CLIMATE FINANCE INNOVATORS

UPDATE JUNE 2019

MOVING TOWARDS NEXT GENERATION CARBON MARKETS

OBSERVATIONS FROM ARTICLE 6 PILOTS

Published by Climate Focus and Perspectives

climatefocus.com perspectives.cc

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ACKNOWLEDGEMENTS
The authors would like to thank Lydia Ondraczek (BMU), Johanna Christensen, Leo Mongendre and Hilda Galt for their helpful comments and support during the creation of this study.
We would also like to thank readers who provided useful suggestions for the update of this study.

Cover and interior pages are printed on FSC and EU-Eco-Label certified paper.

ACKNOWLEDGEMENTS
This study is part of a project under the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conversation and Nuclear Safety (BMU) supports this initiative. The study is among a series of publications exploring the possibilities of linking carbon markets and climate finance in Africa. The views expressed in this publication are those of the authors and do not necessarily reflect the views of BMU.

Supported by:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag

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ACRONYMS

AAU	Assigned Amount Unit
ABM	Adaptation Benefit Mechanism
ABU	Adaptation Benefit Unit
ADB	Asian Development Bank
AfDB	African Development Bank
ASER	Agence Sénégalaise d'Electrification Rurale
BAU	Business As Usual
BMU	The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
CCF	Climate Cent Foundation
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
Ci-Dev	Carbon Initiative for Development
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CME	Coordinating / Managing Entity
CMP	Carbon Market Program
COP	Conference of the Parties
CPA	Component Project Activity
CPF	Carbon Partnership Facility
DMC	Developing Member Country
DOE	Designated Operating Entity
EBRD	European Bank for Reconstruction and Development
ERPA	Emission Reductions Purchase Agreement
ERU	Emission Reduction Unit
ETS	Emission Trading Scheme
EU	European Union
EU-ETS	European Emission Trading Scheme
FCPF	Forest Carbon Partnership Facility
FOEN	Swiss Ministry of Environment
FREL	Forest Reference Emission Level
FRL	Forest Reference Level
G2G	Government-to-government
GCF	Green Climate Fund
GGETA	Greenhouse Gas Emissions Trading Act
GHG	Greenhouse Gas
GoS	Government of Switzerland
IBRD	International Bank for Reconstruction and Development
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
JI	Joint Implementation
KliK	Stiftung Klimaschutz und CO_2-Kompensation (Foundation for Climate Protection and Carbon Offset)
LDCs	Least Developed Countries
LoA	Letter of Approval
LULUCF	Land Use, Land Use Change and Forestry
MAAP	Mitigation Action Assessment Protocol

MADD	Mitigation Activity Description Document
MDB	Multilateral Development Bank
METI	Ministry of Economy, Trade and Industry
MoE	Ministry of the Environment
MOPA	Mitigation Outcome Purchase Agreement
MoU	Memorandum of Understanding
MRV	Measurement, Reporting and Verification
NACAG	The Nitric Acid Climate Action Group
NAMA	Nationally Appropriate Mitigation Action
NCRE	Non-Conventional Renewable Energy
NDC	Nationally Determined Contribution
NEFCO	Nordic Environment Finance Corporation
NGO	Non-Governmental Organisation
NPI	Nordic Partnership Initiative
OECC	Oficina Española de Cambio Climático (Spanish Office for Climate Change)
OMGE	Overall Mitigation in Global Emissions
PA	Paris Agreement
PDD	Project Design Document
PMR	Partnership for Market Readiness
PoA	Programme of Activities
PV	Photovoltaic
RBCF	Results-Based Climate Finance
REDD+	Reducing Emissions from Deforestation and Forest Degradation
REMA	Rwanda Environment Management Authority
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCF	Standardized Crediting Framework
SDGs	Sustainable Development Goals
SEA	Swedish Energy Agency
SEMED	Southern and Eastern Mediterranean
SWS	Solid Waste Sector
TAP	Technical Advisory Panel
TCAF	Transformative Carbon Asset Facility
TPE	Third Party Entity
UNFCCC	United Nations Framework Convention on Climate Change
VERs	Verified Emission Reductions
WBG	World Bank Group
WCI	Western Climate Initiative
WFR	Warsaw Framework for REDD+

EXECUTIVE SUMMARY

International carbon markets have evolved considerably from the Kyoto Protocol's flexible mechanisms to the Paris Agreement's cooperative mechanism and approaches. With the conception of Article 6 under the Paris Agreement, Parties to the UNFCCC have significantly changed the modalities in which international cooperation (through market and non-market approaches) takes place. The avenues that can be pursued by Parties include both cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMO) between Parties (Article 6.2), as well as a mechanism for mitigation and sustainable development that involves public and private sector actors (Article 6.4).

The change is driven by the context and spirit of the Paris Agreement. In contrast to the Kyoto Protocol, which relied on a uniform emissions budget approach for industrialized countries, all countries under the Paris Agreement have adopted national commitments to reduce greenhouse gases but lack a common approach to defining the target.

In addition, the framing of international cooperation under the Paris regime reflects the desire of many Parties to give greater responsibility to the participating countries in designing their cooperative schemes, to move beyond the crediting of single mitigation projects to transformative and sector-based cooperation, and to redefine international cooperation as a tool to enhance mitigation ambition. At the same time, Parties need to create workable solutions for preventing the heightened risk of double counting of mitigation outcomes between countries and for ensuring environmental integrity in the context of heterogeneous mitigation targets.

WHILE RULES HAVE YET TO BE FINALIZED, ARTICLE 6 IS ALREADY REAL

Over the last negotiation rounds, Parties have made significant progress in defining these new carbon market rules. Yet, while at COP24 in Katowice Parties were able to agree on the Paris Rulebook, the finalization of the Article 6 rules is still pending and has been postponed to COP25 in Chile. Carbon markets therefore remain in limbo, with the Kyoto Protocol mechanisms having lost their incentive function and the Paris Agreement's mechanism and approaches still not being operational. However, this period of uncertainty has given rise to a number of initiatives that aim to test or prepare for the new rules. As negotiators continue to grapple with the technical intricacies of the rules, governments and other organizations have collectively already

AROUND USD 345 MILLION HAVE ALREADY BEEN COMMITTED TO KICK-START ARTICLE 6 PILOT INITIATIVES

allocated around USD 345 million to Article 6 pilot initiatives and are testing out new concepts.

In this study, we provide the first comprehensive overview of about a dozen ongoing Article 6 pilots supported through bilateral channels, regional organizations and multilateral development banks. We analyze the emerging trends and early experience with Article 6 implementation and look particularly at how the pilots are responding to the new challenges posed by the Paris Agreement – including the heightened role of governments in the cooperation, the relationship with NDC commitments, the need for tracking and accounting of ITMOs, challenges related to determining additionality and baselines in the Paris regime, and the focus on sustainable development and an overall mitigation in global emissions. We see that today's pilots are already addressing these challenges in their engagement with partners while coming up with a host of different approaches. These early experiences can serve as an important reference point for negotiators. The analysis in the study is based on an in-depth examination of the individual pilots.

The activities we present as pilots in this study represent the diversity of approaches that can be pursued under Article 6. As there is no definition or common understanding of what an Article 6 pilot actually is, we apply a number of indicators that jointly identify the relevant activities. A strong indication first and foremost, is whether the stakeholders involved describe their activity as such. Furthermore, we include initiatives that are designed to support or test out specific aspects of international cooperation, or are implemented in anticipation of future transactions of mitigation outcomes. While offering a first selection of Article 6 pilot activities, the study does not claim the right to an exclusive definition, nor pretend to be exhaustive. Rather, it seeks to provide readers with a comprehensive picture of real-world initiatives trying to operationalize Article 6. This study has already been updated to reflect the dynamic progress made in operationalizing Article 6, and we invite readers to share feedback and new emerging Article 6 pilots and initiatives that can be integrated into future updates.

ARTICLE 6 PILOTS ARE HIGHLY DIVERSE

The study consolidates some observations from emerging Article 6 pilots centering on the following issues:

Our analysis of the **role of governments in Article 6 transactions** shows that diversified contractual structures for ITMO transfer agreements emerge. At the same time, all pilots seek to avoid double counting of mitigation outcomes and often seek to enhance the current ambition of NDCs.

The **relationship between the pilot activities and the NDC commitments** of the host country is a relevant consideration for all stakeholders. Many pilots have arrangements in place that foresee the sharing of mitigation outcomes so that both buyer and seller countries receive a portion of the emission reductions for their own NDC. Some pilots require proof that there is NDC "overachievement" before ITMOs can be transferred.

The pilots also contribute to **building up capacity for tracking and accounting for ITMOs**, which is the basis for sound NDC accounting. The current pilot initiatives often work towards national-level tracking, measurement, reporting and verification (MRV), capacity and infrastructure through different approaches, including registries and proposed methodologies for corresponding adjustments.

Determining **baselines and additionality** often builds on the CDM's methodological toolbox, but adds elements to take into account NDC-related policies and measures or long-term emission trajectories of the sector. We observe in the pilots a desire to both, simplify the use of methodologies and to preserve, and in some cases strengthen, environmental integrity. Given that not many specific baseline methodologies and additionality tests have been published by Article 6 pilot developers, it is not clear whether these aims can be reached at the same time.

IN ANTICIPATION OF THE ARTICLE 6 RULES, PILOT INITIATIVES OFFER VITAL INSIGHTS INTO THE IMPLEMENTATION OF NEW CARBON MARKET CONCEPTS

While **sustainable development** features prominently in the Paris Agreement and in the agenda of the Article 6 negotiations, early indications from the Katowice texts suggest that the operationalization of the concept may not differ much from how it was operationalized under the CDM. Yet, with notable exceptions, sustainable development is a clear focus of many of today's pilot activities.

For the Article 6.4 mechanism, the contribution to an **overall mitigation in global emissions** is a key requirement, which does not apply to cooperative approaches under Article 6.2 (yet). Still, there is a broad range of concepts for how to operationalize overall mitigation, ranging from conservative baselines to sharing mitigation benefits with the host country to the cancellation of units.

Market-based policy instruments are not an objective in themselves, but are key to deliver on the ambition of the Paris Agreement, by enabling NDC implementation and increased stringency of NDC targets over time. Rapid progress is urgently needed in both the finalization of the multilateral rules for Article 6, as well as the development of practical initiatives such as those featured in this study.

1. NAVIGATING THE NEW CARBON MARKET CONTEXT

The Paris Agreement (PA) has established a long-term future for carbon markets through Article 6. Article 6 international market mechanisms, in conjunction with domestic market-based policy instruments, are poised to play a central role in delivering the nationally determined contributions (NDC) of many countries. The central premise of these instruments is that they allow economically efficient greenhouse gas (GHG) reductions to be harnessed through international cooperation, thereby enabling more ambitious climate action. At the same time, both international and domestic carbon markets have also been mired by controversy as their effectiveness and integrity depend on carefully crafted rules and compliance mechanisms.

While multilateral rules have yet to be finalized, Article 6 is already moving toward conceptualizing and implementing practical pilot activities from which important early experiences and observations can be drawn.
This study provides a comprehensive overview of these ongoing Article 6 pilots. To set the scene, we provide a brief overview of the evolution of carbon markets related to the UNFCCC process, followed by an update on the ongoing negotiations to finalize the Article 6-related aspects of the PA rulebook. We then illustrate what types of pilot activities are emerging and reflect on their early experiences. An annex with factsheets providing key information on all of the covered pilot activities concludes this study.

A. THE EVOLUTION OF INTERNATIONAL CARBON MARKETS

UNFCCC-backed carbon markets were first established by the Kyoto Protocol in the late 1990s. Three different international policy instruments were introduced that catered to the vastly different landscape of UNFCCC Party circumstances. Governments of industrialized countries could trade assigned amount units (AAUs) internationally. They could also use Joint Implementation (JI), a baseline-and-credit mechanism mainly focused on mitigation activities implemented in economies in transition. The Clean Development Mechanism (CDM), on the other hand, enabled developing countries to engage in voluntary emissions reduction projects and sell the resulting emission reduction credits to Parties with Kyoto compliance obligations. The latter two mechanisms – JI and CDM – were also spurred by emission trading systems in industrialized countries building on Kyoto accounting rules, especially the European Emission Trading Scheme (EU-ETS) in Europe. Beyond generating tradable emission reduction certificates, the Kyoto mechanisms also pioneered a vast range of monitoring, reporting and verification (MRV) tools and engaged Parties without mitigation obligations into harmonized carbon accounting standards.

Moreover, these flexible mechanisms are also intended to stimulate sustainable development and have motivated the private sector to contribute to emission reduction efforts. The CDM has generated more than 10,000 mitigation activities[1] in more than 100 countries. These have issued almost 2 billion certified emission reductions (CERs), with an uncertain amount of further potential – depending on conditions such as demand and the degree to which activities covered by the CDM will transition into domestic components of host country NDCs. The CDM has also continued to evolve from supporting single projects to programmatic approaches, a significant degree and standardization in the methodological toolkit, as well as pioneering linkages with results-based climate finance beyond offsetting. These reforms led to tangible results, for instance, by enabling access to the CDM for household and community level activities with high sustainable development impacts, and, as a result, a stronger participation by least developed countries (LDCs) and African countries.

Still, the failure of the Copenhagen conference in 2009 and the long time it subsequently took to negotiate a successor agreement to the Kyoto Protocol, as well as criticisms of the Kyoto Mechanisms, led to a prolonged phase of uncertainty about the future relevance of carbon market instruments beyond 2020. From 2013 on, demand for credits from the Kyoto mechanisms was so low that the market essentially stalled. This was both due to perceived shortcomings of the Kyoto Mechanisms, which resulted in a closure of the emissions trading systems for Kyoto credits, as well as the uncertain situation of the international climate policy regime.

The World Bank developed the Carbon Initiative for Development (Ci-Dev) and the Pilot Auction Facility (PAF) to provide "lifelines" to market niches in low income countries and for activities that were particularly threatened to be discontinued due to the market crisis. Moreover, the Partnership for Market Readiness (PMR) was also established to accelerate the introduction of domestic market mechanisms that could eventually become drivers for international carbon markets as well as spur domestic demand for project-based emission reductions. Japan developed its own mechanism, the Joint Crediting Mechanism (JCM) as a blueprint for a new market mechanism under a more bottom-up international regime.

Figure 1
The evolution of carbon market approaches (Source: Authors)

[1] Counting both single projects and the component project activities of CDM Programme of Activities (UNEP DTU 2019).

The next phase of carbon markets will be governed by the PA. While the Kyoto Protocol set binding emission reduction commitments only for developed countries, the PA establishes a more comprehensive approach as it requires all countries to contribute to global mitigation efforts and to regularly communicate their own nationally determined climate pledges. This pledge-and-review system provides the flexibility needed for all countries to contribute under a centralized transparency framework and track progress on climate action.

This also means that countries cannot continue to freely transfer all of their emission reductions abroad. Instead, each country must transparently evaluate what would constitute a fair contribution to the global mitigation effort and how much will be retained for their own NDC achievement. Also, all Parties can potentially sell and buy emission reduction credits and units through the approaches for voluntary cooperation established in Article 6 of the Agreement.

Article 6 gives countries the option to generate and trade internationally transferred mitigation outcomes (ITMOs) through decentralized cooperative approaches under Article 6.2, participate in a UNFCCC-governed mechanism defined in Article 6.4 (the successor to the CDM), and collaborate through non-market approaches under Article 6.8.

B. ARTICLE 6 NEGOTIATIONS: WHERE DO WE STAND?

The main outcome of the 24th Conference of the Parties to the UNFCCC (COP24) that Parties hoped for and worked towards was a comprehensive Paris Rulebook that would guide countries in their implementation of the PA. While Parties reached their goal – producing the so-called Katowice Climate Package[2] – Article 6 remains the only agenda item to not make its way into the rulebook. This is not to say that Article 6 negotiators did not make any progress. In fact, Parties worked diligently through a long list of issues and reached landing grounds on many of them. The progress has been captured in two sets of documents elaborated during the session: The draft texts on Article 6.2, 6.4 and 6.8 agreed by Subsidiary Body meeting (SBSTA 49) at the end of the technical negotiations and the textual proposals on the three agenda items by the Katowice presidency for and during ministerial consultations. A third text, in which the presidency had removed all brackets in the Article 6 texts was not agreed by Parties and has no formal standing. On the basis of which text Parties will continue to engage in the next round of negotiations during SBSTA 50 has as yet to be decided.

In the draft texts from SBSTA and the Katowice presidency, Parties tentatively agreed on a number of issues, including the guidance for corresponding adjustments, reporting and review requirements for the cooperative approaches under Article 6.2, baseline and additionality approaches, a set of options for how Article 6.4 will deliver overall mitigation in global emissions (OMGE), as well as much of the work program for the Article 6.8 framework for non-market approaches.[3]

[2] UNFCCC. Katowice Climate Package. December 15, 2018.

[3] UNFCCC. The Katowice Texts: Proposal by the President. December, 2018.

Parties, however, continuously faced a number of stumbling blocks that left Article 6 with no formal consensus as to the role of carbon markets and international cooperation within the context of the PA. Accounting of international transfers under the Article 6.4 centralized mechanism and issues regarding double counting remain highly contentious. Other issues, such as the transition of CDM projects, credits and methodologies to Article 6.4, the share of proceeds for adaptation levied through Article 6.4 and the eligibility of REDD+ activities under Article 6, also remain open.

While agreement on the final rules of Article 6 was postponed to COP25 in Chile, substantial progress needs to be made in the meantime to maintain momentum and provide the clarity needed for countries and the private sector to kick-start international cooperation that can incentivize countries to enhance NDC ambition by 2020.

C. WHAT IS THE ROLE OF PILOTING?

On this basis, it is clear that there is no time to waste in increasing NDC ambition from Parties. Article 6 pilots can play an instrumental role in this process. To pilot means to test a concept, scheme or project before it can formally be implemented or introduced on a wider scale. Article 6 pilots can therefore test and experiment with the concepts of international market mechanisms emerging from the climate negotiations and, in turn, usefully inform these discussions with experiences made and early lessons learned.

In addition, pilots that achieve fast implementation harness transactional experience, allowing countries (and stakeholders) to better understand the emission and economic implications of their own targets and how these can be optimally achieved. Pilots not only reinforce existing international environmental cooperation between countries, but also provide an excellent laboratory for understanding where cooperation is most needed and align seller and buyer interests early-on.

Article 6 pilots can also trailblaze the way for increasing private sector involvement by experimenting with different forms of allocating incentives and channeling climate finance. This may be achieved in different ways, including overarching bilateral agreements – within which the private sector operates with greater predictability over GHG accounting and the prevention of double counting – as well as through building up domestic capacities for national authorizations of activities and the export of ITMOs.

Given this, various initiatives and activities have already been launched to investigate this process and gain a head-start on preparing for carbon markets under the PA as well as for implementing NDCs. In the next sections we examine the piloting landscape to provide an overview of these activities and initiatives. We also observe what trends are materializing and what can be learned from these, as well as how they can influence, function within or incorporate the emerging Article 6 guidance.

2. THE PILOTING LANDSCAPE

A flurry of activities can already be observed, with an increasing number of actors presenting their initiatives at various conferences and events. At the same time, many pilot implementers are cautious of fully disclosing the details of their activities or even associating these directly with Article 6.

There is also no definition or common understanding of what an Article 6 pilot actually is. Just as the types of cooperation under Article 6 can differ widely – on the basis of individual CDM-like mitigation activities, sector-wide policies and measures in host countries or linking countries' climate policy instruments – various initiatives can eventually lead to an Article 6 transaction. Whether an activity can be characterized as a pilot may to a large extent lie in the eye of the beholder. A strong indication, first and foremost, is if the stakeholders involved describe their activity as such.

For the purpose of this study, we broadly define Article 6 pilots as those initiatives that have the potential to align themselves with, or qualify under Article 6.2, Article 6.4 or Article 6.8 of the PA. This includes existing initiatives that predate the PA as well as new ones emerging post-PA. We apply a number of indicators that can help to categorize pilots as such:

- The activity is presented as an Article 6 pilot by implementing entities.
- The activity will likely be governed by Article 6 rules, once these rules are finalized.
- The activity is seeking to test the operationalization of relevant concepts under Article 6.[4]
- The activity directly builds capacities and prepares countries to participate in Article 6.
- Participating countries or entities indicate their intention to eventually transfer or acquire ITMOs.

PILOTS SELECTED IN THE STUDY

Following this approach, we identify a number of initiatives that can be considered Article 6 pilots. These pilots have been developed by multilateral development banks (MDBs), countries, and regional financial institutions. The selected pilots also form the basis for the analysis in Chapter 3 on the observation from the piloting phase with regards to key design questions discussed in the Article 6 negotiations.

[4] For example, transaction structures for transferring and acquiring ITMOs or the definition of additionality and baselines in the context of NDCs.

ARTICLE 6 PILOT ACTIVITIES

African Development Bank
THE ADAPTATION BENEFIT MECHANISM

The Adaptation Benefit Mechanism (ABM) aims to mobilize public and private sector finance to enhance adaptation action, proposed and piloted by the African Development Bank (AfDB) in several African countries. The ABM is the first attempt to operationalize a mechanism that supports adaptation activities and aims to quantify, verify and certify its sustainable development benefits using results-based finance. As a candidate for non-market-based approaches under Article 6.8 of the PA, the ABM plans to launch its pilot phase in 2019.

Canada – Chile
PROGRAM TO REDUCE EMISSIONS IN THE WASTE SECTOR

The Canada-Chile Agreement on Environment Cooperation entered into force in July 1997, in parallel to the bilateral Canada-Chile Free Trade Agreement, and provides a framework for bilateral cooperation on environmental issues. Within the context of this cooperation and in light of the ratification of the Paris Agreement in 2016, Canada has offered financial and technical support to Chile to deploy technologies and to pilot innovative approaches supporting the reduction of methane emissions in the waste sector.

EBRD
INTEGRATED CARBON PROGRAMME FOR THE SOUTHERN AND EASTERN MEDITERRANEAN

The Integrated Carbon Programme for the Southern and Eastern Mediterranean (SEMED) is supporting the transition to low carbon economies through technical assistance, policy dialogue and capacity building in carbon markets, and a financing instrument for emission reduction activities.

Japan
THE JOINT CREDITING MECHANISM

The Joint Crediting Mechanism (JCM) is a crediting framework that facilitates the implementation of mitigation actions as well as low carbon technologies and infrastructure to contribute to the reduction of GHG emissions in developing countries. Japan established the JCM in 2010 to promote and enhance its bilateral cooperation with various developing countries and has already signed agreements with 17 countries from across the globe.

NEFCO – Peru
COOPERATIVE ARRANGEMENT PILOT IN THE SOLID WASTE SECTOR

The NEFCO-Peru Conceptual Pilot provides an overall framework for Peru and a partner country to voluntarily engage in the transfer of ITMOs from its SWS Nationally Appropriate Mitigation Action (NAMA). It was designed to illustrate how Peru could potentially tap into additional finance streams while accommodating domestic priorities and emerging rules under Article 6 as well as other provisions of the Paris rulebook.

Swedish Energy Agency

VIRTUAL PILOT STUDIES

The Article 6 Virtual Pilot Studies explore how Article 6 can be utilized to promote electrification in host countries. The studies borrow country contexts to develop a conceptual Article 6 virtual pilot. On this basis, the SEA-Nigeria Virtual Pilot was developed using the Nigerian country context. The Virtual Pilot foresees the issuance of two types of sovereign green bonds to mobilize finance and enable the host country to exceed a mini-grid implementation benchmark derived from its NDC target. Mitigation outcomes generated through the Virtual Pilot that go beyond the unconditional mitigation target, would be made available to international investors as Article 6.4 units.

Switzerland

PILOT ACTIVITIES OF THE CLIMATE CENT FOUNDATION

The Climate Cent Foundation (CCF) is a voluntary scheme set up by the Swiss business community to invest in mitigation projects abroad and hand over purchased emission reduction certificates to the government of Switzerland. In 2013, Switzerland gave a mandate to the CCF to use parts of its remaining assets to finance pilot activities with interested countries and the private sector until 2032. Decisions on pilot projects will be made by agreement between Switzerland and CCF.

Switzerland

ITMO PURCHASE PROGRAM OF THE KLIK FOUNDATION

The KliK Foundation for Climate Protection and Carbon Offset (KliK) has been established as a sector-wide carbon offset grouping for fossil motor fuels. The KliK Foundation currently funds domestic projects that generate offset credits based on a Swiss carbon standard. The KliK Foundation is setting up the procedures for the purchase of ITMOs from 2021 onwards.

World Bank

THE STANDARDIZED CREDITING FRAMEWORK

The Standardized Crediting Framework (SCF) for energy access provides a simplified crediting approach that builds on the Clean Development Mechanism (CDM). Set-up by the World Bank's Carbon Initiative for Development (Ci-Dev), the SCF was developed in anticipation of the future policy landscape under the Paris Agreement and more specifically, transitioning projects and Programme of Activities (PoAs) under the CDM to Article 6 cooperative approaches.

World Bank

THE TRANSFORMATIVE CARBON ASSET FACILITY

The Transformative Carbon Asset Facility (TCAF) is an initiative to support developing countries in increasing their NDC ambition, specifically through enabling developing countries to generate and sell carbon credits from enhanced climate action. TCAF aims to support the implementation of upscaled crediting options by developing baselines and monitoring the performance of the selected sectoral or policy interventions.

RELATED INITIATIVES

Asian Development Bank
ARTICLE 6 SUPPORT FACILITY

The ADB Article 6 Support Facility will provide capacity building and technical support to developing member countries (DMCs) to help them identify, develop and test mitigation actions under the framework of Article 6 of the Paris Agreement. With its Carbon Market Program (CMP), the ADB is supporting DMCs to advance and implement market-based approaches under the Paris Agreement.

LINKING EMISSIONS TRADING SCHEMES

An Emissions Trading Scheme (ETS) is a market approach that puts a price on carbon by fixing the amount of GHG emissions from covered sectors. The ETS regulator caps the volume of emissions that entities covered by the scheme are allowed to emit in each trading period, thereby incentivizing emission reductions. Instead of reducing their own emissions, entities may also buy emission allowances from other covered entities who are able to reduce emissions quicker or at a lower price.

REDD+ INITIATIVES

Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiatives are currently not covered under Article 6. As the negotiations are not yet finalized, REDD+ could eventually be integrated into, or aligned with, Article 6 cooperative approaches. While to this date no specific REDD+ initiative has explicitly indicated its intent to be recognized as an Article 6 pilot, a number of multilateral and bilateral initiatives exist that could lay the technical ground for future REDD+ piloting.

World Bank
CARBON PARTNERSHIP FACILITY

The Carbon Partnership Facility (CPF) became operational in 2010 with the aim of channeling carbon finance in the post-Kyoto period. The CPF collaborates with governments and market participants on both programmatic and sector-based emission reduction activities in developing countries. The CPF provides a combination of carbon finance in the form of grants through its Carbon Fund and its Carbon Asset Development Fund.

World Bank
THE WAREHOUSE FACILITY

The Warehouse Facility is currently being developed as an online platform that aims to house a database of mitigation activities, and make these accessible to potential investors wanting to purchase mitigation outcomes. It aims to 'host' an infrastructure for the standardized assessment, recording and transferring of mitigation outcomes.

This selection of pilots is by no means exhaustive. New pilot initiatives continue to be developed. While for some detailed information has not yet been available, others cannot be shared yet due to the confidential nature of the information. The UNEP DTU Partnership has developed an Article 6 Pilot Pipeline overview that is to be updated over time as new pilots are established or published.[5]

While not formally classified as Article 6 pilots, other initiatives also exist that share similar goals and objectives and are certainly related to the Article 6 debate. This includes for example, the international cooperation in market mechanisms through the Partnership for Market Readiness or the Nitric Acid Climate Action Group (NACAG). Initiatives that are not deemed Article 6 pilots, but are relevant for the wider Article 6 discussions are the linking of Emission Trading Schemes and Reducing Emissions from Deforestation and Forest Degradation (REDD+) activities.

The various cross-border links between cap and trade schemes (EU-Switzerland, EU-Norway and California-Quebec) are not designed as pilot activities, but can trigger Article 6 collaboration. Countries planning these linkages pay close attention to Article 6 in the negotiations to ensure the rules, modalities and procedures do not prevent their linking efforts. The linking of ETS requires an extensive amount of harmonization and institutional coordination, and the lessons learned are valuable for the operationalization of cooperative approaches.

REDD+ initiatives are currently neither explicitly included nor excluded under Article 6. As the negotiations are not yet finalized, REDD+ could eventually be integrated into or aligned with Article 6 cooperative approaches. Therefore, REDD+ is included in the discussion of this study.

WHERE ARE PILOTS LOCATED?

To visualize the Article 6 pilots and related initiatives identified here, Figure 2 maps the various countries and multilateral institutions that promote these, as well as where their activities are located.

WHEN DID THE ACTIVITIES AND PILOTS START?

In the context of this study we observe recently emerging activities that intend to be recognized as an Article 6 cooperative approach and long-standing initiatives that could eventually be recognized under Article 6 or are relevant as part of the Article 6 debate. While the former group was developed more recently and with Article 6 in mind, the latter includes initiatives that were established prior to the PA and already have in place a cooperative structure that could fit under Article 6 should these initiatives wish to do so. It is also worth noting that a number of the recently emerging initiatives derive, to a

[5] The UNEP DTU Article 6 Pilot Pipeline can be downloaded here.

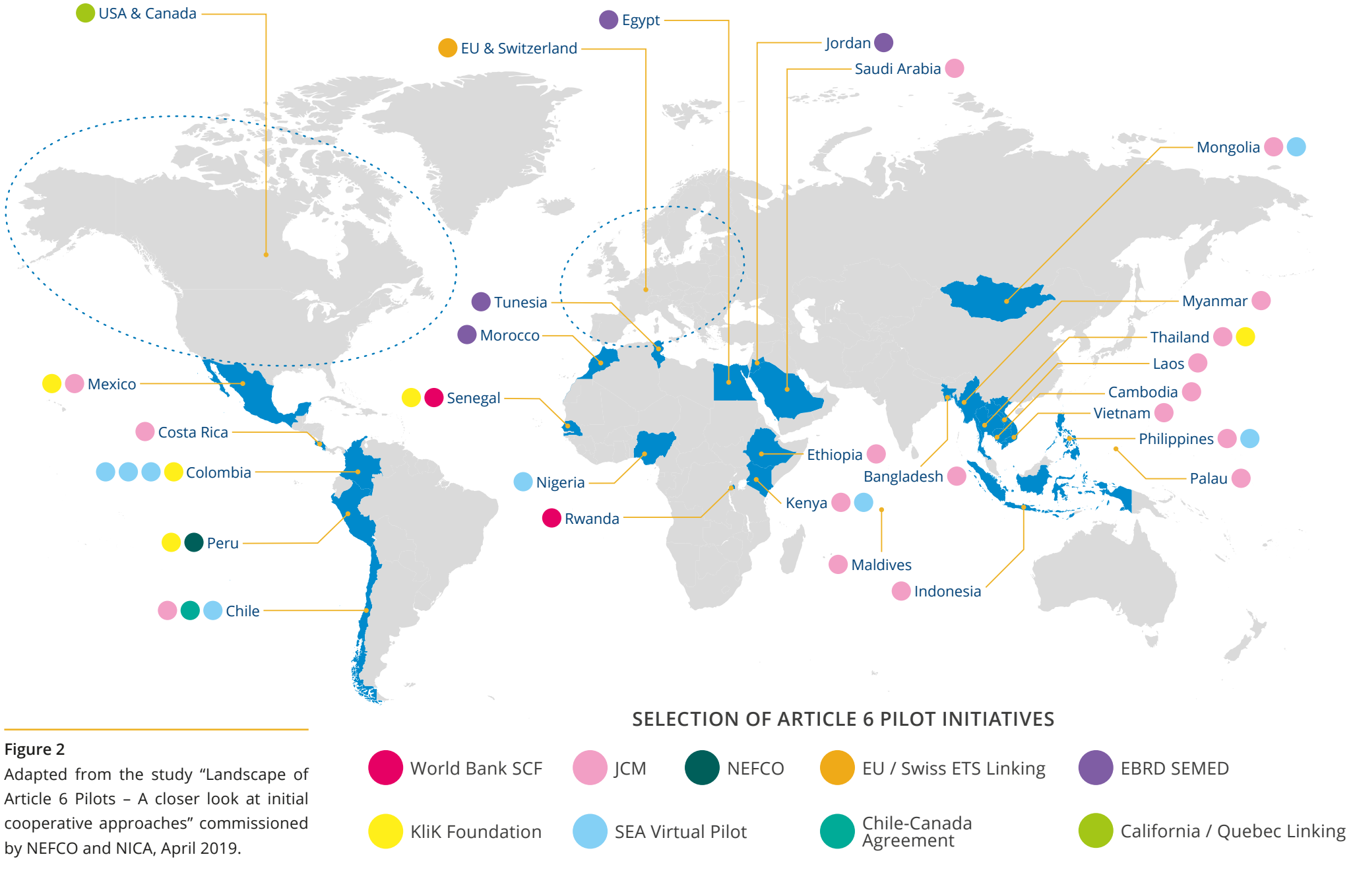


Figure 2

Adapted from the study "Landscape of Article 6 Pilots – A closer look at initial cooperative approaches" commissioned by NEFCO and NICA, April 2019.

greater or lesser extent, from existing CDM and Nationally Appropriate Mitigation Action (NAMA) interventions in host countries.

Recently emerging	Emerging (based on CDM/NAMAs)	Predate the PA
AfDB: *ABM*	EBRD: *SEMED*	EU-Swiss ETS Link
Canada-Chile	NEFCO: *Peruvian waste sector*	Japan: *JCM*
Sweden: *SEA Virtual Pilots**	Sweden: *SEA Virtual Pilots**	REDD+ initiatives
Switzerland: *KliK***	Switzerland: *CCF****	World Bank: *CPF*
World Bank: *TCAF*	World Bank: *SCF*	
World Bank: *Warehouse*		

* Certain SEA virtual pilots build on existing CDM methodologies and activities, whereas others may propose new approaches.
** Focus is on new activities, but may also include stranded CDM activities.
*** Some CCF activities are based on existing NAMA interventions. Information from all activities is not yet available.

Table 1: Emergence of initiatives
Adapted from the study "Landscape of Article 6 Pilots – A closer look at initial cooperative approaches" commissioned by NEFCO and NICA, April 2019.

WHAT IS THE PREDOMINANT FORM AND SCALE OF COOPERATION?

All pilots identified in our study seem to adopt a baseline-and-crediting approach. We have not yet observed the emergence of any pilots that intend to trade ITMOs on metrics other than CO_2e. The scale of intervention can vary considerably. While some pilots relate to policy setting and function on a large scale, other activities are sector specific or only focused on specific projects. This also relates to the type of crediting approach, that the pilots adopt, which can vary from project-by-project crediting to domestic standardized crediting and policy crediting.

Programmatic / Project scale	Sectoral scale	Policy scale
AfDB: *ABM*	Canada-Chile	Japan: *JCM*
Japan: *JCM*	EBRD: *SEMED*	World Bank: *TCAF*
Switzerland: *KliK*	NEFCO: *Peruvian waste sector*	World Bank: *Warehouse*
Switzerland: *CCF*	REDD+ initiatives	
Sweden: *SEA Virtual Pilots*	Sweden: *SEA Virtual Pilots*	
World Bank: SCF	World Bank: *Warehouse*	
World Bank: *Warehouse*	World Bank: *CPF*	
World Bank: *CPF*		

Table 2: Comparison of scale of cooperation
Note: ADB's Art. 6 Support Facility has not yet specified its scope.

WHICH ARTICLE 6 ROUTES ARE BEING PURSUED?

While at this stage a large number of pilots are instrument neutral, meaning they could fit under both Article 6.2 and/or Article 6.4, others have already expressed their intention to make use of Article 6.2 cooperative approaches. We have only identified one pilot that aims to fit under Article 6.8 non-market approaches.

Instrument neutral	Article 6.2	Article 6.8
Canada-Chile	Japan: *JCM*	AfDB: *ABM*
EBRD: *SEMED*	Switzerland: *CCF*	
NEFCO: *Peruvian Pilot*	Switzerland: *KliK*	
Sweden: *SEA Pilots**	World Bank: *TCAF*	
World Bank: *SCF*	Sweden: *SEA Pilots**	
World Bank: *CPF*		

* Certain SEA Virtual Pilots are framed as instrument neutral, while others may use Article 6.2 from the start. Information on all SEA Virtual Pilots is not yet available.

Table 3: Potential Article 6 route

HOW MUCH IS BEING INVESTED?

Many initiatives have already committed financial resources for the implementation of their pilot activities. Some pilots are still in the conceptual phase, meaning that financial resources have not yet been allocated or published. However, currently around USD 345 million have been made available for the development and implementation of pilot activities.

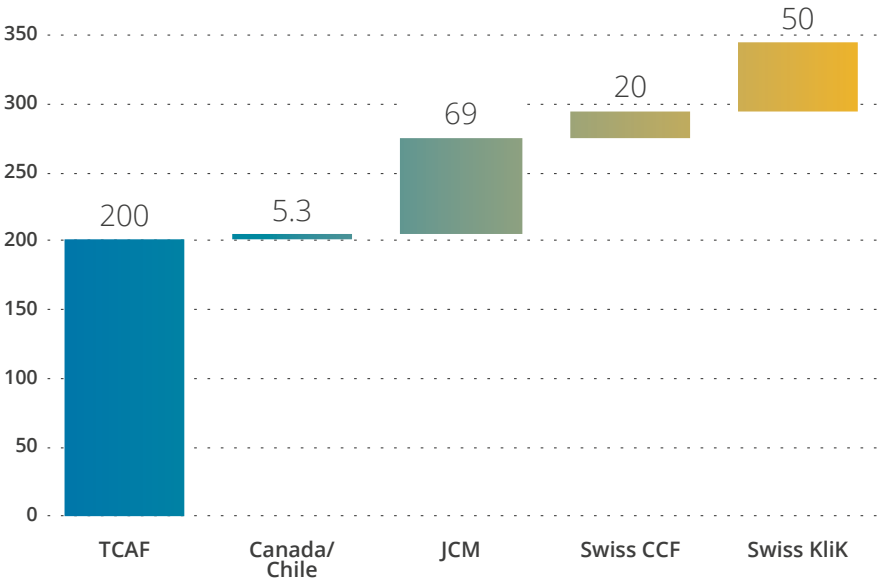


Figure 3: Indicative financial resources committed to Article 6 pilots (in Mio USD)

WHICH SECTORS ARE BEING TARGETED BY PILOTS?

Most of the crediting-and-baseline pilots are focused on the energy sector, including decentralized solar mini-grids, efficient cookstoves, geothermal, and energy efficiency in buildings. Some pilots also target the waste (including waste-to-energy) and the transport sectors. The land use sector can also be considered a targeted sector if REDD+ initiatives would eventually be integrated into Article 6 cooperation approaches.

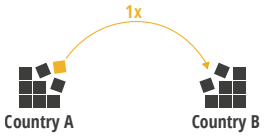
Energy	Waste	Transport	Land use
EBRD: *SEMED* Japan: *JCM* Sweden: *SEA Pilots* World Bank: *SCF* World Bank: *CPF* Switzerland: *CCF*	Canada-Chile NEFCO: *Peruvian Pilot* Switzerland: *CCF* Japan: *JCM*	Switzerland: *CCF*	REDD+ initiatives

Table 4: Sectors being targeted

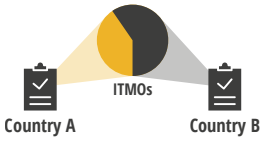
3. OBSERVATIONS FROM PILOTING

Parties are significantly changing the modalities in which international cooperation takes place with the new approaches under Article 6. In this section we look at the early lessons that can be drawn from existing pilot activities under Article 6 and how these pilots are dealing with the overarching changes and open questions that still need to be addressed by negotiators. The current direction of the Article 6 negotiations points to the following key potential changes:

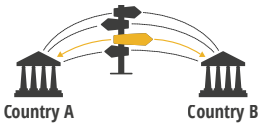
In order to **avoid double counting** of mitigation outcomes, participating countries have to make a corresponding adjustment for any ITMOs transferred.



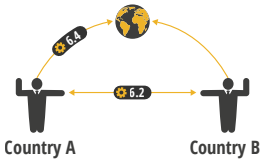
Corresponding amounts of ITMOs have to be **reported in each country's biennial transparency report** and be included in its NDC accounting.



It is the Parties' prerogative to **define the type of cooperation they want to enter into** – no type of cooperation is prima facie excluded: be it activity-based or more broadly defined, using tons of CO_2e or a different metric (subject to final Article 6 rules).



Compared to the Kyoto Protocol's flexible instruments, countries have a **more pronounced role in managing, implementing and assessing the cooperation** – this is true in particular for Article 6.2, but also applies to Article 6.4.



The prospective rules on baselines and additionality under Article 6.4 are likely to have a greater sector orientation and **recognize best available or performance benchmarks** – they also need to consider the policies and measures put in place by the host country to achieve its NDC.

Under Article 6.4 (and possibly 6.2 as well), activities are to contribute to an **overall mitigation in global emissions (OMGE)**.

The contribution of Article 6 activities to **sustainable development goals** has gained significance.

In light of these differences, this section focuses on how pilots are already addressing (or not) the new challenges of Article 6 cooperation, and highlights emerging trends.

A. WHAT IS THE ROLE OF GOVERNMENTS IN ARTICLE 6 TRANSACTIONS?

A new challenge for transactions under Article 6 is the enhanced role expected from host country governments in the transactions themselves. Due to the host country's own NDC mitigation contribution, emission reductions become a national asset under the PA. Even though rules are not finalized, it is foreseeable that host governments will have a large role to play in overseeing and authorizing the export of mitigation outcomes to other countries. This enhanced role will likely also impact the domestic process of issuing letters of authorization to the use of ITMOs pursuant to Article 6.2, as well as to activities implemented under Article 6.4, thus requiring greater capacity from national institutions and designated authorities.

This is comparable to the situation under JI where governments had to issue emission reduction units (ERUs)[6] but it is new in relation to the CDM. While under the CDM, project developers could (in most cases) claim the right to the credits as investors in a mitigation activity without substantial government participation, the fact that virtually all countries now have their own GHG targets under the PA, changes the situation considerably. In granting the authorization for project developers to participate in mitigation activities and sell mitigation outcomes internationally, host country governments will have to exert caution to not sign off on any transfers of emission reductions that the country will need, to comply with its NDC. This means having a very good understanding of the mitigation efforts needed for fulfilling the NDC, the costs of achieving those, and how this translates into specific mitigation interventions in order to avoid jeopardizing domestic mitigation targets due to over-selling ITMOs internationally. Additionally, governments will have a hands-on responsibility to track and record ITMOs, as well as to adjust their biennial transparency reporting[7] for any exported mitigation outcomes.

[6] Some governments only issued less ERUs than emissions reductions achieved by the JI projects. France had a discount of 10%, while New Zealand asked JI project developers to bid for a discount.

[7] Biennial transparency reports refer to main reporting obligation to Parties pursuant to Article 13.13 of the PA. Biennial transparency reporting will include, among others, the national GHG inventory and the information necessary to track progress in implementing and achieving NDCs.

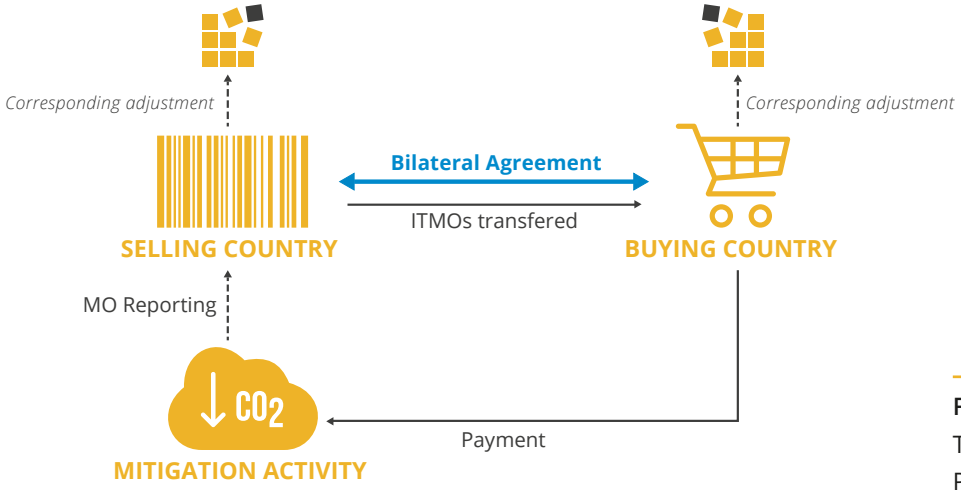


Figure 4: JCM model
Transaction structure based on Swiss Pilots (Illustration by authors)

Emerging pilots are reflecting this more active role of governments and the relevance of NDCs in their transactions. This is true for the host countries involved, but also applies to buyers. The current pilots are all being developed through public agencies (e.g. SEA, NEFCO), undertaken in close collaboration with governments (e.g. JCM, Swiss pilots), or funded through multilateral initiatives (e.g. TCAF, SCF). For some pilots, host and buying country governments directly engage with each other (e.g. JCM, NEFCO-Peru Conceptual Pilot, Swiss pilots).

As governments are increasing their involvement in transactions, the contractual structures are diversifying. While under the CDM, contracts were concluded between (mostly private) buyers and sellers of carbon assets, complemented by a letter of approval (LoA) from governments involved, the Article 6 pilots indicate a potentially more diverse future contracting landscape. The emerging mitigation outcome purchase agreements ("MOPAs") seek to clarify the roles for governments and private entities in meeting and exceeding NDC targets, as well the sharing of the risk of the host country not achieving the NDC.

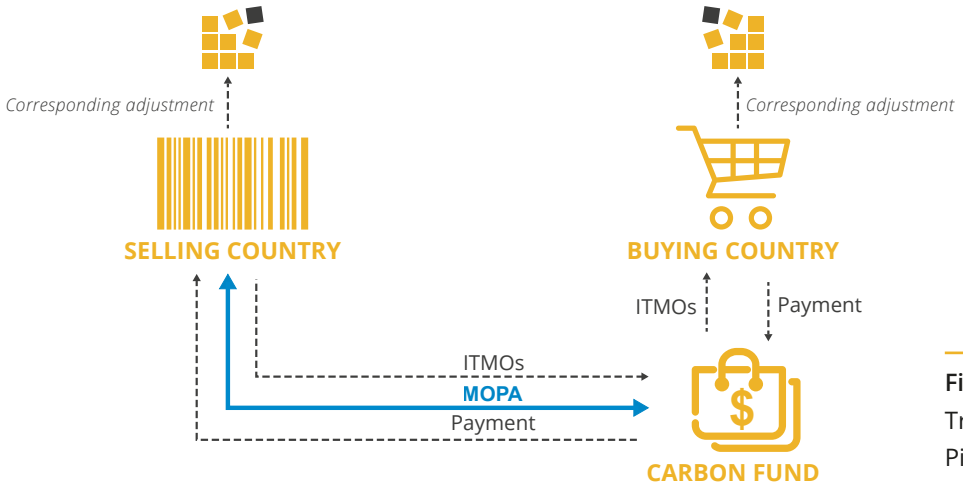


Figure 5: TCAF model
Transaction structure based on Swiss Pilots (Illustration by authors)

Some Article 6 pilots such as the JCM or the SCF are based on bottom-up contracts with project developers. Others, like TCAF or NEFCO's initiative may enter into a MOPA directly with the host country government. This mirrors the situation that rights to emission reductions could belong to either the investor in a mitigation activity or the government (depending on the type of intervention and local laws and principles around property rights). If a MOPA is entered into with a project developer, this entity has to seek government authorization. In the future, a government could also proactively allocate the rights to the emission reductions to private sector investors for certain sectors or mitigation opportunities, but this is not yet observed in the current pilots. In turn, if the MOPA is entered into with the host country, the contracting Parties (countries) can either enact certain policies to ensure the mitigation outcome is achieved, or devise ways of passing on the incentive to those that are investing in mitigation activities.

A hybrid approach observed in the pilots is where countries enter into a framework agreement to secure the necessary GHG accounting adjustments, but leave certain transactional aspects to other entities. The Swiss pilots are an example where parallel contracting structures can be observed: the Swiss ministry of environment (FOEN) enters into a government-to-government agreement with the host country through a Memorandum of Understanding (MoU) that defines the overall framework for the cooperation, while KliK as the private sector buyer of the carbon negotiates, enters a purchase agreement with a project developer. The emergence of such parallel contractual structures seems a natural consequence of the shared responsibilities between governments and non-government entities. While this contractual structure will foster a deeper exchange between governments and predictability for preventing double counting, it can also be time and resource consuming.

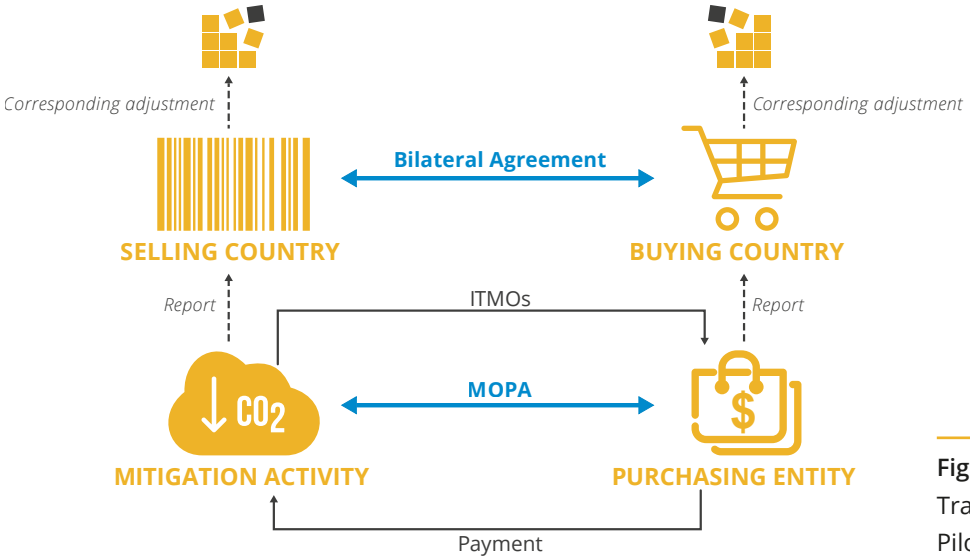


Figure 6: KliK model
Transaction structure based on Swiss Pilots (Illustration by authors)

Interestingly, the emerging pilots do not – at least at this stage – replicate the JI model with respect to the manner in which they interact with host countries. Under JI, project developers and the respective host countries defined domestically (and largely without the participation of foreign buyers) the process of undertaking accounting adjustments through letters of authorization and cancellation of AAUs. In the case of a number of emerging Article 6 pilots, it will likely be international agreements reached between the seller and the buying country that will further specify how accounting adjustments will be made for that particular pilot, thus with much greater interaction from the buying side.

B. HOW ARE THE PILOTS DEFINING THEIR RELATIONSHIP WITH THE NDCs?

How the Article 6 pilot transaction relates to the NDC commitments of the host country is a relevant consideration for all pilots, even though not all pilots have resolved the issue. Even before the international rules are fully defined, pilots generally seek to make sure double counting of mitigation

outcomes is avoided between the host and the acquiring country. Many pilot developers also wish to ensure that the cooperation goes beyond the current ambition of the host country's NDC. Several approaches for dealing with NDCs can be observed from the pilots:

BUILDING UP HOST COUNTRY INSTITUTIONS

The first approach towards dealing with the integration of an Article 6 transaction into the host country's climate change strategy is by setting up domestic and/or bilateral committees that assess the NDC relationship, based on their knowledge of the sector and the country's overall climate strategy.

This is an important component, for instance, of the SCF in Senegal and Rwanda. The SCF creates a technical advisory committee and a governing board that presides over the methodologies for the generation of credits and ultimately the transfer of ITMOs. Another example of an institutional approach can be found in the JCM. The JCM sets up Joint Committees made up of representatives from the government of Japan and the host country, which evaluate the technological needs of the country, decides on the use of methodologies and determines the sharing of the mitigation outcome between Japan and the host country.

Similarly, in Peru, a dedicated Multisectoral Commission, composed of 13 ministries, was established to assess the mitigation potential of the various sectors and identify different mitigation options to achieve the country's NDC. This Multisectoral Commission also considered the international support required to implement the different mitigation activities.

Additionally, national institutions and designated authorities authorising the use of ITMOs and/or the implementation of Article 6.4 activities will likely need to exercise a broader set of technical and administrative functions that can reflect the considerations and guidelines agreed by these inter-ministerial and bilateral committees. This ensures that these guidelines are well overseen and implemented, securing that mitigation interventions are aligned with the host country NDC and that mitigation outcomes are comprised of real, additional and properly estimated emission reductions.

GOING BEYOND THE CONDITIONAL AND/OR UNCONDITIONAL TARGETS

Many developing countries differentiate between the parts of their NDC that are conditional upon receiving financial or technical support, and those that they will achieve unconditionally through domestic means. While that is common practice in the formulation of NDCs, no such differentiation exists in the Paris Rulebook. Likewise, Article 6 does not make a distinction between conditional or unconditional targets. It is therefore up to the participating countries to define the relationship of an Article 6 transaction to the conditional or unconditional NDCs of the host country. Some pilot implementers find that the transaction should lead to an increase of ambition beyond the

unconditional and conditional targets. Others, like the SCF, find it sufficient that the cooperation would reduce emissions beyond the unconditional pledge of the host country.

LINKING TRANSFERS TO THE ACHIEVEMENT OF NDC GOALS

Some pilots are also devising contractual structures to address risks associated with non-fulfilment of NDC commitments. While Article 6 pilots are already being considered, NDC commitments have to be fulfilled long in the future: many countries have put forward single year targets relating to the country's overall emissions in the year 2030. This means that the risk of non-compliance with NDC targets has to be carefully assessed and managed early on. Some Article 6 pilots such as the NEFCO-Peru Conceptual Pilot and the SEA-Nigeria Virtual Pilot have suggested a conditional sale of ITMOs, where the international transfer would be tied to the fulfilment of certain 'conditions precedent' linked to the positive GHG performance of the relevant sector. Until these conditions are met (with funding support from the buyer), the buyer could not effectively claim title to the emission reductions. On the other hand, the buyer would retain the right to purchase a certain amount of ITMOs at a pre-defined price in the future.

SHARING THE MITIGATION OUTCOME

In many of the pilots, a sharing of the mitigation outcome between the buyer and the host country is envisaged. This ensures that host countries also increase their climate change ambition through the cooperation. TCAF, for example, seeks to purchase a portion of the mitigation outcomes from the underlying programs and policies, while the remaining part will be allocated to the host country. Contributors to the TCAF may use these assets for their own compliance, to contribute towards their climate finance objectives (i.e. through cancellation) or allow the host country to use them towards their NDC targets.

Another example is the JCM whereby the governments from Japan and host countries decide through the Joint Committees about the amount of credits to be allocated to Japan and to the host Party. In this phase, credits are not tradable, but options to allow international transfers could be explored at a later stage.

In the NEFCO-Peru Conceptual Pilot, one of the suggestions presented is that the cooperating countries allocate and share mitigation outcomes on the basis of the technological components applied in the solid waste sector NAMA (for instance, with emissions reductions stemming from the implementation of sanitary landfills with methane recovery and flaring attributed to Peru, whereas those emission reductions derived from the use of biogas to produce energy could be attributed to the buying country).

A slightly different approach for ensuring host country ambition is taken by the Swiss for whom a criterion is that partner countries must have an NDC that is mainly achieved through domestic means.

C. ARE THE PILOTS BUILDING UP CAPACITY FOR TRACKING AND ACCOUNTING FOR ITMOs?

While for CDM projects tracking emission reductions at project level was sufficient, activities under Article 6 will also require national level tracking if mitigation outcomes are to be transferred abroad. The tracking and reporting of ITMOs is the basis for corresponding adjustments, which participating countries in an Article 6 transaction have to make to their emissions balance. This is the case for cooperative approaches under Article 6.2 and by extension may also apply to units generated under the Article 6.4 mechanism if they are transferred internationally, although this is one of the remaining crunch issues in the negotiations.

Even as the Article 6 rules are still pending, the basic requirements on reporting on ITMOs and performing corresponding adjustments have already been agreed upon in the Paris Rulebook through the enhanced transparency

Box 1: Corresponding adjustments in the Paris Rulebook

(d) Each Party that participates in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC shall also provide the following information in the structured summary consistent with relevant decisions adopted by the CMA on Article 6 and -/CMA.1:

(i) the annual level of anthropogenic emissions by sources and removals by sinks covered by the NDC on an annual basis reported biennially;

(ii) an emissions balance reflecting the level of anthropogenic emissions by sources and removals by sinks covered by their NDC adjusted on the basis of corresponding adjustments undertaken by effecting an addition for internationally transferred mitigation outcomes first-transferred/transferred and a subtraction for ITMOs used/acquired, consistent with decisions adopted by the CMA on Article 6;

(iii) any other information consistent with decisions adopted by the CMA on reporting under Article 6;

(iv) information on how each cooperative approach promotes sustainable development; and ensures environmental integrity and transparency, including in governance; and applies robust accounting to ensure inter alia the avoidance of double counting, consistent with decisions adopted by the CMA on Article 6.

Source: UNFCCC (2018): Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement, Paragraph 77 (d).

framework (see box 1). These can be seen as the guardrails while the detailed methodological approaches still have to be worked out through the Article 6.2 guidance (see further down below).

A relevant question for the piloting phase is how far the current pilot initiatives are contributing to building a national-level tracking infrastructure (i.e., improving MRV capacity) and paving the way towards corresponding adjustments of ITMOs (i.e., ensuring proper accounting of mitigation outcomes). As an early observation, pilots are generally concerned with fostering new systems and building MRV capacities at national level and do so through different approaches. Some pilots are also beginning to consider the methods they will use to effect ITMO accounting adjustments, making sure these actually 'correspond' between seller and buyer.

REGISTRIES

Registries lie at the heart of the infrastructure needed for tracking ITMOs, as these are the systems in which mitigation outcomes created, transferred and used are recorded. The requirements and design specifications for registries are relatively uncontested in the Article 6 negotiations. According to the Katowice President's textual proposal on Article 6.2, each Party shall have a domestic registry or access to a registry for tracking ITMO information, and the UNFCCC secretariat shall implement an international registry for participating Parties without access to a domestic registry. Each registry shall have accounts and be able to track information on transfers, uses, cancellations and holdings of ITMOs, among others.

The most advanced among the pilots in developing a registry infrastructure is the JCM. To support transfers under the JCM, the Japanese government

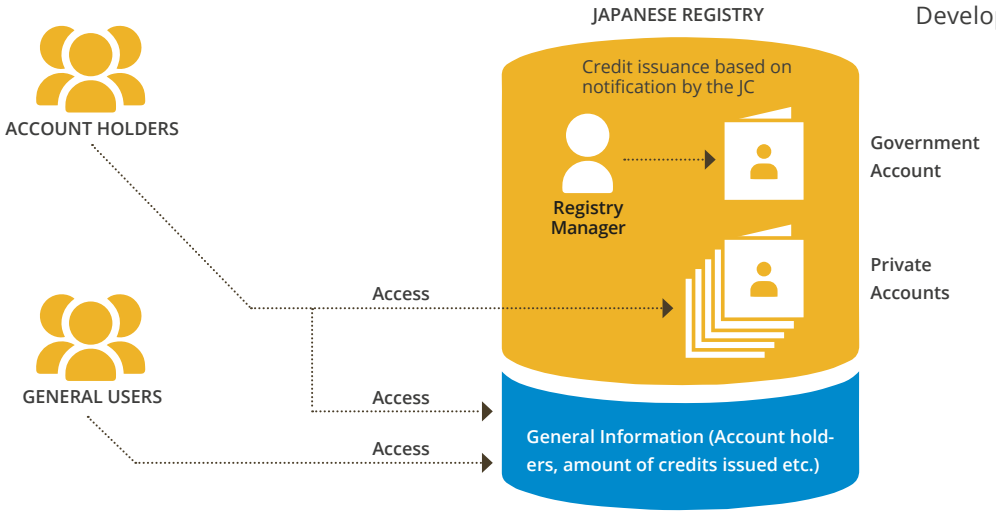


Figure 7: The JCM registry
Source: Government of Japan, Recent Developments of the JCM, July 2018.

Account holders can access both general information and their own accounts while general users can only access general information.

has set up a dedicated registry, which has already been in operation since 2015.

The registry serves both Japan as well as its partner countries if they so wish, however, partner countries can also build their own registries based on common design specifications with the Japanese registry. The system allows for the issuance of JCM credits into private accounts and supports the issuance, retirement, holding and cancellation of JCM credits. It also provides access to information to the general public.

Other pilots are also considering the support of national registries. For instance, in the case of REDD+, the FCPF considers both the possibility of using a centralized FCPF registry or, alternatively, the creation of national registries in REDD+ countries that can have the emission reductions issued and transacted in a transparent and secure manner.

Similarly, the World Bank, through the SCF pilots in Senegal and Rwanda, has already identified the need for a domestic infrastructure as an area for further development.

MRV SYSTEMS, TECHNOLOGIES AND CAPACITIES

Another approach towards strengthening countries' capacities to track mitigation outcomes nationally lies in building MRV capacity outside of the Paris Rulebook. Various pilots incorporate elements to strengthen information systems or national protocols for monitoring sectoral emissions and emission reductions.

The NEFCO-Peru Conceptual Pilot, for example, builds heavily on previous analysis and systems created to improve solid waste management in the country, including several updated versions of the SIGERSOL platform. The SIGERSOL functions as an on-line MRV tool that consolidates in a single electronic database all relevant waste-related information provided by districts and provinces in Peru. This strengthens the government's capacity to measure the results of its Solid Waste Sector NAMA, while at the same time feeding information into the national greenhouse gas inventory.

Another example is the Canada-Chile Environment Cooperation. On the basis of experiences gained with the CDM, these countries are working together to enhance and strengthen MRV capacities for tracking, monitoring, and reporting emission reductions through the development of new tools, including the development of three new GHG verification protocols: landfill gas, anaerobic digestion and diversion of organics. The focus is to contribute to developing GHG plans and reporting templates for the various projects, as well as to support innovative MRV solutions including smart metering and digital technologies such as blockchain.

CORRESPONDING ADJUSTMENTS

In addition to MRV systems, pilots need to consider the accounting implications of the international transfer of ITMOs. Corresponding adjustments cannot actually be implemented yet, as the Article 6.2 guidance is still pending and national reporting under the PA will only commence at a later date (Parties shall submit their first biennial transparency report and national inventory report, if submitted as a stand-alone report, at the latest by 31 December 2024).

Box 2: Methods for corresponding adjustments for multi-year and single-year NDCs

12. Each participating Party that has a multi-year NDC shall apply one of the following methods consistently throughout its period for NDC implementation:

(a) calculating a multi-year emissions trajectory for the period for NDC implementation which is consistent with the NDC and applying a corresponding adjustment for each year covered by this emissions trajectory;

(b) applying a corresponding adjustment for each year in the period for NDC implementation;

(c) applying a corresponding adjustment at the end of the NDC period for the total amount of ITMOs first transferred and used, or transferred and acquired over the period of the NDC implementation.

13. Each participating Party that has a single year NDC shall apply, in order to make the corresponding adjustments in the NDC year consistent and representative of NDC implementation and achievement, one of the following methods consistently throughout the period for NDC implementation:

(a) The method referred to in paragraph 12(a) above;

(b) The method referred to in paragraph 12(b) above;

(c) The method referred to in paragraph 12(c) above, where both participating Parties apply this method for the cooperative approach;

(d) Calculating the average annual amount of ITMOs first transferred and used, or transferred and acquired over the period of the NDC implementation and applying a corresponding adjustment equal to this average amount for the NDC year.

(e) The Party may only first transfer or transfer consistent with section V (Corresponding adjustments), ITMOs that are of the same vintage as the Party's single year NDC and/or only acquire or use ITMOs that are of the same vintage as the Party's single-year NDC.

Source: The Katowice Texts – Proposal by the President, Section III on Article 6.2, Paragraphs 12 and 13.

However, some pilots are already exploring different options for performing corresponding adjustments as part of their technical discussions with the involved stakeholders. Among the most progressed pilots in this regard are TCAF and the Swiss pilots, which are looking at methodological options for applying corresponding adjustments.

The difficulty lies, for one, in the nature of the NDCs given that many countries have opted for single year targets. This raises the question whether corresponding adjustments should occur only in the target year or throughout an assumed NDC trajectory. Another complication is the fact that the selling and the acquiring country cannot necessarily choose their approach independently from each other and irrespective of what the other side does, as adjustments need to correspond. If, for example, the seller makes a corresponding adjustment only for the ITMOs generated and transferred in the target year, while the buyer uses the cumulative amount of ITMOs acquired throughout the entire NDC period and subtracts the full amount in the target year, collective emissions are not adequately reported and accounted for.

An early indication from the Article 6.2 President's text is that the choice of the approach may be left to the discretion of the participating Parties, as long as they each use one approach consistently. For single year targets, the use of cumulative amounts may, however, only be allowed if both Parties in the transfer use the same approach (see textbox 2).

D. HOW ARE BASELINES AND ADDITIONALITY DETERMINED?

How to define baselines and additionality in the context of the PA is another hotly debated topic. While under the CDM a rich body of methodologies and tools for determining baselines and calculating emission reductions has been developed, three issues in particular are preventing Parties from simply transitioning existing approaches to Article 6.

First, the view of many Parties is that the NDCs and long-term targets of Parties along with the policies and measures put in place to achieve them, have to be considered when formulating the baseline to ensure that only efforts that go beyond the current level of ambition are credited. The point is not that straightforward because the alternative view also exists, that cooperation should enable countries to achieve their (already ambitious and sometimes conditional) goals formulated in the NDCs.

Second, a long-term desire by many Parties to reform the methodologies used under the CDM – be it for reasons of environmental integrity or simplifying their use – and third, the desire to enable broader (policy or sector-wide) approaches under Article 6 for which the existing methodologies may not be suitable.

Driven by these considerations, the emerging rules under Article 6 are seeking to redefine baselines and additionality. When it comes to Article 6.2 cooperative approaches, Parties are taking a rather hands-off approach, so far leaving the operationalization of baseline and additionality concepts to the participating Parties. The Article 6.2 draft texts from SBSTA and the Polish presidency simply define a number of principles through which environmental integrity should be ensured, inter alia through stringent reference levels, baselines set in a conservative way and below business-as-usual emission

Box 3: Baseline and additionality approaches under Article 6.4

35. Each [mechanism methodology] [activity] shall apply one of the following approaches to setting a baseline for calculating emission reductions, taking into account relevant national, regional or local circumstances, and providing justification for the choice:

(a) A [best available] [performance-based] approach, taking into account:

(i) Technologies that represent an economically feasible and environmentally attractive course of action;

(ii) The emissions of activities providing similar outputs and/or services in similar social, economic, environmental and technological circumstances;

(iii) Barriers to investment;

(iv) A contribution to the reduction of the emission levels of the host Party;

(b) Where the approach referred to in paragraph 35(a) above is not considered to be appropriate, an approach based on:

(i) Business-as-usual emissions;

(ii) Historic emissions.

36. Standardized baselines may be developed by the Supervisory Body at the request of the host Party, or may be developed by the host Party and approved by the Supervisory Body. Standardized baselines shall be established at the highest possible level of aggregation in the relevant sector of the host Party.

37. Each mechanism methodology shall specify the approach to demonstrating the additionality of the activity. The activity is additional where:

(a) Emission reductions achieved by the activity are additional to any that would otherwise occur, taking into account all relevant national policies, including legislation;

(b) Emission reductions are complementary to the policies and measures implemented to achieve the NDC of the host Party.

Source: The Katowice Texts – Proposal by the President, Section III on Article 6.4, Paragraphs 35-37.

projections (including by taking into account all existing policies and addressing potential leakage) and by ensuring the compensation of any material reversals.

For the Article 6.4 mechanism, Parties have started to define more specific guidance for determining the baseline that is clustered around four approaches: A performance based / best available approach, historic emissions, business-as-usual emissions and standardized baselines (see textbox 3).

It is worth noting that baseline approaches that take into account future emissions increases, due to economic development (also called suppressed demand), are absent from these options, even though they have been particularly important to develop CDM methodologies that incentivize greenfield investments in low-income countries with low historical emissions.

This begs the question in how far the pilots are considering baseline and additionality approaches that differ from existing CDM methodologies and how they are responding to the new challenges of the NDC context.

RELATIONSHIP WITH CDM METHODOLOGIES

What can be observed so far, is that several pilot initiatives are building on the CDM as they make use of CDM methodologies and project cycle as a starting point. The SCF, for example, functions in parallel to the CDM project cycle, and utilizes the data available from this process. The SCF simplifies the application of the methodology through pre-approved default parameters for the national context and the definition of automatically additional technologies. The SCF also simplifies the project cycle itself, inter alia through validation of the methodology at the sector level and the use of check-box templates for individual activities.

The NEFCO-Peru Conceptual Pilot and a number of the SEA Virtual Pilots also build on CDM methodologies and programmatic approaches in their relevant sectors (e.g., waste and decentralized energy generation). The SEA-Nigeria Virtual Pilot also suggests adjusting and employing the SCF concept, to the extent possible, in order to streamline the activity verification and approval cycle at domestic level.

A final example of a pilot with CDM methodologies as starting point is the JCM. Similar to the SCF it modifies existing methodologies in order to simplify their use. To do so, the JCM uses conservative default factors, simplified monitoring approaches based on agreed spreadsheet formats and crediting thresholds that are deemed more ambitious than BAU. Methodologies have to be approved separately for each host country, which adds to transaction costs. Through the use of conservative baselines, the JCM simultaneously seeks to contribute to an overall mitigation of global emissions. In the past, there have been discussions regarding the conservativeness of the baselines.[8]

[8] Shrestha, J. Public Input on JCM_PW_PM001-Displacement of Grid and Captive GensetElectricity by a Small-scale Solar PV System, Ver 01.0, 2015.

RELATIONSHIP WITH THE NDCs

Pilots starting with CDM methodologies tend to address the NDC context indirectly by factoring existing national laws and climate policies that the country has put in place to meet its NDC target into the determination of the baseline and additionality. There also is the possibility of starting with NDC targets more directly and looking at the developments of emissions at the sector level. Some pilots are also adopting this top-down approach.

The NEFCO-Peru Conceptual Pilot, for example, suggests the use of a sector crediting baseline that mirrors both the unconditional and conditional pledge of Peru's NDC transfer and using a GHG emissions trajectory that would function as an accounting benchmark for the buyer and seller. This annual trajectory of emissions to achieve the host country NDC would be established at cooperative level only (e.g., in the MOPA entered into between the host country and the buyer), circumventing the political difficulties associated with the host country converting its single NDC into a multi-year NDC. Emission reductions that lead to ITMOs would be measured, reported and verified independently, and would only be 'converted' into ITMOs if they exceed the pre-defined sector crediting baseline.

The prime example for the use of sectoral baselines is TCAF, which develops carbon accounting methodologies for policies and economy- or sector-wide programs that go beyond project-based activities. In TCAF's case, baselines are derived from host countries' unconditional NDC targets. Single-year targets are by default linearized over the NDC period and the resulting trajectory is compared to emission trajectories under the BAU scenario, derived from modelling. The more conservative of the two is then used as the crediting baseline. Crediting will be applied to the difference between the crediting baseline and the factual performance of the supported program. However, specific TCAF baseline methodologies have yet to be published, and only the general principles[9] have been made available. Hence, their degree of conservativeness and ability to exclude non-additional activities cannot be independently assessed. Baselines will be validated by independent experts and the verification of emission reductions will be performed by a third party.

The FCPF, with regards to REDD+, seeks to ensure that program proponents produce conservative and robust baselines based on a ten-year historical average. These reference levels are expected to link to national baselines by either informing, or being informed by, national reference levels developed by REDD+ countries under the UNFCCC. However, for most REDD+ countries, it remains to be seen how these national reference levels will be integrated into the broader land-use sector accounting and into the country's NDC.

[9] World Bank. Core parameters for TCAF operations. July 2018.

E. WHAT ROLE DOES SUSTAINABLE DEVELOPMENT PLAY?

The Paris Agreement calls for an integrated approach with Agenda 2030 for sustainable development. Even though many stakeholders and Parties called for a more prominent role of sustainable development in Article 6 compared to the Kyoto Protocol's flexible instruments, the issue is hardly taken up differently in the texts coming out of Katowice. Earlier references about Article 6 activities having to conform to the implementation of the UN Sustainable Development Goals (SDGs) have been dropped in both the SBSTA and the Katowice President's text and the reference to host Party's obligation on human rights appears bracketed in the final text. Similar to the CDM, the remaining obligation in the Katowice texts refers to the host Party confirming that the activity fosters sustainable development based on its national prerogative. This is similarly required for activities under Article 6.2 and Article 6.4. However, a related addition that has survived the negotiations until now, is that activities shall avoid negative environmental impacts or address any conflicts with environment-related aspects.

In the current pilots, by contrast, sustainable development tends to feature high on the agenda. The Swiss engagement in carbon markets has been traditionally focused on sustainable development co-benefits of mitigation projects, both in the Article 6 negotiations, where Switzerland is part of the Environmental Integrity Group (EIG), and in the purchasing policies of the Swiss Climate Cent Foundation (CCF) and the KliK Foundation. The Swiss pilots are selected based on an evaluation of the activity's contribution to sustainable development, including the SDGs, environmental and social safeguards being applied, and stakeholder rights being firmly respected. Furthermore, nuclear energy or activities that result in a technological lock-in of fossil fuel energies are excluded.

Other pilots also spell out the additional environmental benefits of the activity or make clear references to the SDGs targeted. The NEFCO-Peru Conceptual Pilot, for example, lists a number of sustainable development benefits from improved waste management systems, such as the reduction of local pollution, diseases and prevention of water and soil contamination. The Virtual Pilot in Nigeria contributes directly to SDG 7, which comprises universal access to affordable, reliable and modern energy services by 2030 as well as increasing the share of renewable energy in the global energy mix. It also aims to meet SDG 13, by integrating climate change measures into national policies, strategies and planning.

Activities that are targeted by the SCF Pilots are part of the portfolio of the Carbon Initiative for Development (Ci-Dev), a World Bank trust fund that, as part of its mandate, targets clean energy technologies in low income countries and seeks to enhance energy access in rural communities. For TCAF, like other World Bank operated funds, the Trustee is to ensure the compliance of all programs with the environmental and social safeguard standards of the World Bank and their consistency with SDGs. In addition, TCAF aims to create

larger drive and momentum for sustainable development through mobilizing climate finance and supporting socio-economic growth.

Quite a different approach is taken by the JCM. Rather than focusing on sustainable development, a concept that cannot objectively be defined, the mechanism is technology oriented and supports all types of low-carbon technologies, including potentially nuclear energy or efficiency improvements in the use of fossil fuels. Many JCM projects involve energy efficiency measures in industrial applications. The JCM therefore rejects any up-front exclusion of technologies on the basis of sustainable development. Notwithstanding, the JCM has recently started to develop guidelines for the monitoring and reporting of sustainable development aspects.

F. HOW HAS OVERALL MITIGATION BEEN INCORPORATED?

For the Article 6.4 mechanism, the contribution of an activity to OMGE is mentioned as a requirement at the level of the PA text. No such requirement applies to cooperative approaches under Article 6.2 at the level of the PA,

Box 4: Delivering overall mitigation in global emissions under Article 6.4

60. The mechanism shall aim to deliver an overall mitigation in global emissions through any one or a combination of the following:

(a) A voluntary cancellation method by which, following certification and verification of emission reductions, the host Party makes a corresponding adjustment consistent with the guidance for cooperative approaches referred to in Article 6, paragraph 2 for the full amount of issued A6.4ERs to be first transferred, and the registry transfers 10 per cent of the total amount of A6.4ERs to a cancellation account for overall mitigation in accordance with section V.I above ([Forwarding] [transfer] from the mechanism registry); and the cancelled A6.4ERs may not be used for any transfer or purpose, including by any Party towards its NDC or for voluntary cancellation.

(a) Providing a source of mitigation outcomes that enable Parties to select higher ambition in its NDC;

(b) Voluntary cancellation of A6.4ERs by Parties and stakeholders, including non-State actors;

(c) Voluntary measures selected by participating Parties;

(d) Applying conservative baselines, or baselines that are below business-as-usual, to the calculation of emission reductions for Article 6, paragraph 4 activities;

(e) Applying conservative default emission factors to the calculation of emissions from Article 6, paragraph 4 activities.

Source: The Katowice Texts – Proposal by the President, Section III on Article 6.4, Paragraph 60.

however the texts from Katowice nevertheless encourage participating parties to deliver an overall mitigation through a voluntary cancellation or setting aside of ITMOs that are not used for any transfer or purpose, including use by any Party towards its NDC.

The negotiations see Parties disagreeing on the way overall mitigation should be operationalized. Views range from the application of conservative baselines over a shared mitigation benefit with the host country, to the mandatory cancellation of units. Some Parties also think that overall mitigation is automatically achieved by the activities, for example through a continuation of an activity after its crediting period comes to an end. In Katowice, this has resulted in an open list of possibilities through which activities can demonstrate a contribution to overall mitigation (see box 4).

What can be observed in the pilots is a focus on two approaches: the sharing of mitigation outcomes between the buyer and the host country and the use of conservative baselines.

Many pilots consider the sharing of mitigation outcomes with the host country. Often times this is linked to the provision of results-based finance made available for the host country to achieve a mitigation objective but without the need of receiving emission reductions in return, such as with the World Bank's TCAF.

The JCM is an example that explicitly employs the use of conservative baselines in order to deal with the requirement of overall mitigation (or net emission reductions as it is termed under the JCM). All the while, the JCM has been developed as a cooperative approach under Article 6.2 for which an overall mitigation is yet to be required.

FURTHER READING

Nordic Initiative for Cooperative Approaches, Article 6 Landscapes, February 2019.

ADB, Decoding Article 6 of the Paris Agreement, April 2018.

UNFCCC, Proposal by the President, December 2018.

UNFCCC, Informal compilation of documents, December 15, 2018.

ERCST, Katowice COP24: Outcomes on Article 6, December 2018.

4. CONCLUSIONS

There is a broad array of Article 6 pilot initiatives under way, ranging from virtual pilots to actual (future) transactions of ITMOs; launched both by countries and multilateral development banks. Financial resources committed reach around USD 345 million; the scale of resources differs widely between initiatives. Due to the generally early stage of piloting, lessons learned remain limited. This is exacerbated by the limited transparency of various initiatives. For example, the World Bank's TCAF and ITMO Warehouse initiatives provide little documentation on their methodological approaches. The JCM, on the other hand, transparently publishes detailed information on its procedures, projects and formulas for calculating emission reductions. The World Bank's approach for piloting the Kyoto mechanisms in the early 2000s through the Prototype Carbon Fund was also exemplary in its documentation, including publishing an annual report and activity pipeline.

The limited availability of public information on many of the pilot activities is due to a number of factors. Some pilot developers are certainly cautious to disclose potentially confidential information, as negotiations with partnering countries are still ongoing. Others may be reluctant to expose their initiatives before the Article 6 negotiations are concluded on the political level; while others may still be at the early stages of development. Given the available information, our study focuses on high level observations and emerging trends that can be gathered from the pilots, while identifying a number of critical issues for further reflection.

Key aspects of the pilots include how they:

- define government responsibilities,
- connect transactions with NDCs,
- account and track ITMOs,
- establish a baseline and related methodologies,
- test additionality,
- implement safeguards to ensure sustainable development; and
- ensure an overall contribution to global mitigation.

While all initiatives support the aim to prevent double counting, promote sustainable development and ensure additionality, their approaches to address these aspects and their performance related to these aims remain unclear.

We see that diversified contractual and incentive structures for ITMO transfer agreements are emerging in the pilots, with most aiming for an Article 6.2 transaction. Structures employed include:

- The Swiss CCF and KliK pilots define a suite of contractual documents, starting with a letter of intent followed by a bilateral MoU on a government to government level that then triggers a Mitigation Outcomes Purchase Agreement ("MOPA") with mitigation activity developers.

- The NEFCO-Peru Conceptual Pilot proposes an innovative call option for ITMO sales, whose workings have yet to be proven. The call option would have a premium that would be paid ex-ante according to pre-defined milestones. Such an approach would have an in-built incentive to set up a functional Article 6 infrastructure on the side of the host country.

- The SEA-Nigeria Virtual Pilot builds on a green bond that functions with a reduced interest rate through in-kind pay-outs in the form of ITMOs.

- The JCM and SCF envisage contracts with mitigation activity developers. The SCF has developed a simplified activity cycle with validation linked to ex-post verification, leading to significant time savings compared to the CDM. Moreover, both the JCM and the SCF invest in bilateral institution building.

Arrangements for sharing mitigation outcomes have already been agreed under the JCM, while in other pilots generic approaches are still being discussed. Sharing could at times be achieved indirectly, such as through conservative baselines or short crediting periods.

The JCM offers a central registry, yet leaves the option for host countries to also set up their own registry. Many pilots, including the Canada-Chile Environment Cooperation and the NEFCO-Peru Conceptual Pilot, try to build MRV infrastructures. However, it remains unclear whether these infrastructures will be sustained after the pilot phase comes to an end.

While a number of initiatives use CDM baseline and monitoring methodologies, others – such as the JCM, SCF and TCAF – aim to simplify baseline and monitoring methodologies compared to the Kyoto mechanisms. Only a few of them however (including the JCM), have actually developed specific methodologies to advance this goal. In the JCM context, emission factors seem to be conservative but additionality is often assumed for any activity beating a specific emissions benchmark, which could lead to crediting of activities that are already economically attractive. Similarly, the SCF applies positive lists to determine additionality, which could be problematic for technologies whose costs rapidly decrease if the positive list has a long validity period. At the same time, the move towards sector specific, nationally (co-)determined positive lists of technologies pursued by both pilots relieves project developers of cumbersome project-by-project additionality tests common under the CDM and fits the bottom-up nature of the Paris Agreement, in which countries define their contributions based on national contexts. A predictable process to revise positive lists when the economic attractiveness of technologies changes over time would allow transaction costs to remain low and ensure continued additionality. Given that we need rapid advances regarding robust methodological approaches to define baselines for the introduction of

mitigation policy instruments, and to determine additionality of the interventions, an increase in transparency of those initiatives with the boldest scopes, such as TCAF, would be beneficial.

With regards to sustainable development, most initiatives refer to the SDGs, and some, like the Swiss pilot activities, operate negative lists that exclude certain technologies and sectors. Concrete approaches to eliminate problematic initiatives are not specified, leaving a lot of discretion. The JCM has the explicit aim to cover project types that were excluded from the CDM, looking specifically into high-efficiency coal power plants, a technology category that is seen by many as unsustainable. Some pilots implement concrete approaches to issues that remain under negotiation on the international level. For example, the NEFCO-Peru Conceptual Pilot defines its baseline on the basis of an unconditional pledge and includes the condition that Peru is overachieving its NDC. The corresponding adjustment would be undertaken at the moment of transfer.

Overall, the landscape of Article 6 pilots is still fuzzy and relevant trends are emerging. Critical questions, especially with regard to incentive structures that drive private sector engagement, baseline credibility for upscaled crediting and operationalization of sustainable development safeguards, have not yet been answered. It would certainly be beneficial if critical issues were addressed head on with a high degree of transparency.

In terms of the Article 6 negotiations, the ongoing pilots are already, and have always been, influential. There is a high degree of convergence between the positions Parties take in the negotiations and the features of the pilots they support. Parties are shaping their pilot activities in a way that reflects their position in the negotiations and are informed in their position building by the pilot experiences. In addition, Parties are paying close attention that the operationalization of the Article 6 rules does not negatively impact their cooperative schemes. Resolving critical technical questions on the pilot level may therefore hold the key towards the successful conclusion of the negotiations.

ANNEX I: FACTSHEETS ON ARTICLE 6 PILOTS

African Development Bank
The Adaptation Benefit Mechanism (ABM)

Canada-Chile
Program to reduce emissions in the waste sector

EBRD
Integrated Carbon Programme for the Southern and Eastern Mediterranean

Japan
The Joint Crediting Mechanism

NEFCO – Peru
Cooperative arrangement pilot in the solid waste sector

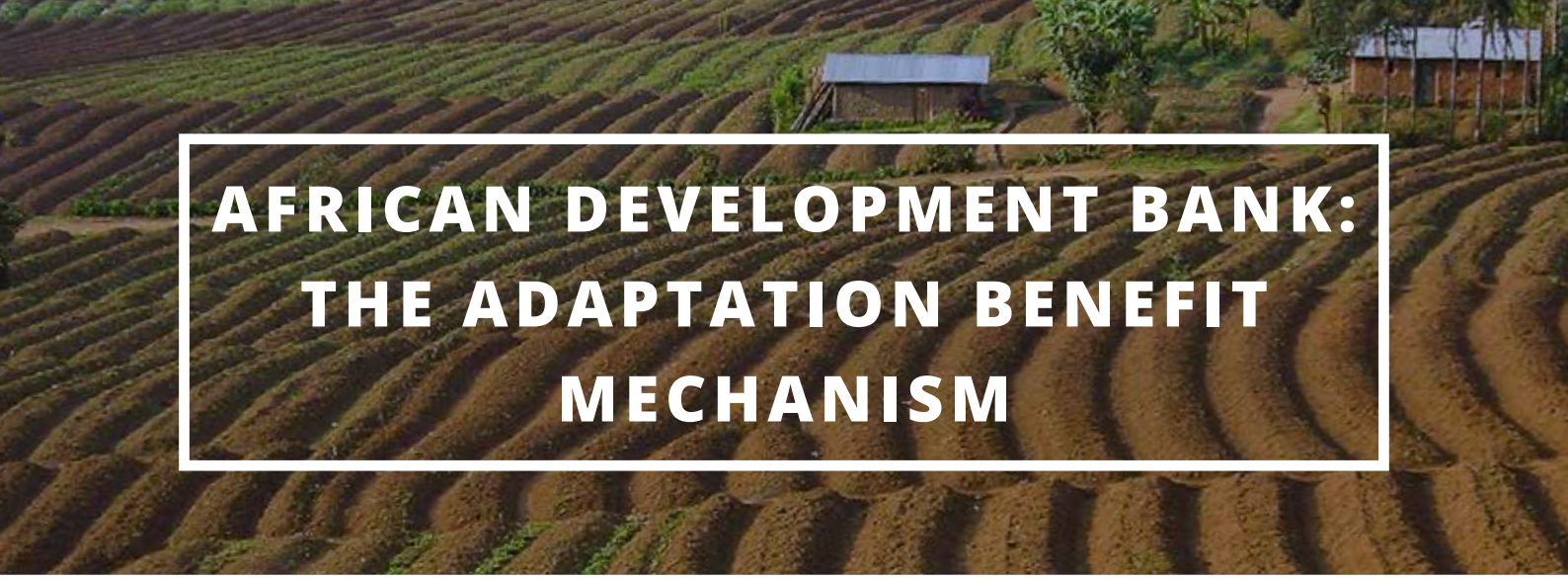
Swedish Energy Agency
Virtual Pilot Studies

Switzerland
Pilot activities of the Climate Cent Foundation

Switzerland
ITMO purchase program of the KliK Foundation

World Bank
The Standardized Crediting Framework

World Bank
The Transformative Carbon Asset Facility



AFRICAN DEVELOPMENT BANK: THE ADAPTATION BENEFIT MECHANISM

The Adaptation Benefit Mechanism (ABM) aims to mobilize public and private sector finance to enhance adaptation action. It is proposed and piloted by the African Development Bank (AfDB) in several African countries. The ABM is the first attempt to operationalize a mechanism that supports adaptation activities. Established in 2016, in collaboration with the governments of Uganda and Côte d'Ivoire and in consultation with various stakeholders, the ABM aims to quantify, verify and certify the sustainable development benefits of adaptation actions using results-based finance. As a candidate for non-market-based approaches under Article 6.8 of the PA, the AMB plans to launch its pilot phase in 2019.

SUMMARY TABLE

Specific sectors and technologies	Any technology/sector where adaptation benefits can be delivered and quantified. Requires design/availability of robust methodologies for the quantification and MRV of the adaptation benefits. Existing pilot methodologies include: renewable water pumping technologies, clean cooking, grid extension, watershed management and off-grid electrification sectors.
Possible stakeholders and participants	Parties to UNFCCC, non-governmental organizations, private investors, philanthropic organizations, development banks
Form of Article 6 cooperation	Article 6.8 (non-market approaches)
Relationship with NDCs	Contribution to the achievement of the adaptation component of NDC. Accounting of emission reductions contribution to be elaborated for projects with mitigation co-benefits.
Volume and price of ITMOs	No ITMOs will be generated, since the adaptation benefit units (ABU) will cover only the impacts of adaptation actions. The price of these units is based on the cost of implementation; thus, it varies depending on the technology/measure applied, sector and location of the activity implemented.
Sustainable development benefits	Depending on the activity implemented: in general terms enhanced resilience of communities in host countries, contributions to the sustainable development goals should be described in methodologies and project design documents.

KEY FACTS

The ABM is a non-market-based mechanism that will generate so-called adaptation benefit units (ABUs) that are not internationally tradable, and will instead be delivered directly to the end-user. The ABM builds on the concept of the Clean Development Mechanism (CDM) and Joint Implementation (JI), in which carbon credits are issued for mitigation impacts achieved against a baseline scenario, and considers their approach to using approved methodologies that specify MRV requirements to ensure transparency. The ABM can be implemented in any sector relevant for adaptation. Activities must contribute to the implementation of the adaptation component of the host Party's NDC and be additional, i.e. would not be implemented in the selected sector/country without the incentive provided by the ABM. Initial methodology concepts have been developed for Ethiopia, Kenya and Uganda; including a complete methodology and Project Design Document for each project type[10]. Robust MRV requirements will be defined for adaptation impacts to ensure that ABUs claimed are real and measurable, and ABUs will be defined with a proxy of the adaptation benefits delivered[11] to simplify MRV requirements and reduce associated costs.

The AfDB initiated the development of the ABM in early 2016. The government of Uganda submitted a proposal to the SBSTA 46 and the government of Côte d'Ivoire to SBSTA 47 for the ABM to support the establishment of such mechanisms[12]. The AfDB launched the pilot phase in March 2019, which will run until 2023. The pilot phase will tentatively include 10-12 small-scale replicable or scalable demonstration activities in Africa to test the effectiveness of ABM as a means for mobilizing private finance. The AfDB also aims to establish an interim ABM Board, Methodology Panel and Secretariat to enable full support and advice during the piloting phase[13]. The Methodology Panel will have a strong focus on streamlining reporting requirements in light of the Enhanced Transparency Framework of the PA, combined with the development of new methodologies for generating ABUs and calculation of the incremental costs.

The governance structure is therefore envisioned to resemble that of the CDM/JI, including third party validation and verification, host country approval; and a centralized supervisory body for approving methodologies, registering projects, issuing adaptation benefits and being responsible for the overall governance and management of the ABM. A new or existing body, such as the Adaptation Committee could take on this role. During the pilot phase the AfDB will host the interim ABM bodies.

Local communities would benefit the most from the ABM as the mechanism is deemed particularly suitable for adaptation activities in rural or low-income areas where climate impacts are more significant. Private sector entities, local governments, local NGOs or non-profit organizations are good candidates to develop adaptation activities under the ABM.

Once the activities, governance structure and beneficiary process are in place, ABUs generated can be used to contribute to the achievement of adaptation

[10] Methodologies and PDDs that have been developed: renewable energy powered water pumping technologies, clean cooking, grid extension sectors; while they are not yet developed for off-grid electrification and watershed management.

[11] For instance, the m^3 of water supplied for agricultural uses is a proxy of other adaptation benefits such as increased resilience of cultivations, reduced dependency on rainfall patterns, reduced poverty, etc.

[12] Government of Côte d'Ivoire. Submission by the Government of Côte d'Ivoire to SBSTA 47 in response to the call for input on the Framework for Non-Market Approaches described in Articles 6.8 and 6.9 of the Paris Agreement. 2017.

[13] AfDB. Adaptation Benefit Mechanism. N.d.

goals, as well as SDGs. Investors already interested in ABM activities, are comprised of development organizations, multilateral and bilateral agencies, and various funds (including the Green Technology Fund), philanthropic organizations and private entities wanting to meet Corporate Social Responsibility requirements, reporting requirements or specific policies on climate-related activities. The ABUs are held in a publicly accessible registry and can be sold to an interested third party, thus generating revenue for project developers.

PILOT ACTIVITIES IN CÔTE D'IVOIRE AND ETHIOPIA

AfDB intends to pilot the ABM in several countries, including Benin, Ethiopia, Côte d'Ivoire, Mozambique, Rwanda and Uganda. The first ABM demonstration project will be in Côte d'Ivoire in collaboration with The World Agroforestry Centre. It aims at introducing sustainable agroforestry measures to make smallholder cocoa farmers' communities resilient to climate change, while contributing to enhancing quality of life for women and youths. The goal is to replicate this approach to other regions in Côte d'Ivoire and to at least three other cocoa producing countries in the region.

In Ethiopia the government supported the AfDB with the development of pilot methodologies and Project Design Documents[14]. The initial concept is defining one ABU as 100 m^3 of water supplied for agricultural irrigation purposes. As an indication, the price for ABUs generated by this activity type are initially estimated at circa 3 to 5 USD/ABU. AfDB is exploring options for developing two demonstration projects in Ethiopia in collaboration with the United Nations Industrial Development Organization, national and local governments. The concept targets the introduction of solar water pumping for rural communities to substitute diesel-based pumping in the Fentale district, Oromia state.

INTENDED FORM OF COOPERATION

The ABM is envisioned to be recognized as one of the non-market-based approaches under Article 6.8 of the PA. Cooperation under the ABM could comprise public-public, public-private or private-private purchase agreements, such as off-take agreements for payment upon delivery of certified ABUs. While there is currently a lack of certainty regarding the key elements of Article 6.8 and how these will be relevant for the ABM. Given the increasing importance of enhancing resilience and delivering adaptation finance, the ABM's non-market approach could gain multilateral support.

TRANSACTIONAL SET-UP

Since ABUs are not internationally tradable, exchanges are based on voluntary agreements between potential buyers and project developers. However, there is currently no precedent or plan for an ABU-based financial transaction. The amount of ABUs that could be generated depends on the activity

[14] Michaelowa, A.; Hoch, S.; Brescia, D.; Friedmann, V. Enhancing Sustainable Development in Ethiopia through Climate Change Mitigation and Adaptation. AfDB/2017.

type as well as how adaptation benefits are quantified. Other metrics can be used depending on the project type. ABU prices are influenced by the eligible costs for the implementation of each activity (eligible costs are identified in the methodology), and a project specific premium for the developers. The price thus varies depending on the activity type and location, and how these elements affect the implementation costs. ABU buyers will receive the cancellation codes for the ABUs with the ABM registry so that no further trade is possible.

RELATIONSHIP WITH NDCs

A Letter of Approval from the host country will ensure that ABM activities are linked directly to host countries' NDCs as well as other relevant climate policies and priorities. The ABM does not directly target mitigation activities and therefore no corresponding adjustments are required. An open question seems to be how to account for mitigation co-benefits of ABM-supported activities, although it is clear that the intention is not to export any mitigation outcomes, and that these are accounted within NDCs. The ABM can also contribute to the development of quantifiable targets and related metrics for adaptation components under NDCs.

CANADA-CHILE: PROGRAM TO REDUCE EMISSIONS IN THE WASTE SECTOR

The Canada-Chile Agreement on Environment Cooperation entered into force in July 1997 in parallel to the bilateral Canada-Chile Free Trade Agreement and provides a framework for bilateral cooperation on environmental issues. Within the context of this cooperation and in light of the ratification of the Paris Agreement in 2016, Canada has offered financial and technical support to Chile to deploy technologies and to pilot innovative approaches supporting the reduction of methane emissions in the waste sector through the program titled "Reciclo Orgánicos" (the "Program").[15] This Program is seen as a concrete example and opportunity for exploring options for the international exchange of mitigation outcomes within the framework of Article 6.

SUMMARY TABLE

Specific sectors and technologies	Waste sector, Organic waste (Main technologies: Composting, Anaerobic Digestion, Landfill Gas Capture)
Possible stakeholders and participants	Ministry of Environment and Climate Change Canada; Ministry of Environment Chile; local Municipalities, four cities included in the pilot and its citizens (Viña del Mar, Molina, Concepción, Rancagua)
Overall resources available (million $)	USD 5.3 million (CAD 7 million)
Form of Article 6 cooperation	Instrument-neutral under article 6 of the Paris Agreement. Exploring article 6.2 as an option.
Relationship with NDCs	Contribution to the achievement of the NDC mitigation goals.
Volume and price of ITMOs	The 4-year Program will be implemented between 2017 and 2021 and provides CAD 7 million for capacity building and technical assistance.[16] The price of any resulting GHG units is not yet determined.
Sustainable development benefits	The Program will help to protect the soil, water bodies and improve air quality as well as offer support to the communities through learning plans and training.

[15] Reciclo Organicos. Program. 2018.

[16] See above

KEY FACTS

Chile's unconditional NDC target is to reduce GHG emissions per unit of GDP by 30% below 2007 levels by 2030. With international support this target could increase to 35 - 45%[17]. The 4-year Canada-Chile Program is scheduled to operate between 2017 and 2021 and provide CAD 7 million of funding for capacity building as well as technical assistance to support clean innovation and reduce methane emissions from existing landfills while diverting organic matter from landfills. The Program has four overarching objectives:

- Reduction of methane emissions through technology deployment in selected cities;
- Tracking, monitoring and reporting emission reductions as well as exploring opportunities for new and innovative cooperative arrangements such as ITMO transfers;
- Leveraging co-financing from public and private sector partners for the planned projects as well as creating the financial conditions to enable scaled-up implementation by engaging with international financial institutions and multilateral development banks; and
- Providing technical support for communications opportunities.

The key stakeholders of the Program are the Canadian Ministry of Environment and Climate Change and the Chilean Ministry of Environment. The main beneficiaries include the Government of Chile, as well as the local municipalities in which the pilots are being developed (Viña del Mar, Molina, Concepción, Rancagua).[18]

The governance structure around the generation of ITMOs is not yet defined and will be clarified at a later stage by Canada and Chile in consideration of the rules being developed for Article 6. Feasibility studies are currently being developed and conducted in piloting cities/municipalities to test various technologies. The MRV system will help to ensure the credibility and robustness of the emission reductions achieved, building on the experience of the CDM[19]. It will contribute to:

- Develop GHG plans and reporting templates for each activity;
- Support onsite MRV for all activities, including smart metering and linking to digital technologies (e.g. blockchain) for innovative MRV solutions; and
- Compile and report the results for all projects.

[17] Republic of Chile. Intended Nationally Determined Contribution of Chile towards the Climate Agreement of Paris 2015. September 2015.

[18] Ministry of Environment of Chile. Chile y Canada se unen para apoyar el Desarrollo sostenible. 2018.

[19] Reciclo Organicos. MRV. 2018.

INTENDED FORM OF COOPERATION

The Program is designed as instrument-neutral under Article 6 of the Paris Agreement. However, the Program explicitly highlights that it will "explore considerations for bilateral discussions for mitigation transfers"[20]. In this context, both countries are considering the opportunity to pilot the use of GHG units to be counted towards the achievement of NDC objectives. In the case of any international transfers, Article 6.2. rules for ITMO transfers will be observed. The results of the pilots will take into account ongoing institutional reforms in the Chilean waste sector, which could make it easier for Chile to integrate regulatory provisions needed for exchanging mitigation outcomes as well as providing incentives for private investments.

TRANSACTIONAL SET-UP

The Program is still at the early stage of implementation and will firstly focus on implementation technologies and capacity building before defining and testing the infrastructure for the generation of ITMOs. Through the development of a potential ITMO pilot, the Program aims to send a signal to the private sector that carbon markets are effective, leverage existing potential opportunities and replicate the cooperative approach in other jurisdictions.

RELATIONSHIP WITH NDCs

The Program aims to support Chile's NDC implementation in the waste sector, which is identified as one of the country's priority sectors. The use of emission reductions that may be generated is still to be decided. Other key objectives are the improvement of the waste management processes, protecting the soil and water bodies, improving air quality, developing MRV frameworks, and supporting local communities and capacity building.

The Program has been envisioned to not only identify opportunities to capture landfill gas from existing waste disposal sites, but also to implement projects to divert organic residues from the municipal waste stream and utilize them in composting facilities or anaerobic digestion plants to produce compost and/or a source of clean energy. The Program works with four municipalities, where the Government of Canada provides financial and technical assistance for the operationalization of a waste treatment plant (Composting, Anaerobic Digestion, Landfill Gas Capture depending on the city) as well as community engagement to raise awareness among the residents on the benefits of recovery and utilization of organic waste.

Besides technology deployment and emission reductions, Canada and Chile are working together towards:

- Strengthening MRV and develop capacity-building for tracking, monitoring, and reporting emission reductions; Currently developing 3 new GHG verification protocols: Landfill gas, Anaerobic Digestion, Composting;

[20] Franck Portalupi, Environment and Climate Change Canada. Canada-Chile Program to reduce Emissions in the Waste Management Sector. January 2018.

- Identifying mitigation activities and technologies to contribute to the NDC targets;

- Developing incentive for partners to replicate the model in other communities/facilities or make information available to other jurisdictions especially the members of the Pacific Alliance; and

- Bilateral discussions on the international transfer of mitigation outcomes.

EBRD: INTEGRATED CARBON PROGRAMME FOR THE SOUTHERN AND EASTERN MEDITERRANEAN

The European Bank for Reconstruction and Development (EBRD), together with financial backing from the Spanish Office for Climate Change ("Oficina Española de Cambio Climático" – OECC), is supporting the transition to low carbon economies in the Southern and Eastern Mediterranean (SEMED) region through the development of an Integrated Carbon Programme. The programme includes technical assistance, policy dialogue and capacity building in carbon markets, and a financing instrument for emission reduction activities.

SUMMARY TABLE

Specific sectors and technologies	Renewable energy and energy efficiency
Possible stakeholders and participants	Egypt, Jordan, Morocco, Tunisia
Form of Article 6 cooperation	Technical cooperation, technology transfer, policy dialogue, results-based finance. Increased levels of information on carbon market, result-based climate finance opportunities and structuring.
Relationship with NDCs	Contribution to achievement of domestic and international goals, to be further informed by policy dialogue in country.
Volume and price of ITMOs	To be determined from market and modeling study.
Sustainable development benefits	Increased deployment of renewable energy and energy efficiency.

KEY FACTS

The Integrated Carbon Programme seeks to identify an approach for the design and implementation of a scaled-up crediting mechanism in the SEMED region. In the EBRD context this region includes Egypt, Jordan, Morocco and Tunisia.

The overall goal of the project is to develop policy reports and MRV–based test cases to further inform the development of scaled-up carbon crediting mechanism under Article 6. The Integrated Carbon Programme will contribute to the respective policy dialogue at country level (NDCs) as well as at the UNFCCC level.

The programme aims to review and test the development of an automated MRV system that is expected to reduce transaction costs. The programme will provide technology transfer opportunities by bringing together project sponsors, technology providers, and financial institutions.

INTENDED FORM OF COOPERATION

The Integrated Carbon Programme is designed as instrument neutral. Results-based finance will be used as a test-case for the further development of scaled-up approaches. Additional forms of cooperation include policy dialogue and technical cooperation to ensure capacity for future participation in carbon pricing mechanisms. A technology transfer component will highlight the potential of automated MRV and strengthen involvement of the private sector in the carbon market.

TRANSACTIONAL SET-UP

The results-based instrument can be calibrated to the project scale, policy context, and commercial arrangements as necessary, to provide for increased deployment of renewable energy. In-country policy dialogue as well as a regional market study and modeling effort will help inform the structure and appropriate level of support.

RELATIONSHIP WITH NDCs

The results-based support is expected to serve as a model for increased ambition. In-country policy dialogue will ensure that support is aligned with the country's NDC, as well as with expected international policy developments such as Article 6 and other initiatives. Policy alignment at both the national and international level will seek to ensure the long-term sustainability of the mechanism.

JAPAN: THE JOINT CREDITING MECHANISM

Japan established the Joint Crediting Mechanism (JCM)[21] in 2010 to promote and enhance its bilateral cooperation with developing countries. The JCM is a crediting framework that facilitates the implementation of mitigation actions that reduce greenhouse gas emissions in developing countries[22]. Japan has already signed agreements with 17 countries[23], and has in place 46 registered projects and 68 methodologies for quantifying emission reductions. 19 projects successfully reached credit issuances totaling circa 21,800[24] tCO_2e.

SUMMARY TABLE

Specific sectors and technologies	All sectors and technologies are eligible, provided an approved baseline and monitoring methodology is available.
Possible stakeholders and participants	Government of Japan, governments of host countries, Joint Committees that serve as country-specific governing bodies for JCM implementation, private and public entities (project implementers), third party entities.
Overall resources available (million $)	Budget for projects starting from 2018-2020 is circa USD 69 million[25].
Form of Article 6 cooperation	The JCM could transition to an Article 6.2 cooperative approach.
Relationship with NDCs	Contributes to the achievement Japans' and host countries' NDC targets.
Volume and price of ITMOs	Over 21,800 credits (each credit equals one tCO_2e) issued so far. No price attached to credits (non-tradable credits).
Sustainable development benefits	Some general provision for contributing to sustainable development of host countries, however design documents should capture information on sustainable development.

[21] The scheme was named "Bilateral Offset Crediting Mechanism (BOCM)" until 2013.

[22] Government of Japan, Japan's Nationally Determined Contributions. 2016.

[23] Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Philippines and Thailand.

[24] Volume of issued credits varies significantly, from a minimum of 11 credits to a maximum value of almost 9,000.

[25] Government of Japan, Recent Development of The Joint Crediting Mechanism (JCM). 2018.

KEY FACTS

The JCM aims to cooperate with developing countries to reduce greenhouse gas emissions that can be accounted for toward the NDC achievement of both Japan and partnering countries. In doing so, the mechanism helps to lower the burden on developing countries and promote low-carbon and high-efficiency technologies and actions.

To cooperate under the JCM, partnering countries sign an agreement with the Government of Japan (GoJ) and present their proposed project activity based on country-specific methodologies approved by the respective Joint Committee[26] (Figure 8). The Joint Committee functions as the Secretariat of the JCM and provides guidance on MRV and accounting rules, and approves methodologies and projects. The evaluation and approval phase of a proposed project activity resembles that of the CDM registration and issuance process.

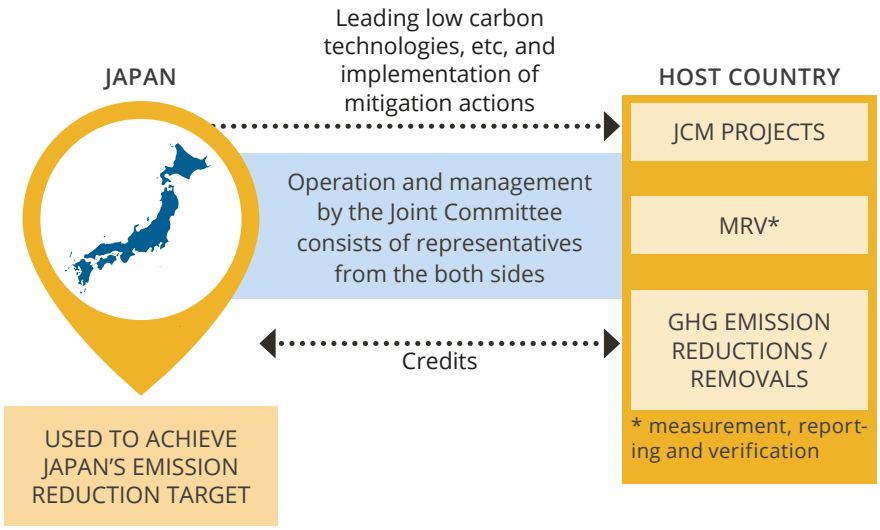


Figure 8: Structure of the JCM
Source: Government of Japan, 2018

A number of activities are implemented under the JCM to facilitate the process and implementation, including feasibility studies and MRV application studies, as well as demonstration and model projects. Feasibility and MRV-related studies serve to develop projects and to evaluate the usefulness and robustness of MRV methodologies. Demonstration projects serve to test the effectiveness of advanced low-carbon technologies.

The key stakeholders under the JCM include the New Energy and Industrial Technology Development Organization under the Ministry of Economy, Trade and Industry (METI), and Japan's Ministry of Environment (MoE). The former supports feasibility and MRV-related studies to develop strategic projects and to evaluate MRV methodologies, while the latter supports demonstration projects to test the groundwork for disseminating low-carbon technologies. Other relevant stakeholders are the host country governments in which the activities are implemented, as well as project owners, developers and technology providers that are involved in the design, implementation and operation of the project activity. Independent verification is mandatory and performed by third party entities[27].

[26] The Joint Committee acts as the Secretariat of the JCM and works to develop/revise rules, guidelines and methodologies, the registration of projects and discusses the implementation of the JCM.

[27] Third Party Entities are eligible under the JCM if they are accredited under the ISO 14065 or if they are already a DOE under the CDM. JCM (n.d.): Joint Crediting Mechanism Guidelines for Designation as a Third-Party Entity.

INTENDED FORM OF COOPERATION

The JCM has been established prior to the Paris Agreement, and thus Article 6 cooperative approaches. While the Mechanism was therefore not developed on the basis of the emerging Article 6 rules and guidelines, it has the potential to transition into an Article 6.2 cooperative approach. Article 6.2 is anticipated to be flexible enough to enable the JCM to retain its bilateral cooperation structure. The JCM could however also register under Article 6.4.

JCM IMPLEMENTATION IN INDONESIA

The governments of Japan and Indonesia signed a bilateral agreement to introduce the JCM in late 2013. Indonesia's NDC welcomes bilateral, regional and international cooperation under Article 6 for NDC implementation[28], for which the JCM provides an already operational platform.

JCM activities focus mainly on cooperation in key industrial sectors with strong involvement of private companies. Registered activities target mitigation technologies including energy efficiency in textile factories, cement production, vehicle manufacturing, refineries, food processing and renewable energy, among others. Indonesia is also host to the first REDD+ project under the JCM, which supports reforestation through improved agricultural production[29].

A strong pipeline of projects and methodologies has been built since 2013. To date, 19 JCM methodologies have been approved[30], and a total of 19 registered projects with a mitigation potential of almost 195,000 tCO_2e/year. The most recent project was registered in May 2019. Six projects have issued 745 credits[31] so far[32]. This low credit volume indicates that the JCM takes conservativeness seriously, but also results in high transaction costs. Credits are being issued into each country's registry on the basis of an agreed allocation. The first issuance of JCM credits ever occurred in Indonesia in 2016, with the latest issuance taking place in November 2018[33].

TRANSACTIONAL SET-UP

Credits issued under the JCM are allocated directly to Japan and the partnering country. The credits generated currently have no price attached to them, meaning they are non-tradable. However, Parties can explore options for trading in the future, depending on continued developments under the UNFCCC. It is therefore also not yet clear whether the credits issued directly to partnering country accounts would qualify as ITMOs under Article 6.

A JCM registry system has been available since 2015, whereby issued credits can be tracked and accounted for. Partnering countries have the option of applying this registry system or opt for their own registry. To avoid double counting of credits, environmental integrity is explicitly addressed in the

[28] Government of Japan: Indonesia's Nationally Determined Contribution. 2016.

[29] Progress of The Joint Crediting Mechanism (JCM) in Indonesia, November 2018 http://jcm.ekon.go.id/en/uploads/files/Document%20JCM/Media/Booklet_JCM_per_November_2018.pdf

[30] JCM Indonesia - Japan (n.d.)

[31] 295 credits allocated to Indonesia and the remaining 450 credits to Japan.

[32] JCM Indonesia - Japan (n.d.)

[33] Progress of The Joint Crediting Mechanism (JCM) In indonesia, November 2018. http://jcm.ekon.go.id/en/uploads/files/Document%20JCM/Media/Booklet_JCM_per_November_2018.pdf

signed agreements between the GoJ and partnering countries, where both sides agree not to use mitigation projects under the JCM for the purpose of other international climate mitigation mechanisms.

RELATIONSHIP WITH NDCs

The JCM is addressed in Japan's NDC as through its contribution to emission reductions and diffusion of low-carbon technologies, the Mechanism supports the achievement of its NDC goals[34]. Japan currently reports the use of the JCM in its Biennial Reports to the UNFCCC. The JCM is anticipated to achieve GHG emission reductions for 50-100 million tCO_2e through the GoJ budget by 2030[35].

[34] Government of Japan, Japan's Nationally Determined Contributions. 2016.

[35] See above

NEFCO-PERU: COOPERATIVE ARRANGEMENT PILOT IN THE SOLID WASTE SECTOR

The Nordic Partnership Initiative (NPI) supported the Peruvian Government with the development of a conceptual Pilot Cooperative Arrangement for its Solid Waste Sector (SWS).[36] The NEFCO-Peru Conceptual Pilot[37] provides an overall framework for Peru and a partner country to voluntarily engage in the transfer of ITMOs from its SWS Nationally Appropriate Mitigation Action (NAMA). The SWS NAMA, an upscaled mitigation program which aims to minimize waste disposal and increase waste recovery, requires an estimated financial contribution of approximately USD 47.5 million.

SUMMARY TABLE

Specific sectors and technologies	Peruvian Solid Waste Sector
Possible stakeholders and participants	Private and public stakeholders potentially including governments, public-private agencies, landfill or composting operators, waste companies, and other possible project developers.
Form of Article 6 cooperation	Instrument neutral. Focus on establishing a scaled-up crediting mechanism.
Relationship with NDCs	The conceptual pilot is focused on the solid waste sector, covered by the Peruvian NDC. However, only those emission reductions from technologies or activities deemed to go beyond the NDC target would be considered ITMOs.
Volume and price of ITMOs	N/A
Sustainable development benefits	Improved waste management systems lead to a number of sustainable development benefits, including reducing local pollution, the dissemination of diseases, and preventing water and soil contamination.

[36] See the Nordic Partnership Initiative in Peruvian waste sector Homepage for more information and a full description of the Pilot Cooperative Arrangement for the SWS in Peru.

[37] As a conceptual study, the pilot is not officially endorsed by the stakeholders involved and no commitments to the implementation of the pilot have been made.

KEY FACTS

With the support of the NPI, the Peruvian Government is designing and implementing a NAMA in the Solid Waste Sector. The Peruvian waste sector is the third largest contributor to national GHG emissions, and solid waste accounts for 77% of the waste sector's emissions.[38] The SWS NAMA comprises regulatory and policy changes in the waste sector, the implementation of mitigation projects and the introduction of a revolving loan fund to channel international finance.

On this basis, a conceptual Article 6 Pilot Cooperative Arrangement[39] was designed to illustrate how Peru could potentially tap into additional finance streams while accommodating domestic priorities, emerging rules under Article 6 as well as other provisions of the Paris rulebook. The conceptual Pilot comprises the conditions needed for generating ITMOs from the SWS NAMA and their transfer to a partner (buying) country. It also considers the provision of upfront support to the host country to further refine its MRV systems on the national and sectoral level, as well as to enhance the engagement of the private sector to finance and implement the essential actions needed in the SWS.

INTENDED FORM OF COOPERATION

The Pilot Cooperative Arrangement is designed as instrument neutral. This means that Peru and the partner country have the flexibility to roll-out eligible SWS NAMA activities in accordance with Article 6.2 (once domestic and sectoral MRV systems are complete). Alternatively, Article 6.4 may also be used, in particular during the initial phase of piloting where domestic MRV capacities might be lower.

RELATIONSHIP WITH NDCs

The waste sector is incorporated in the Peruvian NDC. Any possible implementation of the conceptual pilot in the host country, as well as the host country's willingness to engage in the transaction of ITMOs through either Article 6.2 or 6.4, would depend on how it supports the country in meeting its own NDC.

The Pilot suggests that the cooperating countries could establish a multi-year emissions trajectory for each NDC cycle. This trajectory would serve as an indicative, non-binding accounting reference for the countries to measure Peru's overall performance over time. It would thus become an accounting benchmark valid at bilateral/contracting level only. To estimate the generation of ITMOs from the SWS NAMA, the Pilot would define an SWS crediting baseline that reflects the NDC unconditional pledge. The actual emission reductions leading to ITMOs would then be measured, reported and verified independently.

To avoid overselling ITMOs that are relevant for NDC achievement, the suggested pilot transaction is conditional on Peru being on track to over-achieving

[38] SINIA. National Greenhouse Gas Inventory. INGEI. 2012.

[39] Climate Focus. Opportunities for the Implementation of Article 6 of the Paris Agreement in the Solid Waste Sector in Peru. 2018.

its NDC (or a sectoral target for the waste sector that could be agreed between Peru and the partner country) and on the generation of emission reductions from pre-selected SWS NAMA activities and technologies that represent an effort beyond the NDC target.

Irrespective of the Article 6 cooperative approach chosen, the Pilot suggests that any transfer of ITMOs or Article 6.4 units would be met with a corresponding adjustment by the host country at the moment of transfer (unless otherwise stipulated by emerging Article 6.2 guidance), to prevent double counting.

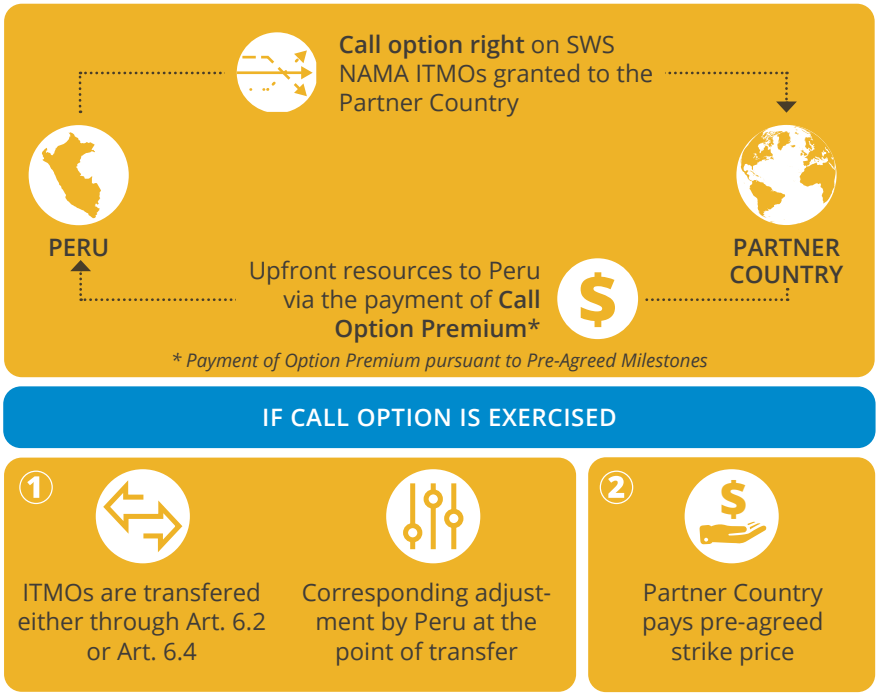
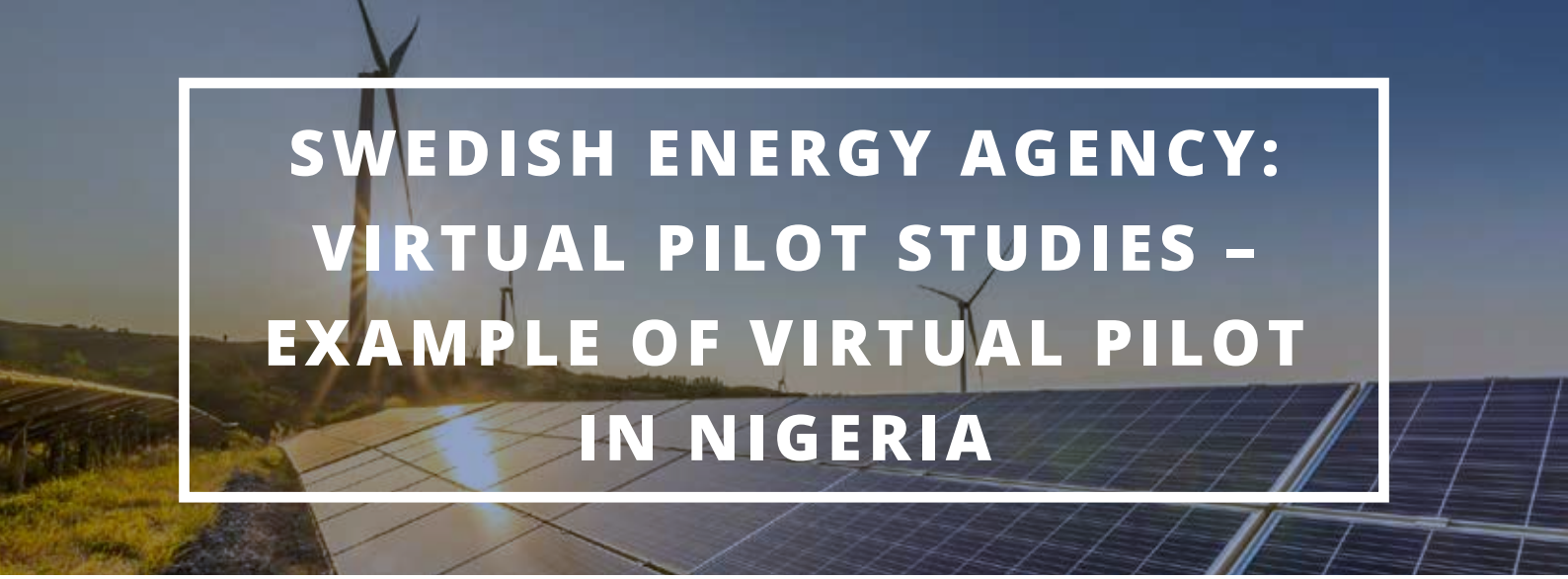


Figure 9: Pilot Cooperative Arrangement Structure
Source: Climate Focus (2018) Opportunities for the Implementation of Article 6 of the Paris Agreement in the Solid Waste Sector in Peru. NEFCO.

TRANSACTIONAL SET-UP

The intended form of cooperation considered in the conceptual pilot is a government-to-government transaction between Peru and a partner country. It entails a call option structure whereby the partner country has the right – but is not required to – purchase ITMOs from the Peruvian SMS NAMA at an agreed prospective date and unit strike price. If the call option is not exercised, ITMOs may be used by Peru for its own NDC achievement or sold to third Parties.

In return for the right granted to a partner country by Peru, the partner country would pay a negotiated call option premium to be disbursed in tranches according to pre-agreed payment milestones. The upfront payments following pre-agreed milestones would allow Peru to further develop its MRV capacities and to kick-start the implementation of mitigation actions in the Peruvian waste sector. The precise pre-agreed milestones would be tailored to support on-going market readiness efforts as well as kick-start the SWS NAMA, and would be agreed in a Mitigation Outcome Purchase Agreement ('MOPA'). These payment milestones could include the establishment of a multi-year emissions trajectory, agreed to by both parties, or Peru having its domestic MRV and registry in place.



SWEDISH ENERGY AGENCY: VIRTUAL PILOT STUDIES – EXAMPLE OF VIRTUAL PILOT IN NIGERIA

The Swedish Energy Agency (SEA) commissioned Article 6 Virtual Pilot Studies[40] to explore how Article 6 can be utilized to promote mitigation actions in host countries. The studies borrow country contexts to develop conceptual Article 6 pilots, building on NDC targets and baselines, as well as other climate action plans. The pilots simulate theoretical cooperative approaches and are therefore not politically endorsed by host countries.

SUMMARY TABLE

Specific sectors and technologies	Various sectors, currently including renewable energy and mini-grids.
Possible stakeholders and participants	Countries, (private) investors, project developers and rural communities.
Form of Article 6 cooperation	Can make use of both Article 6.2 or Article 6.4, depending on the evolution of the host country's domestic MRV capacities as well as the outcome of Article 6 negotiations.
Relationship with NDCs	• The Pilots contribute to the host country's NDC targets. • The pay-out of bond claims is aligned with host country's NDC cycle.
Volume and price of ITMOs	The SEA-Nigeria Virtual Pilot covers activities with a mitigation potential of 3.35 million tCO_2e.[41]
Sustainable development benefits	The Virtual Pilots contribute to various SDGs, including: SDG 7: Universal access to affordable, reliable and modern energy services by 2030, and a substantial increase of the share of renewable energy in the global energy mix. SDG 13: Integrating climate change measures into national policies, strategies and planning.

[40] The Virtual Pilot does not represent any official endorsement or commitment to implementing an Article 6 pilot by Sweden.

[41] The volume and price follow from a number of assumptions, including the total mini-grid potential of the host country, and a projection of the unconditional/conditional ratio of the NDC mitigation targets on the host country's mini-grid target.

KEY FACTS

Among the Pilot Studies, the SEA has commissioned the development of a conceptual pilot in Nigeria. The SEA-Nigeria Virtual Pilot develops a possible blueprint for Article 6 cooperation. It promotes energy access in Nigeria, using the incentive of sovereign green bonds to tap into the financing potential of capital markets and to diversify the investor base.

Given the modest profitability of mini-grid investments, commercial finance remains a barrier for scaling up decentralized renewable energy. Green bond proceeds in the form of concessional loans may be used to improve the risk-return profile of mini-grid investments. Building on the host country's first successful green bond issuance in 2017 and its recently enacted domestic guidelines for green bonds, the SEA-Nigeria Virtual Pilot foresees the issuance of a second green bond in Nigeria.

The funds generated through the bond issuance would be earmarked for eligible mini-grids, and directly on-lent in the form of concessional loans to project developers. Two types of green bonds would be offered by the host country under the suggested SEA-Nigeria Virtual Pilot concept:

- **Green bond with embedded claim to mitigation outcomes.** This bond offers a claim on generated mitigation outcomes produced by the Virtual Pilot, in return for lower coupon rates throughout the duration of the bond. The embedded claim gives investors the possibility to lock-in a certain volume of mitigation outcomes, potentially benefitting from an increase in market value of mitigation outcomes in the future.

- **Regular green bond.** A sovereign green bond which offers a payout structure at a market-rate coupon rate, and no claim to mitigation outcomes. This bond targets traditional investors looking for climate-friendly investments, which would only be approached in case there is insufficient investor appetite for green bonds with an embedded claim to mitigation outcomes.

INTENDED FORM OF COOPERATION

The implementation of renewable energy mini-grids through the SEA-Nigeria Virtual Pilot is based on existing CDM methodologies and would be implemented, at least initially, in the form of (one or more) PoAs. The Virtual Pilot first seeks to have Article 6.4 units issued by the Article 6.4 Supervisory Board. Article 6.4 offers a centralized crediting mechanism directly governed by a UNFCCC body. Article 6.4 can therefore provide a global and universally accepted standard for certifying and tracking emission reductions. The SEA-Nigeria Virtual Pilot proposes an innovative structure that combines sovereign green bonds and carbon credits, aiming to attract a large and diverse pool of investors.

RELATIONSHIP WITH NDCs

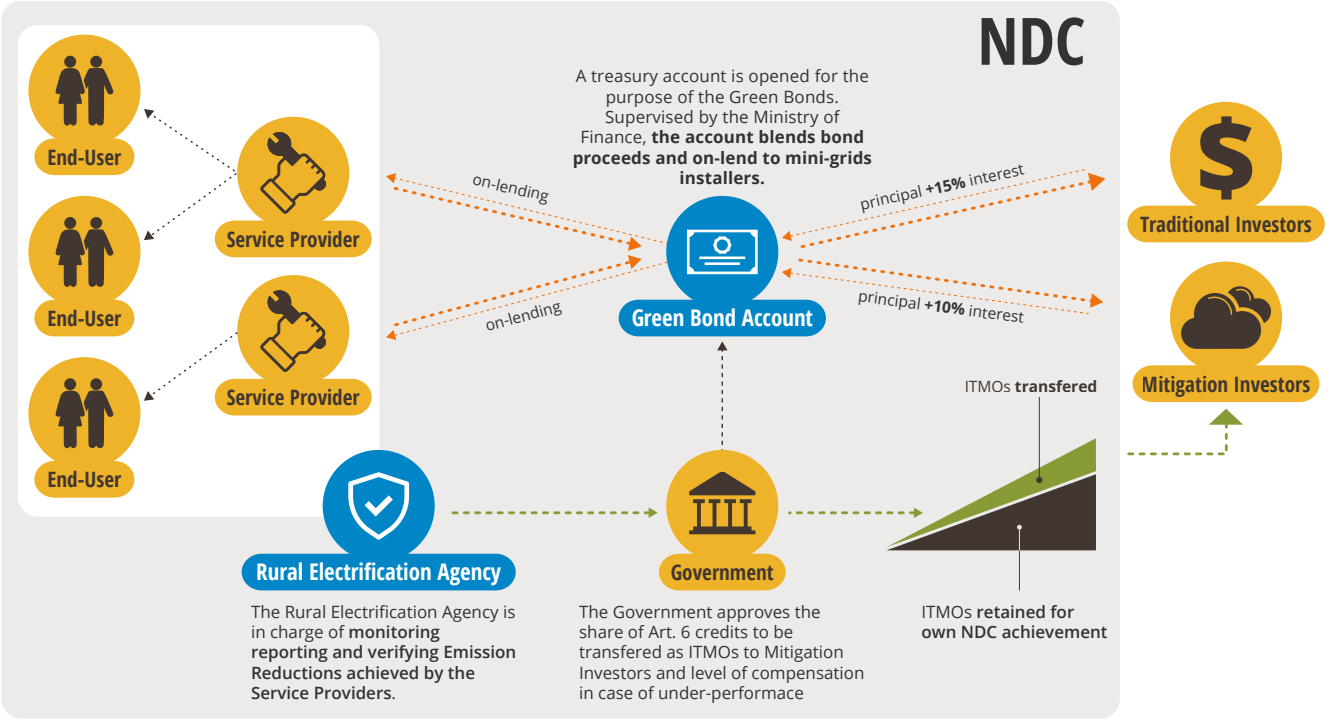
The implementation of solar-PV decentralized mini-grids aligns with the Nigerian renewable energy targets: decentralized measures (e.g. off-grid solar PV) have been identified as a priority activity in the Nigerian NDC. Moreover, the SEA-Nigeria Virtual Pilot is aligned with the unconditional NDC target to establish 13 GW of renewable electricity to rural communities that are currently off-grid.

The SEA-Nigeria Virtual Pilot extrapolates the host country's unconditional emission reduction targets to the energy sector and the decentralized mini-grid component in particular. This exercise results in an assumed trajectory of mini-grid implementation throughout the NDC implementation timeframe. Only those emission reductions achieved beyond this pre-established mini-grid implementation benchmark would be available for international transfers to bondholders.

TRANSACTIONAL SET-UP

The transactional set-up of the virtual pilot is summarized in Figure 10. Green bonds coupled with Article 6.4 units would be available to bondholders opting for this category of bonds. The green bond is aligned with the host country's NDC cycle, and the host country's performance against the pre-defined mini-grid implementation target determines the degree to which mitigation outcomes may be transferred abroad. Therefore, the availability of Article 6.4 units would be dependent on the host-country performance against this benchmark. In the instance that the host country is on track to (over-)achieve

Figure 10: Transactional set-up of virtual the pilot in Nigeria
Source: Adapted from the Nigeria Virtual Pilot Study commissioned by the Swedish Energy Agency (Illustration by authors)



its unconditional implementation level, mitigation outcomes are available for international transfer. Where the host country does not meet its implementation target, investors do not receive mitigation outcomes.

Investors holding bonds with an embedded claim on units would be able to exercise their claim twice throughout the duration of the bond. The first claim would occur upon the conclusion of year 5, the second claim at the bond maturation in year 10. The provisions regulating the international transfer of mitigation outcomes are directly incorporated into to the terms and conditions of the bond agreement, including provisions on transparency and reporting that will regularly inform the bondholders on the surplus mitigation outcomes produced by the SEA-Nigeria Virtual Pilot.

Importantly, the SEA-Nigeria Virtual Pilot also proposes that a portion of the mitigation outcomes should remain unused (not issued or cancelled) by either the investor or host country government to ensure an overall net mitigation.

SWITZERLAND: PILOT ACTIVITIES OF THE CLIMATE CENT FOUNDATION

The Government of Switzerland (GoS) plans to make use of Article 6 of the Paris Agreement. In its NDC, the country has defined an emission reduction target to reduce emissions by minus 50% by 2030 compared to 1990 levels, for which a maximum of 20% of the reductions are to be achieved abroad[42]. Details will be specified by the Swiss CO_2 Law, which is currently undergoing parliamentary consultation. In its engagement with Article 6 pilot activities, the Swiss government aims to "show that it is possible to meet the clear international standards demanded by Switzerland regarding sustainable development, environmental integrity and the prevention of double counting of emission reductions" and to confirm its commitment to upholding international market mechanisms[43].

SUMMARY TABLE

Specific sectors and technologies	Initial activities: energy efficiency / efficient cook stoves, electric mobility and landfill
Possible stakeholders and participants	Swiss government, private sector companies and host country(ies)
Overall resources available (million $)	Approx. USD 20 million (CHF 20 million)
Form of Article 6 cooperation	Article 6.2, based on a government-to-government approach with host country and buyer country approval and corresponding adjustments to GHG inventories.
Relationship with NDCs	Sectors must be covered in NDC; activities must go beyond NDC targets and BAU levels.
Volume and price of ITMOs	N/A
Sustainable development benefits	Contribution to sustainable development is a central criterion, but no specific rules announced yet.

[42] Federal Office for the Environment. Pilot approaches on new market approaches. Last accessed January 2019.

[43] Climate Cent Foundation. Agreement between the Swiss Confederation represented by the Federal Department of the Environment, Transport, Energy and Communications (DETEC) and the Climate Cent Foundation regarding the modalities governing the use of the Foundation's assets and the support of pilot activities carried out abroad in accordance with the Paris Agreement. September 2016.

KEY FACTS

The Climate Cent Foundation (CCF) is a voluntary scheme set up by the Swiss business community to invest in mitigation projects abroad and hand over purchased offsets to the Swiss government. The CCF is funded through the Klimarappen (Climate Cent), a levy of CHF 1.5 cent per liter of petrol and diesel imports between 2006 to 2012, yielding a total revenue of CHF 718 million[44]. The Klimarappen was a compromise agreement with the business community, specifically a concession to diesel importers to be granted exclusion from the carbon tax. In 2013, the Swiss government mandated the CCF to use part of its remaining assets of CHF 100 million – at least CHF 20 million – to finance pilot activities with interested countries and the private sector until 2032. The Government of Switzerland and CCF agree and decide jointly on pilot projects[45]. In December 2016, the CCF announced a call for proposals for potential pilot activities related to landfill gas, efficient cook stoves and grid-connected renewable electricity. A total of 17 Project Idea Notes have been submitted and evaluated jointly by the CCF and the inter-ministerial committee on climate (IDA Klima). Three projects have been retained with a view to potentially develop them into pilot activities, including efficient cook stoves in Peru; electric vehicles fleet in Thailand; and an electricity generation project in the landfill gas sector in Colombia and Mexico[46].

INTENDED FORM OF COOPERATION

The pilot activities to be funded by the CCF will be developed in a government-to-government approach; and have therefore been presented as Article 6.2 initiatives. The eligibility criteria for the pilot activities have been

SWISS-PERUVIAN COOPERATION ON ARTICLE 6

During COP24, the Swiss and Peruvian governments announced the establishment of a formal dialogue to conclude a bilateral agreement on Article 6 cooperation, based on a jointly elaborated white paper and roadmap. In their announcement, both Parties affirmed their commitment to operationalize the provisions in the Paris Agreement including on avoidance of double counting, and support for environmental integrity and sustainable development. The bilateral agreement will include the provisions about the principles and rules for mitigation outcome transfer. Documents on each specific mitigation activity pursued in the Swiss-Peruvian cooperation will be annexed to the bilateral agreement[47].

The first mitigation activity to be funded under this bilateral agreement is the "Tukiwasi" clean cook stoves programme. The project is expected to be implemented from 2021 onwards. The scope, exact technology, approach for baseline setting, MRV and business models to be employed are still being determined. The project will complement the ongoing efforts of the Government of Peru in support of access to clean energy for households[48].

[44] Climate Cent Foundation. Portrait. Last accessed January 2019.

[45] Federal Office for the Environment. Pilot approaches on new market approaches. Last accessed January 2019.

[46] Climate Cent Foundation. Bericht 2016/7 über die Verwendung der finanziellen Mittel der Stiftung Klimarappen an das Departement für Umwelt, Verkehr, Energie und Kommunikation (UVEK) gemäß Vereinbarung vom 19. September 2016. June 2017.

[47] Federal Office for the Environment. Joint Statement by Peru and Switzerland on Article 6 cooperation (Paris Agreement). 2018.

[48] Federal Office for the Environment. Formal dialogue between Peru and Switzerland on a bilateral agreement under Art. 6 (Paris Agreement). 2018.

defined in an agreement between the CCF and the Swiss government[49,50]. In general, pilot activities must be consistent with the Swiss position on robust accounting and environmental integrity in the UNFCCC negotiations and the project eligibility criteria should serve as a basis of discussion with potential like-minded progressive partners. In the selection of projects, the level of readiness of the host country is taken into account.

TRANSACTIONAL SET-UP

The CCF identified its planned pilot activities according to the eligibility criteria defined. For all pilots, there will be a clear procedure of bilateral cooperation, with different projects standing currently at different stages in this process. The Swiss government must issue a "no-objection" statement before entering the political dialogue with host countries. A Steering Committee of Section 6 of IDA Klima and the Ministry of Environment will then supervise the signing of Memoranda of Understanding[51]. These memoranda establish the intergovernmental safeguards, covering the host country conformity with the NDC-related criteria, the type of activities, the principles of the MRV system and the accounting rules and allocation of emission reductions among host and investor country.

On this basis, the CCF negotiates a Mitigation Outcomes Purchase Agreement (MOPA)[52]. The MOPA defines the price per tCO_2e reduced and the termination clauses to cover for host-country non-compliance[53]. CCF is planning to complete the contractual negotiations, including the signature of the MOPA for at least one of the pilot activities already identified. However, these preparations will probably not be completed before 2020[54]. After an independent verification of emission reductions, the CCF proceeds to payment upon receipt of the mitigation outcome[55]. The CCF will hand the purchased units to the Swiss government in 2023 and in 2030[56].

RELATIONSHIP WITH NDCs

The partner countries (Colombia, Mexico, Peru and Thailand) of the CCF have submitted a first NDC to the UNFCCC with economy-wide unconditional and conditional targets. All countries mention their intention to use international market mechanisms.

The CCF has agreed with the Swiss government on specific requirements for the pilot activities with respect to the relationship to NDCs, additionality and further safeguards. These criteria are *inter alia*[57]:

- Host Party must have ratified the Paris Agreement before 31 December 2020 and have an NDC that is achieved mainly domestically through own resources.

[49] Climate Cent Foundation. Agreement between the Swiss Confederation represented by the Federal Deportment of the Environment, Transport, Energy and Communications (DETEC) and the Climate Cent Foundation regarding the modalities governing the use of the Foundation's assets and the support of pilot activities carried out abroad in accordance with the Paris Agreement. September 2016.

[50] Federal Office for the Environment. Criteria for piloting enhanced market activities. O352-1563. September 2016.

[51] Climate Cent Foundation. Agreement between the Swiss Confederation represented by the Federal Deportment of the Environment, Transport, Energy and Communications (DETEC) and the Climate Cent Foundation regarding the modalities governing the use of the Foundation's assets and the support of pilot activities carried out abroad in accordance with the Paris Agreement. September 2016.

[52] Comparable to and sometimes also referred to as an Emission Reduction Purchase Agreement (ERPA).

[53] Federal Office for the Environment. Criteria for piloting enhanced market activities. O352-1563. September 2016.

[54] Climate Cent Foundation. Bericht 2017/18 über die Verwendung der finanziellen Mittel der Stiftung Klimarappen an das Departement für Umwelt, Verkehr, Energie und Kommunikation (UVEK) gemäß Vereinbarung vom 19. September 2016. June 2018.

[55] Federal Office for the Environment. Criteria for piloting enhanced market activities. O352-1563. September 2016.

[56] Climate Cent Foundation. Agreement between the Swiss Confederation represented by the Federal Deportment of the Environment, Transport, Energy and Communications (DETEC) and the Climate Cent Foundation regarding the modalities governing the use of the Foundation's assets and the support of pilot activities carried out abroad in accordance with the Paris Agreement. September 2016.

[57] Federal Office for the Environment. Criteria for piloting enhanced market activities. O352-1563. September 2016.

- Activities developed must:
  - be additional to the activities in the host countries NDC and the BAU scenario,
  - generate mitigation outcomes that can likely be used towards Switzerland's NDC.
- To avoid double counting, the Swiss government will not account the resources used as international climate finance if credits are used for realization of own NDC commitments.
- Host country benefits include that supported activities must contribute to sustainable and low-carbon development and be self-sustaining beyond the duration of the support.

A percentage share of mitigation outcomes to be determined will be attributed to the host country.

SWITZERLAND: ITMO PURCHASE PROGRAM OF THE KliK FOUNDATION

The Swiss CO_2 law foresees the obligation for large fossil fuel importers emitting more than 1000 tons of CO_2e/year to compensate their transport-related carbon dioxide emissions domestically and abroad[58]. To fulfill this legal obligation, the KliK Foundation for Climate Protection and Carbon Offset (*Stiftung Klimaschutz und CO_2-Kompensation*) was established as a sector-wide carbon offset grouping for fossil motor fuels, making it the successor of the Climate Cent Foundation (see factsheet on the CCF). The Foundation currently funds domestic projects that generate offset credits based on a Swiss carbon standard[59]. The CO_2 law is currently being revised, but will likely allow for a use of international offsets[60]; the exact usage threshold is politically highly contested. The KliK Foundation is therefore setting up the procedures for the purchase of ITMOs from 2021 onwards.

SUMMARY TABLE

Specific sectors and technologies	Exclusion of biological carbon sequestration, nuclear energy and fossil fuels, all other sectors are eligible.
Possible stakeholders and participants	Government of Switzerland (GoS), private sector companies and partner countries.
Overall resources available (million $)	CHF 50 million over 10 years
Form of Article 6 cooperation	Article 6.2, based on a government-to-government approach with host country and buyer country approval and corresponding adjustments to GHG inventories.
Relationship with NDCs	Activities must be in sectors covered by NDC and be additional to the NDC and to a BAU emissions scenario.
Volume and price of ITMOs	Purchase of credits amounting to 54 million tCO_2e from 2021 onwards. Price is unknown.
Sustainable development benefits	Activities that contribute to the Sustainable Development Goals and foster low-carbon development are preferred.

[58] BAFU. Totalrevision des CO_2-Gesetzes. November 2018.

[59] KliK. Homepage. Last accessed January 2019.

[60] Climate Cent Foundation. Agreement between the Swiss Confederation represented by the Federal Deportment of the Environment, Transport, Energy and Communications (DETEC) and the Climate Cent Foundation regarding the modalities governing the use of the Foundation's assets and the support of pilot activities carried out abroad in accordance with the Paris Agreement. September 2016.

KEY FACTS

For the period of 2021-2030, the KliK Foundation aims to purchase certificates from international activities amounting to 54 million tons of CO_2e, at a rate of around CHF 5 million per year. The Foundation has registered approximately 50 private and governmental partner organizations that are eligible to submit project propositions in calls for opportunities. Pre-selected activities will be developed into full project proposals, with financial support from the KliK Foundation. Before ITMOs can be purchased by KliK, a bilateral agreement will be signed between the Swiss Government and the respective host country.

INTENDED FORM OF COOPERATION

The KliK Foundation is developing its pilot activities in a government-to-government approach, and therefore as an Article 6.2 activity. As a first step, the Foundation is building a network of private and public partner organizations. Government agencies that are in charge of implementing climate change policies and instruments have privileged access to the status of partner organizations and can apply anytime. Private sector partners, including consultants, investors and project developers, had to apply online via the foundation's website to be accepted as partner organization[61].

The procurement process is as follows:

- In calls for proposals, partner organizations submit Mitigation Activity Idea Notes[62], accompanied by a Letter of Intent from the host government to enter a bilateral agreement with the GoS.
- Pre-selected activities are awarded a Letter of Support from KliK. The f oundation will then financially support the preparation of a detailed Mitigation Activity Description Document (MADD).
- The preparation of the MADD is accompanied by the conclusion of a binding bilateral agreement between the host country government and the Swiss Government.
- Upon conclusion of the bilateral agreement, a binding Mitigation Outcome Purchase Agreement is signed[63].

In the selection process, the KliK Foundation will target new priority activities, but will also evaluate existing stranded projects (e.g. CDM activities) for generating emission reductions[64]. Further eligibility criteria will be developed to meet the requirements of Article 6 of the Paris Agreement and activities will need to obtain the approval of the host and investor country[65]. While in principle there are no restrictions regarding countries and technologies, activities involving biological carbon sequestration, such as REDD+ or LULUCF, are currently excluded as their eligibility for Article 6 has not yet been clarified in negotiations. Also excluded from the first opportunities calls

[61] KliK. Invitation to "Expression of Interest": the KliK Foundation is looking for partner organisations for the procurement of ITMOs. January 2019. KliK. Application form for private organisations. January 2019.

[62] KliK. MAIN template format. 2019.

[63] KliK. Calls for proposals cover letter. 2019.

[64] Ben Garside. Carbon Forward 2018: Switzerland lines up first Paris-era carbon trades. Carbon Pulse. October 2018.

[65] KliK. Procedure. Last accessed January 2019.

are multi-country activities and activities that include nuclear power and fossil fuel power plants.

TRANSACTIONAL SET-UP

Upon the signing of an MoU between the partner country and the GoS, the KliK Foundation can sign purchase agreements. Any agreement for cooperation must respect the requirements of Article 6, in particular to ensure environmental integrity and transparency, avoid double counting and contribute to sustainable development[66]. Until the obligations of the Foundation are set out in the revised version of the Swiss CO_2 law, the KliK Foundation will build its international portfolio on a provisional basis without entering into any financial commitments[67]. The adoption of the revised CO_2 law is expected in the last quarter of 2019 and anticipated to enter into force by January 2021, when the purchase program of the Foundation will be operational[68].

RELATIONSHIP WITH NDCs

The final criteria for the safeguards and eligibility principles will be based on the Swiss CO_2 law revision[69]. It is likely that they will not significantly deviate from the criteria agreed between the CCF and the Swiss government (see factsheet on pilot activities of the CCF). The relationship of the ITMOs to be purchased and the NDC of the host country will be clarified in close consultation with relevant agencies of the partner countries[70]. In the first opportunities call, only activities in sectors covered by the host countries' NDC were eligible, while they had to be additional to the NDC and to a BAU emissions scenario[71].

[66] KliK. Procedure. Last accessed January 2019.; Ben Garside. Carbon Forward 2018: Switzerland lines up first Paris-era carbon trades. Carbon Pulse. October 2018.

[67] KliK. Regulatory framework. Last accessed January 2019.

[68] KliK. Timeline. Last accessed January 2019.

[69] Ben Garside. Carbon Forward 2018: Switzerland lines up first Paris-era carbon trades. Carbon Pulse. October 2018.

[70] KliK. Invitation to "Expression of Interest": the KliK Foundation is looking for partner organisations for the procurement of ITMOs. January 2019.

[71] KliK. Calls for proposals cover letter. 2019.

WORLD BANK: THE STANDARDIZED CREDITING FRAMEWORK

The Standardized Crediting Framework (SCF) for energy access provides a simplified crediting approach that builds on the Clean Development Mechanism (CDM)[72]. Innovated by the World Bank's Carbon Initiative for Development (Ci-Dev), the SCF was developed in anticipation of the future policy landscape under the Paris Agreement and more specifically, transitioning projects and Programme of Activities (PoAs) under the CDM to Article 6 cooperative approaches. SCF pilots have already been launched in Senegal and Rwanda.

SUMMARY TABLE

Specific sectors and technologies	No specific requirements. Current pilots in rural electrification (technologies: hybrid solar PV-diesel mini-grid electrification, individual solar PV systems and solar lanterns) and improved cookstoves.
Possible stakeholders and participants	Parties, project proponents (public and private entities), and rural communities.
Form of Article 6 cooperation	The SCF is instrument neutral, meaning it could fall under Article 6.2 and Article 6.4.
Relationship with NDCs	The extent to which emission reductions units from the SCF Pilot project will contribute to host countries' NDC target will become clearer after the pilot phase and once the crediting process starts, with the understanding that NDC commitments may need to be incorporated into the baseline for crediting.
Volume and price of ITMOs	N/A
Sustainable development benefits	Supported projects should contribute to sustainable development in the host country.

[72] See the Standardized Crediting Framework Homepage for more information.

KEY FACTS

The SCF is an initiative that supports the transition of the Ci-Dev CDM pipeline toward the new governing framework of the Paris Agreement, while offering valuable insights and lessons learned to the on-going Article 6 negotiations. Aiming to advance beyond the current CDM PoA model, the SCF establishes a host country governed crediting approach, through which the scaling-up and replication of project activities within defined sectors is simplified[73]. Host country governments and institutions can best establish the link between crediting and NDC implementation as well as define crediting modalities that are most fitting with national and sectoral circumstances. Therefore, they are given the role of managing and implementing the SCF.

Compared to the CDM, the SCF provides a more simplified project cycle, resulting in lower transaction costs. Building on CDM methodologies, the SCF uses positive lists of technologies and standardized emission factors based on national expertise, cultivating greater host country ownership. Moreover, one of the main simplifications includes the 'listing' process (i.e. similar to registration under the CDM), for which templates and clear guidance are provided. In addition, by working together with existing national institutions with expertise in climate change, policies and projects, the SCF minimizes the administrative and financial burden on national governments while maintaining transparency.

The project cycle introduced under the SCF pilots begins with a simplified program document and eventually ends with certification, whereby the validation and verification steps are combined. For the SCF to become operational under Article 6, an issuance step would also be needed.

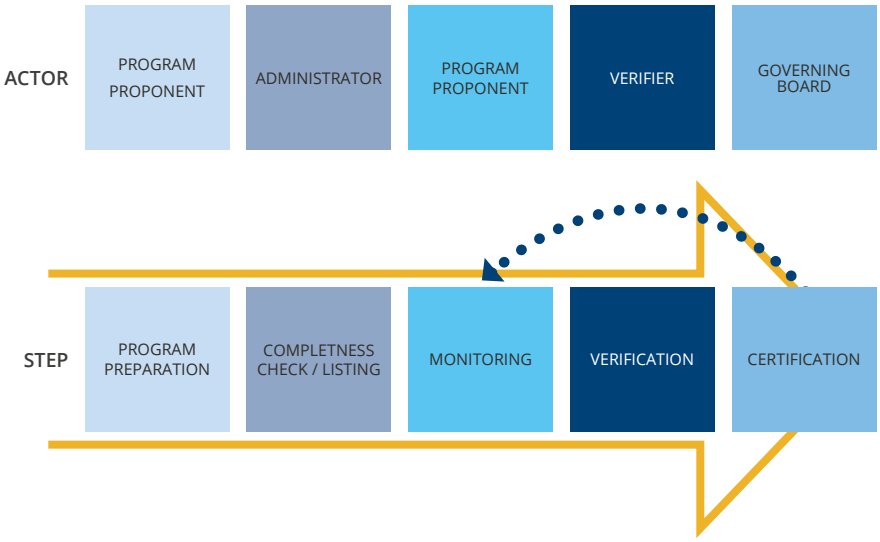


Figure 11: SCF project cycle
Source: Ci-Dev 2019: Piloting a Standardized Crediting Framework for Energy Access Programmes, Senegal Pilot, Lessons Learned Note.

[73] Carbon Limits AS, Climate Focus, Ci-Dev. A Standardized Crediting Framework for scaling up Energy Access Programs. 2016.

EXPERIENCES IN SENEGAL AND RWANDA

The SCF is being piloted in Senegal and Rwanda to test the potential of the crediting approach and gain lessons for future implementation.

In Senegal, the SCF supports the rural electrification program implemented by the Senegalese Rural Electrification Agency – *Agence Sénégalaise D'Electrification Rurale* (ASER). The technologies covered in the pilot include, inter alia, grid electrification, hybrid solar PV-diesel mini-grid electrification, individual solar PV systems and solar lanterns. The key stakeholders for the Senegalese SCF pilot are the Senegalese Government, the National Climate Change Committee and ASER.

In Rwanda, the SCF builds on the *Inyenyeri* improved cookstove program, with key stakeholders including the Rwanda Environment Management Authority (REMA), the Ministry of Environment, and *Inyenyeri* (a private sector project developer).

While the Ci-Dev PoAs continue to operate under the CDM in both host countries, the SCF operates as a simulation in parallel to the programs' CDM validation and registration to enable a direct comparison between the two approaches, including their costs and timelines, institutional set-up, and stakeholder engagement. Once the piloting phase comes to an end, Senegal, Rwanda and Ci-Dev will evaluate the lessons learned and may decide to shift the basis of their contractual arrangements from the CDM to the SCF. The SCF may in this case enable the transaction of ITMOs.

The Senegalese SCF Pilot already provides lessons to inform this process[74]. Overall, significant time and costs savings can already be observed, including for example, the SCF program preparation in Senegal requiring just under 3 months, whereas program preparation took more than 5 years under the CDM. As well, the registration and listing phase for the Senegalese SCF Pilot entailed only one month, compared to seven months under the CDM.

View of ville with the electric installations, region of Saint Louis, Senegal. 31.01.2019.
Photo by: Vincent Tremeau for the World Bank.

Lights in houses at night time, region of Saint Louis, Senegal. 31.01.2019.
Photo by: Vincent Tremeau for the World Bank.

INTENDED FORM OF COOPERATION

The SCF is intended as instrument neutral, which means that its form of cooperation is flexible. The concept itself could fit under both Article 6.2 cooperative approaches and/or the Article 6.4 market mechanism. Whereas under Article 6.2 partnering countries can decide on an approach consistent with emerging Article 6 guidance and make use of SCF projects and programs, under Article 6.4, the Supervisory Body would need to consider and approve the SCF crediting approach as part of the crediting mechanism guidelines. The SCF approach could also function through results-based climate finance.

Therefore, should the SCF become internationally recognized as a transition tool and should its pilot activities meet the emerging guidance and

[74] Diouf, Madeleine, Ousmane Fall Sarr, Harikumar Gadde. Operationalizing Article 6: A Standardized Crediting Framework for the Post-2020 World. 2018.

requirements under Article 6, the rural electrification program in Senegal and the cookstove program in Rwanda could transition to either Article 6.2 or Article 6.4.

TRANSACTIONAL SET-UP

The SCF is currently at a pilot stage and does not involve the international transfer of mitigation outcomes. It relies instead on the continuation of existing ERPAs that Ci-Dev has in place with the pilot activities under the CDM. While ERPAs extend into the post-2020 period and pilot activities are expected to continue their monitoring and reporting obligations as under the CDM, it remains to be decided whether the SCF partner countries will authorize the transfer of ITMOs or whether emission reductions will simply be paid for through results-based climate finance.

RELATIONSHIP WITH NDCs

While the SCF does not come with a specific allocation of emission reductions between host Parties and the acquiring Party, it paves the way for the host country to assess such transactions and creates an institutional framework for doing so at national level. The extent to which emission reductions units from the SCF pilot projects in Senegal and Rwanda will contribute to their NDC targets will become clearer after the pilot phase and once the crediting process can start. Similarly, once Article 6 is operational, the governments will have to decide what volume of SCF generated emission reductions will be transferred internationally and how much will be dedicated to reaching the country's own NDC targets. The principle would be that transferred emission reductions should come from mitigation activities that are beyond the country's unconditional NDC commitments.

WORLD BANK: THE TRANSFORMATIVE CARBON ASSET FACILITY

The Transformative Carbon Asset Facility (TCAF) is an initiative developed by the World Bank in partnership with several contributing countries to support developing countries in increasing their NDC ambition, specifically through enabling them to generate and sell carbon credits from enhanced climate action. TCAF aims to support the implementation of upscaled crediting options by developing baselines and monitoring the performance of the selected sectoral or policy interventions[75]. It also aims to test various methods to transfer measurable, reportable and verifiable mitigation outcomes between parties and to provide stringent accounting and transparency to ensure environmental integrity. Official pilot activities have not been announced yet, as TCAF continues to be in the process of selecting operations to be endorsed.

SUMMARY TABLE

Specific sectors and technologies	Any sector linked to the mitigation goals of the host country's NDC (excluding forestry and fossil fuel related activities).
Possible stakeholders and participants	World Bank; Donor countries: Canada, Germany, Norway, Sweden, Switzerland, and the United Kingdom; Recipients of funding and support: Developing countries.[76]
Overall resources available (million $)	USD 212 million, with the aim to increase funding to USD 500 million.
Form of Article 6 cooperation	The pilot has been designed as instrument-neutral: recognition of mitigation outcomes could happen under Article 6.2 or Article 6.4.
Relationship with NDCs	Contribution to achieving the host country's NDC. Baselines are derived from unconditional elements of NDCs.
Volume and price of ITMOs	Total volume of emission reductions targeted for purchase by TCAF is around five million tCO_2e. Average size of the operations is USD 30-50 million in carbon payments; no specific information on the price per emission reduction unit is available. The TCAF aims to leverage other sources of finance for an overall investment of USD 2 to 4 billion.
Sustainable development benefits	TCAF operations will follow the World Bank's environmental and safeguard standards and contribute to the UN Sustainable Development Goals.

[75] Department for Business, Energy & Industrial Strategy. Transformative Carbon Asset Facility (TCAF) Light Touch Review. January 2018.

[76] Transformative Carbon Asset Facility (TCAF). About TCAF. 2018.

KEY FACTS

TCAF aims to assist countries with implementing market-based carbon pricing instruments and sectoral mitigation measures. The main objectives under the initiative are:

- to develop innovative carbon accounting methodologies to quantify emission reductions achieved by policies as well as economy/sector-wide operations;
- to create favorable conditions for private sector investment while informing the development of standards and agreements for future carbon crediting instruments and transfer of mitigation assets;
- to explore accounting for emission reduction credits from various carbon pricing schemes, allowing for flexibility in market-based climate mitigation approaches and for countries to implement more ambitious carbon pricing instruments and policies;
- to generate carbon assets that have strong environmental integrity and a high likelihood of being eligible for use against NDC targets, using conservative baselines and stringent monitoring and accounting practices; and
- to purchase a portion of the carbon assets (mitigation outcomes) from the underlying projects, programs and policies, while the remaining part will be allocated to the host country.

The key stakeholders are the World Bank, donor countries and the host countries. So far, the World Bank has mobilized around USD 212 million out of the target of USD 500 million with funding from Canada (CAD 3 million), Germany (USD 2 million), Norway (USD 80 million), Sweden (USD 25 million), Switzerland (USD 25 million) and the United Kingdom (GBP 60 million). These donors aim to obtain carbon assets for international compliance, build the international architecture for the transfer of units, support development of domestic carbon pricing, and help to transform GHG-intensive sectors in host countries. Developing countries utilize the fund to implement policies and/or sectoral mitigation mechanisms.

Donor countries set the priorities for the operational work program and provide guidance, including on portfolio and operation selection criteria and the selection of independent third party auditors in cases where there is no international scheme that could certify the carbon credits. Donor countries approve the Facility's upcoming work program and budget on an annual basis. Decisions are made on a consensual basis to the extent possible. The Facility Board takes the final decisions on which operations will be included in the Facility's portfolio along with the commercial terms associated with each Emission Reduction Purchase Agreement.[77]

[77] Swiss Confederation SECO. Transformative Carbon Asset Facility "A long-term predictable price on carbon is recognized as a necessary element in spurring climate change mitigation." March 2018.

TCAF supported activities must be additional, meaning they would not be implemented in the selected sector/country without the incentive provided by TCAF. The operation should also demonstrate transparently that it enables the host country to increase its mitigation ambition or to enhance its implementation of mitigation actions and policies beyond what it would achieve on its own.

TCAF will consider a two-layer approach to additionality using the logic of carbon markets and results-based climate finance. In doing so, TCAF is looking to increase the standards of safeguarding the environmental integrity of carbon markets. In terms of the results-based climate finance provision, the initiative is developing a methodology to ensure that the volume of emission reductions attributed to TCAF is proportional to the "grant equivalent" support provided to enable the activity[78].

The methodologies and MRV systems are to be developed in a bottom up process for each pilot, while only high level guidance is provided by TCAF "Core Parameters". TCAF's MRV approach will be aligned (accounting methodology, computer systems, among others) with host countries' national MRV systems. On this basis, TCAF can make a valuable contribution to building MRV capacities on the national level. Sectoral-level MRV can build on existing MRV methodologies developed under the Kyoto Protocol's flexible mechanisms (CDM and Joint Implementation), where appropriate and relevant.

INTENDED FORM OF COOPERATION

While TCAF's aim is to purchase Verified Emission Reductions that would be recognized under Article 6, its intended form of cooperation is yet to be defined and could potentially fall under either Article 6.2 or 6.4.

TRANSACTIONAL SET-UP

TCAF will test various methods to transfer mitigation outcomes between parties and provide stringent accounting and transparency to ensure the environmental integrity of the assets. The aim is to set parameters for each individual operation, including: the length of the crediting period (i.e. five to seven years), the share of emission reductions achieved to be purchased by TCAF (crediting threshold), and pricing. The share of emission reductions purchased by TCAF varies and is specific to each operation, considering that TCAF operations aim to purchase volumes over the full crediting period for five million tCO_2e.[79]

Currently, only TCAF donor reports from the United Kingdom[80] and Switzerland[81] allow to gain an idea of TCAF's activity pipeline. Of the nine submitted activities, only three to five are under consideration – including an energy efficiency programme for household appliances in Indian cities and energy pricing reform, energy efficiency, and renewable energy policies within the scope of Morocco's National Energy Strategy.

[78] World Bank. Core parameters for TCAF operations. July 2018.

[79] See above

[80] See above

[81] Climate Cent Foundation (2018): 2017/18 Report on the Climate Cent Foundation's Allocation of Resources for the attention of the Federal Department of the Environment, Transport, Energy, and Communications (DETEC) in compliance with the agreement dated 19 September 2016, Zurich.

RELATIONSHIP WITH NDCs

TCAF will have to be linked directly to the host country's NDC as well as related policies and priorities. This ensures that the TCAF is contributing to the achievement of the mitigation goals and increasing NDC ambition. TCAF adheres to eight main criteria for its portfolio selection, including that operations:[82]

1. Are coherent with national mitigation aims, by being consistent with or derived from the country's NDC and aligned with domestic policies and priorities;

2. Increase domestic ambition;

3. Achieve a lasting impact, and can become self-sustaining after the Facility's support ends;

4. Have demonstrable sustainable development benefits and maintain environmental and social safeguard standards;

5. Uphold environmental integrity of emissions reductions, are consistent with the evolving framework and principles of UNFCCC rules at the time of implementation or ERPA signature;

6. Avoid distortions to the sector's international competitiveness and adverse incentives on the sector's GHG emission;

7. Apply a robust baseline; and

8. Are ready for implementation, preferably with generation of emission reductions beginning by 2020.

For each activity supported by TCAF, the respective BAU emission trajectory will be compared with the unconditional target of a country's NDC emission trajectory. Whenever the target emission trajectory is below the BAU, the target emission trajectory will be the baseline, otherwise the BAU emission trajectory will be used. The diversity of NDCs of TCAF host countries means it requires a flexible approach and is tailored for each TCAF operation. TCAF recognizes the importance of avoiding double counting, although the initiative does not yet have an established process to fully tackle this issue.

[82] World Bank. Core parameters for TCAF operations. July 2018.

ANNEX II: OTHER RELEVANT INITIATIVES

Asian Development Bank
Article 6 Support Facility

Linking Emissions Trading Schemes

REDD+ Initiatives

World Bank
Carbon Partnership Facility

World Bank
The Warehouse Facility

ASIAN DEVELOPMENT BANK: ARTICLE 6 SUPPORT FACILITY

MARKET READINESS SUPPORT FOR ASIAN COUNTRIES

The Article 6 Support Facility of the Asian Development Bank (ADB) aims to provide capacity building, technical and policy support for member countries to develop and pilot Article 6 activities.

SUMMARY TABLE

Specific sectors and technologies	All
Possible stakeholders and participants	All / member countries of MDB
Form of Article 6 cooperation	Mostly technical assistance
Relationship with NDCs	To support NDC implementation and increase overall ambition
Sustainable development benefits	Desired

KEY FACTS

The ADB Article 6 Support Facility[83] will provide capacity building and technical support to developing member countries (DMCs) to help them to identify, develop and test mitigation actions under the framework of Article 6 of the Paris Agreement. With its Carbon Market Program (CMP), the ADB is supporting DMCs to advance and implement market-based approaches under the Paris Agreement. Through this support, the ADB is aiming to play a leadership role in the development of post-2020 carbon markets in Asia.

The ADB Article 6 Support Facility is financially supported by Germany and Sweden with an overall project budget of USD 4 million[84]. Only recently launched at COP24 in Katowice, the facility is still at an early stage of implementation[85].

INTENDED FORM OF COOPERATION

Twenty-six countries in Asia and the Pacific have expressed their willingness to use carbon pricing, including international carbon markets, as a key tool for NDC implementation. The ADB aims to support its members engaging in mitigation actions under Article 6 to better understand the specific requirements and associated accounting systems that they will need to manage.

Other areas of support will include sustainable development benefits, and ensuring environmental integrity and transparency. The support facility will mediate the guidance, rules and procedures from the Paris Rulebook (once Article 6 is operationalized) towards developing member countries and can translate these rules into the country context and potential pilot activities.

> **We are confident that this facility will help deliver the critical practical experience, innovation, and learning necessary for our developing member countries to meet their emissions targets.**
>
> *ADB Sustainable Development and Climate Change Department Director General Mr. Woochong Um*

[83] ADB. Regional: Establishing a Support Facility for Article 6 of the Paris Agreement. 2019.

[84] ADB. ADB to Partner on New $4 Million Facility to Help Asia Meet Climate Commitments. December 7, 2018.

[85] ADB. Article 6 of the Paris Agreement: Piloting for Enhanced Readiness. November, 2018.

ETS LINKING IN THE CONTEXT OF NDC TARGETS

An Emissions Trading Scheme (ETS) is a market instrument that puts a price on carbon by fixing the amount of GHG emissions from covered sectors. The ETS regulator caps the volume of emissions that entities covered by the scheme are allowed to emit in each trading period, thereby incentivizing emission reductions. Entities may also buy emission allowances from other covered entities who are able to reduce emissions quicker or at a lower price. Conversely, they are allowed to sell unused allowances which provides an incentive for deeper emission reductions.

There are now several ETSs operating worldwide, including regional, national and subnational trading schemes. Existing and future ETSs can be linked to create a larger market size and potentially enhance liquidity, bolster gains from trading and lower the price of allowances as well as the overall program cost. Linking ETSs between jurisdictions is also a form of voluntary

SUMMARY TABLE

Specific sectors and technologies	Coverage by existing ETSs span over a range of sectors and emission sources (often including energy and industry, and sometimes also covering agriculture and transport).
Possible stakeholders and participants	Private entities covered by the ETS and other entities allowed to trade on allowances.
Form of Article 6 cooperation	Needs consistency with Article 6.2 guidance in case of linking and/or cross boarder trading of allowances.
Relationship with NDCs	Most ETSs include sectors that are covered by the NDC and will thus require a process to avoid double claiming in the event of international trade or linkages.
Volume and price of ITMOs	Not applicable. Varies depending on supply and demand dynamics, as well as the type of linkage.
Sustainable development benefits	Focused largely on allowance trading between companies. No specific analysis of co-benefits through the use of new and more climate-friendly technologies.

cooperation that can align with Article 6.2 cooperation under the Paris Agreement, as it is designed to make mitigation outcomes flow across borders as they are traded between entities covered under both schemes.

Current ETS linking examples include the EU-Swiss ETS Linking, the EU-Norway ETS linking as well as the California-Quebec ETS linking.

THE EU-SWISS ETS LINKING

The European Union and Switzerland have had operational – but separate – ETSs since 2005 and 2008, respectively. After a seven-year negotiation period, Switzerland and the EU concluded their negotiations to link the two systems. The linkage is expected to start in 2020.

The Swiss ETS is the first system to be linked to the EU ETS. From the Swiss perspective, the linkage considerably expands their carbon market by adding approximately 11,000 installations covered by the EU ETS to the 50 companies covered by the Swiss ETS. As such, linking is expected to lead to cost efficiency and increased market liquidity, and to contribute to an even playing field that reduces carbon leakage.[86] Moreover, Switzerland has stated that access to the EU market is expected to give Swiss companies greater flexibility in meeting its CO_2 targets.[87] For the EU, which currently operates the largest ETS in the world, expanding its market through linkage is considered a political signal towards its commitment to achieving its Paris Agreement objectives, and a way to promote global leadership on carbon pricing policies.[88]

To ensure compatibility between the EU and Swiss ETS, a number of design elements of the Swiss ETS have been revisited. For example, the scope of the Swiss ETS was expanded to include the aviation and power sector. Similarly, the rules on the use of offsets have been aligned with the EU offsetting rules. In addition, the EU-Swiss Linking Agreement establishes a Joint Committee which is to ensure proper implementation of the Linking Agreement.[89] The EU and Switzerland will, however, continue to run separate auctions.

INTENDED FORM OF COOPERATION

The international transfer of mitigation outcomes through linkage requires the EU and Switzerland to consider how this is accounted for towards their respective NDCs. Accounting will need to ensure that the emissions allowances are reported properly at the national level, and that they are counted towards only one NDC target. The EU-Swiss Linking Agreement sets out that both Switzerland and the EU will account for the flow of allowances "in accordance with UNFCCC approved principles and rules for accounting" once these enter into force.[90] As such, accounting is set out to be consistent with the Article 6.2 guidance. The mechanics of how to do this will be determined at a later stage and added to the Linking Agreement as an Annex.

[86] Santikarn, M., Li, L., La Hoz Theuer, S., Haug, C. A Guide to Linking Emissions Trading Systems. ICAP: Berlin. 2018.

[87] Federal Office for the Environment (FOEN) Linking the Swiss and EU emissions trading schemes. 2018.

[88] European Commission. EU and Switzerland sign agreement to link emissions trading systems. 2017.

[89] Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems. Official Journal of the European Union. L. 322/3. 7 December 2017. Article 13.

[90] Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems. Official Journal of the European Union. L. 322/3. 7 December 2017. Article 4.

EU-NORWAY ETS LINKING

The Norwegian Greenhouse Gas Emissions Trading Act (GGETA) describes the country's ETS which was launched on January 1, 2005. The Norwegian ETS was initially planned to be compatible with the EU ETS and share similar features. Like the EU ETS, the Norwegian ETS is split into three phases: Phase I (2005-07), Phase II (2008-12), and Phase III (2013-20). To ensure compatibility with the EU ETS during the Kyoto commitment period (Phase II, 2008-12), program features of the Norwegian ETS were revised in June 2007 and February 2009 to be in line with Directive 2003/87/EC.

In October 2007, the European Commission announced the linkage of EU ETS with Norway, Iceland and Liechtenstein through the assimilation of the EU ETS Directive (Directive 2003/87/EC as amended) into the European Economic Area (EEA) agreement. The EU ETS and the Norwegian ETS linked at the beginning of Phase II, and by the beginning of Phase III they were fully harmonized.

Norway, along with Iceland and Liechtenstein are part of the EU ETS and thus possess a share of allowances to be auctioned. Rather than organizing separate auctions, the trio chose to auction their allowances along with those of the 25 Member States taking part in the common auction platform. However, they were unable to auction their allowances until the end of 2018 because the EEA Agreement had to be revised to grant them participation in the Joint Procurement Agreement for the common auction platform. The official requisites for auctioning are currently fulfilled and thus, in June 2019, the EEA states are anticipated to begin auctioning allowances on the common auction platform.

INTENDED FORM OF COOPERATION

In its NDC, Norway explicitly states that it plans to use international market-based mechanisms including the EU ETS to fulfil its NDC commitments. In case their commitments are fulfilled collectively with the EU and its Member States, the EU ETS ensures no double counting of emissions. In case there is no agreement on collective action with the EU, Norway will fulfil its NDC commitments individually, seeking "an agreement of accounting for Norway's participation in the EU ETS".[91]

CALIFORNIA-QUEBEC ETS LINKING

California launched its ETS in 2013 and became North America's first multi-sector cap-and-trade program, with Quebec introducing its ETS in 2012. In early 2014, Quebec linked its system with California creating the most comprehensive carbon trading system in North America.

California and Quebec's systems operate under the guidelines of the Western Climate Initiative (WCI). The WCI is a voluntary intergovernmental subnational organization that offers its members administrative and technical support for the implementation of cap-and-trade systems.

[91] Norway's Nationally Determined Contribution. 2015.

The California-Quebec ETS also benefitted from California's sound reputation in policy leadership. However, ex-post assessments of the cost effectiveness effects due to linking in North America are currently lacking.

It is worth noting that currently only Canada considers carbon pricing, including cap-and-trade systems, in their provinces and territories, as well as in its NDC. The potential US withdrawal from the Paris Agreement and California's participation in Article 6 are thus challenges for robust accounting of transferred allowances.

INTENDED FORM OF COOPERATION

Currently, within the California-Quebec ETS, members collaborate in a Consultation Committee and within the WCI. Joint auctions are held using the same auction platform and a common registry and tracking system, the Compliance Instrument Tracking System Service, provided by the WCI.

Article 6 requires that the use of ITMOs against NDCs is authorized by the participating Parties, thus, the linking of subnational initiatives like the California-Quebec ETS will require the respective Party authorization. In case and once the US withdrawal materializes, the US will not be bound to any Paris-related obligations. Moreover, when international cooperation takes place between sub-national entities, the international accounting and reporting obligations ultimately remain with the respective national governments (as only Parties have obligations under the Paris Agreement).

REDD+ INITIATIVES

Currently, Reducing Emissions from Deforestation and forest Degradation (REDD+) initiatives are not covered under Article 6. As the negotiations are not yet finalized, REDD+ could eventually be integrated into or aligned with Article 6 cooperative approaches. While to this date no specific REDD+ initiative has explicitly indicated its intent to be recognized as an Article 6 pilot, a number of multilateral and bilateral initiatives exist that can lay the technical ground for future REDD+ piloting.

SUMMARY TABLE

Specific sectors and technologies	Land Use, Land-Use Change and Forestry (LULUCF) and REDD+
Possible stakeholders and participants	Parties, multilateral and bilateral organizations, and non-state actors
Relationship with NDCs	If LULUCF is included within the scope of the NDC, and if REDD+ activities are able to generate ITMOs, double counting must be avoided through corresponding adjustments.
Form of Article 6 cooperation	N/A
Volume and price of ITMOs	N/A
Sustainable development benefits	REDD+ has the potential to deliver social and environmental benefits beyond GHG emission reductions. These include biodiversity habitat, flood prevention and other environmental services provided by forests. Different standards that measure these sustainable development benefits may be coupled with REDD+. REDD+ sets out a number of safeguards that should be promoted and supported by REDD+ projects, including the conservation of natural forests and biological diversity and the participation of relevant stakeholders, in particular indigenous peoples and local communities.

KEY FACTS

REDD+ is operationalized by the Warsaw Framework for REDD+ ('WFR'), a collection of seven decisions[92] that set out the 'rulebook' for REDD+ implementation. The WFR includes Monitoring, Reporting and Verification ('MRV') requirements, emission reference levels, financing and results-based payment structures, and institutional arrangements.

The Paris Agreement explicitly refers to REDD+ and the WFR in its Article 5.[93] It is currently unclear whether REDD+ will be eligible under Article 6, given that it is covered in a separate Article.

Both Article 5 of the Paris Agreement and the WFR seek to incentivize emission reductions by REDD+ through results-based payments, based on the actual volume of reduced emissions. Funding for results-based payments under REDD+ has been pledged and disbursed through multilateral and bilateral sources.

Multilateral funds include, among others, the Green Climate Fund (GCF), which is implementing a five-year pilot funding REDD+ results-based payments; the Forest Carbon Partnership Facility (FCPF) and the Bio Carbon Fund, two World Bank initiatives dedicated to results-based finance through the purchase of verified emissions reductions; and the UN-REDD Programme that focuses on supporting the design and implementation of national REDD+ programs. Large bilateral programs that fund REDD+ results-based payments are the German REDD Early Movers Program, and Norway's International Climate and Forest Initiative.

Significant REDD+ accounting guidance is provided by the WFR and the aforementioned multilateral and bilateral initiatives. This includes detailed guidance and technical consideration of national and large-scale subnational a forest reference emissions level or forest reference level (FREL/FRL), MRV procedures, mechanisms for dealing with non-permanence of emission reductions and leakage, as well as social and environmental safeguards.

INTENDED FORM OF COOPERATION

While REDD+ is designed under the UNFCCC as a mechanism for results-based payments, where the ownership of ERs remains with (or within) the host country, COP decisions do not rule out the use of carbon markets.[94] In this context, it is also conceivable that Articles 5 and 6 of the Paris Agreement be used to establish bilateral or plurilateral REDD+ cooperative approaches that rely on the transfer of REDD+ mitigation outcomes between countries.

As Article 6.2 allows for a broad range of initiatives and provides Parties with greater discretion to determine their own terms for cooperation, REDD+ activities may eventually be able to generate emission reductions recognised as ITMOs. The combination of REDD+ and Article 6.2 may require the application

[92] UNFCCC. Warsaw Framework. Decisions 9-15 /CP.19. November 2013.

[93] UNFCCC. Paris Agreement. Article 5. FCCC/CP/2015/L.9/Rev.1.

[94] In Warsaw, COP19 highlighted that additional verification modalities might be needed if markets are used, thereby creating an entry-point to the potential use of carbon markets to finance REDD+ under the climate regime. See Decision 14/CP.19 para 15.

of additional accounting and quality criteria going beyond WFR rules.[95] Such criteria may include, for instance, agreed third party verification and auditing for evaluating reference levels and monitored emission reductions.[96] The methodological guidance for NDCs further requires countries to provide a description of methodological assumptions and the accounting approach that guide the estimation and accounting for GHG emissions and removals for all cooperative approaches.

RELATIONSHIP WITH NDCs

For those host countries that have included the forestry sector in the scope of their NDCs, an international transfer of REDD+ outcomes post-2020 can affect their capacity to achieve their domestic mitigation pledges. To mitigate the risk of non-NDC achievement by overselling, host-countries need to have capacities in place to carefully manage their emission reduction portfolio. A timely decision regarding which emission reductions – if any – host countries are willing to trade for international support, is therefore important.

In this context, the FCPF already considers the use of national registries or a centralized registry to create and transfer emission reductions produced in accordance with the FCPF Methodological Framework.[97] The FCPF is also considering introducing a verification process for REDD+ emission reductions that is risk-based and developed independently by an auditing firm. This contrasts with the approach adopted so far by the FCPF Technical Advisory Panel (TAP) for the assessment and validation of REDD+ programs. The TAP provides recommendations and is comprised of experts that do not necessarily have auditing expertise.[98]

TRANSACTIONAL SET-UP

The FCPF for instance, foresees the international transfers of emission reductions from REDD+ programs. The so-called Tranche A participants in the FCPF Carbon Fund may use REDD+ emission reductions for compliance with regulations or other measures or may resell them. In turn, for Tranche B participants, the use of REDD+ emission reductions are restricted, with no use for compliance or resale allowed.[99]

The transaction is intermediated by the International Bank for Reconstruction and Development (IBRD) as a trustee of the FCPF Carbon Fund. The IBRD enters into an Emission Reductions Payment Agreement (ERPA) with the REDD+ country, where it establishes a detailed set of general conditions for purchasing the emission reductions, obtaining title over these, and then making agreed payments to the REDD+ countries.[100]

These REDD+ transactional aspects may have a number of implications if Article 6 alignment is pursued. For instance, the use of these REDD+ emission

[95] Streck, C. Howard, A. Rajão, R. Options for Enhancing REDD+ Collaboration in the Context of Article 6 of the Paris Agreement. Meridian Institute. 2017.

[96] Streck, C. Howard, A. Rajão, R. Options for Enhancing REDD+ Collaboration in the Context of Article 6 of the Paris Agreement. Meridian Institute. 2017.

[97] Forest Carbon Partnership Facility. Carbon Fund Methodological Framework. June 22, 2016. Para 6.2.

[98] Forest Carbon Partnership Facility. Guidance on ER-PD technical assessment process. Version 2. March 2018.

[99] Forest Carbon Partnership Facility. Double Counting under ERPA General Conditions. FCPF Carbon Fund Meeting (CF12). April 28-30, 2015.

[100] IBRD. General Conditions Applicable to Emission Reductions Payment Agreements for Forest Carbon Partnership Facility Emission Reductions Programs. November 1, 2014.

reductions against NDC targets, if allowed, would require that all emerging guidance related to the features of ITMOs, corresponding adjustments, and country's participation responsibilities are met by the REDD+ country and the Tranche A country.

THE WORLD BANK CARBON PARTNERSHIP FACILITY

The Carbon Partnership Facility (CPF) is a World Bank carbon finance instrument piloting emission reduction programs for the post-2012 period. It aims to innovate and scale up the use of market mechanisms and contribute to the design of future carbon markets. The CPF utilizes scaled-up, programmatic approaches to enable the flow of carbon finance to partner country initiatives moving toward low-carbon economies. The Facility provides a combination of carbon finance to prepare and implement programs by acquiring emission reduction units (CERs) through the Carbon Fund, and climate finance in the form of grants through the Carbon Asset Development Fund. Its project portfolio consists of seven programmes of activities (PoAs) that generally extend beyond 2020 and may potentially continue to operate under the Paris Agreement.

SUMMARY TABLE

Specific sectors and technologies	Energy efficiency, waste, urban development, gas flaring, power sector development, and transport.
Possible stakeholders and participants	National governments, (private) investors and project developers. The CPF Carbon Fund has three Buyer Participants (the governments of Spain, Norway and the Swedish Energy Agency) and seven Seller Participants. The Carbon Asset Development Fund is supported by four Donor Contributors (Governments of Italy, Norway, Spain and the European Commission).
Overall resources available	• Buyer Participants have pledged EUR 85 million to the Carbon Fund for emission reduction purchases. • The Carbon Asset Development Fund has received USD 35 million in external funding.
Form of Article 6 cooperation	The CPF follows the same modalities and processes under TCAF. CPF New Crediting Instruments (NCI) programs may be eligible under Article 6.
Relationship with NDCs	Programs supported by the CPF must be consistent with the sustainable development objectives and climate change strategy of the host country. The extent to which emission reductions purchased by the CPF affect to the host country ability to meet the NDCs targets depends on the host country's NDC scope.
Sustainable development benefits	The CPF aims to integrate its carbon finance activities into existing sustainable and economic development policies.

KEY FACTS

The CPF was established with the aim of developing the next generation of carbon finance for the post-2012, post-Kyoto climate change cooperation landscape. Since its inception, the CPF has worked on developing conceptual and methodological approaches to pilot scaled-up crediting mechanisms.

Already in 2014, the CPF started developing modalities to pilot cooperation under the 'New Market Mechanism'. In their design, pilots had to consider the new requirement of ensuring the global net mitigation of emissions rather than pure offsetting. Where possible, pilots were to adopt sectoral or economy-wide approaches. Connected to this was, in the context of NDCs, the challenge to determine sufficiently conservative crediting baselines, which are below BAU and consistent with emerging national ambitions and targets. In addition, there was a need to further develop methodological frameworks for accounting emission reductions at a sectoral and policy level, rather than the project-structure that had mostly been applied by the CDM.[101] Building on these concepts, the CPF kicked off its pilot phase in 2015 with the preparation of its first two Program Notes that intend to test key elements of New Crediting Instruments (NCI).

As of May 2019, the CPF is developing four NCI pilot programs under Article 6 covering sectoral and policy crediting. Two programs in Sri Lanka and Vietnam are developing sectoral crediting methodologies, and one program in Morocco is considering a policy based crediting methodology. The fourth pilot under development aims to explore a crediting program at jurisdictional

THE CPF IN SRI LANKA

The CPF is currently piloting a Renewable Energy Sectoral crediting program in Sri Lanka.

To ensure a conservative crediting approach, the baseline for calculating emission reductions is the lower between the Sri Lankan BAU scenario for electricity generation and the generation capacity needed to meet the country's unconditional NDC target for the power sector.

It also created a program scenario based on Sri Lanka's aggressive Non-Conventional Renewable Energy (NCRE) development goals and calculated ex-ante emission reduction estimates up to 2025.

As a potential approach to deal with the single-year target of the Sri Lankan NDC, aspirational targets at regular intervals during the crediting schedule of the program are proposed. This facilitates the monitoring and tracking of progress throughout the implementation of the program, and enhances the accounting of emission reductions. The pilot's MRV builds on CDM experiences in the country.

The CPF is currently developing a generic sectoral crediting methodology for renewable energy programs to support similar programs beyond the pilot in Sri Lanka.

[101] Carbon Partnership Facility (2012) World Bank Carbon Finance Unit Carbon Partnership Facility 2012 Annual Meetnig. New Market Mechanism – Design Considerations and Piloting. At https://cpf.wbcarbonfinance.org/sites/cpf_new/files/6a2_CPF_NMM_Design_and_Piloting.pdf

level to support the development of an innovative and state-of-the-art methodology for a city-wide crediting program. The pilot activities build on lessons learned from the CDM program of activities (PoA) approach in the First and Second Tranches of the CPF.

INTENDED FORM OF COOPERATION

The CPF has three types of participants:

- Buyer Participants, pledging money to the Carbon Fund which is used to buy credits.
- Donor Contributors, contributing to the Carbon Asset Development Fund. These funds are not used to buy carbon credits, but rather to support the development of mitigation programs.
- Seller Participants, developing and managing the programs.

The CPF is structured as a facility where Buyer and Seller Participants participate equally in its governance, and Donor participants (including countries, public or private entities) may participate in CPF governance in an advisory capacity. By bringing these parties together, the CPF works to have a closer cooperation between buyer and seller countries in developing programmatic approaches, aiming to make carbon finance an effective tool to mitigate carbon emissions. To further ensure this alignment, eligibility requirements ensure programs supported through the CPF are consistent with the sustainable development objectives and climate change strategy of the host country.

The CPF signs an Emission Reductions Payment Agreement (ERPA) with the Coordinating/Managing Entity (CME) of a program. These can be public or private entities, which are tasked with the development and implementation of the program.

Many CPF programs are part of larger World Bank supported interventions that receive loans or grants from the World Bank or other private investors.

TRANSACTIONAL SET-UP

With its two funds, the CPF provides a blend of carbon and climate finance. To support the development and implementation of programs, the Carbon Asset Development Fund provides climate finance in the form of grant resources for methodological work and capacity building for program developers. Through the Carbon Fund the CPF provides carbon finance as carbon credits generated by these programs which are bought by CPF Buyer Participants.[102]

[102] See International Bank for Reconstruction and Development (15 July 2011) General Conditions Applicable to Certified Emission Reductions Purchase Agreement. Programmatic Climate Development Mechanism Programs.

RELATIONSHIP WITH NDCs

In the context of the Paris Agreement, the international transfer of emission reductions from the host country to the buyer participants requires host countries to carefully consider the implications for their own ability to achieve their NDC target. Depending on the host country's NDC scope and the sector in which the CPF program takes place, such an international transfer of emission reductions may reduce the host country's ability to achieve its NDC. The CPF considers these aspects as part of the development of crediting methodologies, and supports countries with institutional and capacity development to understand and manage the link between their NDCs and the transfer of mitigation outcomes. The CPF also supports establishing host country approval processes needed for the implementation of the pilot operations.

WORLD BANK: THE WAREHOUSE FACILITY

A GLOBAL WAREHOUSE FOR MITIGATION OUTCOMES

The World Bank's Warehouse Facility aims to 'host' an infrastructure for the standardized assessment, recording and transferring of mitigation outcomes from its lending pipeline and can be expanded to other multilateral development banks operations. This intends to provide a platform that matches mitigation activities with potential buyers.

KEY FACTS

The World Bank's Warehouse Facility is currently being developed as an online platform that aims to house a database of mitigation activities, and make these accessible to potential investors wanting to purchase mitigation outcomes. Mitigation outcomes are seen as assets that will be monitored, verified and either counted towards the NDC at the place of implementation, retired or transferred through a corresponding adjustment. The Warehouse would allow mitigation projects to showcase these outcomes and benefits.

The mitigation outcomes that would be made available via the Warehouse are sourced not only from World Bank operations, but also other MDBs and possibly private entities in order to provide access to a variety of activities for a variety of investors. To enable the operation of this market and to ensure the robustness of the mitigation outcomes, a Mitigation Action Assessment Protocol (MAAP) is also being developed. The MAAP tool aims to provide standardization for evaluating the ambition levels, environmental integrity as well as the compatibility of mitigation activities and is expected to support actual transactions of mitigation outcomes.

INTENDED FORM OF COOPERATION

In its current concept, the mitigation outcomes market infrastructure would consist of three elements:

1. **Development of Mitigation Assets** from lending operations

2. **Warehouse**

3. **Transaction Facility** to steer demand for MO transfers through financial instruments and products

Starting with its own lending operations around the globe, the World Bank is expecting a capacity building effect to translate into a wider domestic Article 6 market readiness. The Warehouse Facility is still at the early stages of development, meaning the platform is not yet accessible. However, the first pilot country funds related to the Warehouse are planned for 2019, with a gradual scale up of the market infrastructure by 2021.

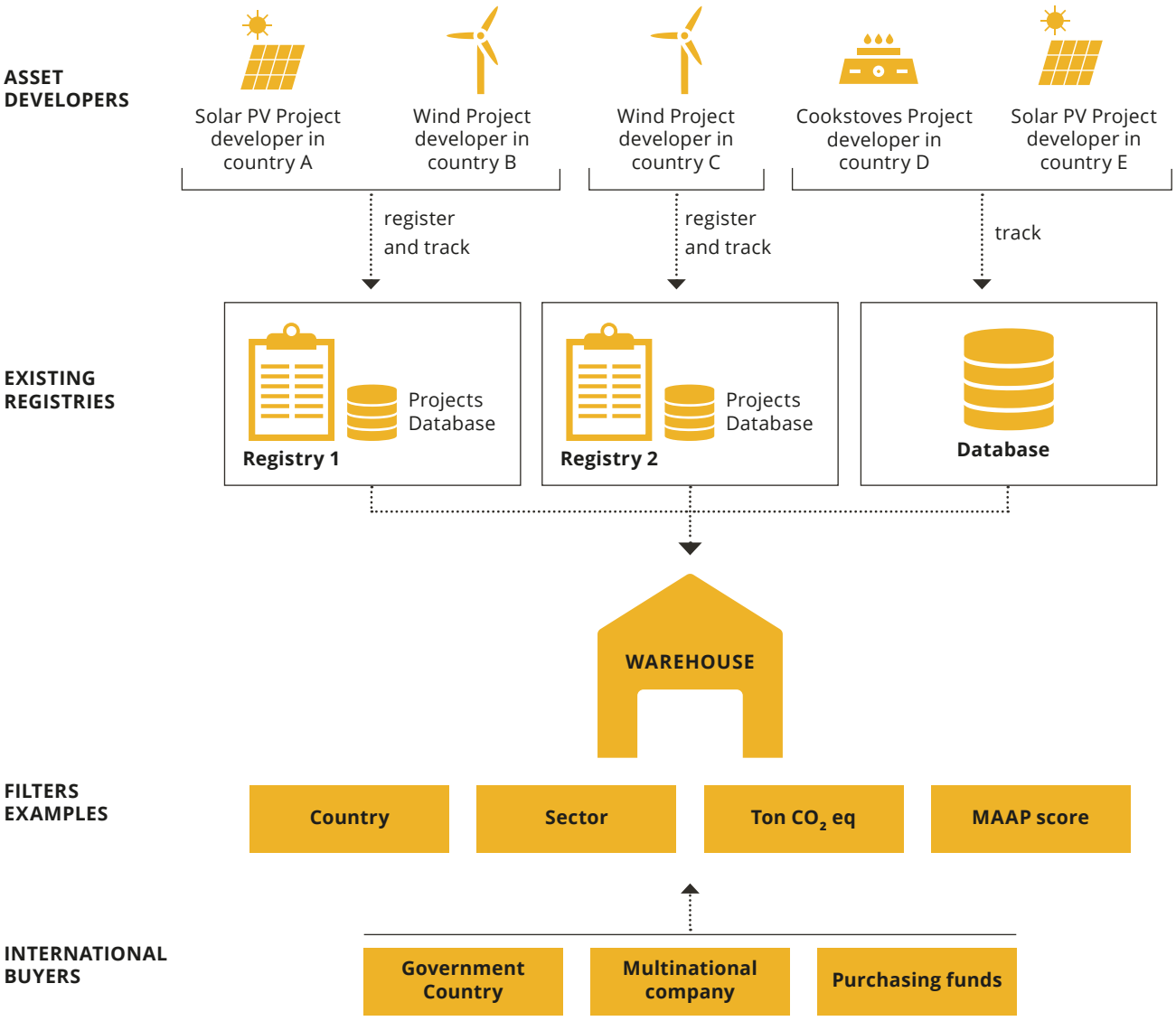


Figure 12: World Bank, Creating climate markets
Source: Presentation at the Global DNA Forum in Bonn; September 21st, 2018.

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