



The CDM Legal Context Post-2020: Discussion Paper

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Editorial/Introduction

On 4 November 2016, the Paris Agreement (PA) entered into force less than eleven months after its adoption in December 2015. The record speed with which countries ratified the agreement and met the double threshold of 55 Parties and 55% of global emissions is largely unprecedented in international policy in recent years. The approach of the PA, including its treatment of Nationally Determined Contributions (NDCs) and cooperative approaches among Parties under Article 6, is one that is fundamentally decentralised in nature. Its provisions set out parameters within which countries are to take climate action and ratchet up ambition over time, but are neither prescriptive of the actions those countries are to undertake nor the particular approaches to cooperation.

In relation to carbon markets, future guidance to be adopted by the Parties to the Agreement will have to consider the nexus of NDCs, accounting and the various mechanisms for implementing the voluntary cooperation that countries will engage in. It will need to cover in particular the avoidance of double counting, additionality issues of Art. 6 mechanisms and other issues that could jeopardise environmental integrity in the generation and transfer of mitigation outcomes, as well as ensuring transparency, good governance and the necessary institutional infrastructure. It will also need to consider the key role that carbon markets can have in enabling and encouraging greater mitigation ambition and in bringing about sectoral transformation. In particular the question of how overall ambition of the PA can be increased over time will become an increasingly important and contradictory topic.

This study aims at making a step toward a better understanding of the above mentioned issues covered by Art. 6. as well as an enhanced usage of its scope. It is supported by a grant from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The analysis, results and recommendations in this paper represent the opinion of the authors and are not necessarily representative of the position of the BMU

Executive Summary

This discussion paper addresses the continuity question for the Clean Development Mechanism (CDM) post 2020. First, to set the context, it provides a snapshot of today's CDM practice across the globe, in particular concerning its use by domestic emissions trading schemes and transnational mitigation initiatives. Second, it assesses the legal horizon for the CDM within the Kyoto Protocol after 2020, when the Protocol's second commitment period has expired. Third, it discusses continued CDM operations – and transition scenarios for the mechanism – from the perspective of the Paris Agreement.

The CDM was created with a dual role: to assist developing countries “in achieving sustainable development” and to help industrialized countries “in achieving compliance with their quantified emission limitation and reduction commitments” (Article 12 Kyoto Protocol). Over the past 15 years, the mechanism has innovated and transformed global climate change cooperation, and has led to the registration of 7,800 projects, 2 billion issued CERs and a procedural and institutional framework applied in more than 140 countries. What is more, the CDM has become a blueprint and benchmark for implementing emission reduction projects worldwide. Carbon pricing schemes in Korea, China, South Africa, Mexico and Colombia allow CERs for compliance, or are mirrored on the CDM. What happens to the CDM post 2020, matters for these schemes.

Given its practical relevance, it is surprising that there is little, if any, legal guidance on the underlying question whether the CDM has a legal basis to operate after Kyoto's second commitment period expires. The situation is complex, and the legality of continuous operations of the CDM after 2020 (outside accounting and book-keeping operations) is not conclusively settled.

It may be argued that the CDM, a body conceived to help industrialized countries achieve their emission reduction obligations, becomes devoid of meaning with no future commitment period on the horizon. This, in turn, could render its operations defunct. Decision 1/CMP.8 (Doha Amendment) may also be interpreted in the way that a positive decision by CMP is a precondition for future operations.

These arguments raise substantial counter-arguments, however. The Kyoto Protocol has created the CDM unconditionally (Article 12.1 Kyoto Protocol: “... is hereby defined.”). Furthermore, Article 12.3 Kyoto Protocol suggests some sort of hierarchy of purpose. It stipulates that the developing parties “*will* benefit from the project activities resulting in certified emissions reductions” (lit. a, italics added), while industrialized parties “*may* use the certified emission reductions accruing from such project activities to contribute to compliance...” (lit. b, italics added). Decision 1/CMP.8 stands in a specific, time-limited context, and it has not overturned the participation requirements for CDM operations as laid out in the Marrakesh Accords. Under those rules, the end of a

commitment period does not end the eligibility of countries to engage in the mechanism.

On this basis the authors cautiously contend that the Kyoto Protocol has created the CDM as a continuous body that – without a commitment period – may be restricted in its functionalities, but retains its core purpose: i.e. allowing developing countries to benefit from project activities resulting in certified emission reductions (CERs) and assisting them with achieving sustainable development.

However, at a practical level, continued CDM operations would require the CDM Executive Board to continue assuming its functions, i.e. register CDM projects and programs, allow new component activities, and issue CERs for the period after 2020. In the absence of fresh guidance from the CMP, the situation for the Executive Board will be untenable. It is at risk of being under conflicting instructions, no matter the legal choice.

The Executive Board's open-ended mandate for registration and issuance conflicts with the technical instructions that it must always issue CERs with reference to a commitment period. If a project were to seek issuance for emission reductions generated after 2020, the Executive Board would likely face a dilemma. The sound – and perhaps only – legally acceptable way forward is for CMP to issue new guidance.

The Paris Agreement, while designed as the centralized platform to coordinate and trace climate action internationally, does not seem to claim exclusivity. The relationship between the Paris Agreement and other climate treaties and arrangements is a priori one of co-existence, not replacement or supersession. The same appears to apply for the Kyoto Protocol. This notwithstanding, in the absence of a long-term regulatory perspective for the Kyoto Protocol, it is for Parties and the governing bodies of both treaties to plan and manage the transition from the Kyoto environment into the Paris environment.

The Adaptation Fund provides insightful precedence for how a transition of the CDM – if supported by Parties – can be managed. CMP and CMA, in the case of the Adaptation Fund, have issued complementary decisions on governance and financing during a transitional period. For the CDM, the situation is more complex. Any transition involves substantial legacy questions – are projects and CERs issued eligible for transfer, and if so, on which terms? – and requires decisions to be made at various levels, not just CMA and CMP.

The Adaptation Fund transition provides another useful lesson. Beyond the question of a (final) CDM transition, the more urgent need for Parties and international policymakers may concern transitional arrangements. Should the CDM come to an end by the end of 2020 – a scenario which may not be *de jure* but may still happen *de facto* (see above) – the new instruments under Article 6 of the Paris Agreement will most

likely not yet be available. That would result in a gap for the availability of a continued global emission reduction infrastructure.

Similar to the transitional arrangements for the Adaptation Fund, a temporary solution could be established for the use of the institutional structure of the CDM for the Paris purposes. CMA and CMP could mutually authorize the temporary use of the CDM mechanism (including its infrastructure) under Article 6.4 until the Article 6.4 mechanism proper becomes available.

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List of Abbreviations

CCERs	China Certified Emission Reductions
CDM M&P	Methodology Panel
CDM	Clean Development Mechanism
CERs	Certified Emission Reductions
Ci-Dev	Carbon Initiative for Development
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CP	Commitment Period
CPA	Component Activity
ETS	Emissions Trading System
EU ETS	European Union Emissions Trading System
EU	European Union
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
INDC	Intended Nationally Determined Contribution
ITMO	Internationally Transferred Mitigation Outcomes
KETS	Korean Emissions Trading System

LoA	Letter of Approval
NACAG	The Nitric Acid Climate Action Group
NDC	Nationally Determined Contributions
PAF	Pilot Auction Facility
PoA	Programme of Activities
RBCF	Results based climate finance
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Standardized Crediting Framework
UNFCCC	United Nations Framework Convention for Climate Change
VCLT	Vienna Convention on the Law of Treaties

Objective

Next Year – 2020 – marks a legal milestone for international climate cooperation. The second commitment period of the Kyoto Protocol comes to an end, and with it, the greenhouse gas (GHG) emission reduction and compliance obligations it imposes – or better: may impose, as the rules governing the second commitment period have not yet entered into force – on participating industrialized countries. Henceforth, international emission reduction targets and compliance procedures will be governed by the Paris Agreement alone.

This creates an existential question for Kyoto’s key flexible (crediting) instrument, the Clean Development Mechanism (CDM): Other than dealing with accounting matters (“true up”) for activities leading up to 2020, will the CDM cease operations come 2020, or is it legally organized in such a way that crediting operations will continue beyond 2020?

This discussion paper provides an assessment on several levels. It starts with a functional analysis of the CDM both within the Kyoto (compliance) framework as well as outside the Kyoto framework proper, presenting several case studies that show the workings of the mechanism – independent of Kyoto compliance – in various settings, both domestic and international.

In a second step, the discussion paper assesses the legal status of CDM operations post 2020 under the rules of the Kyoto Protocol. In a third step, it moves to the perspective of the Paris Agreement. As the Paris Agreement has assumed its role as the world’s leading climate change treaty, any ‘after-life’ of the CDM would need to be seen in the Paris Agreement’s context.

The analysis is, thus, led from two perspectives, the Kyoto Protocol’s, on the one hand, and the Paris Agreement’s perspective, on the other hand. As part of this exercise, the discussion paper turns to implementation scenarios or options for the CDM and its potential transition into the Paris architecture, assuming that the governing bodies of both treaties, the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) and the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), will seek effective regulatory management of the issue.

Political Context

Until recently, the fate of the CDM post-2020 had taken a back seat to the Article 6 discussions. Consequently, a possible CDM transition had been merely treated as a subset of the Article 6 negotiations, where the primary focus of Parties remained on the fate of assets created under the CDM – such as registered activities with crediting lifetimes beyond the second commitment period and CERs issued but not yet used. Similarly, literature discussions have focused on this perspective.¹

With the year 2021 quickly approaching, the unresolved questions surrounding the future of the CDM mechanism itself are however gaining attention. While certain functionalities of the CDM may be secured to allow accounting (“true up”) procedures for the validation of books and emissions transfers to be settled, others remain in limbo. The most disputed functionalities post 2020 include the:

- Registration of new project activities;
- Inclusion of new component activities (CPAs) under programmes of activities (PoAs);
- Issuance of CERs for emission reductions achieved after 2020.

Authoritative guidance on the post-2020 continuation of these functions is currently lacking. The Executive Board only recently recommended that the CMP should provide “clarity to project participants ... and countries and constituencies interested in using the CDM” as well as “guidance to the Board on the functioning of the CDM beyond the end of the second commitment period”.² However, due to pervasive diversions on these matters inside the CMP, no active decisions have been taken.

The body, at its most recent session in Katowice (COP 24 / CMP 14), gave only a tepid post-2020 mandate to the Executive Board and the UNFCCC secretariat, namely to “ensure the efficient and prudent use of resources... for the [CDM] to the end of the true-up period for the second commitment period of the Kyoto Protocol”.³ It is estimated that the true-up period for the second commitment period ends at some point in 2023.

Thus, the fresh CMP decision clarified that the CDM is expected to provide (some) operations until then. It does not respond to the more acute question, however, whether project activities may continue and be credited after 2020.

In this void, Parties are coming forward with their own legal interpretations around the issue and are seeking to dominate the debate. During SBSTA 50 in June 2019, the EU let

¹ See literature discussions: OECD (2019) Markets negotiations under the Paris Agreement: a technical analysis of two unresolved issues. Available [here](#); Greiner, Sandra and co. (2017) CDM Transition to Article 6 of the Paris Agreement. Climate Focus, available [here](#); Brescia, Dario and co. (2019) Transition pathways for the Clean Development Mechanism under Article 6 of the Paris Agreement. Options and implications for international negotiators. Perspectives Climate Group, available [here](#).

² Annual report of the Executive Board of the clean development mechanism to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol of 21 September 2018 ([FCCC/KP/CMP/2018/3](#)).

³ Decision 4/CMP.4.

it be known that they considered the CDM to legally wrap up after 2020. The end of the second commitment period and the absence of a future commitment period would render the mechanism legally obsolete. The EU did not make any detailed rules-based assessment available, however, and the finding was perhaps more a statement of political choice – the EU does not see much value in a continued CDM after 2020 – than a legal opinion.

Across the board, the matter is discussed as a political item rather than a legal one. Countries like Brazil and India, important CDM host countries, have long advocated for a smooth transition of the CDM. Others, including African countries and some members of the Umbrella Group (a loose association of several developed countries to coordinate negotiations within the UNFCCC), have expressed a need for continuity in order to avoid an unnecessary gap between the CDM finish line and the start of the Article 6.4 mechanism.

During the intersessional negotiations in Bonn in June 2019, the EU also introduced the termination of the CDM into the long-standing agenda item Review of the Modalities and Procedures of the CDM under the SBI. The request however failed to draw consensus for both political and, considering the mandate of the agenda item, procedural reasons.

What are the Stakes?

Of the various Kyoto legacy matters – ranging from accounting rules to institutional bodies and practices – the fate of the CDM is arguably the most contentious issue. The CDM has led to the registration of 7,800 projects, 2 billion issued CERs – and counting – and a procedural and institutional framework has been applied in more than 140 countries.⁴ It has been the leading mechanism of the Protocol serving Parties throughout the first (2008-2012) and the second commitment period (2013-2020).

1.1 Role within Kyoto

The CDM was created with a dual role: to assist developing countries “in achieving sustainable development” and to help industrialized countries “in achieving compliance with their quantified emission limitation and reduction commitments” (Article 12 Kyoto Protocol). Over the past 15 years, the mechanism has innovated and transformed global climate change cooperation.

⁴ UNFCCC (2018) Achievements of the Clean Development Mechanism: Harnessing Incentive for Climate Action. Available [here](#).

While the mechanism has been criticized on many fronts, including for its failure to be evenly implemented across regions and nations, the development of programmatic approaches has proven to be surprisingly robust in ensuring a balanced regional distribution. Of 316 registered PoAs, 36% are located in Africa, 47% in Asia, and 16% in Latin America.

The direct involvement of non-state actors has shown to perhaps be the most transformative feature of the CDM. The option for Kyoto Parties to authorize non-state actors to engage in the CDM development and trading, quickly let the mechanism resemble a private sector facility more than a government-to-government tool. Article 12.9 of the Kyoto Protocol allowed the participation of “private and/or public entities”; and almost from the beginning of the CDM’s implementation, the vast majority of projects were operated and owned by non-state actors.

Over the years, it was the private sector, in particular, that scoped for CDM opportunities, pioneered the development of GHG methodologies as well as appropriate tools for monitoring, reporting and verifying (MRV) GHG emissions, and realized the first meaningful climate finance-funded technology transfer.

The CDM’s latest transformation happened only recently. With the rapid decrease in demand for CDM credits from within the Kyoto compliance framework, the mechanism re-invented itself as a non-compliance instrument to demonstrate voluntary emission reductions. Some 150 million CDM credits have been canceled on a voluntary basis, making the CDM an important element of the pre-2020 reduction framework. However, given the end of the second CP in 2020, the CDM will soon have no formal role inside Kyoto.

1.2 Role outside Kyoto

While the CDM market proper – created by the compliance appetite of Annex I Parties – has largely disappeared, the CDM has diversified across economies and jurisdictions outside of the Kyoto Protocol. It has especially played a role in countries’ domestic climate schemes such as carbon pricing policies and national emissions trading systems (ETS), countries’ national determined contributions (NDCs) under Paris, and global initiatives utilizing the CDM as a finance stream for climate action.

The CDM’s application outside Kyoto has already helped to shape the pre-2020 carbon market landscape and provides valuable groundwork for developing discussions on Article 6 under Paris, and more specifically the Article 6.4 mechanism. Figure 1 below maps examples of the various schemes and policies in which the CDM plays a role:

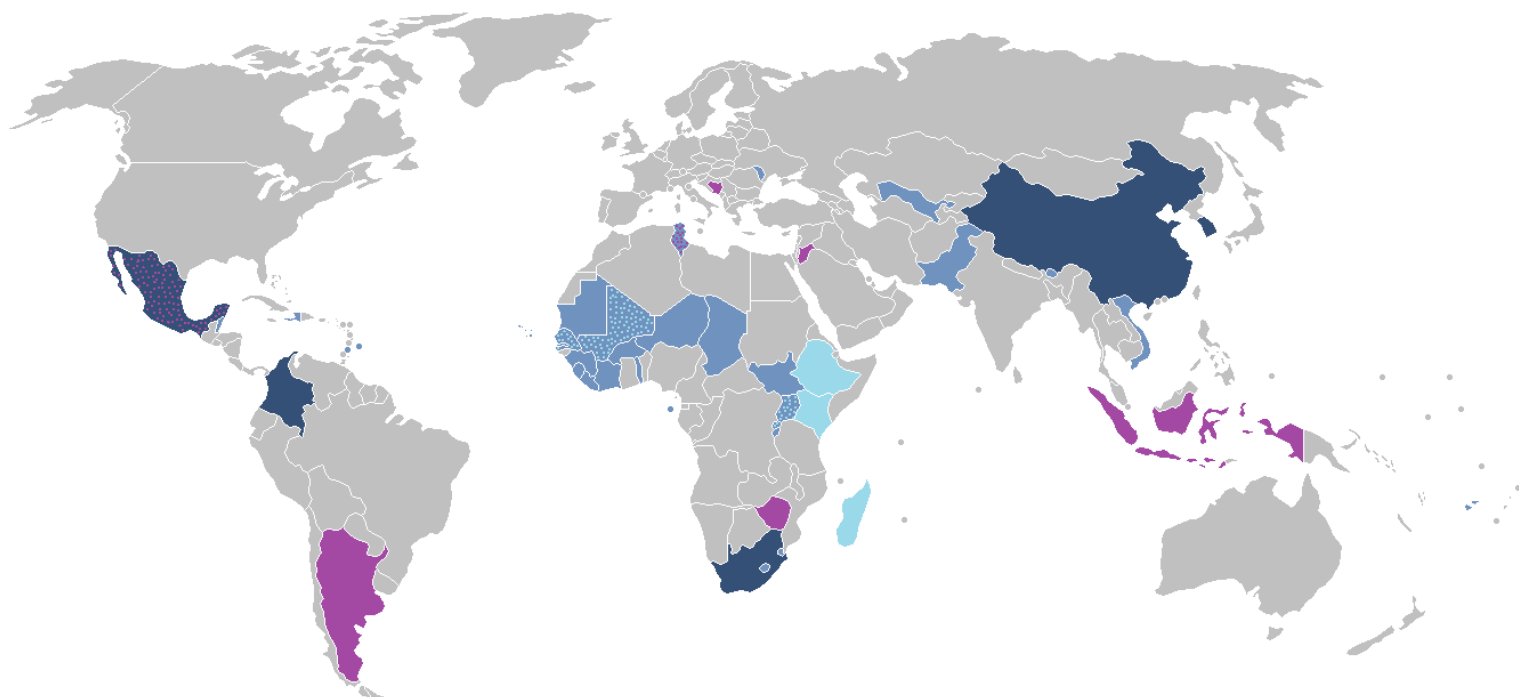


Figure 1 – Examples of the CDM outside Kyoto

1.2.1 Relevance of the CDM for domestic schemes

Overall, the CDM has become a blueprint and benchmark for implementing emission reduction projects worldwide. Developing countries, in particular, support the CDM, and have integrated the mechanism in their carbon pricing measures and ETSs. Examples where the CDM has been most relevant include the Korean ETS (KETS), China's National ETS, as well as South Africa's, Mexico's and Colombia's carbon tax systems (see Annex I for a detailed overview of these schemes).

For a large number of these domestic schemes, the CDM is not merely a stand-alone international crediting mechanism, but rather an instrument that has been internalized as part of their regulations or governance framework. For these schemes, the sudden discontinuation of the CDM could pose a number of challenges that would require considerable design and policy changes.

For the KETS, for instance, the demand for credits is currently higher than the available domestic supply. With increasing prices for credits, many Korean entities have started

to invest in CDM activities outside Korea. The KETS therefore relies on a smooth transition of the CDM to avoid any disruptions in the process as well as losing out on valuable future investments.⁵ The KETS has internalized a possible CDM transition as part of its third phase (2021 ~ 2025), whereby it anticipates the continuation of the CDM until the Article 6.4 mechanism is fully functional.

The South African national carbon tax similarly relies on the CDM as well as the voluntary standards. As the carbon tax has only now come into effect (June 2019), it has yet to develop its own domestic standard and will in its first phase depend on international offset standards. The second phase is planned to start in 2023 only, which means the CDM is relevant until at least this phase comes into effect.

The Colombian national carbon tax also enables the use of CERs for offsetting. Entities can invest in domestic mitigation activities in order to compensate for their GHG emissions. CDM activities hosted in Colombia have become an important source and vehicle to offset, with circa 3.5 million CERs already used against the national carbon tax.⁶ Many entities rely on these CDM activities in order to maintain their carbon neutrality and meet the carbon tax. CDM activities potentially no longer being a viable source for CERs post-2020 could sink investments made and more broadly cause a disruption for the Colombian carbon tax scheme and its regulatory predictability for market participants.⁷

Other schemes have utilized the CDM as a basis to develop a mirroring framework and become self-sufficient, such as China, which has established its own crediting system for national projects and has its own Chinese CERs (CCERs) that can feed into its domestic ETS. These schemes are operationally less dependent on an orderly and predictable CDM transition. In the case of China's ETS, projects are registered under Chinese rules and therefore do not depend on future CDM registration or issuance.

However, for all countries using the CDM in their domestic schemes and as a model for a robust approach, the absence of an adequate transitional period could negatively reflect on their policy choices. The sudden halt of the CDM can lead to discrediting and diminishing the trust in their system.

The emission trading scheme of the European Union (EU ETS), by contrast, would not be vulnerable to the end of the CDM post 2020. While it was the first compliance scheme to accept credits from the Kyoto Protocol's flexible mechanisms in 2005 and EU ETS participants had been the biggest beneficiaries and CER off-takers, the scheme no longer accepts CERs during the fourth phase of the EU ETS (2020-2030).

⁵ Acworth, William (2019) Experience and Future Prospects of the Korean Emissions Trading System: Setting the context. ICAP. Available [here](#).

⁶ UNEP DTU 2019a.

⁷ UNFCCC live event (2019) UNFCCC: CDM for ambitious climate policy. Available [here](#).

1.2.2 The CDM as a building block for NDCs

When Parties first submitted their intended Nationally Determined Contributions (INDCs) in 2015, the role and function of the CDM was unclear. However, despite its insecure future, numerous CDM seller countries referenced the CDM in their INDCs, which have now in many cases become their NDCs pledged under the Paris Agreement. Building on their experience with CDM projects as well as baseline and monitoring methodologies, countries see the mechanism as a credible and valuable tool.

Thirteen developing countries⁸ reference the CDM in their NDC⁹. References range from the CDM as a potential market mechanism under Paris, to using CDM projects to implement NDC policies, and to the CDM as an accounting and MRV standard. Table 1 below highlights a few examples of the range of references.

Other countries, while not specifically referencing the CDM in their NDCs, incorporate activities into their national NDC pipeline that are co-funded through the CDM. African countries in particular, entered the CDM market quite late and developed a significant pipeline of PoAs with durations of 28 years. These countries are therefore keen to see a way forward for their CDM pipeline.

Table 1 - Examples of CDM reference in potential seller countries' NDCs

Party	Text from NDC	Reference
Fiji ¹⁰	Achieving our conditional goal will require substantial funding including fully functional bilateral, regional and international market mechanisms such as the CDM.	CDM as market mechanism
Mali ¹¹	Mali has a portfolio of more than 40 projects for the CDM, enabling a potential reduction in emissions of at least 15 million tCO ₂ e/year. Four CDM projects are used to implement its NDC policies: enhanced fireplaces, energy valorization, reforestation and biofuel production, and afforestation.	CDM projects to reach NDC goal
Swaziland ¹²	To ensure environmental integrity of emission reduction units and to avoid double-counting, Swaziland suggests the use of internationally	CDM as standard for

⁸ Countries referencing the CDM in their NDCs include: Barbados, Bhutan, Burkina Faso, Fiji, Guinea, Lesotho, Mali, Rwanda, Senegal, Seychelles, Swaziland, Uganda, Vietnam.

⁹ The NDCs referenced to here can be found in the UNFCCC's NDC Registry, available [here](#).

¹⁰ Fiji (2015) Nationally Determined Contribution. UNFCCC. Available [here](#).

¹¹ Mali (2015) National Determined Contribution. UNFCCC. Available [here](#).

¹² Kingdom of Swaziland (2015) Nationally Determined Contribution. UNFCCC. Available [here](#).

	recognized accounting principles and MRV standards such the CDM or similar types of baseline-and-crediting mechanisms.	accounting and MRV
Uganda ¹³	Uganda aims to build on its existing CDM projects and PoA pipeline, such as the Bujagali Hydropower Project and improved Cook Stove for East Africa. Uganda intends to meet its commitments and/or increase the level of its contribution through the use of international market mechanisms where appropriate, building upon the experience of the CDM and other existing market mechanism.	Existing CDM projects and experience

The above references to the CDM provide an insight into the role the mechanism has played thus far and its relevance for each country. They highlight, moreover, that the role of the CDM is different from country to country.

Assuming that they retain a portion of CERs to achieve their NDCs, developing countries that plan to use CDM projects to implement their NDC pledges are particularly vulnerable. Mali for example has a significant portfolio of CDM projects that could serve as a well-tested way to reduce at least 15 million tCO₂e per year. The country plans to use several of these projects in different sectors to implement its NDC strategy.

1.2.3 The role of the CDM in global initiatives

The CDM also plays a role in global schemes, including both for compliance initiatives as well as those that are utilizing the mechanism as an instrument for results-based climate finance (RBCF).

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), is a compliance initiative that considers the possible use of CDM projects to offset aviation emissions. While CORSIA is not dependent on the CDM, it prioritizes credits from mechanisms under the UNFCCC; and the airlines participating in the scheme are eager to see credit supply levels able to satisfy future demand. CDM credits offer an important source of supply. Any sudden stop of the CDM post-2020 would either lead to higher demand for pre-2020 credits or other alternatives such as the voluntary standards. Additionally, it could also result in less willingness of countries to participate in CORSIA, especially those with growing airline emissions.

On the non-compliance side, by channeling funds into emission reduction projects in developing countries, the CDM has long made an important contribution to the provision of international climate finance. And it remains an important vehicle for

¹³ Uganda (2015) Nationally Determined Contribution. UNFCCC. Available [here](#).

driving RBCF, with several initiatives implementing their RBCF schemes through the CDM. These schemes include the Nitric Acid Climate Action Group (NACAG), the Pilot Auction Facility for Methane and Climate Change Mitigation (PAF), and the Carbon Initiative for Development (Ci-Dev).

To varying degrees these initiatives have been created (at least partly) in response to the diminishing role of the CDM as an economic incentive tool. Today, they do not use CERs generated from their affiliated projects for offsetting purposes. Rather, they utilize the CDM as both a harmonized transparency mechanism for mitigation action and as vehicle to drive the development and expansion of their schemes. Concerned with keeping CDM investments afloat, the PAF for instance, has developed its own protocols based on the CDM. For the NACAG, which tackles nitric acid reduction projects and aims to abate nitric acid globally, the lack of a clear CDM perspective makes its mission more difficult. The CDM provides an important part of the infrastructure for its engagement NACAG not only tackles stranded CDM assets but also aims to include new ones and engage with governments to work on regulatory solutions.¹⁴

The World Bank's Ci-Dev has a mixed role as it functions both as an RBCF trust fund, but also seeks to obtain compliance grade carbon credits for its Fund participants. Having entered into ERPAs with projects beyond 2020, it is vulnerable to the risk of CDM shut down both in terms of missing functionalities for the disbursement of finance as well as foregoing the realization of compliance grade credits.

With the unclear future of the CDM, and as an effort to become less dependent on the mechanism, Ci-Dev developed the Standardized Crediting Framework (SCF). The SCF aims to support the transition from the CDM to Article 6 under Paris. While the Framework is based on the CDM (adapting yet simplifying its project lifecycle), it functions in parallel to it and is currently being tested in two countries. However, while CERs have functioned to serve as a tool for the disbursement of climate finance and could do the same under the SCF, not every project in Ci-Dev's portfolio is piloting or already utilizing the framework. Therefore, Ci-Dev currently continues to be reliant on the CDM for its disbursement mechanism. The absence of a CDM transition period could be troubling for both project owners and buyers of credits (in this case Ci-dev).

The CDM post-2020: Legal Parameters

The post-2020 fate of the CDM, it follows, is critical for a wide range of domestic schemes and international policy initiatives. While the economic, social and policy relevance are clear, the legal underpinnings remain vague and certainly

¹⁴ NACAG (2017) N2O abatement in the context of market-based approaches. Available [here](#).

underrepresented. This paper seeks to explore the side of the law, fully conscious of the fact that the discussion touches on a wide set of questions which themselves may have not been examined in legal writing with the rigour and clarity they deserve. This paper, therefore, aims at gauging the legal terrain and opening a legal discourse rather than providing firm answers.

Broadly, from a legal perspective, the CDM must be discussed at two distinct levels, the Kyoto Protocol, on the one hand, and the Paris Agreement, on the other hand. Furthermore, each of these levels needs to be assessed at treaty level as well as at the level of the body of decisions of its central governance body, CMP and CMA, respectively.

2.1 The Kyoto Perspective

There are three different arguments that may be made against the continuation of the CDM after 2020 (leaving “true-up” operations aside). The first is the argument of conceptual frustration; the second is the argument of operational closure; and the third is the argument of functional (technical) impasse. Each argument deserves a closer look. The first concerns mainly the interpretation of treaty provisions; the other two refer to the CMP level.

2.1.1 Conceptual frustration

The CDM was established by the Kyoto Protocol (Article 12) as a so-called flexible mechanism with the dual purpose to help host countries to achieve their sustainable development objectives and to assist industrialized countries in achieving compliance with their quantified emissions targets (Article 12.2 Kyoto Protocol).

The absence of quantified emissions targets makes the second purpose (assistance with compliance) moot, with the effect that the flexibility function foreseen under Article 3.12 of the Kyoto Protocol can no longer be served:

“Any certified emission reductions which a Party acquires from another Party in accordance with the provisions of Article 12 shall be added to the assigned amount for the acquiring Party.”

The argument here is that this ‘frustration of purpose’ for the CDM would trigger the termination of the mechanism. The argument is not new. It featured in a legal brief¹⁵ of

¹⁵ The argument was put forward, but not decided, in a legal briefing by the UNFCCC Secretariat, Legal considerations relating to a possible gap between the first and subsequent commitment periods, of 2010 ([FCCC/KP/AWG/2010/10](#), concerning the gap between the first and the second commitment period).

the UNFCCC Secretariat dedicated to the “Post-2012” environment for the Kyoto Protocol. A decade ago, the Copenhagen COP had failed to produce legal rules for the time when the first commitment period would expire (in 2012). Then as now, the prospect of discontinued commitment periods was a real-case scenario. The UNFCCC Secretariat presented the argument but did not decide it on the merits.

Whether this argument has a solid legal basis is questionable, however. The Kyoto Protocol has created the CDM unconditionally (Article 12.1 Kyoto Protocol: “... is hereby defined.”). Then, the provision in Article 12.2 Kyoto Protocol has to be seen in its context. Article 12.3 Kyoto Protocol, in particular, adds further details to the overall purpose mentioned in the previous paragraph. It stipulates that the developing parties “*will* benefit from the project activities resulting in certified emissions reductions” (lit. a, italics added), while industrialized parties “*may* use the certified emission reductions accruing from such project activities to contribute to compliance...” (lit. b, italics added). The particular language suggests that the emission reduction benefit is a necessary (mandatory) requirement, while the compliance effect is optional.

The notion of “frustration of purpose” arguably does not withstand scrutiny. From a legal point of view, a fundamental change of circumstances may give rise to the right of a party to an international agreement to request termination under the doctrine of “frustration” or “*rebus sic stantibus*” (“*Wegfall der Geschäftsgrundlage*” in German law).¹⁶ While the existence of such right in international law is sometimes questioned,¹⁷ it is of little relevance for the CDM and its prospects after 2020. It would be difficult to argue that a fundamental change of circumstances has happened with respect to the Kyoto Protocol given that the time limitation for the commitment periods was done by design, not oversight. The risk that no further commitment period would ever be agreed, thus, was a risk inherent in the design of the Kyoto Protocol.

Besides, the effects of an invocation of the principle “*rebus sic stantibus*” would be limited. Participation in the CDM is voluntary (Article 12.5 (a)). If a Party no longer sees the merits in CDM participation, it may withdraw from the mechanism, with or without the invocation of frustration. The legal effect would in any case not be the nullification of the treaty or mechanism for all other parties.

Finally, treaty practice (under the Kyoto Protocol) may have (long) refuted the argument. A second commitment period has been agreed and adopted by the Parties to the Kyoto Protocol in 2012 (“Doha Amendment”)¹⁸, though it has yet to enter into force, as the ratification threshold of 3/5 of Parties (144 countries) has not been reached.¹⁹

¹⁶ Riesenfeld, S., *International Agreements*, Yale J. Int’l Law 1989, 455.

¹⁷ Bullington, J., *International Treaties and the Clause “Rebus Sic Stantibus”*, U. Pa. L. Rev. 1927, 153.

¹⁸ Decision 1/CMP.8.

¹⁹ As of 15 July 2019, the number of ratified treaty amendments deposited with the Secretary-General of the United Nations stood at 130, cf. <https://unfccc.int/process/the-kyoto-protocol/the-doha-amendment>.

The Parties may provisionally apply the Doha Amendment pending its entry into force,²⁰ yet it is far from settled what the impact of the provisional application by certain Parties (Parties must notify the depository, if they do choose provisional application) is on those Parties that have not opted for provisional application of the treaty amendment and what it means for the functioning of the treaty bodies and mechanisms. This uncertainty notwithstanding, in practice the CDM has continued beyond the end of the first commitment period.

2.1.2 Operational Closure

The second argument concerns the operational continuity under the implementing provisions of Article 12 Kyoto Protocol. The CDM is placed under the authority and guidance of the CMP, and its operations depend on the availability of CMP implementing rules, in particular the modalities and procedures adopted by the CMP in the form of the so-called Marrakesh Accords (developed as part of the 7th session of the COP in 2001 in Marrakesh, Morocco, when the Kyoto Protocol had not yet formally entered into force; later formally adopted by the CMP). The fundamental operational decision was Decision 17/CP.7 (Decision 3/CMP.1: “Modalities and Procedures for a clean development mechanism” (“CDM M&P”), but CMP has over the years added many decisions laying out requirements for how the CDM operates. Decision 1/CMP.8 (Doha Amendment) is one such decision.

The question here is whether the Doha Decision restricts the participation of Parties in the CDM to the period until 2020.

The specific context is the following. Decision 1/CMP.8 did not only adopt the Doha Amendment – laying out new quantitative targets – itself, but also provided for a range of details of how Parties could engage in the flexibility mechanisms, including the CDM, in relation to the second commitment period.

While noting “the need for continued smooth implementation of the Kyoto Protocol, including the mechanisms under Articles 6 [Joint Implementation], 12 [Clean Development Mechanism] and 17 [International Emissions Trading], pending the entry into force of the amendment of the second commitment period”, the decision clarifies that (a) “for the second commitment period” Parties not included in Annex I – industrialized countries most of which have agreed to take on quantitative targets as per Annex B of the Kyoto Protocol – continue to be able to participate in project activities, including in those registered after 2012 (paragraph 12 of Decision 1/CMP.8); and (b) “for the purposes of the second commitment period, from 1 January 2013 onwards”, Annex I Parties may do the same, with the exception that only those Annex I

²⁰ Decision 1/CMP.8, paragraph 5.

Parties with an emissions target for the second commitment period “shall be eligible to transfer and acquire [CERs]...” (paragraph 13 of Decision 1/CMP.8).

In the absence of a similar provision for the time after 2020, one could argue, there is no operational basis for the continuation of the CDM and no right for Parties to engage in the mechanism. In other words: The Doha Amendment would provide an argument *ex negativo* along the lines that, in the absence of specific CMP-level instructions on CDM operations after 2020, there would be no sufficient legal mandate for the CDM to operate.

This argument, too, is contestable. It reads into Decision 1/CMP.8 something which is arguably not there, namely an agreement among Parties that the continuation of the CDM beyond a particular commitment period would *require* a fresh and explicit decision on the details of CDM operations. Such an agreement is not stated in any of the provisions of Decision 1/CMP.8, and it cannot be found in the fundamental operational provisions of the CDM, the CDM M&P.

In fact, the CDM M&P assume continuity. They lay down eligibility milestones for participating Parties, among them – for Annex I Parties the calculation of the country-specific “assigned amount” for the first commitment period. By contrast, the decision does not require Annex I Parties to have subsequent assigned amounts calculated; and the only way for Annex I Parties to lose their eligibility is by way of suspension – to be decided from case to case by the Compliance Committee – for violating the initial accounting obligations.²¹

One could, thus, make the (counter-) argument that the CDM M&P support the view that the absence of any commitment periods after the initial one has no impact on a Party’s eligibility under Article 12 of the Kyoto Protocol to act either as host country or as “investor” country (Annex I Parties) to participate in existing and new project activities.

Decision 1/CMP.8, obviously, is the more recent decision, but it does not seem to bring a fundamental change to the eligibility requirements. Rather, it makes clear – the use of the word “clarifies” (pointing to an existing legal state) as opposed to “decides” is noted – that Parties, in principle, can “continue to participate” in old and new activities.

Furthermore, it is important to consider the specific functional and time-limited context of Decision 1/CMP.8. The detailed operational provisions in the Doha Amendment were specifically needed to respond to the anticipated gap, i.e. the time between the adoption of the second commitment period and its entry into force, and to differentiate between Annex-I-Parties that would assume a new quantitative target and those that would not. It seems fair to conclude that Decision 1/CMP.8 offers few indications concerning the continued operations of the CDM after 2020.

²¹ Ibidem, para. 32.a and b.

If at all, Decision 1/CMP.8 would reconfirm that a meaningful distinction can be made between *CDM operations* – including CER generation and forwarding from the CDM registry into a national registry – on the one hand, and *Kyoto unit transfers* between Parties, on the other hand, when it clarifies that the former is permitted, while it decides that the latter – whose nature is emissions trading under Article 17 Kyoto Protocol – requires the existence of a target.²²

2.1.3 Functional (Technical) Impasse

The third argument, while technical in nature, may have a legal dimension and it, too, concerns the level of CMP decisions, not the treaty level proper. More specifically, it concerns the design of the CDM registry and the digital structure of CDM units – Certified Emission Reductions (CERs) – in the issuance process. The CDM M&P foresee in their paragraph 5 (l) that the Executive Board shall develop and maintain the CDM registry as defined in a dedicated appendix to the rules. That appendix (Appendix D, paragraph 7) defines that each CER shall have a “unique serial number” comprising several elements, among them “the commitment period for which the CER is issued”.

With no third commitment period in sight, it is unclear how to meet this particular serial number design feature for post-2020 CERs. And it is equally unclear whether this is a practical issue only, or whether the inability to issue serial numbers in the way prescribed in the CDM M&P has a legal bearing in the sense that the issue could legally block future CER issuances (issuances with a vintage from 2021) as a whole.

The question raises issues of legal interpretation and ultimately touches on the relationship between treaty (Kyoto Protocol) provisions and delegated (CMP) decisions. On the assumption that the rules on the interpretation of treaties apply to the interpretation of delegated bodies (here CMP), one would have to consider the limits of literary interpretation. Article 31.1 of the Vienna Convention on the Law of Treaties (VCLT) lays down that a “treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its objective and purpose.” If applicable not just to the Kyoto Protocol but to the CDM M&P, one would need to put the serial number instruction contained in the CDM decision in its context: The provision aims at clearly defining a unique number for each CER and to permit the allocation of each CER to a commitment period. This important purpose can still be solved prior to, or in the absence of, a new commitment period. The serial number element could, for instance, include the vintage year (i.e. the year in which the emission reduction was generated) in lieu of the commitment period. Once a

²² Cf. in this context the explanations of the UNFCCC / CDM website, at <https://cdm.unfccc.int/faq/index.html>. It explicitly notes that the capacity of an Annex I Party to receive CERs into an account in its national registry is unaffected by the absence of emissions targets.

new commitment period is in place, the vintage numbers could easily be allocated accordingly.

This said, the legal nature of CMP and, more generally, conference decisions in multi-environmental agreements is ambiguous²³ and there is no settled understanding concerning the applicability of rules of interpretation developed under international law. This may, at least in parts, be due to the fact that these decisions rarely come under scrutiny by judicial bodies (which would have to go about applying rules of interpretation). Article 31.1 VCLT may or may not be directly or indirectly applicable.

If the interpreter insisted on the literary instructions of all rules in the CDM M&P no matter the context or the potential conflict, there would be no clear solution to the matter.

2.1.4 Decision-Making Bodies

Given the legal ambiguity, the situation for the CDM's administrative supervisory body, the Executive Board, is particularly difficult. Whatever the Executive Board does in the absence of new guidance from CMP, it risks going against its mandate and the CDM regulatory framework.

The CDM M&P mandate the Executive Board "under the authority and guidance of the [CMP]" with performing the essential CDM functions, notably project registration and CER issuance, but also to "develop and maintain the CDM registry as defined in Appendix D".

CER issuance on serial number basis is one element. Another is the instruction to the Executive Board to assess projects according to a catalogue of project requirements, which leaves no discretion. The Executive Board must, in particular, comply with a request for registration unless a Party involved or at least three Executive Board members request a review.²⁴ Such review must be related to "issues associated with the validation requirements". As the absence of a continuous commitment period is arguably not part of the validation requirements, a review could not be based on it. Hence, a validated project would have to be registered.

For CER issuance, the argument is similar. The verification requirements do not appear to include a test on whether a current commitment period is in place.²⁵ A review by the Executive Board is limited to "issues of fraud, malfeasance or incompetence of the

23 Gehring, Treaty-Making and Treaty Evolution, in: Bodansky/Brunnée/Hey, *The Oxford Handbook of International Law*, 2007, at 491 f.; Churchill/Ulfstein, *Autonomous Institutional Arrangements in Multilateral Agreements*, 94 *AJIL* (2000), at 639.

24 *Ibidem*, para. 41.

25 *Ibidem*, para. 61 et seqq.

[DOEs]”.²⁶ And yet, the issuance of credits would run into the difficulties of identifying workable serial numbers, as outlined above.

The Executive Board, then, would need to make a decision that would either stretch its mandate (any decision to replace the commitment period element in the serial number with a vintage year or other) or – worse – risk going explicitly against it (rebuttal of the obligation to register and issue credits).

There may be practical contingency strategies. It is noted that compliance with the additionality requirement²⁷ has proved the stickiest issue in review procedures by the Executive Board.²⁸ It is not inconceivable that the Executive Board (through its Review and Issuance Team) rejects post-2020 project registrations on the basis that the specific additionality assessment has not been done against the NDC commitment – or rather: the domestic rules and plans implementing an NDC commitment – of the host country. At the same time, such a rejection would arguably not square with the regulatory independence of the Kyoto Protocol and it would probably be in obvious defiance of existing policies concerning regulatory grandfathering (“E+/E-”).²⁹ At the very least, the Executive Board would enter uncharted regulatory territory if it were to assess CDM projects against requirements or indicators that are developed with a view to NDC commitments under the Paris Agreement.

Any practical fix aside, however, the decision-making conundrum for the Executive Board remains (if only in the event that a project is developed against an NDC baseline). If CMP fails to set or clarify the rules for CDM operations after 2020, the Executive Board’s position seems untenable. Whatever it decides, it moves on the boundaries of its mandate. And given the legal implications, halting CDM operations – refusing to register projects, or new project activities under PoAs, and refusing to issue CERs for emission reductions after 2020 – would even appear the more problematic choice.

There is not much, then, the Executive Board can do, beyond requesting from CMP to clarify the overall-situation post-2020.³⁰ In the absence of new modalities or guidance, the Executive Board will likely request additional technical guidance from the

²⁶ Ibidem, para. 65.

²⁷ Ibidem, para. 37.d.

²⁸ A disagreement between the DOE and the Executive Board on additionality is the most frequent reason for a review, concerning two thirds of all review cases, cf. Shishlow, I. / Bellassen, V, 10 Lessons from 10 Years of the CDM (CDC Climat, Climate Report No 37, October 2012).

²⁹ According to Executive Board guidelines from 2005 (EB 22), policies that provide a comparative advantage to more emission-intensive technologies (“E+”) can be taken into account only if they were in place prior to the adoption of the Kyoto Protocol on December 11th, 1997. The rationale behind this rule is to prevent countries from artificially affecting the baselines. Policies that provide a comparative advantage to less emission-intensive technologies (“E-“) can be taken into account only if they were in place prior to the adoption of Marrakech Accords on November 11th, 2001. The rationale behind this rule is to prevent a perverse incentive for countries not to implement climate change mitigation policies. For the background, see Shishlow/Bellassen, op cit.

³⁰ Cf. footnote 2.

Secretariat. The Secretariat serves the Executive Board,³¹ and while its overall legal basis – Article 8 of the Convention, Article 14 of the Kyoto Protocol – does not include the mandate to issue legal opinions *expressis verbis*, the Secretariat’s authority to compile and inform on technical as well as juridical-technical questions and details of the Convention and its implementation is undisputed and recognized in the body of organizational rules.³² Thus, authoritative guidance on the legal status quo may ultimately come in the form of a legal briefing from the Secretariat focusing on the question whether and in which form the CDM can or will continue after 2020. Given the legal context, the Secretariat may not have a clear positive or negative answer, however.

2.1.5 Preliminary Conclusions (Kyoto Protocol Level)

A number of conclusions follow from the analysis.

1. The legality of continuous operations of the CDM after 2020 (outside true-up operations) is not conclusively settled.
2. It may be argued that the CDM, a body conceived to help industrialized countries achieve their emission reduction obligations, becomes devoid of meaning with no future commitment period on the horizon, and that this would render its operational functionalities – including at the technical level of credit issuance – defunct. Decision 1/CMP.8 (Doha Amendment) may also be interpreted in the way that a positive decision by CMP is a precondition for future operations.
3. Each of these arguments raises counter-arguments, however, and the authors cautiously contend that the Kyoto Protocol has created the CDM as a continuous body that – without a commitment period – is restricted in its functionalities, but retains its core purpose, i.e. allowing developing countries to benefit from project activities resulting in certified emission reductions and assisting them with achieving sustainable development.
4. A halt of operations would be a drastic legal consequence without an express legal basis.
5. On the other hand, at a practical level, any continued CDM operations would require the CDM Executive Board to continue assuming its functions, i.e. register CDM projects and PoAs, allow new Programme CPAs, and issue certified emission reductions for the period after 2020. In the absence of fresh guidance

³¹ The secretariat serves the Executive Board, see Decision 17/CP.7 (Decision 3/CMP.1), para. 19.

³² Rule 36.1 (d) of the [CDM Executive Board Rules of Procedures](#) reads: “[The Secretariat shall] perform all other work that the Executive Board may require”. Under the [terms of reference of the support structure of the CDM Executive Board](#) the Secretariat “performs the following key functions... Securing and providing advice of a strategic and legal nature...”

from CMP, the situation for the Executive Board will be untenable. It is under conflicting instructions, no matter the legal choice. It appears to have an open-ended mandate for registration and issuance, on the one hand, and on the other hand, it is bound by technical instructions to issue certified emission reductions always with reference to a commitment period. If a project were to seek issuance for emission reductions generated after 2020, the Executive Board would likely face a dilemma.

6. The conflicting rules may be solved applying recognized rules of treaty interpretation and paying tribute to the high-ranking law (the Protocol). However, whether those interpretative rules apply to CMP decisions is uncertain, as is the authority of the Executive Board to set certain technical requirements aside.
7. The sound, legally acceptable way forward is for CMP to issue fresh guidance. In theory, CMP could wait until COP 26 (in 2020). However, given the institutional duties of planning and preparation, for the Executive Board (and the Secretariat in its support function), and taking into account the interest of Parties and stakeholders in regulatory certainty, such guidance should be issued already at COP 25 (in 2019).

3.1 The Paris Perspective: A Case for Functional Complementarity

The legality of continued CDM operations also needs to be examined from the perspective of the Paris Agreement. The Paris Agreement has created a unique framework for international cooperation on climate change, and its novel instruments for enhanced ambition under Article 6 Paris Agreement may assume priority, if not exclusivity over the ‘old’ flexibility mechanisms of the Kyoto Agreement.

3.1.1 Exclusivity

While the Paris Agreement is designed as the centralized platform to coordinate and trace climate action internationally, there are few, if any, provisions that would suggest a claim to exclusivity.³³ While not necessarily accommodating of other international regimes, it is not inhibitive towards them either. The Paris Decision, with which the Paris Agreement was adopted, indeed contains the outgoing commitment to “uphold and promote regional and international cooperation in order to mobilize stronger and

³³ Von Unger, M., *Climate Action Beyond the Paris Agreement: Synergies and Conflicts* (2018).

more ambitious climate action”.³⁴ The wording suggests an understanding among Parties that a concept of orchestration – signifying climate action at different levels, by a variety of actors, and through multiple means inside and outside the UNFCCC – is implicit to the Paris Agreement. It is also worth noting that the Paris Agreement – just as the Kyoto Protocol – is adopted under the Convention,³⁵ and it therefore shares its objectives and principles (though there is no consensus concerning the details of the relationship between the two treaties)³⁶. The Convention, for its part, is decidedly supportive of intergovernmental orchestration. It promotes, among other contingencies, a “supportive and open international economic system that would lead to sustainable economic growth and development in all Parties” (Art. 3.5). The Paris Agreement stands in this context.

The relationship between the Paris Agreement and other climate treaties and arrangements, it follows, would a priori be one of co-existence, not replacement or supersession. Indeed, despite the Paris Agreement’s claim for comprehensive climate governance, international climate cooperation remains fragmented both in terms of economic sectors and in terms of greenhouse gases. International aviation has created its own emission reduction framework; the international shipping industry is following suit. The Montreal Protocol regulates the production and use of hydrofluorocarbons (HFCs), a key group of greenhouse gases.

Arguably, the Kyoto Protocol is not in a different league. It co-exists with the Paris Agreement, and while the year 2020 is a decisive date for the Kyoto Protocol, as it marks the end of the second commitment period, it is only incidental for the workings of the Paris Agreement. The Paris Agreement and its governing body, CMA, have even moved to appropriate one of the bodies of the Kyoto Protocol that is closely linked to the CDM for their own purposes. Since 1 January 2019 the Adaptation Fund has a dual role. It serves both the Kyoto Protocol and the Paris Agreement.³⁷

3.1.2 Managed Complementarity

The *Adaptation Fund example* is informative, in any case. It shows how the governing bodies of both treaties, the CMP for Kyoto Protocol and the CMA for the Paris Agreement, work towards complementarity and continuity of treaty functions and operations.

The decisions made by both bodies ensure that the Paris Agreement neither duplicates the Adaptation Fund nor that the Adaptation Fund would serve the Kyoto Protocol and

³⁴ Decision 1/CP.21 (Preamble).

³⁵ Ibidem, paragraph 1.

³⁶ Bodansky, D., *The Legal Character of the Paris Agreement*, Reiel 2016, 142.

³⁷ [Decision 13/CMA.1](#); mirrored by Decision 1/CMP.13 (para 12) as well as [Decision 1/CMP.14](#) (para 1).

the Paris Agreement in parallel with a dual governance structure.³⁸ Rather, CMA and CMP have set in motion a provisional arrangement with complementarity in terms of governance and financing: *First*, CMA will assume the role as governing body (though certain residual powers reside with CMP). *Second*, the financing of the Adaptation Fund from a share of proceeds from the flexibility instruments of the Kyoto Protocol “if available” continues. And *third*, this arrangement remains in place until the share of proceeds under Article 6.4 Paris Agreement become available.

This example of managed complementarity may serve as lesson for the transition from the CDM to the instruments under Article 6 Paris Agreement.

3.1.3 CDM Transition

In the Article 6 negotiations, four different aspects around CDM transfer options into the Paris environment are distinguished: the transition of activities registered under the CDM (projects and PoAs); the transition of CERs for use against Parties’ NDCs; the transition of methodologies; and the transition of accreditation standards.³⁹ This debate has been anchored in the negotiations on Article 6.4 due to its resemblance with the CDM. However, acceptance of CERs for NDC accounting purposes might also be considered an Article 6.2 issue. For as long as the CDM is operational, individual Parties or a “coalition of the willing” may always decide to engage in CDM transactions as a cooperative approach. As long as the Article 6.2 requirements on reporting, review and accounting are followed, such use does not even necessitate international approval.

Since the debate around transition is largely political and tied to different stakes, this paper does not argue for or against the transfer or transferability of any particular asset classes (types of activities and CERs). Rather, in the following it aims to shed light on the legal and procedural modalities of the transfer. In this context, an important distinction must be made between the (long-term) transfer of CDM elements into the Article 6 structure, on the one hand, and the transitional – and provisional – use of the CDM infrastructure as fast-start operations under Article 6. While the issues are distinct and looked at consecutively in the chapter, they are also related. A transitional solution can only work if asset generated through the transitional structure have a long-term perspective of being accepted into the Paris framework.

3.1.4 Transition Scenarios

Of the four different transition items it is the legacy items that are most contentious: first, the transition of existing projects and PoAs, and second the use of CERs –

³⁸ Decision 13/CMA.1; Decision 1/CMP.14.

³⁹ SBSTA 50 draft negotiating texts for Article 6.4

generated prior to or after 2020 (from existing or new projects) – against NDC targets. The transition of methodologies and accreditation standards, on the other hand, is mainly a matter of institutional efficiency.

The legacy items ultimately touch on several of the legal underpinnings of the Paris Agreement, namely comprehensive NDC accounting, Article 6 requirements, and the transparency framework. Decision 18/CMA.1 (transparency framework) clarified that a Party that wishes to engage in internationally transferred mitigation outcomes (ITMOs) must report on the “emission balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by its NDCs... consistent with guidance developed related to Article 6” (paragraph 77.d). While the Article 6 guidance is still to be issued, the relevant paragraph may suggest that ITMOs will have to be reflected within the NDC target of the host country. Any such precondition for the NDC scope of host countries would question the eligibility of a range of CDM projects in the countries concerned.

Furthermore, the existence of country-specific NDC targets gives rise to the question whether or to what extent both the baseline and the additionality of a project would need to be re-assessed prior to any transition. The “overall mitigation in global emissions” (Article 6.4), in any event, will have to be ensured, subject to the still pending operationalization of the concept.

Procedurally, it is already clear from Katowice’s transparency decision⁴⁰ that Article 6.2 transfers will require detailed reporting and involvement of both the host and the investor government – beyond the hands-off approach of the CDM.

While the Article 6 negotiations are still ongoing, it follows that a simple transition from CDM to the Paris environment and/or a simple transfer of CERs as compliance units under the rules on NDC accounting will be hard to establish. The regulatory context for the CDM, on the one hand, and for the Paris instruments, on the other hand, is substantially different.

This said, Parties can actively decide on the transfer of certain asset classes subject to conditions, as already contained as option scenarios in the draft negotiation text on Article 6.4 (all being contentious), some of which focus on the transferability of projects and others on project proceeds, i.e. CERs.⁴¹ The variations on the former either target the complete portfolio (each project being transferable) or a project-by-project approach (with new country-level authorizations needed, in one option, and subject to expedited registration procedures, in another option). The CER-focused transfer option

⁴⁰ See footnote **Fehler! Textmarke nicht definiert.**

⁴¹ For a deeper discussion see Lo Re, L. / Vaidyula, M., Market negotiations under the Paris Agreement: a technical analysis of two unresolved issues (OECD 2019).

presented in the draft text would be equivalent to a portfolio transfer, as credits would be automatically eligible from CDM projects.

While the outcome of the negotiations is unknown, it is assumed that at least the conditional transition of (some) registered CDM activities to the Article 6.4 mechanism is within the landing zone of political compromise.

If it is, the Adaptation Fund example provides a useful precedent for how the transition can be managed both from within the CMA and the CMP. This said, as the different transition options under negotiation demonstrate, the matter will be substantially more complex.

The Adaptation Fund transition is one of institutional governance and financing. The CDM transition, by contrast, if it comes to that, involves the legacy issues discussed above. They may require the installation of a dedicated filter for the selection or deselection of certain projects, project types or sectors (assuming the portfolio solution – the automatic transition of all CDM projects, PoAs and/or CERs into Article 6.4 (with or without country approval) – will not find common support). CMA will, then, need to authorize one or more bodies with such examination. This scenario is reflected in only one of the negotiation options, and it only refers to the project transfer, not the credit transfer. An “expedited registration process” is needed under this option. The likely process would be given into the hands of the Supervisory Body (after verification through a designated operational entity). Alternatively, CMA can opt against delegation and decide the matter directly, either ad hoc – through definition of transferability categories and, as the case may be, standards for baseline and additionality re-assessment – or through the definition of a SBSTA work programme.

Any transition of CDM projects will also require the approval of the Parties involved. The voluntary nature of the flexibility instruments has not changed from Kyoto to Paris, and all project recognition under both Article 6.2 and Article 6.4 is subject to a Party issuing a letter of approval (LoA). It is fair to assume that a new LoA will need to be issued for any transitioning CDM projects and the transfer of any emission reductions will have to be explicitly authorized. Approval of the project under Article 6.4 and authorization of internationally transferred mitigation outcomes (ITMOs) from the activities under Article 6.2 are distinct legal requirements.

3.1.5 Transitional Operations and Prompt Start

The multi-level decision framework needed for any CDM transition aside, the Adaptation Fund example is insightful for its concept of complementarity and transitional arrangements. With the advancement of time and the failure to agree on the Article 6 rules in Katowice, a new threat comes into focus, which is a possible gap (de

jure or de facto) between the end of the CDM and the start of the new mechanism. This is a distinct issue from the question of transferability (final transition) of CDM elements into the Paris architecture and concerns the continuous availability of a global emission reduction infrastructure.

For the Article 6.4 mechanism to be fully operational, Parties will not only have to agree on its rules, modalities and procedures but will also have to operationalize its Supervisory Body, including through the election of members and the adoption of its rules and procedures. In addition, for the crediting of activities to start, the Supervisory Body will have to evaluate and approve relevant methodologies and accredit third party entities for undertaking validation, verification and certification. On the country level, Parties will have to set up national authorities and evaluate activities under the new rules before being able to approve activities under Article 6.4. Considering all this, it is foreseeable that the Article 6.4 mechanism will not become fully operational by 1 January 2021. If the CDM were to end in 2020, the likelihood that this will create a gap between the two mechanisms is great.

A gap in the availability of a global mechanism would deprive the international community of a key instrument in the implementation of climate change cooperation, which given the urgency of the climate crisis, would be highly undesirable and counterproductive to the objectives of the Paris Agreement.

A temporary, “transitional” solution may need to be found to avoid the gap. The transition arrangements for the Adaptation Fund – since 1 January 2019 it serves both the Kyoto Protocol and the Paris Agreement and will continue to do this until “the share of proceeds under Article 6, paragraph 4, of the Paris Agreement becomes available”, from which moment the integration in the Paris framework will be exclusive.⁴² It needs to be remembered in this context that the Adaptation Fund is until now funded through a fixed share of CER issuances under the CDM. Thus, only when new funding becomes available, will the Kyoto-link be terminated.

Similarly, a temporary solution could be established for the use of the institutional structure of the CDM for the Paris purposes. CMA and CMP could mutually authorize the temporary use of the CDM mechanism (including its infrastructure) under Article 6.4 until the Article 6.4 mechanism proper becomes available.

There are caveats to this approach. The Adaptation Fund has its origin and legal basis in a CMP decision; the CDM, by contrast, is a mechanism established by the Kyoto Protocol itself. The mechanism, therefore, cannot be ‘appropriated’ by CMA in the way the Adaptation Fund has. ‘Recognition’ of its functions, however, may be viable.

⁴² Cf. footnote 37, para. 3.

Policymakers both at the domestic and at the international level may find a transitional solution compelling. The concerted decisions would allow a prompt start of Article 6.4 operations, and it would allow the wide range of decentralized systems – from Korea to Colombia – to continue linking their systems to the CDM.

The use of (certain) CERs for Paris compliance purposes are likely to be part of such temporary regime, but this would not need to be the focus of the transitional solution as such. Its priority first and foremost would be on securing operational continuity. The latest negotiations indeed suggest that positions are evolving towards a recognition that the settlement of the ‘transitional’ status may be an urgent complement to the question of transfer of CDM elements. The Article 6.4 draft from the fiftieth session of SBSTA (SBSTA 50) includes new (still bracketed) language linking the registration of CDM activities under the new mechanism “during a transition period until the mechanism is operational”. Paragraph 103 furthermore suggests the issuance of Article 6.4 credits (A64ERs) for emission reductions generated under the CDM during the transition period. This is made contingent upon the underlying CDM activity meeting the eligibility criteria for transition.

The new text, if successfully negotiated during COP25, would address the risk of a gap between the CDM and the availability of the Article 6.4 mechanism for asset classes that meet Parties’ expectations for voluntary cooperation under Paris.

3.1.6 Provisional Findings (Paris Agreement)

A number of preliminary conclusions follow from the assessment:

1. The Paris Agreement has become the centralized platform to coordinate and trace climate action internationally. However, it does not imply regulatory exclusivity per se. There are numerous international treaties and venues dedicated to climate cooperation.
2. The Kyoto Protocol can be seen as one such treaty and venue. It co-exists with the Paris Agreement. This notwithstanding, in the absence of a long-term regulatory perspective for the Kyoto Protocol, it is for Parties and the governing bodies of both treaties to plan and manage the transition from the Kyoto environment into the Paris environment.
3. The Adaptation Fund provides insightful precedence for how a transition of the CDM – if supported by Parties – can be managed. CMP and CMA, in the case of the Adaptation Fund, have issued complementary decisions on governance and financing during a transitional period.
4. For the CDM, the situation is more complex. Any transition involves substantial legacy questions – are projects and certified emission reductions issued eligible for transfer, and if so, on which terms? – and requires decisions to be made at

various levels, not just CMA and CMP. Furthermore, other than the Adaptation Fund, the CDM is a mechanism established by the Kyoto Protocol. The legal implications of an ‘appropriation’ by CMA would need to be carefully examined.

5. The Adaptation Fund transition provides another useful lesson. Beyond the question of a (final) CDM transition, the more urgent need for Parties and international policymakers may concern transitional arrangements. Should the CDM come to an end by the end of 2020 – a scenario which may not be *de jure* but may still happen *de facto* (see above) – the new instruments under Article 6 of the Paris Agreement will most likely not yet be available. That would result in gap for the availability of a continued global emission reduction infrastructure.

Similar to the transitional arrangements for the Adaptation Fund, a temporary solution could be established for the use of the institutional structure of the CDM for the Paris purposes. CMA and CMP could mutually authorize the temporary use of the CDM mechanism (including its infrastructure) under Article 6.4 until the Article 6.4 mechanism proper becomes available.

Annex I – The CDM in domestic schemes and international initiatives

1. Overview of Domestic Schemes

European Union Emissions Trading Scheme (EU ETS) was established in 2005 as the first global emissions trading system, worldwide. The EU ETS covers circa 45% of EU's GHG emissions and currently operates in all 28 EU countries, as well as Iceland, Liechtenstein and Norway. The ETS tackles over 11,000 power stations and industrial plants, and also includes airlines that are active between the various countries.

The EU ETS has since its launch, heavily relied on the CDM as well as JI under Kyoto, with participating countries becoming the biggest buyers and beneficiaries of CERs. The EU first established a link between its EU ETS and the CDM in 2005. However, it will only continue to accept CERs until 2020.

The Korean Emissions Trading System (KETS) was launched in January 2015 to assist Korea in reaching its NDC target of 37% below its BAU scenario by 2030. The KETS is the largest carbon market after the EU ETS, comprised of 591 of Korea's largest emitters that account for circa 70% of national emissions and an estimated market value of USD 1.75 billion.⁴³

The KETS is supported by the use of domestic carbon offsets, that are generated and managed through the Korea Offset Program (KOP). The KOP uses Korea Offset Credits (KOC), which are generated through a step-wise process that mimics that of the CDM. KOCs are then converted into Korea Credit Units (KCU) in order to be used for KETS compliance.

In addition to offsets provided by the KOP, the KETS also accepts certified emission reductions (CERs) issued by the CDM, irrespective of whether the CDM activity is located in Korea or outside, always on the condition that Korean entities participate in the activity. Procedurally, CERs must be converted into KCU (issuance of KCU for

⁴³ International Carbon Action Partnership (2019) Korea Emissions Trading Scheme. Available [here](#).

cancelled CERs).⁴⁴ Operators are allowed to cover 10% of their compliance obligations with KCUs. Half of the KCU quota may be covered by international CDM projects.⁴⁵

China's National Emissions Trading System was launched in 2017, building on its CDM experience and after having piloted seven pilot schemes at provincial and municipal level. The ETS was established with the goal to effectively and efficiently govern the steady reduction of China's emissions and to achieve its low carbon development plans. Set up in three phases, the ETS is assumed to control circa 1,700 companies in the power sector.⁴⁶

The first phase of the ETS (approximately a year as of 2018) is concentrated on developing relevant market infrastructures needed to fully operationalize the ETS, while the second (circa another year as of 2019) tests the system in the power sector and provides an assessment of risks and challenges. The third phase is expected to build on these and allow spot trading in the power sector, as well as involve more sectors - it is to roughly start from 2020.⁴⁷ The pilot projects are to be integrated into this process and are to initially operate in non-power sectors alongside the national ETS and be unified when this is fully functional.

China has built on its long experience with the CDM to establish its domestic ETS and Chinese Certified Emission Reductions (CCER) offset programme. Large government owned companies from a number of sectors actively engaged in the CDM, making great profits from trading CERs, and influencing China's future carbon market policies.⁴⁸ On this basis, China also developed its seven pilots, with numerous CDM CERs now being used and converted to offsets for its ETS.⁴⁹

China's National Development and Reform Commission (NDRC) had experts analyze circa 200 UNFCCC-approved CDM projects and approved 52 project types. The NDRC has already issued around 33 million CCERs, with most projects being CDM activities that have been approved by the NDRC with emission reductions generated before UNFCCC registration. CCERs were first submitted for compliance in the pilots in 2015, and are now allowed in all pilots for offsetting.⁵⁰

⁴⁴ ADB (2018) Korea Emissions Trading Scheme: Challenges and Emerging Opportunities. Available [here](#).

⁴⁵ ADB (2018) Korea Emissions Trading Scheme: Challenges and Emerging Opportunities. Available [here](#).

⁴⁶ International Carbon Action Partnership (2019) China National ETS. Available [here](#).

⁴⁷ International Carbon Action Partnership (2019) China National ETS. Available [here](#).

⁴⁸ Swartz, Jeff (2016) China's National Emissions Trading System: Implications for Carbon Markets and Trade CDM Executive Board and Methodology Panel. IETA. Available [here](#).

⁴⁹ Ba, Feng, Paul R Thiers, and Yonggong Liu (2018) The evolution of China's emission trading mechanisms: From international offset market to domestic Emission Trading Scheme. Sage Journals, 36(7), 1214-1233.

⁵⁰ Swartz, Jeff (2016) China's National Emissions Trading System: Implications for Carbon Markets and Trade CDM Executive Board and Methodology Panel. IETA. Available [here](#).

South Africa's National Carbon Tax went into effect on June 1, 2019. While the notion of a carbon tax was first introduced in 2010, progress has been rather slow, with its first official draft only being published 5 years after the initial announcement.⁵¹ The carbon tax is meant to contribute to South Africa's NDC goals set in 2015 under the Paris Agreement. It covers all sectors involved in fossil fuel combustion, industrial processes, product use and fugitive emissions, targeting circa 75% of South Africa's GHG emissions.⁵²

The carbon tax is introduced in phases, with the first phase running until December 2022 and taxing carbon at circa USD 8.34 per ton of CO₂e. The second phase will start in 2023 and run until the end of 2030, before which the South African treasury will analyze and assess the actual impact of the carbon tax and decide on the continuation.

In the first phase of the carbon tax, the offset system will mainly rely on international offset standards including the CDM and the voluntary standards (the Verified Carbon Standard and the Gold Standard). Offset projects will have to be developed on the basis of these standards, whereby the project approval step differs for each internationally accepted standard. Qualitative restrictions apply across recognized standards. In particular, to ensure a level of uniformity as well as environmental integrity for the South African system, the CDM exclusions will be followed regardless of the standard.

Projects that are implemented generate carbon credits in line with CDM methodologies and modalities and are to be verified. Project developers can then request the issuance of CERs, which is considered of equal tax compliance value. For CERs to be used for offsetting tax liabilities under South Africa's carbon tax, owners of CERs will need to request the cancellation of credits in the CDM registry.

Mexico's Carbon Tax was introduced on fossil fuels, excluding natural gas, in 2013. While the payable tax volume is dependent on the emissions intensity of a particular fuel (and relative to natural gas), the price per tCO₂e has been set at USD 3.50.⁵³

To meet the tax, the Mexican reform legislation allows CERs from Mexican CDM projects to be used. CERs originating from Mexican projects can be used to meet 20% of the carbon tax liability. To facilitate this process and the trading of credits, Mexico also introduced a voluntary carbon exchange, MEXICO2, in 2013.⁵⁴ The carbon tax has contributed to reducing emissions by 1.8 million tCO₂ per year.⁵⁵ Mexico has also announced the establishment of an emissions trading system; however, it continues to be under development.

⁵¹ Szabo, Mike (2019) South African carbon tax bill heads for parliament vote after committee approval. Carbon Pulse.

⁵² PMR (2017) Carbon Tax Guide: A Handbook for Policy Makers. World Bank. Available [here](#).

⁵³ Climate Action Reserve (2015) Introduction to Carbon Markets in Mexico.

⁵⁴ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

⁵⁵ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

Colombia's Carbon Tax came into effect in January 2017. It targets sales and imports of all fossil fuels, which represents circa 50% of Colombia's fossil fuel emissions and circa 16% of the overall emissions. Funding raised from the carbon tax has been channeled towards the Sustainable Environment and Rural Sustainable Development Fund to support conflict resolution in affected areas in Colombia.⁵⁶ The carbon price per tCO₂e is set at circa USD 5.00 and applied to producers and importers of both liquid fossil fuels as well as industrial natural gas use when imported.⁵⁷

Taxable entities can utilize CERs from the CDM in order to fully become exempt from the carbon tax, as outlined in Decree 926.⁵⁸ The Decree states that in order to utilize offsets, entities can be certified as 'carbon neutral', meaning they would need to offset 100% of the carbon tax. Only national projects complying to the CDM or those developed by other recognized carbon standards or certification programs, are eligible to be certified as carbon neutral under the carbon tax scheme.⁵⁹

To qualify as carbon neutral under the carbon tax, these entities are required to provide exemption requests before tax compliance is due, along with the certification highlighting the voluntary cancellation of credits. For CDM projects, the voluntary cancellation certificate corresponds to the cancellation of CERs.⁶⁰

2. Overview of the CDM in Global Initiatives

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSAIA), was established by the International Civil Aviation Organization (ICAO) to tackle emissions produced by global aviation. The civil aviation sector aims for carbon neutral growth from 2020 onwards. The scheme is employed in phases: countries initially participate voluntarily (Phase 1), and then eventually all countries are to participate (Phase 2).

ICAO is looking to approve offset programmes and is currently considering 14-emissions unit programme applications that will help determine which projects will be eligible to meet its demand. The submissions include offset programmes from Kyoto as well as REDD initiatives and schemes in China, the Middle East and Poland.⁶¹

Among the applicants is also the UNFCCC's CDM. There is a large pool of CDM projects and corresponding CERs that can be funneled into CORSIA, however, due to

⁵⁶ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

⁵⁷ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

⁵⁸ Colombia (2017) Decree 926. Available [here](#).

⁵⁹ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

⁶⁰ IETA (2018) MEXICO: A Market Based Climate Policy Case Study. Available [here](#).

⁶¹ Lithgow, Matt and Mike Szabo (2019) Fourteen offset programmes apply for ICAO's CORSIA aviation mechanism. Carbon Pulse.

environmental integrity concerns, they will have to align with technical elements and ICAO's eligibility criteria for credits.⁶²

The Nitric Acid Climate Action Group (NACAG) is an initiative that aims to transform and enhance the nitric acid sector by working to abate N₂O globally. The NACAG provides both technical and financial means to implement appropriate nitric acid reduction projects. One of its goals is to make the reduction of N₂O emissions part of countries' NDCs post 2020.

To reach this, the NACAG utilizes and builds on the CDM infrastructure to monitor and report on emission reductions. The CDM provides a concrete base for project activities.⁶³ NACAG provides solutions for stranded assets as well as new ones and engages with governments to work on regulatory solutions.

Moreover, the NACAG participates in the Nitric Acid Climate Auctions Program (NACAP), which supports eligible nitric acid plants that have already (prior to NACAG participation) generated CDM CERs. The NACAP uses the PAF's auction scheme, whereby plants are ensured a price floor and have the right to eventually distribute qualified CERs to NACAP.⁶⁴

For the NACAG, the uncertainty of the future of the CDM is seen as a risk. Its potential wrap-up by 2021, would result in a loss of valuable institutions, infrastructures and monitoring knowledge gained through the CDM. This is already made evident, as many N₂O projects under the CDM became unappealing for investors due to low returns.⁶⁵

The Pilot Auction Facility for Methane and Climate Change Mitigation (PAF) is a climate finance mechanism that aims to showcase how to apply cost-effective and results-based climate finance to prompt investment in methane abatement projects. The PAF looks to incentivize private sector finance for climate action in developing countries and uses auctions as well as a set floor price on carbon credits.

The PAF has piloted three auctions thus far, the first in 2015, and the others in 2016 and 2017. To be eligible for the first auction, a qualified emission reduction had to be a CER from a CDM project or activity and make use of CDM methodologies. While the second

⁶² ICAO (2019) CORSIA emissions unit eligibility criteria. Available [here](#). Criteria include: be additional, based on realistic and credible baselines, quantified and MRV's, clear and transparent custody chain, be permanent, assess and mitigate against leakage, counted towards a mitigation obligation only once, and do no net harm.

⁶³ NACAG (2017) N₂O abatement in the context of market-based approaches. Available [here](#).

⁶⁴ NACAG (2019) Will NACAG support plants which have already generated CERs under the CDM? Available [here](#).

⁶⁵ NACAG (2017) N₂O abatement in the context of market-based approaches. Available [here](#).

and third pilot auctions included other standards as well, including CDM, VCS or the Gold Standard.⁶⁶

While the PAF is not necessarily tied to the CDM or other standards to leverage methane reduction projects, if emission reductions generated by the auctions are used for offsetting, they will need to follow its MRV regulations.⁶⁷

The World Bank's Carbon Initiative for Development (Ci-Dev) was established to mobilize finance for clean energy access in developing countries. Currently, the Ci-Dev has in place 12 energy access projects in sub-Saharan Africa that are financed through results-based finance schemes.⁶⁸

The initiative and its projects function on the basis of the CDM, building on its infrastructure and making use of its methodological framework to eventually certify emission reductions from projects.⁶⁹ Having entered into Emission Reduction Purchase Agreements (ERPAs) with partner countries, the Ci-Dev has committed to purchase circa USD 76 million in carbon credits.⁷⁰

A concern for the Ci-Dev is, however, the uncertainty of the CDM post 2020, especially as the future of the energy access projects fully rely on it as a disbursement tool for results-based finance. Moreover, the Ci-Dev's commitment to buying CERs is also jeopardized. In its ERPAs, Ci-Dev aims to purchase carbon credits also beyond the 2020 period and has already outlined it will use standards comparable to the CDM when these are fully operational. In order to already prepare for and circumvent a potential gap between the CDM and the Article 6 routes, the Ci-Dev is exploring other crediting mechanism such as the Standardized Crediting Framework (SCF).

The SCF is currently in its pilot phase and uses existing CDM projects to test the validity of the scheme. While the SCF could bridge the gap and continue to channel climate finance to the various energy access projects, a recurring concern is the need of certifying emission reductions.⁷¹

⁶⁶ The Pilot Auction Facility (2019) Auctions. Available [here](#).

⁶⁷ Mikolajczyk, S. and co. (2016) Pilot Auction Facility: Opportunities Beyond the Piloting Phase. Climate Focus and Ecofys. Available [here](#).

⁶⁸ Ci-Dev (2019) The Carbon Initiative for Development. Available [here](#).

⁶⁹ The World Bank Group (2016) The CDM as a vehicle for delivering Results Based Climate Finance. Available [here](#).

⁷⁰ Ci-Dev (2017) Post-2020 Ci-Dev Portfolio Transition Report. Available [here](#).

⁷¹ Ci-Dev (2017) Post-2020 Ci-Dev Portfolio Transition Report. Available [here](#).