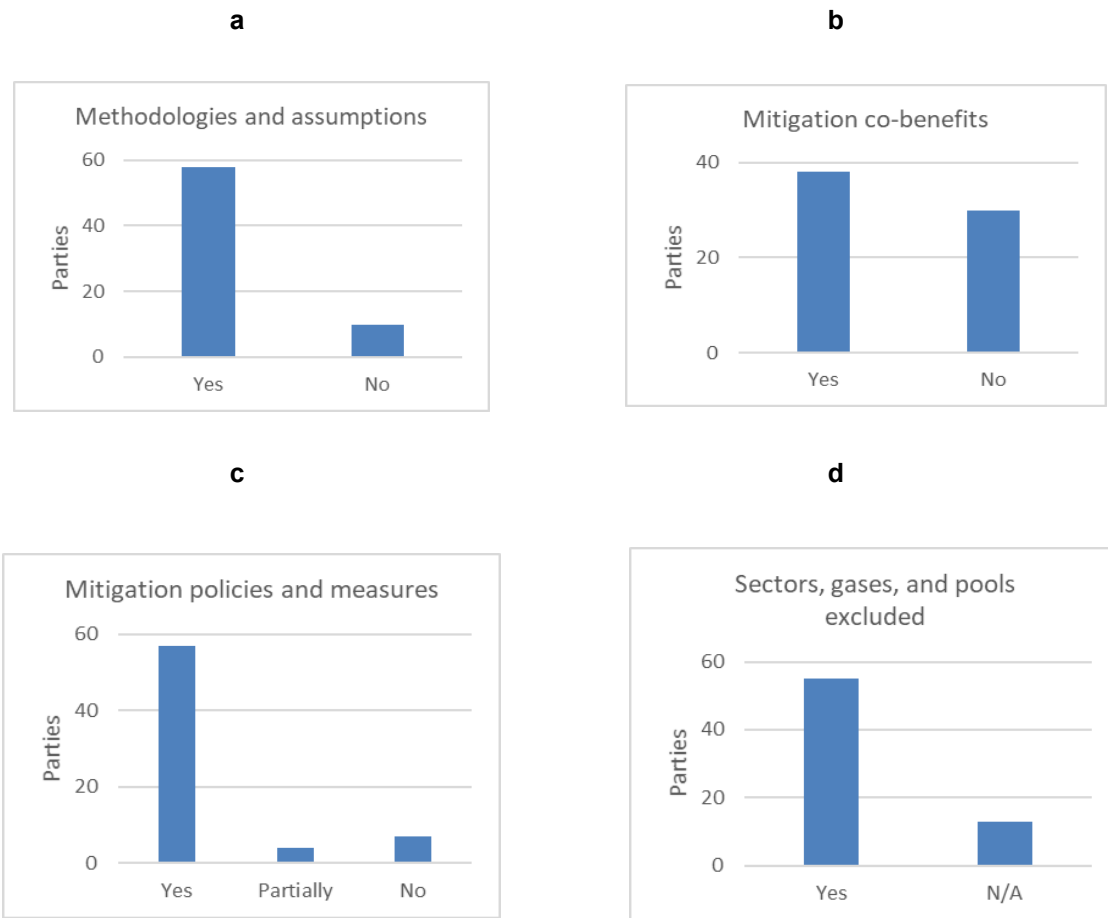
Figure A 1: Key characteristics and specific information provided in NDC submissions (I).



Note: Graph d: An economy-wide approach refers to all sectors including energy (with transport), industrial processes and product use (IPPU), AFOLU and waste. Countries which split the IPCC 2006 sector repartition guidance for GHG inventories to highlight strategic sectors such as transport or agriculture were counted as “economy wide” if all sectors were named.

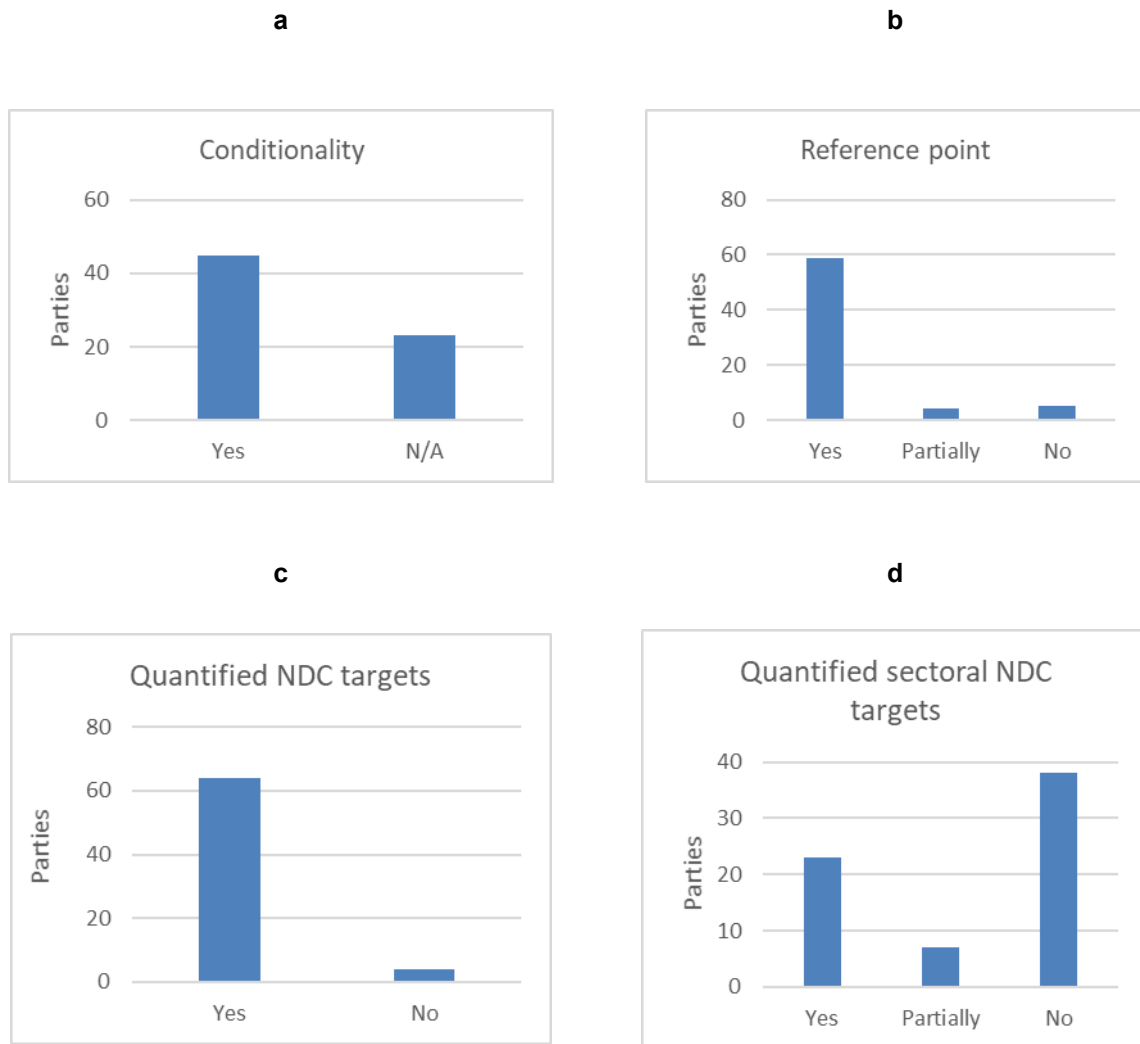
Source: authors

Figure A 2: Key characteristics and specific information provided in NDC submissions (II).



Note: Definition of 'Partially' in graph b: Limited information on the existing and/or planned mitigation policies and regulations
Source: authors

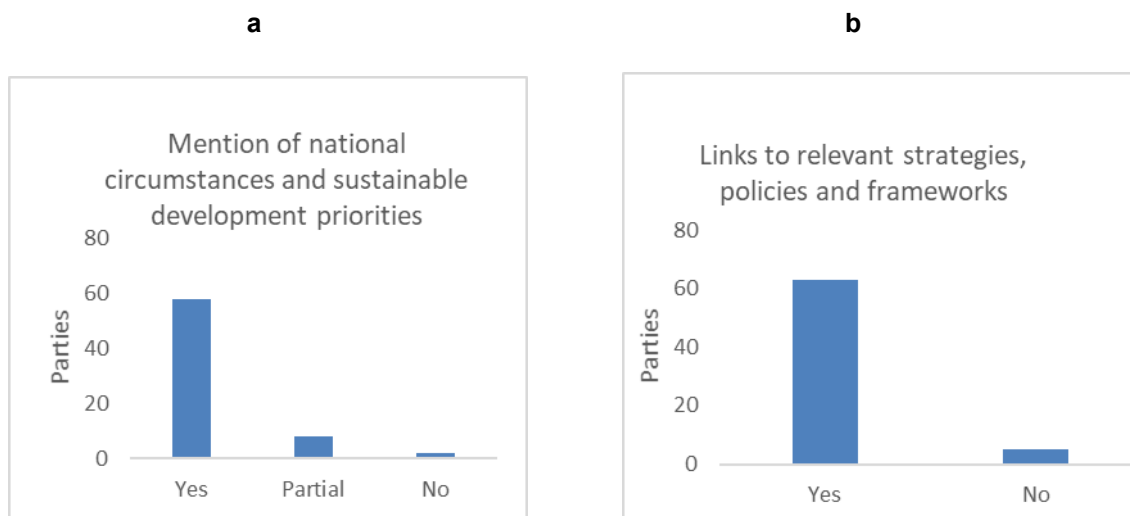
Figure A 3: Key characteristics of NDC mitigation targets



Note: Definition of 'Partially' in graph b: Limited information of the reference points used, information on the NDC update process and the sources of data or indicators applied. Definition of 'Partially' in graph d: Quantified sectoral NDC targets provided for a limited number of sectors (e.g., only for the Energy sector)

Source: authors

Figure A 4: National circumstances, sustainable development priorities and link to national strategies, policies, and frameworks.



Graph a: Partially: Description or mention of national circumstances or sustainable development priorities but not both.

Source: authors

Annex D: Activities relevant to Article 6 cooperation in Ethiopia

Activities relevant to Article 6 cooperation	Status (August 2021)	Small description
CDM activities	Ethiopia has two registered CDM single projects in landfill gas flaring and methane collection from wastewater treatment. Ethiopia hosts seven CDM Programme of Activities (PoAs), which include five improved cook stoves (ICS), one biomass, and one off-grid electrification activity (EFCCC 2021)	Both registered projects have not yet issued certified emission reductions (CERs). The PoAs together host 16 component project activities (CPAs) including 11 for stoves, three for solar lamps, and two for biomass. These CPAs have approximately 10 million tCO ₂ e mitigation potential by 2030 and to date 754,180 CERs issued. (EFCCC 2021)
JCM	Ethiopia is in the process of registering one JCM project.	Under the JCM, Ethiopia agreed to use the JCM registry although no project or carbon credit transfers have materialized since 2015
Voluntary carbon markets	29 Gold Standard activities covering three sectors (EFCCC 2021) Ethiopia has one Plan Vivo project	Three sectors are covered including: the forestry sector (two projects); the energy efficiency sector (26 projects), and the solar thermal sector (one project). These projects have issued more than 795,800 emissions reduction units as of March 2021 (EFCCC 2021) Implemented in the woodland restoration sector, the project has issued 36,800 VERs as of November 2020 (Hoch et al., 2020)

Activities relevant to Article 6 cooperation	Status (August 2021)	Small description
NAMAs	Ethiopia is currently exploring domestic carbon market opportunities in the context of a Global Environment Facility (GEF) supported NAMA for composting (EFCCC 2021)	Credits are to be generated by sequestration through peri-urban reforestation, renewable biomass, and the production of compost.
REDD+ projects	8 REDD+ projects registered	Only 1 (Bale Mountains Eco-region REDD+ Project) is ongoing (REDD+ Database)
REDD+ national programme	Ethiopia submitted its proposed reference level in 2016 and the national REDD+ strategy in 2019.	
WB support	Ci-Dev has signed emission reduction purchase agreements (ERPAs) for two programs (Off-Grid Renewable Energy and Biogas) in Ethiopia. (Ci-Dev 2021a; Ci-Dev 2021b) Ethiopia is also set to participate in the SCF which addresses challenges faced by CDM programs in the current crediting system (Greiner et al. 2020)	Ci-Dev is purchasing the resulting emissions reductions and the funds will be used to strengthen after sale service of solar products. Carbon revenues from Ci-Dev are also helping the National Biogas Program of Ethiopia to promote the use of biogas digesters (Ci-Dev 2021a; Ci-Dev 2021b.)

Annex E: Activities relevant to Article 6 cooperation in Vietnam

Activities relevant to Article 6 cooperation	Status (August 2021)	Small description
CDM activities	259 CDM project activities registered. Few credits issue: CERS: 24574.9 (UNEP DTU 2021) 14 PoAs registered (UNEP DTU 2021b)	Mainly hydro projects (200 out of 259). Other registered projects include: 15 in biomass energy, 7 projects in landfill gas, 22 in methane avoidance and 5 in wind energy (UNEP DTU 2021)
JCM	14 projects registered Credits issued: 1724	Signed agreement in 2013 All of the registered projects belong to the energy sector
Voluntary carbon markets	32 projects under the Verified Carbon Standard (VCS) (under development and registered). Credits issued: 999166 (VCS 2021) 43 projects under Gold Standard at several stages (including planned and certified projects). Credits issued: 2,015,456 (GS 2021).	All activities take place in the energy sector Attention of private sector has moved to independent standards as per no more CDM letters of approval are being granted by the government (e.g., Vietnam Biogas Programme from SNV certified by Gold Standard with more than 2.3 million of GS VERs credits already issued (SNV 2020))
NAMAs		Developed for different sectors: cement, steel, textile industry, waste and transport sector with funding from Nordic donors JICA, GIZ and the PMR from the World Bank (Healy 2017). Finance resource to support their implementation has been limited (Healy 2017)

Activities relevant to Article 6 cooperation	Status (August 2021)	Small description
REDD+ projects	8 REDD+ projects registered, only 2 of them ongoing (REDD+ Database)	
REDD+ national programme	Vietnam has the official completion of all the Warsaw Framework components since July 2018 (FCPF 2019, UNREDD+ 2019)	The country has received support from the FCPF for the Viet Nam REDD+ National Programme and has completed the Emission Reduction Payment Agreement (ERPA) negotiation successfully (FCPC 2021). It was also one of the first countries to receive support from UN-REDD+.
WB support	Vietnam has received support from PMR and the Carbon Partnership Facility. Vietnam plans to participate in the PMI.	PMR supported with financial resources to develop NAMAs that generated credits for the steel and solid waste sector (Healy 2017). Funding from the Carbon Partnership Facility has been deployed for the development of a sectoral trending crediting program for the industrial energy efficiency sector.

Annex F: Reference to Article 6 buyer strategy in NDCs

Country	Identification as potential Article 6 buyer		Mandate
Canada	NDC, 2021	[...] prioritizes action to reduce emissions within Canada, but also recognizes that internationally transferred mitigation outcomes (ITMOs) could complement domestic efforts and contribute to sustainable development abroad.	Not available
Israel	NDC, 2020	Israel is planning to achieve its NDC mitigation objectives through domestic means but is following Article 6 negotiations so that this option remains open should it be relevant in the future.	Not available
Japan	NDC, 2020	The Joint Crediting Mechanism (JCM) is not included as a basis of the bottom-up calculation of Japan's emission reduction target, but the amount of emission reductions and removals acquired by Japan under the JCM will be appropriately counted as Japan's reduction.	Between 50 and 100 million tCO ₂ by 2030
Monaco	NDC, 2020	Emission reductions will primarily be achieved domestically. In the event that these reductions do not make it possible to achieve the objectives set, Monaco may use the market mechanisms referred to in Article 6 of the Paris Agreement.	Not available
New Zealand	NDC, 2016 (unchanged in update)	In meeting its target New Zealand intends to use international market mechanisms, cooperative approaches and carbon markets that enable trading and use of a wide variety of units/emission reductions/mitigation outcomes [...].	Not available
Norway	NDC, 2020	In the event that Norway's enhanced nationally determined contribution goes beyond the target set in the updated nationally determined contribution of the European Union, Norway intends to use voluntary cooperation under Article 6 of the	Not applicable. Norway's updated NDC target is aligned with the EU's updated NDC target (55% reductions by

Country		Identification as potential Article 6 buyer	Mandate
		Paris Agreement to fulfil the part that goes beyond what is fulfilled through the climate cooperation with the European Union. [...]	2030), hence the country will likely not engage in voluntary cooperation under Article 6
Republic of Korea	NDC, 2020	The Republic of Korea plans to use voluntary cooperation under Article 6 of the Paris Agreement as a complementary measure to its domestic mitigation efforts including LULUCF to achieve its target.	Not available
Sweden	Climate Act and Climate Policy Framework	To achieve the target of zero net emissions of GHGs by 2045 and the milestone targets by 2030 and 2040, supplementary measures may be utilized, such as [...] verified emission reductions carried out outside the Swedish borders [...]	Up to 8% of the 2030 target, and 2% of the 2040 target
Switzerland	NDC, 2020; CO ₂ Act; Revised CO ₂ Act (not adopted)	Switzerland will realize its NDC mainly domestically and will partly use internationally transferred mitigation outcomes (ITMOs) from cooperation under Article 6.	25% of the emission reductions are available for ITMO; fossil fuel motor importers to compensate up to 90% of their emissions (at least 15% in Switzerland)
United Kingdom	NDC, 2020	The UK intends to meet its NDC target through reducing emissions domestically, it reserves the right to use voluntary cooperation under Article 6 of the Paris Agreement. Such use could occur through the linking of a potential UK emissions trading system to another emissions trading system or through the use of emissions reductions or removals units.	Not available



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