



CARBON MECHANISMS REVIEW

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Testing the Ground

Pilot initiatives pave the way for
Article 6 implementation

Last Exit Madrid

Will the Article 6 rulebook
be adopted at COP25?

Content

November-December



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editorial

Dear colleagues,

It's COP time again, this year in an unusual setting – after Chile had to withdraw from hosting the conference, Spain in an act of solidarity and cooperation stepped in and offered to provide the venue and logistics for the event. Chile retains its COP presidency role. Maybe this spirit of cooperation will spill over to the Article 6 negotiations on international cooperation. In our opener, Thomas Forth argues that the chances of reaching an agreement will never be better.

We also present an analysis on what is needed to make the Article 6 rulebook text ready for up-scaling, meaning enabling policy-based and sectoral crediting.

And with regard to the 'Latin American COP', we cover the emerging carbon pricing landscape in the region while our cover feature reports on and analyses the current Article 6 pilot initiatives. An analysis of the latest CORSIA developments rounds off the issue.

Enjoy the read!

Christof Arens, Editor-in-chief



Wuppertal Institut

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No Better Time than Now

For delivering substantial rules on Article 6

by Thomas Forth, Advisor to the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and Director of the Foundation “Future of the Carbon Market”

At COP25 in Madrid, Parties are to negotiate the missing chapter of the Paris Agreement rulebook, namely provisions on how to govern international cooperation according to Article 6 of the Paris Agreement. This opinion piece looks at what is at stake and how the negotiations might be brought to a successful conclusion.

My general expectation is that the procedural dimension is key for successful negotiations in Madrid. We shouldn't waste our time on rituals, but instead reach vital decisions which will create a reliable fundament for further work and send a clear signal to both markets and Parties.

External expectations may help

Parties have been negotiating the Article 6 provisions for the past four years, ever since COP21 in Paris. Thus, from the outside, the question of whether COP25 is the right place and the right time to reach decisions might seem out of place. For a long time, political attention to the issue of reviving the international carbon markets has not generated such high levels of interest since the early days of the CDM. But in terms of substance, my expectations are even higher as to whether these mechanisms will contribute to the long-term temperature goals of the Paris Agreement and to ambition-raising beyond current NDCs and the upgrade of subsequent NDC periods.

These general functions set out in the Paris Agreement for the design of Article 6 are different to the flexibility concept for Annex I Countries under the Kyoto Protocol. However, the willingness of Parties to compromise on rules for the international carbon market remains a challenge, especially regarding the new functions of market mechanisms under the Paris Agreement. Negotiators in Madrid should be aware that

global public attention might not last very long if they again fail to reach any substantial decisions.

Better internal preparations for Madrid

On the inside, the chances of steering the course of the UNFCCC negotiations in Madrid appear to be greater than they were a year ago. At COP25, Heads of Delegations (HoD) will be involved in Article 6 negotiations from the beginning. They can act on two levels: taking up gridlocked issues on the expert level directly and providing further details on underlying problems where needed, including the range of potential solutions, which should result in fewer options than before. The second level of HoDs' influence is preparation of the minister segment, with the hope that ministers will be enabled to obtain informed consent among the Parties. What we know from the SB50 text is that all Parties have substantial demands and interests. However, all Parties must be aware that compromises must be reasonable in order to create a viable carbon market, while at the same time contributing to the enhancement of NDCs.

Substantial issues of political urgency

The SB50 text is very silent on the design of the Article 6 mechanisms, the technical features, their alignment with NDCs and the risks emerging from sectoral specifics, especially in the land sector. Therefore, for many issues, a work programme is needed under the mandate of the CMA. That work programme must receive support from the UNFCCC secretariat and from the yet-to-be installed supervisory body



Source: Photo by IISD/Kiara Worth (enb.iisd.org/climate/cop24/enb/6dec.html)

Completing the rules: the outstanding Article 6 chapter of the Paris Agreement's rulebook should be finalized at COP25.

– if this is feasible given the short amount of time left. In the alternative approach – working out the technical details on the expert level of Article 6 negotiators will not only take too long, but may also bear the risk of never coming to an end. Thus, in their daily negotiations, negotiators should identify those issues that are best left for later and those whose importance makes a decision crucial to a good result in Madrid.

Of course, it would not be wise to put all the controversial issues into the work programme. There is a whole bundle of issues that should not be postponed because there is nothing left to do on them but decide. This covers sustainable development (SD), Share of Proceeds (SoP), overall mitigation in global emissions (OMGE), GHG metrics, first transfers, inside and outside the NDC (coverage), and the single year target accounting rule. Some of these issues can be easily decided at the end of COP25, others will need technical preparation to allow decision-making during the first week of negotiations. At the end of week one, we need a clear pic-

ture as to whether we will achieve a robust accounting system, the avoidance of double counting and the enhancement of NDCs. Using Article 6 for weak NDCs leads to a 3.5°C world and makes no sense.

The transition from Kyoto mechanisms

Of course, there are other demands, especially regarding the transition of the CDM. Kyoto Protocol units, projects activities are still running or have only been registered, methodologies, technical features, procedures and government arrangements are all in Parties' backpacks. While the Paris Agreement only mentions experience gained with the Kyoto mechanisms and does not touch upon the transition, the political interest shown by a relevant number of Parties cannot be ignored. But they should recognize the dwindling legal basis for implementing CDM activities, i.e. no new CERs after 31-12-2020 and the end of the true up period in 2023.



Source: Photo by IISD/Kiara Worth (enb.iisd.org/climate/cop24/enb/8dec.html)

Striking a deal: will SBSTA Chair Paul Watkinson succeed in closing the Article 6 chapter this year?

Furthermore, what would using pre2023 units mean to the NDC mitigation outcome in the first period and the start for Article 6.2 and Article 6.4 activities? Pre-2021 certificates will undermine the environmental integrity of the entire Paris Agreement. I cannot imagine any reasonable consent being obtained on this issue, while the question of ongoing project activities raises questions and challenges which probably could be tackled and resolved. Among other things, I see the avoidance of double counting, the alignment with the host country's NDC, the approval of the host country, the question of the remaining additionality and not least the timeframe for the use of mitigation outcomes generated from the 1st January 2021. In my view, solving all of these complex problems only makes sense for those activities that can actually fulfil the relevant requirements of Article 6.4. And by transforming

these activities into Article 6.4 activities, we can expect – as a side effect – the prompt-start of the Article 6.4 mechanism. Coming back to the question of the work programme, for me there are two separate issues: a) how we reach general decisions on these transition topics and b) where do we allow activities to be transformed.

To ensure the success of COP25 decisions on Article 6, it might be helpful to find out at an early stage, where and how consent on single issues could be secured and how all the relevant elements on accounting and the avoidance of double counting can be brought together in one unique draft decision text ahead of the minister segment.

Expanding the Scale

Making Article 6.4 ready for up-scaled crediting

by Nicolas Kreibich, Wolfgang Obergassel and Christof Arens

Since the registration of the first project under the Clean Development Mechanism in 2004, the global community has gained valuable experience with the project- and programme-based mitigation activities under the Kyoto Protocol. With the Paris Agreement and its Article 6.4 mechanism scheduled to become operational by the beginning of 2020, there is now the possibility to open a new chapter of market-based cooperation and to allow what has been excluded under the CDM: policy-based and sectoral crediting. Many expect that such mitigation activities will not only supersede existing interventions in terms of scale, but that they will also be in a better position to drive entire sectors or even economies towards low-carbon sustainable development.

However, only weeks before the implementation of the Paris Agreement kicks-off in 2020, rules on how to operationalize market-based cooperation under the new regime are still in limbo. Parties have failed to agree on an Article 6 rulebook that would also specify the functioning of the ‘mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development’ established under Article 6.4. It is therefore yet unclear how mitigation activities under Article 6.4 will look like and if there will be room for up-scaled crediting under the new mechanism.

This article therefore analyses the current status of the Article 6.4 negotiations regarding their suitability for up-scaled cooperative mitigation action and develops recommendations on how to enable the uptake of such activities in the future.

What do we mean by up-scaled crediting?

Up-scaled crediting can be distinguished from project and programme-based approaches through the following features (Broekhoff et al. 2017):

- Baseline emissions are established collectively for a pre-defined group of greenhouse gas emission sources;
- Credits are issued based on aggregate reductions achieved across this group of GHG sources;
- Mitigation actions can be diverse and may be undertaken by multiple entities responding to incentives;
- Credits may be issued to a single entity responsible for establishing and implementing policies that foster emission reductions across all GHG sources targeted.

Up-scaled crediting can further be differentiated into two types:

Under **policy-based crediting**, a host Party is supported in its efforts to introduce and implement a national climate policy instrument by being provided financial assistance. In exchange of the support received the Party exports (a portion of) the emission reductions achieved by the national climate policy. These emission reductions could then be used by another Party for NDC attainment (offsetting), ambition raising or for compliance with climate finance commitments. The mitigation outcomes transferred are contingent on the results of the specific policy (Kreibich and Obergassel 2018).

Sectoral crediting, by contrast, would be based on an agreed emissions threshold or “no-lose target” at sectoral level. A Party would define a level of emissions for a specific sector. This threshold could be either in terms of absolute emissions or intensity-based, for example in terms of emissions per unit of gross domestic product (GDP), emissions per unit of electricity generated, etc. The host Party government could then undertake actions (i.e. implement policies) to reduce the emissions in the sector to (or below) the agreed level. If emissions are reduced below the target level, the host Party would receive credits (Sterk 2010).



Source: CAREC Transport Corridor 1 Investment Program in Kazakhstan approved by ADB (<https://flic.kr/p/eHBmt8>) / Flickr / CC BY-NC-ND 2.0 (<https://creativecommons.org/licenses/by-nc-nd/2.0/>)

Scaling up: policy-based and sectoral mitigation crediting are better suited in driving entire sectors towards low-carbon sustainable development than project-based or programmatic interventions.

Compatibility of the current UNFCCC text with scaled-up crediting

In the following analysis, we will analyse the latest version of the UNFCCC Article 6.4 negotiation text (UNFCCC 2019) for assessing the compatibility of the draft rules, modalities and procedures (RMPs) with scaled-up crediting*.

Activity types

The definitions section of the draft RMP refers to “Article 6, paragraph 4, activities” therefore not per-se limiting the access to activities of a specific scale. The activity cycle section further specifies that “the activity shall be a project, programme of activities, or other type approved by the Supervisory Body;” (UNFCCC 2019, para 39 (b)). Para 39 contains two options regarding the relationship between Article 6.4 mechanism activity and the NDC: To allow activities to be registered under

the Article 6.4 mechanism also if they are not covered by an NDC or to restrict eligibility to those covered by an NDC.

These definitions are compatible with the requirements for scaled-up crediting activities, see above. While policies or sectoral crediting schemes are not explicitly mentioned as one possible activity type, the draft RMPs give the Article 6.4 Supervisory Body the mandate to approve such types of activities. The provisions regarding the relationship between the crediting activity and the NDC could, however, impact the provisions required for up-scaled crediting approaches: If crediting will also be allowed for activities not covered by an NDC, more detailed additionality demonstration processes will be required, as highlighted by Michaelowa et al. (2019).

Key Actors

Supervisory Body

The draft RMPs contain a lengthy description on the composition of the Article 6.4 Supervisory Body and its modes of

operation (rules of procedure) which seem to be in line (or at least not conflict) with the requirements for scaled-up crediting. In terms of composition, these provisions remain rather generic, for instance requiring members to “possess relevant scientific, technical, socioeconomic or legal expertise”. The draft text further outlines that the Supervisory Body is to define rules for the operationalisation of the mechanism and also operate the mechanism in terms of

- Accreditation of operational entities
- Registration of activities and issuance of credits
- Development and/or approval of methodologies
- Maintaining the mechanism registry
- Approving the issuance of emission reductions

Some of these functions are disputed among Parties, such as the development and approval of methodologies. Furthermore, there is an additional proposal that envisages to allow host Parties to exercise some of these functions while giving the Supervisory Body the task to supervise and review the respective national arrangements.

Our analysis shows that there is no agreement yet on the role of the Supervisory Body and that the division of tasks between the Supervisory Body and the host Parties may impact the compatibility with scaled-up crediting: a governance structure that would allow host Parties to register activities while providing the Supervisory Body the task to supervise the national arrangements may raise concerns about conflicts of interest.

Under a policy crediting scenario the host Party could be both, the proponent of the activity and the entity responsible for its registration. To avoid potential conflicts of interest, Article 6.4 activities proposed by national governments or other public entities should exclusively be registered by the Supervisory Body. With sectoral crediting schemes operated by private entities these concerns about conflicts of interest might be limited.

Activity proponents

With regard to the proponents of an activity, the activity cycle included in the draft RMPs indicates that these could be public or private entities denominated “activity participants”

(UNFCCC 2019 para 39). By not restricting the participation to a particular type of actor (private) or a specific governance level (e.g. subnational) this wording is compatible with up-scaled crediting approaches.

Host Parties

The draft RMP require host Parties to:

- Be a Party to the Paris Agreement and have prepared, submitted and be maintaining an NDC.
- Indicate how the mechanism contributes to its NDC

Other provisions are more controversial, such as the requirement to:

- Submit national inventory reports
- Provide information on Article 6.4 activities and credits transferred and used.
- Apply corresponding adjustments

It has to be noted that host Parties could not only play a role as proponents of up-scaled approaches (both policy-based and sectoral crediting), but also in the approval of private-led sectoral schemes as well as of sub-national policy crediting. The draft RMPs do not contain specific criteria for the authorization of up-scaled crediting activities but more generally require host Parties to inter alia confirm that the activity fosters sustainable development in the host Party and to explain how the activity relates to its NDC.

It can, however, be questioned whether establishing criteria for this role would be feasible at the international level. Establishing uniform criteria for the authorization of crediting activities has not been possible under the CDM in the context of sustainable development. Similarly, uniform criteria for the authorization of (up-scaled) crediting activities under Article 6.4 are unlikely to be established at the international level and it will presumably remain the national prerogative of host Parties to authorize crediting activities on the basis of their own criteria.

Validators and verifiers

In the context of validation, verification and certification, the draft RMPs refer to designated operational entities (DOEs) being responsible for the evaluation of activities. While this terminology is borrowed from the CDM, the text does not

contain additional information on the composition of DOEs or on the requirements these are expected to meet. Similarly, the criteria against which DOEs are to carry out their evaluation of activities are not further specified.

Specific competencies are required to be able to assess policy-based and sectoral schemes. These specific requirements can presumably be established at the moment of developing the accreditation requirements while there is no need to already include these in the RMPs. This is similar to the CDM, where the modalities and procedures only contained generic provisions for DOEs.

Methodologies

Baseline-setting methodologies

The draft includes different approaches for baseline-setting methodologies. Under a performance-based approach, methodologies are to take into account the following:

- Technologies that are economically feasible and environmentally attractive
- Emissions of alternative activities
- Investment barriers
- Contribution to the emissions level of the host party
- NDC-compatible emissions pathway

If the application of this approach is not appropriate, approaches based on business as usual emissions or historic emissions could be applied. Another option included in the draft RMPs is a benchmark baseline approach, where a baseline is established on an ambitious benchmark that represents a level of GHG emissions for activities within a defined scope and boundary and which reflects the best available technology. When applying this approach, the relevant national circumstances are to be taken into account.

With these approaches being rather generic and only little information on how they will be operationalized, it is difficult to assess their compatibility with scaled-up approaches. In general, the approaches included in the draft RMPs do not exclude scaled-up activities.

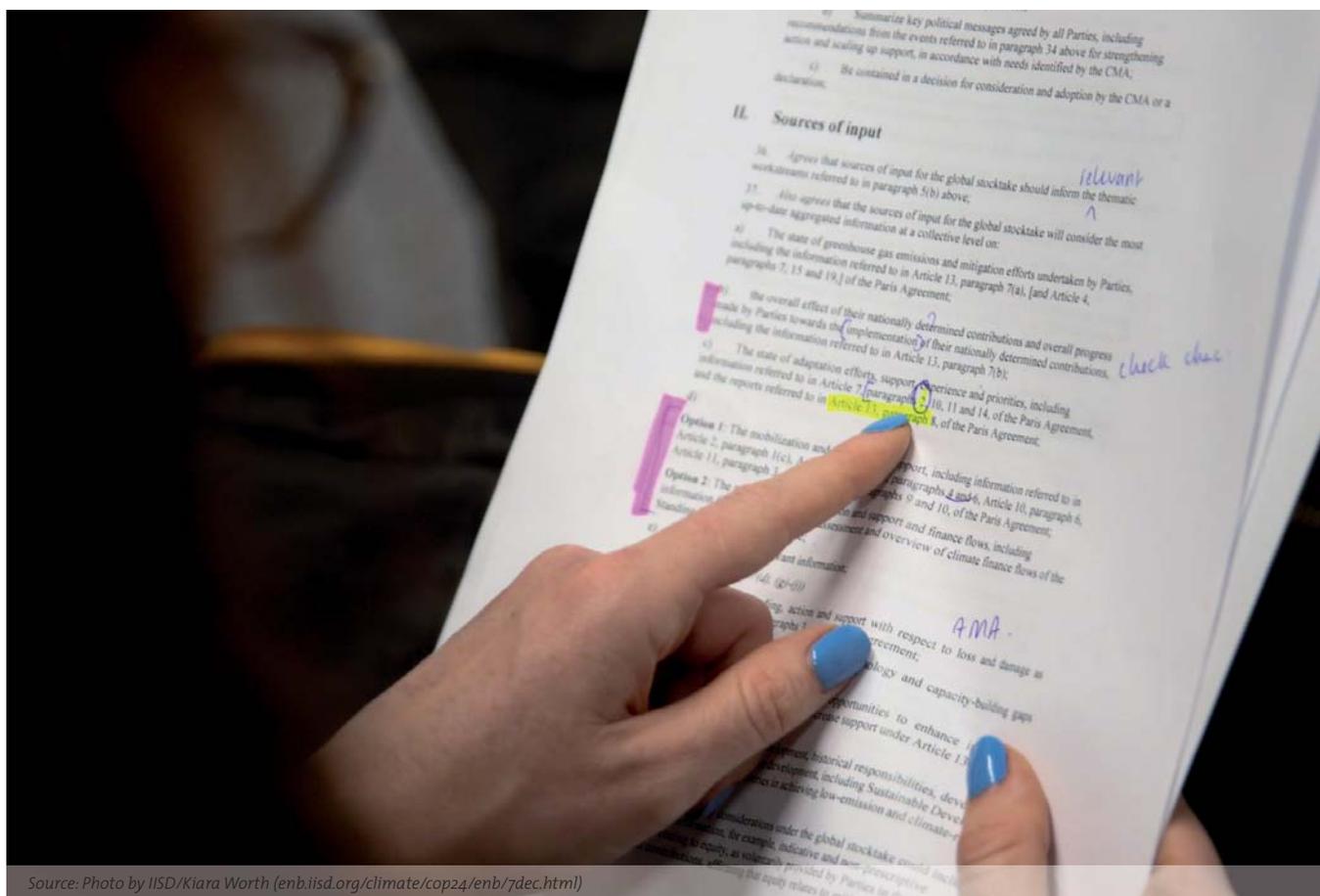
The section on methodologies for demonstration of additionality contains some details on how additionality is defined and which aspects should be taken into account when assessing it. However, there seems to be little agreement on whether relevant national policies and legislation should be taken into account and whether these emission reductions must “represent mitigation that exceeds any mitigation required by law, regulation, or legally-binding mandate, at the national and subnational levels” (UNFCCC 2019 para 47 (a)).

As can be seen, this generic provision is problematic for policy-based crediting, as policy-based crediting itself will be based on a law, regulation, or legally-binding mandate, making it impossible by nature to exceed them.

Conclusions

The analysis of the current draft RMPs has shown that there is only limited need for aligning them with the requirements of up-scaled crediting:

- While policies or sectoral crediting schemes are not explicitly mentioned as possible activity types, the draft RMPs give the Article 6.4 Supervisory Body the mandate to approve such types of activities.
- The draft RMPs do not restrict the participation to a particular type of actor (private) or a specific governance level (e.g. subnational).
- While assessing sectoral or policy-based schemes requires specific competences from DOEs, these can presumably be established at the moment of developing the accreditation requirements and do not need to be addressed in the RMPs.



Source: Photo by IISD/Kiara Worth (enb.iisd.org/climate/cop24/enb/7dec.html)

Analyzing the text: are the Article 6 rules under discussion ready for up-scaled cooperative mitigation action?

- The approaches for baseline setting currently included in the draft RMPs are rather generic and do not exclude scaled-up activities.

Two areas would be problematic:

- There is no agreement yet on the division of tasks between the Supervisory Body and the host Parties. A governance structure that would allow host Parties to register activities while providing the Supervisory Body the task to supervise the national arrangements may raise concerns about conflicts of interest. Schemes where the host Party itself is the coordinator should therefore in any case be decided on by the Supervisory Body.

- The current draft RMPs include language that emission reductions must “represent mitigation that exceeds any mitigation required by law, regulation, or legally-binding mandate, at the national and subnational levels”. This provision would not be compatible with policy-based crediting, as policy-based crediting itself will be based on a law, regulation, or legally-binding mandate, making it impossible by nature to exceed them. The language should therefore be specified to exclude existing laws, regulations or mandates, but not “any”.

Building on these observations policy makers willing to foster scaled-up crediting could proceed in three steps:



Source: Photo by IISD/Kiara Worth (enb.iisd.org/climate/sb50/)

Navigating the shallows: Article 6 co-facilitators Peer Stiansen and Hugh Sealy.

First, those sections that were found to be incompatible with up-scaled crediting should be prioritized and aligned with the requirements from policy-based and sectoral crediting. One example would be to (at least) restrict the mandate for host countries to register Article 6.4 activities to stand-alone projects and programmes that have been proposed by private and sub-national entities. Similarly, definitions of additionality should be specified to ensure that they do not exclude policy crediting.

Second, those sections of the RMPs that currently lack detail should be made more explicit by including specific language on up-scaled crediting. This, for instance, relates to the definitions section of the

RMPs, where sectoral and policy crediting could explicitly be mentioned as possible Article 6.4 activities.

Third, attention should also be paid to the specific requirements of up-scaled crediting when further designing the mechanism and its institutions, including during its operation. When establishing the accreditation criteria for DOEs, for instance, the capacities needed for the assessment of sectoral dynamics and policy evaluation should be taken into consideration. Similarly, when deciding on the exact composition of the Article 6.4 Supervisory Body, sectoral expertise should be one criterion guiding the selection of members.

This approach could result in a common governance framework applicable to up-scaled crediting as well as stand-alone activities that takes the peculiarities of the different activity types into account while allowing methodologies and tools needed for up-scaled crediting to evolve dynamically during the operation of the mechanism. Such generic RMPs would allow Parties and private sector actors to start with the implementation of stand-alone projects or programmes at the earliest point possible while not preventing the development of tools and concepts that are aligned with the requirements of up-scaled approaches.

As the analysis has shown, up-scaled crediting requires tools and methodologies that are different from those known from project-based approaches. And each of the up-scaled crediting approaches will be confronted with specific challenges: Under policy-based crediting, demonstrating that the policy at stake is additional and showing its causality will be particularly challenging. Under sectoral crediting, by contrast, the main challenge will be to define a robust baseline, requiring innovative thinking and the development of new concepts. The development of solutions that are tailored to the needs of scaled-up crediting could benefit from the experiences made in the implementation of stand-alone activities under Article 6.4. When dealing with the new framework conditions of the Paris Agreement, the implementation of stand-alone activities will also require the development of innovative solutions, which might inform up-scaled crediting.

In addition, the implementation of up-scaled approaches under Article 6.4 could be supported through a number of ways. One possibility is the top-down development of methodologies. The Supervisory Body could request the UNFCCC Secretariat to develop methodologies for specific policy or sectoral crediting activities. Providing capacity support to host countries in identifying their potential for up-scaled crediting would be another avenue in fostering the emergence of scaled-up crediting under Article 6.4.

This article is an advanced version of an upcoming JIKO Policy Paper, which is to be published in December 2019.

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The Fruits of Cooperation

The Pacific Alliance as an incubator for carbon pricing in Latin America?

by Rocio Garcia, Vivid Economics and Sven Braden, Independent Consultant

The Pacific Alliance, a regional trade agreement, was formed by Chile, Colombia, Mexico and Peru in 2012. The four countries have a combined population of 225 million and average per capita GDP of USD 18,000. In Latin America and the Caribbean, the four member states of the Alliance account for 38 percent of GDP, 50 percent of total trade and attract 45 percent of foreign direct investment (FDI).

Among other environmental topics, all members of the Pacific Alliance have confirmed both their commitment to climate change action and their willingness to support the use of market-based instruments to achieve mitigation. In 2017, commitment on climate change was further concretized when the presidents of the four countries signed the Cali Declaration. The mandataries agreed to continue promoting a strategy of green growth as a way to tackle the challenges of climate change, which especially affect the region. Moreover, they agreed “to intensify the efforts of their countries in the measurement, reporting and verification (MRV) of CO₂ emissions and other greenhouse gases with a view to identifying possible voluntary market mechanisms in the region.”

The tasks of implementing joint MRV and market efforts were formally assigned to the Pacific Alliance Environment and Green Growth Group (PAEGGG). This group was created in 2016 with the specific mandate to work on proposals on MRV and carbon markets. Responding to the call of the Cali Declaration, the Group assessed the different MRV initiatives of the four countries with the aim of identifying the way forward in developing an MRV system that could be used in countries across the region.

Considering the environmental affiliations¹ of all four countries, it comes as no surprise that the efforts to promote green growth, pursue joint efforts to control GHG emissions and support the use of market mechanisms were welcomed by all partners of the Pacific Alliance. From the outset, the Cali Declaration was supported by multilateral organisations and bilateral arrangements. The World Bank Partnership for Market Readiness (PMR) supported the PAEGGG and the assessment of domestic MRV initiatives as well as increased collaboration between climate experts from the Alliance member states. The Inter-American Development Bank (IDB) also supports the PAEGGG, providing

¹ In the UNFCCC climate negotiations, Mexico is part of the Environmental Integrity Group (EIG) and Chile, Colombia and Peru are part of the Independent Alliance of Latin America and the Caribbean (AILAC)

resources to create a solid climate agenda as well as to ensure synergies with other technical groups belonging to the Alliance, while fostering collaboration with the private sector. In late 2017, Canada joined the group of Alliance supporters when it announced it would support the implementation of the Paris Agreement by strengthening Pacific Alliance member states' climate actions and helping them develop measurable, reportable, and verifiable data.

The Cali Declaration became a milestone for South-South cooperation by intensifying the exchange of expertise and experiences between the Alliance's climate experts. Now, sectoral climate and energy experts meet regularly to discuss the harmonization of their countries' MRV systems.

Although activities in the Alliance's expert groups are still dominated by the exchange of information on domestic policies rather than the development of a common framework, recent developments suggest that future collaboration may strengthen its focus on joint outcomes.

One of the joint outcomes the Alliance aims to achieve is the identification of requirements, mechanisms and schemes that allow them to monitor the mitigation measures of their respective NDCs and transfer emission reduction units, including corresponding adjustments. Moreover, the Alliance recently agreed to define elements of common interest that would be applicable to the transfer of mitigation results (e.g. as ITMOs under Article 6 of the Paris Agreement) or another form of international transfer or transaction (e.g. CORSIA).

Collaboration on comparability of MRV systems combined with continuous exchange on developments in domestic climate policies increased

Steam of change: Tolhuaca geothermal field, Chilean Andes. The country has committed to a 30% reduction in emission intensity compared to 2007, in terms of CO₂/unit of GDP.



Source: Steam plume at Tolhuaca – HONORABLE MENTION. Tolhuaca geothermal field, Chilean Andes. By Geo Thermal (<https://flic.kr/p/d7bnAy>) / Flickr / CC BY-NC-ND 2.0 (<https://creativecommons.org/licenses/by-nc-nd/2.0/>)

awareness of the relevance, impact and functioning of the different carbon pricing schemes in the Pacific Alliance. These are still small but nonetheless important contributions for the evaluation of a voluntary regional carbon market operated by the Pacific Alliance.

A glance at current policy developments in Pacific Alliance member states shows that the relevance of carbon pricing instruments has been placed towards the top of the list of political priorities. The following looks at the status of current carbon pricing planning as well as the accompanying work on MRV frameworks in Chile, Colombia, Mexico and Peru.

Chile

In its NDC, Chile communicated a 30 percent reduction in emission intensity compared to 2007, in terms of CO₂/unit of GDP. Conditional to international funding, Chile announced a 35-45 percent reduction in emission intensity compared to 2007. With regard to markets, Chile's NDC explicitly states that the country does not rule out using international GHG emissions trading markets to comply with its commitments.

Carbon pricing in Chile

In 2017, Chile introduced a carbon tax on stationary emissions from power plants (e.g. boilers and turbines) with a potential capacity of 50MW and beyond. The same law also introduced a tax on local

pollutants (SO₂, NO_x, and particulate matter). The tax was introduced at a rate of USD 5/t CO₂ eq.

In 2018 and with the support of the PMR, Chile started the legislative process to improve the MRV system for its carbon tax. The aim is to change carbon tax coverage by applying emissions-based values instead of capacity thresholds. Chile also plans to include the use of offsets in its carbon tax regime.

Chile is also considering the possibility of establishing an ETS in the energy sector. An initial ETS structure has already been developed under the PMR, and the country's MRV system has been designed to be ETS compatible. Technical work on a possible ETS continues within the government, with next steps yet to be determined.

In cooperation with Canada, Chile is also exploring the potential of achieving mitigation outcomes in the Chilean waste sector under Article 6 of the Paris Agreement.

MRV of carbon pricing in Chile

The MRV system which is used to apply the carbon tax is defined by the Ministry of the Environment, the Superintendency of the Environment and the Ministry of Finance. As a starting point, the Pollutant Release and Transfer Register (PRTR) operated by the Ministry of Environment was determined as the basis for establishing the required MRV regulations and protocols.

The PRTR is a database containing information on emissions and transfers of potentially harmful chemicals into the environment. It includes infor-

| Chile Fact Sheet | |
|---|--|
| Population | 18 million |
| Territory | 756,000 km ² |
| GHG Emissions (without LULUCF) | 87 million t CO ₂ e (2016) |
| Registered CDM Projects (as of 10/2019) | 110 |
| Carbon Pricing Instruments | <ul style="list-style-type: none"> • Carbon Tax (since 2017) • ETS under consideration |



Source: Mina Pribbenow Coal Mine Bottom of the Pit by Kelly Michals (<https://flic.kr/p/5gqevf>) / Flickr / CC BY-NC 2.0 (<https://creativecommons.org/licenses/by-nc/2.0/>)

Rerouting: to date, Colombia is South America's largest coal producer and the region's third-largest oil producer after Venezuela and Brazil (based on EIA figures for 2017). Current NDC commitments together with complementary carbon pricing policies aim to change the situation.

mation on the nature and quantity of emissions and transfers. PRTR data is collected from industry and transport. It covers emissions into the air, water and hazardous waste transported for treatment or final disposal. Facilities in the scope of the PRTR are required to report emissions of various pollutants.

Under the Carbon Pricing Project supported by the PMR, Chile is currently working on the design and implementation of its future MRV GHG registration framework. The objective of the framework is to deploy a system which not only serves the implementation of the carbon tax but that can also be technically feasible for hosting other possible carbon pricing instruments in the future.

Colombia

Colombia presented its NDC with a commitment to reduce its greenhouse gas emissions by 20 percent by 2030 based on the projected business-as-usual scenario (BAU). Subject to the provision of international support, Colombia announced plans to increase ambition to 30 percent by 2030 based on BAU. To implement its NDC, Colombia also announced that it will consider use of markets. The respective mitigation section includes a paragraph on markets which states that Colombia will “explore the use of market instruments (or other economic instruments) [...] which will result in real, perma-

| Colombia Fact Sheet | |
|---|--|
| Population | 48 million |
| Territory | 1,142,000 km ² |
| GHG Emissions (without LULUCF) | 224 million t CO ₂ e (2010) |
| Registered CDM Projects (as of 10/2019) | 68 |
| Carbon Pricing Instruments | <ul style="list-style-type: none"> • Carbon Tax (since 2017) • ETS under consideration |

ment, additional, verified mitigation outcomes and prevent double counting.”

Carbon pricing in Colombia

Between 2016 and 2017, Colombia evaluated the potential macroeconomic effects of introducing a carbon price instrument. The evaluation was complemented with climate change-related legal and regulatory changes and ultimately led to the introduction of Colombia’s main carbon pricing instrument: the National Carbon Tax. The tax came into force in 2017 and started with USD 5/ t CO₂ eq., the amount that will rise annually by 1 point plus inflation until reaching USD 10/t CO₂ eq. All revenues are earmarked for the Sustainable Colombia Fund. The tax covers sales and imports of all liquid fossil fuels and industrial uses of natural gas, meaning that coal is exempt. Other exemptions include gasoline-blend alcohols and biofuels for diesel engines and gasoline and diesel fuels in certain economic sectors. Refuelling international ships and planes is considered to be an export-related event and is thus not covered by the carbon tax.

In June 2017, rules and conditions were established to allow for entities to fulfil their carbon tax obligation by submitting eligible carbon credits. Initially, all certified emission reductions under the Kyoto Protocol’s CDM were considered eligible for exemption under the carbon tax. Since 2018, only domestically achieved emission reductions qualify for carbon tax exemption. Acceptable credits may be issued by auditors accredited by either the UNFCCC, Colombia’s National Accreditation Body (ONAC) or in line with provisions

established under ISO 14064:2 of the International Organization for Standardization.

In 2018, Colombia created the legal basis for a domestic ETS. The law indicates that the planned ETS (Programa Nacional de Cupos Transables de Emision de Gases a Efecto Invernadero, PNCTE) could become a baseline-and-credit system. A number of core elements are specified. The unit for trading will be set at 1 ton of CO₂e, free allocation is noted as an option and banking may be possible even without limits. The law gives the Ministry of Environment and Sustainable Development a period of three years to develop the ETS framework further.

Currently, Colombia, with support of the PMR, is analysing the sectors and GHGs to be included in the pilot phase of the PNCTE, the potential cap and the MRV associated to the new scheme.

Supported by the German Environment Agency, Colombia is working on a conceptual study for a market-compatible approach for the Colombian building sector under Article 6 of the Paris Agreement.

MRV of carbon pricing in Colombia

In 2015, Colombia established the National Registry of Reduction of Greenhouse Gas Emissions (RENARE), which also includes REDD+ programmes and projects.

Three years later, Colombia determined that any entity opting for payments or similar compensation for achieved emission reductions or GHG removals

must include its mitigation activity in the registry and has to refrain from reselling the rights to the emission reductions generated by the activity. In order to include mitigation activities in the registry, these need to be in line with methodologies predefined by the Ministry of Environment for estimating emission reductions, avoiding double counting, and verifying and registering emission reductions.

The Ministry of Environment and Sustainable Development launched the new RENARE website in 2019. The platform will allow projects to be registered that seek to reduce GHG emissions in Colombia. The information gathered via the platform will be used to enable monitoring and reporting on Colombia's progress towards its NDC commitments.

Mexico

In its NDC, Mexico communicated a 22 percent GHG reduction target for 2030 (emission intensity) and promised to increase its mitigation target to 36 percent on the condition that it received international support. The NDC explicitly mentions the development of international carbon markets as an option to achieve greater emission reductions. To make this contribution, Mexico has recently decided to enable trading of emission allowances and explore appropriate climate transparency systems.

Carbon pricing in Mexico

Within the Pacific Alliance, Mexico may probably have the longest track record when it comes to planning carbon pricing. In 2012, Mexico passed the General Law on Climate Change which enabled the gov-

ernment to implement different policy instruments such as a carbon tax or a voluntary ETS. In 2014, Mexico introduced a carbon tax on all fossil fuels which was set at USD 3.50/t CO₂ eq. Companies are allowed to use offset credits (from CDM offset projects) to fulfil their tax obligations. The latter option was only recently further defined. Since 2018, companies have been able to comply with the tax legislation by surrendering carbon credits from domestic CDM projects at market value in an amount of up to 20 percent of their carbon tax liability and provided that the credits were issued not earlier than 2014.

Also, in 2018 Mexico amended the General Law on Climate Change and announced the introduction of a mandatory ETS. The corresponding regulation to introduce the mandatory system was passed the same year. It foresees the start of the ETS from 2022 onwards and initially introduced a three-year pilot starting in 2019. However, at the end of 2018, a new administration took office and, after a series of consultations between civil society and government, altered the start date for the pilot.

The start of the pilot is now planned for 2020 and will last two years in addition to one year for transition to the next phase. The pilot ETS covers the power, oil and gas, and industrial sectors. Entities with annual emissions greater than 100 kt CO₂ eq. during the period 2016 to 2018 will be covered under the pilot ETS.

MRV of carbon pricing in Mexico

The Mexican Ministry of Environment manages registration of GHG emissions (and reductions) that

Mexico Fact Sheet

| | |
|---|--|
| Population | 124 million |
| Territory | 1,964,000 km ² |
| GHG Emissions (without LULUCF) | 700 million t CO ₂ e (2015) |
| Registered CDM Projects (as of 10/2019) | 204 |
| Carbon Pricing Instruments | <ul style="list-style-type: none"> • Carbon Tax (since 2014) • ETS to start in 2022 (pilot phase from 2020 on) |

occur in the context of the GHG Inventory, relevant NAMAs and the CDM. It is also responsible for regulating emissions in the future emissions trading system.

A central role for Mexico's MRV framework is played by the National Emissions Registry (RENE). Established in 2014, the database contains information on GHGs from all major emission sectors, such as energy, industry, and transport. Since 2016, Mexican companies covered by RENE have been required to provide annual emissions reports. Another relevant element of Mexico's MRV framework is the Special Program on Climate Change (PECC). The programme, run by the country's Environment Ministry, covers climate-related goals on a federal level and provides for a tool to track progress. The Information System for Transparency of the Special Program on Climate Change (SIAT-PECC) is an electronic tracking tool which gathers and provides information on the implementing authorities and the status of climate action.

In order to track progress on its efforts to achieve its NDC, Mexico is currently working on the Information System for Transparency of the Nationally Determined Contributions (SIAT-NDC). SIAT-NDC is an NDC progress tracking tool that integrates sub-national and federal GHG and policy reporting. Although several Mexican states have established their own MRV systems to track progress on emission reductions at a sub-national level, common formats or standards remain largely absent, thus making it difficult for the states to feed into the national system. Greater collaboration is envisaged by both

federal and sub-national agencies. In that context, the SIAT-NDC will serve as the common registry to inform the federal and sub-national government departments on GHG emissions.

Peru

According to its NDC, Peru envisages a reduction of emissions equivalent to 30 percent compared to a 2010 baseline and in relation to the GHG emissions of the projected business as usual scenario in 2030. Peru's NDC also includes a paragraph on market instruments which states that the acquisition of emission reductions through existing or new international market mechanisms is not required for compliance. Peru is considering selling emission reductions provided it does not hinder compliance with its NDC.

Carbon pricing in Peru

Peru is currently not planning to launch domestic carbon pricing instruments. For the time being there are no political discussions taking place around carbon taxes or emissions trading. However, it is also clear that the government is considering and evaluating these instruments as part of its technical implementation efforts. For example, in August 2019 the government released terms of reference for two consultancies: a regulatory impact analysis for establishing a price on carbon in Peru, and rules and guidelines for Peru's participation in carbon markets.

Peru Fact Sheet

| | |
|---|--|
| Population | 33 million |
| Territory | 1,285,000 km ² |
| GHG Emissions (without LULUCF) | 124 Mio. t CO ₂ e (2010) |
| Registered CDM Projects (as of 10/2019) | 64 |
| Carbon Pricing Instruments | No carbon pricing instruments implemented or planned |

In addition, the envisaged National Registry for Mitigation Actions contains a set of elements to be used for future national and/or international markets.

With regard to pilot project for activities under Article 6 of the Paris Agreement, several international initiatives started exploring Peru's potential for generating and issuing internationally transferred mitigation outcomes (ITMOs). In 2018, the Nordic Council of Ministers, comprising Denmark, Finland, Iceland, Norway and Sweden, conducted a study on the opportunities for the implementation of Article 6 of the Paris Agreement in the solid waste sector in Peru.

In 2019, Switzerland, via the KliK Foundation, launched a project which provides a green ITMO credit line for the Peruvian small and medium enterprises sector. The project structures and establishes a guarantee facility to secure loans granted by local financial institutions for green investment projects with associated mitigation activities.

MRV of carbon pricing in Peru

As part of Peru's activities in preparation for the enhanced transparency framework of the Paris Agreement, it has begun development of a National Registry for Mitigation Actions. To guarantee the quality of those reductions, the government announced that all mitigation actions should pass an approval process before their outcomes are listed in the registry.

The Registry will allow the creation of reductions of creditable emissions. These will be created electronically following a transparent and robust process in which the date of issuance and a serial number will be assigned, allowing them to be part of the NDC or eventually traded on the international emissions market or used for climate financing-based results. The Registry will also help avoid double counting and fraud. It will record all emission reductions irrespective of the standard involved (CDM, Vera, Gold Standard, etc). It will also mark which reductions are for domestic NDC compliance and which may be

transferred. This option allows for corresponding adjustments as required by the Paris Agreement.

The Platform for Monitoring Mitigation Actions is another important element of the Peruvian MRV framework. The platform stores the information on the GHG emissions which are measured and reported by each responsible sector on a regular basis, and is compatible with technical standards that are typically used for national GHG inventories, known as INFOCARBONO. The platform provides a database with information regarding the various organizations, as well as the results of their measurements. It allows private entities to "practice" their emission reporting and identifies emission reductions from one year to the next. The platform also provides a feature for uploading carbon credits for voluntary offsetting purposes.

To date, however, Peru remains the only member state within the Pacific Alliance with no carbon pricing instrument in sight.

Conclusions

Developments in the Pacific Alliance member states confirm a growing awareness of the relevance of different carbon pricing systems. With the exception of Peru, all member states have implemented one or more carbon pricing instruments. With regard to the evolution of future MRV systems, it is interesting to see that all member states of the Alliance are working on means to ensure that domestic GHG reductions are properly achieved, recorded and accounted for. At this point in time, all four countries are preparing corresponding protocols and methodologies to ensure transparent registration of mitigation actions and mitigation outcomes. Once domestic approaches for registering GHG reductions are operational and have proven their effectiveness, discussions on how to link these registries will surely emerge and will eventually be introduced into the Pacific Alliance's dedicated expert groups. This would be a huge step toward the first regional carbon market in Latin America.

Piloting Article 6

Emerging developments in market-based international cooperation

by Nicole Krämer, *Climate Focus*; Axel Michaelowa, *Perspectives Climate Group*; Sandra Greiner, *Climate Focus*; Aglaja Espelage and Stephan Hoch, *Perspectives Climate Group*

International carbon markets are transitioning and evolving from the Kyoto Protocol's flexible mechanisms to the Paris Agreement's market approaches. With Article 6 of the Paris Agreement, Parties to the UNFCCC have significantly transformed the modalities under which international cooperation for greenhouse gas mitigation takes place. Parties can now pursue different avenues for cooperation. They can:

- Transact internationally transferred mitigation outcomes (ITMOs) through cooperative approaches (Article 6.2)
- Implement activities through the Article 6.4 mechanism for mitigation and sustainable development and receive emission credits (A6.4ERs)
- Promote and implement non-market-based approaches to cooperation (Article 6.8) through the framework laid out in Article 6.9.

With Parties to the Paris Agreement having adopted Nationally Determined Contributions (NDCs), there is a greater desire to have international cooperation be designed by countries themselves. Parties are looking to move beyond the crediting of single mitigation projects toward policy- and sector-based cooperation. Many parties want carbon markets to enhance the overall mitigation ambition. Thorny issues such as preventing double counting of mitigation outcomes and ensuring the environmental integrity of ITMOs and Article 6.4 Emission Reductions (A6.4 ERs) are high on the agenda.

Piloting Article 6 cooperation on the ground

While Parties iron out the technical aspects of Article 6, a number of countries and initiatives have already allocated some USD 350 million to concrete pilot activities designed to test the new concepts. Adding the declared intent of some initiatives to acquire credits, this volume will be significantly higher – depending on the agreed credit price. The aim of the pilots is to test possible Article 6 rules in practice and to better understand the implications of credit transactions on Parties' targets, while informing the on-going climate negotiations.

How can a pilot be defined? The clearest indicator is if stakeholders involved directly describe their activity as a pilot or specify their intention to eventually transfer or acquire ITMOs. Beyond this, activities or initiatives that test the operationalization of relevant concepts and have the potential to align with or qualify under the various provisions of Article 6 can be characterized as pilots. This includes both newly emerging pilots as well as existing initiatives that predate the Paris Agreement. We also look at activities that directly build capacities and prepare countries to participate in Article 6.

| Institution/country | Name of pilot |
|--------------------------|--|
| African Development Bank | The Adaptation Benefit mechanism |
| 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 |

Article 6 piloting landscape

Based on the considerations above, a number of Article 6 pilots developed by multilateral development banks (MDBs), countries, and regional financial institutions can be identified:

This list of pilots is non-exhaustive and new ones continue to be developed or remain confidential. The UNEP DTU Partnership has also developed an Article 6 pilot pipeline overview that is to be updated over time and can be downloaded from www.cdmpipeline.org.

We also look at initiatives and activities that share similar goals and objectives as Article 6 pilots and seek to inform the wider debate around new carbon markets and piloting:

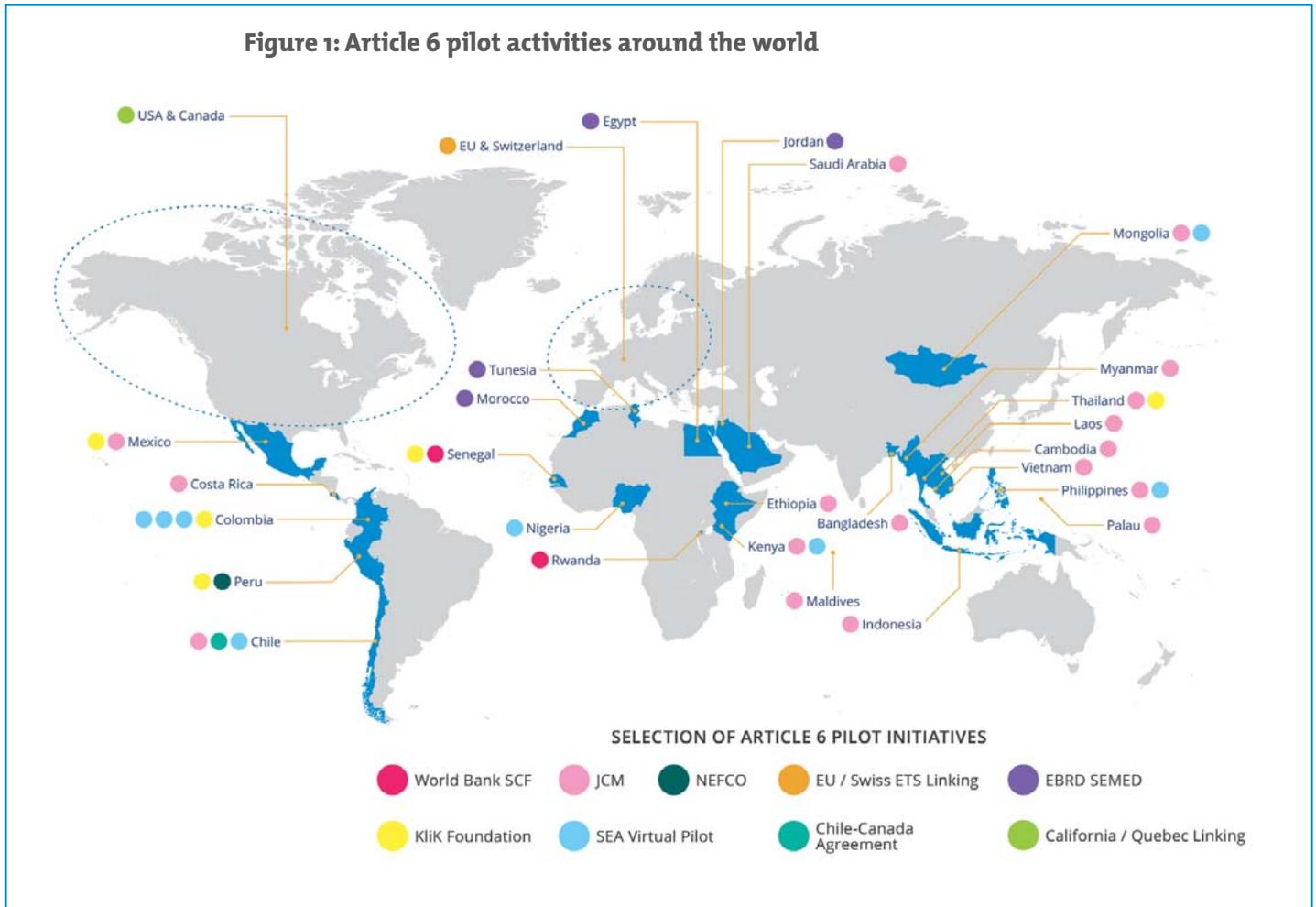
- Article 6 Support Facility of the Asian Development Bank (ADB)

- Ongoing efforts to link emission trading schemes (ETS)
- Reducing Emissions from Deforestation and Forest Degradation (REDD+) initiatives
- World Bank's Carbon Partnership Facility and its Warehouse Facility.

Figure 1 below maps the various Article 6 pilot activities and related initiatives being developed and implemented around the world. It needs to be stressed that the degree of information publicly available differs strongly between the various initiatives, with some being more exemplary than others.

The map shows that Article 6 pilots are widely spread around the globe. Moreover, the various pilot activities and initiatives significantly differ in scale, duration, targeted sectors as well as their Article 6 cooperation route, as shown in Table 1 below.

Figure 1: Article 6 pilot activities around the world



Source: Climate Finance Innovators (2019): Moving towards new generation carbon markets

Some of the Article 6 pilots are still in their conceptual phase, meaning that at this stage they do not involve concrete activities on the ground. These tend to be the more recent pilots that are being established in anticipation of the Article 6 rules and guidance. However, several other initiatives have already committed or are currently committing financial resources for implementation of their pilot activities in order to understand how these activities can play out in practice.

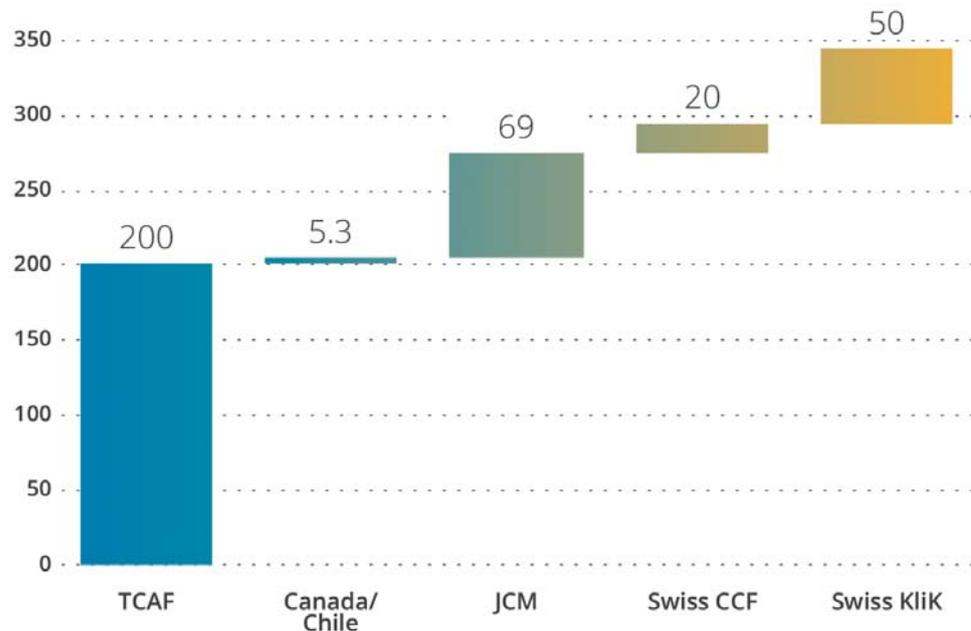
Figure 2 shows publicly communicated funding for the development and implementation of pilot activities.

The initiatives that have communicated funding volumes are mainly from the public sector or from private sector foundations working closely with the government; these volumes only partially include funding earmarked for credit acquisition. For example, the Klik Foundation will have to earmark several hundred million USD for the acquisition of 54 mil-

Table 1: Characteristics of Article 6 pilot activities

| | Recently emerging | Emerging based on CDM/NAMAs | Predating the adoption of the PA | |
|---|---|--|--|-------------------------|
| Start of pilot/initiative | Adaptation Benefit Mechanism (ABM, by AfDB); Canada-Chile; Sweden Virtual Pilots, KliK Foundation, Transformative Carbon Asset Facility (TCAF), Warehouse Facility | Southern and Eastern Mediterranean (SEMED, by EBRD), Nordic Environmental Finance Corporation (NEFCO)-Peru; Sweden Virtual Pilots; Climate Cent Foundation, Standardized Crediting Framework | EU-Swiss ETS link Joint Crediting Mechanism (JCM) REDD+ initiatives Carbon Partnership Facility | |
| | Programmatic/ project scale | Sectoral scale | Policy scale | |
| Form and scale of cooperation | ABM (AfDB); JCM; KliK Foundation; Climate Cent Foundation; Sweden Virtual Pilots; Standardized Crediting Framework; Warehouse Facility; Carbon Partnership Facility | Canada-Chile; SEMED (EBRD); NEFCO-Peru; REDD+ initiatives; Sweden Virtual Pilots; Warehouse Facility; Carbon Partnership Facility | JCM; TCAF, Warehouse Facility | |
| | Instrument neutral | Article 6.2 | Article 6.8 | |
| Route to cooperation under Article 6 | Canada-Chile; SEMED (EBRD); NEFCO-Peru; Sweden Virtual Pilots; Standardized Crediting Framework; Carbon Partnership Facility | JCM; Climate Cent Foundation; KliK Foundation; TCAF; Sweden Virtual Pilots | ABM (AfDB) | |
| | Energy | Waste | Land use | Transport |
| Targeted sectors | SEMED (EBRD); JCM; Sweden Virtual Pilots; Standardized Crediting Framework; Carbon Partnership Facility; Climate Cent Foundation | Canada-Chile; NEFCO-Peru; Climate Cent Foundation; JCM | REDD+ initiatives | Climate Cent Foundation |

Figure 2: Indicative financial resources committed to Article 6 pilots (in million USD)



Source: *Climate Finance Innovators (2019): Moving towards new generation carbon markets*

lion credits, with the exact volume depending on the price, cp. 'Serious Challenges' elsewhere in this issue. While the Article 6 rules remain unclear, so does the case for investment from the private sector. It is difficult to predict the eventual demand for ITMOs, which will depend on many factors, not least the political willingness to buy ITMOs and A6.4ERs. The currently allocated finance comes from frontrunners who are testing the waters and thus cannot be seen as an indication of the eventual size of the market.

First observations

To pilot Article 6 activities, countries need to address the key design issues that still need to be finalized and agreed to by negotiators. On this basis, key aspects of the Article 6 pilots include how they:

- Define government responsibilities, given that Parties specify the type of cooperation they want to enter into and likely have a more

pronounced role in managing, implementing and assessing their cooperation

- Link transactions with NDCs
- Track and account for ITMOs, making corresponding adjustments to avoid double counting and reporting ITMOs in country's biennial transparency reports
- Establish a baseline and related methodologies, likely with greater sector orientation and recognizing the best available technology or applying performance benchmarks (at least in the context of Article 6.4)
- Test additionality
- Implement safeguards to ensure sustainable development
- Ensure an overall contribution to global mitigation of global emissions (OMGE)

Given that Parties will substantially differ in how they address these aspects, pilots are important to illustrate different design options and enable Parties to gain a better understanding of them. While Article 6 piloting is still in its early stages and lessons learned remain limited, some high-level observations on emerging trends can already be made. All initiatives formally support the aim to prevent double counting, promote sustainable development and ensure additionality, but their approaches to address these aspects and their performance thus far remain unclear.

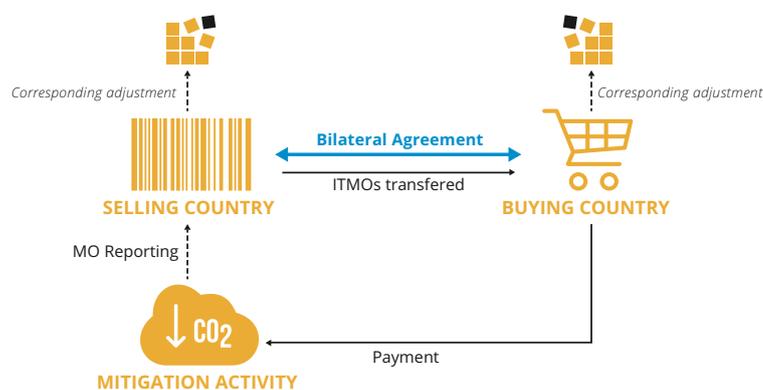
One key observation is that diversified contractual and incentive structures for ITMO transfer agreements are emerging (see Figure 3 below). The models differ in terms of the level at which contractual agreements are made as well as the role of intermediaries. A double layer structure with an overarching bilateral agreement and a specific mitigation outcome purchase agreement (MOPA) is used in several pilots.

The relationship between the pilot activities and the NDC targets 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 NDCs. Some pilots require proof that there is an NDC “over-achievement” in the seller country, before ITMOs can be transferred. This is related to setting baselines in such a way that only mitigation activities that go beyond the host countries’ NDC-committed mitigation action are credited.

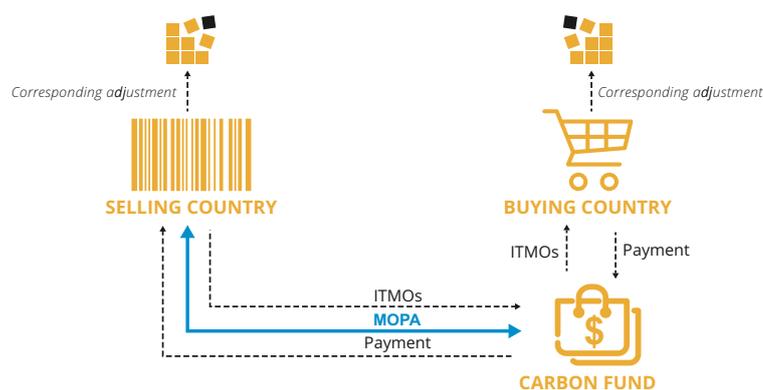
The pilots also contribute to capacity building related to tracking and accounting for ITMOs, which is the basis for sound NDC accounting. The current pilot initiatives

Figure 3: Different transaction structures established in pilot activities

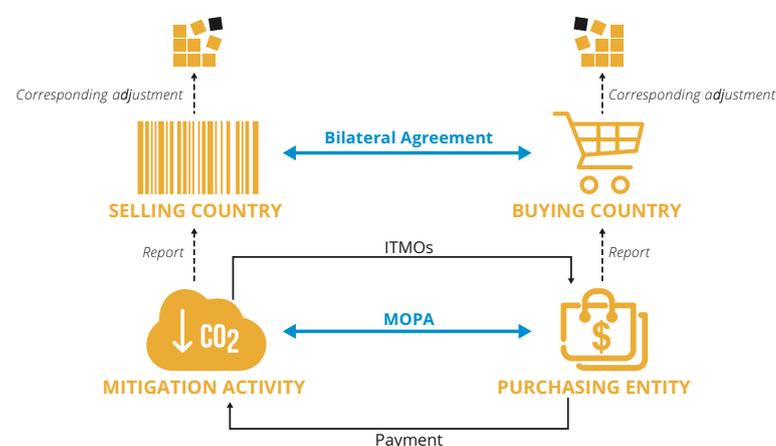
The JCM model:



The TCAF model:



The KliK model:



The NEFCO-Peru model:



IF CALL OPTION IS EXERCISED



Source: *Climate Finance Innovators (2019): Moving towards new generation carbon markets*

often work towards having national-level tracking, measurement, reporting and verification (MRV), as well as capacity and infrastructures through different approaches, including registries and proposed methodologies for corresponding adjustments.

To determine baselines and the additionality of activities, pilots often build on CDM methodologies, adding in elements to take into account NDC-related policies and measures or long-term emission trajectories of the sector concerned. For example, in its first public call for proposals in early 2019,

the KliK Foundation preferred CDM methodologies for activities with programmatic character, while the Standardized Crediting Framework takes CDM methodologies as a basis, with simplifications for selected parameters. We observe that pilots desire to both simplify the use of methodologies as well as 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.

On the other hand, while sustainable development features prominently in the Paris Agreement and in the Article 6 negotiations, early indications from the Katowice texts suggest that its operationalization may not differ much from how it was implemented under the CDM. However, 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 OMGE is a key requirement, which currently does not apply to cooperative approaches under Article 6.2. 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.

Link between piloting and negotiations

International carbon markets have the means to facilitate and drive the ambition of Parties, as they can reduce the overall costs of mitigation and enable policymakers to agree on more stringent mitigation targets when revising NDCs. Non-market mechanisms can be used to mobilize public and private finance.

At COP25, Parties are expected to adopt the rulebook on Article 6 of the Paris Agreement. Hopefully, an agreement can be found that delivers clear indications on the operationalization of key Article 6 principles, such as the avoidance of double counting. Such clarity on the basic rules and principles is important for Parties to consider Article 6 in the update of their NDCs in 2020 as well as in planning their NDC implementation. Given the complexity of Article 6, it is highly unlikely that the full ruleset can be agreed and adopted at COP25. Technical follow-up work will be needed to operationalize the details of activity eligibility, additionality testing, baseline setting, administration, reporting, review and accounting procedures. This technical work can and should be informed by pilot activities that are being

implemented and those that are likely to emerge in the coming years.

Overall, the Article 6 pilot landscape remains fuzzy, but trends are emerging. Critical open issues not yet addressed relate to incentives for the private sector, new baseline and monitoring methodologies, and sustainable development safeguards that need to be resolved in the upcoming Article 6 negotiations. However, the pilots have already been influential in steering negotiations, as there is a high degree of convergence between Party positions and features of the pilots that they support. Parties are learning from their pilot activities and can accordingly adjust their positions in the negotiations. Parties will not be willing to accept rules that have been problematic in relevant pilot activities.

While pilots cannot resolve all crunch issues on the table at COP25, resolving critical technical issues on the pilot level may hold the key towards successful conclusion of the Article 6 work programme over the coming years. This kind of learning-by-doing process requires a high degree of transparency on the positive and negative outcomes of Article 6 pilots and the willingness of involved stakeholders to engage with others and exchange both knowledge and lessons learned.

Further reading: This article is based on a recent study by Climate Finance Innovators (2019): Moving towards next generation carbon markets. Observations from Article 6 pilots. 2nd edition June 2019, Perspectives Climate Group and Climate Focus. Download at <https://www.climatefinanceinnovators.com/publications/>

Serious Challenges

Experiences from piloting activities under Article 6.2

by Marco Berg and Mischa Classen, Climate Cent Foundation

Pressure is growing for the imminent COP25 to come up with a decision on the modalities for operationalising Article 6 of the Paris Agreement (PA), the final missing element of the rulebook which materialised in Katowice last year. Article 6 lays the foundation for international carbon markets which many see as an indispensable economic tool for efficient achievement of the 2050 goal of global net zero emissions.

Just recently, a study again quantified the potential cost reductions of purely domestic implementation of countries' NDCs to be about USD 250 billion per year in 2030 – cost savings which could be invested in further enhancing ambition (IETA et al. 2019). And it points out that for markets to play their beneficial role, the design and implementation of the Article 6 framework is essential. This is a statement to which we can wholeheartedly subscribe after three years of experience with piloting activities under Article 6.2. Besides giving an overview of the process for selecting the pilot activities and the current status of the programmes selected, we will share in this

contribution the key lessons learned during piloting and discuss their implications for the future carbon market.

Background

In April 2016, Switzerland was the first country to announce its NDC, declaring its intention to make extensive use of Article 6. The Swiss NDC is peculiar in that it offers both a multi-year target for the period 2021 to 2030, and a single-year target for 2030. Over the years 2021 to 2030, on average 25 percent of the 1990 level of Swiss greenhouse gas emissions must be reduced domestically, in 2030 the national emissions may not exceed 70 percent of the 1990 level. On the other hand, in the same period, on average 10 percent of the 1990 emissions level are to be offset abroad, with a maximum of 20 percent in 2030. The latter could be interpreted as Switzerland's conditional, the former as its unconditional target. Details will be specified by the Swiss CO₂ law, which is has been under parliamentary review for the past two years.

Box 1: The Climate Cent Foundation (CCF) is a voluntary scheme set up by the Swiss business community in 2005. It was funded by a charge of CHF 0.015 per litre levied on petrol and diesel imports in the years 2006 to 2012. It invests its funds in greenhouse gas reduction projects – mostly those carried out abroad – yielding emission reduction certificates up to vintage 2030. The CCF has committed to handing over all resulting certificates to the Swiss

Confederation at no charge. In the period 2013 to 2020, the CCF funded, or will fund, the reduction of more than 20 million tonnes of CO₂e – thereby offsetting over five percent of Swiss greenhouse gas emissions. Over the period 2008 to 2012, the CCF had already funded the reduction of 16 million tonnes of CO₂e abroad and two million tonnes of CO₂ in Switzerland.



Source: *Studying How Debris Influences Glaciers* by NASA Goddard Space Flight Center, Kimberly Casey (<https://flic.kr/p/bHZMii>) / Flickr / CC BY 2.0 (<https://creativecommons.org/licenses/by/2.0/>)

Cooperatively combating climate change: Switzerland intends to achieve its NDC partly through international cooperation.

In September 2016, the Climate Cent Foundation (CCF, cf. Box 1 for a short description) agreed with the Swiss Confederation to use a sum of at least CHF 20 million (and up to CHF 70 million) to fund pilot activities serving to concretise and implement the options provided under Article 6. While it is the CCF's task to identify, pursue and finance the pilot activities, selection of those activities must occur in consultation with the Swiss Confederation.

Selection process

The use of pilot activities, the selection process and the subsequent conclusion of the required bilateral and commercial agreements by and for CCF follow a defined process:

- PIN preparation: Proposals for pilot activities must be submitted to the CCF using a dedicated PIN template, and following the guidelines for its preparation. Also, project proponents must present a letter of intent issued by the transferring country's ministry in charge of the sector in which the proposed activity takes place as well as the ministry in charge of planning/coordinating of climate policies, its purpose being to document that the country is aware and supportive

of the proposed activity, and that it intends to eventually work towards a bilateral agreement and the transfer of mitigation outcomes to Switzerland under Article 6.

- **Pre-selection:** The CCF evaluates the PINs against a list of documented criteria (see below). Following a positive assessment, the CCF requests the competent authority within the Swiss administration to provide a recommendation on whether to pursue the proposal, and to prepare a pilot activity description document (PA-DD).
- **Pilot activity description:** Preparation of the PA-DD, which remains under the authority and responsibility of the project proponent, is commissioned, and funded by the CCF. The delivered PA-DD is evaluated by the CCF against the list of criteria already used when assessing the PIN. Intergovernmental, informal technical dialogue is entered into in parallel to guide PA-DD preparation on issues that can be settled only by the governments of the partner countries.
- **Swiss endorsement:** Upon approval of the activity as presented in the PA-DD, the Swiss government invites the transferring country's government to enter into formal negotiations on a bilateral agreement that would govern the transfer of mitigation outcomes resulting from the pilot activity, as defined under Article 6 and along the lines of ITMOs. Eventually, the pilot activity is included in the bilateral agreement by means of an authorisation letter signed by each country.
- **CCF endorsement:** Upon approval of the activity as presented in the PA-DD, the CCF proposes a mitigation outcome purchase agreement (MOPA) to the project proponent. Negotiations on the MOPA may run in parallel to those on the bilateral agreement. The signed MOPA enters into force after authorisation of the activity by both countries.

Selection criteria

Based on the annex of the contract between the Swiss Confederation and the CCF, the principles for evaluating mitigation activities have been jointly established by the parties:

- Activities may not imply nuclear energy, or result in a lock-in of fossil fuels. They must take place in a sector covered by NDC reporting.
- Emission reductions generated must be real (calculated with credible reference levels, avoidance of leakage, inaccuracies from fraud or error are addressed), additional to the NDC and to the BAU emissions scenario, and permanent (by ensuring irreversibility, or by formulating measures compensating for possible reversals).
- Double claiming of emission reductions must be excluded, for instance by attributing them to the different sources of climate, or carbon, finance involved.
- Activities may not entail violations of human rights, or involve corruption. They should contribute to the Sustainable Development Goals (SDGs), notably low carbon development.

In addition, activities must be based on a plausible, financially sound business model with a potential for scalability and/or replicability. The role of carbon, meaning the justification as to why the financial contribution by the CCF is vital for the implementation and sustained operation of the activity, must be convincing. Preferably, activities will extend beyond financial support from the CCF. Risks involved in implementing, or operating, the activity must be limited, or may be mitigated.



Source: Beneficiary Happy about Earthquake-Resistant Structures by U.S. Agency for International Development (USAID), Adriana Koutnik (<https://flic.kr/p/owAqhm>) / Flickr / CC BY-NC-ND 2.0 (<https://creativecommons.org/licenses/by-nc-nd/2.0/>)

Reaping the benefits: the Peruvian pilot supported by Switzerland intends to scale up the market for improved cook stoves.

Programmes selected

In November 2016, the CCF issued a call for proposals for pilot activities. The recipients (Swiss Federal Agencies, Swiss project developers, several developers who earlier had informally shown interest in developing pilot activities) were invited to submit their proposals by January 2017 using the PIN template. The CCF decided to restrict the call to grid connected electricity production from renewable energy sources, fuel efficient cook stoves, and land-fill gas projects.

17 proposals were received, and evaluated on the basis of the selection criteria. Four proposals located in Colombia, Mexico, Peru and Thailand were short-listed for further development. In July 2017 another

call was issued directly to the governments of those countries, inviting them to submit PINs by the end of 2017. No proposals were submitted in response to this second call.

One of the activities selected in 2017 was withdrawn by the proponents; another activity planned in Colombia did not materialise. Currently, three programmes are being further pursued:

- **Tuki Wasi, Peru:** Aimed at the country's poorest households, this programme strives to strengthen and scale up the market for certified improved cook stoves by means of competitive calls for proposals and standardisation. Improved cook stoves help reduce non-sustainable use of wood for cooking purposes. The scheme complements the state-led initiative



Source: Bangkok Expressway by Mark Fischer (<https://flic.kr/p/cmKvtw>) / Flickr / CC BY-SA 2.0 (<https://creativecommons.org/licenses/by-sa/2.0/>)

Supporting the shift: Switzerland supports Thailand's Shift Programme, which aims at increasing the number of private electric vehicles in Thailand.

Foncodes, which aims to provide low-income households with access to clean energy sources.

The programme was launched in February 2019 (see <http://www.tukiwasi.org/>). A first tender was issued in March to select stove manufacturers. The support programme offers a five-step compensation scheme; except for an initial advance payment, each instalment is tied to certain requirements. Among the 17 proposals received, two stove manufacturers were selected to install 2,200 stoves according to defined specifications.

In October 2018, official negotiations began between Switzerland and Peru to conclude a bilateral agreement framing the modalities for transfer and accounting of ITMOs under Article 6 of the Paris Agreement. A CCF representative sits in on Switzerland's negotiation team. The legally binding agreement is expected to be signed in the first half of 2020.

- Biover, Mexico: This programme aims to provide landfill owners with an incentive to collect and flare landfill gas containing methane. This incentive is tied to the condition that owners also commit to transforming the landfill gas into electric-

ity within a specified period of time. As soon as the costs of landfill gas capture are covered, and the risk of unexpectedly low gas formation within the landfill has decreased, generation of power can be operated profitably. The programme is transformative in that it makes the waste sector a producer of non-fossil electricity. Since CCF refrains from crediting the corresponding emission reductions, it allows Mexico to contribute to achieving its non-fossil electricity production target. Programme documentation has been drafted. A decision on whether Switzerland and Mexico will enter into negotiations on a bilateral agreement is pending.

- **Shift, Thailand:** This programme aims to increase the number of private electric vehicles in Thailand. To this end, it defines a business model to foster the installation of charging stations as well as incentives for private fleet operators (taxis, delivery services, etc.) to switch to electric vehicles. The programme has been finalised with stakeholders and the respective documentation has been drafted. A decision on whether Switzerland and Thailand will enter into negotiations on a bilateral agreement is pending, cp. the article 'Testing Ground' elsewhere in this issue.

Lessons learned

So far, the Swiss piloting experience has been quite sobering – notwithstanding the successful negotiations of Peru and Switzerland. In general, the potential partner countries appeared extremely reluctant to engage in piloting. To some extent, this can be attributed to the lingering regulatory uncertainties regarding the pending completion of the Paris Rulebook. Yet, the main reason for the reservation we observed lies in an array of fundamental challenges that need to be addressed by transferring countries wishing to cooperate under Article 6.

The first of these is that the transferring country must make a corresponding adjustment (CA) if

environmental integrity is to be safeguarded by excluding double counting of emission reductions. Hence, cooperation is no longer a no-regret strategy as it used to be under the Kyoto regime. It may turn out that the country transferred credits at a cost below the marginal abatement cost of compliance with its NDC, which could be characterised as “over-selling” of credits.

In this sense, the present reluctance of countries to engage in (pilot) Article 6 transactions can be taken as a good sign. Their intent to comply with their NDC targets raises confidence that, eventually, they will seek to transfer an environmentally sound commodity – provided their NDC target represents a minimum level of ambition.

So countries should feel prompted to use Article 6 exclusively within a perimeter that does not restrict their ability to achieve their NDC targets. But for this, they need to fully understand the implications of their NDC in terms of the instruments they must use and the measures they must take to comply – including a roadmap setting out fields of action and timelines for implementation. And it will, in turn, take elaborate studies and a huge amount of human and financial resources to work out the marginal abatement cost and reconcile it with intervention priorities across countries' ministries and development priorities. The political and institutional capacity needed to do this is lacking in most cases. (Keep in mind that all challenges implied by CA also hold true for the mechanism framed under Article 6.4.)

In our experience, this is the second major challenge: On the basis of a national legal framework for the implementation of Article 6, political responsibilities and decision-making power must be established in transferring countries, instituting regulatory processes that are novel and genuine to the PA, and that run across the traditional boundaries of ministries.

Last but not least, it takes years to build a firm relationship between countries willing to engage in cooperative action, and a lot of work is needed in

the negotiations to safeguard the environmental integrity of the cooperation activity. Ultimately, the institutional capacity to assign a political mandate to enter into negotiations towards a bilateral agreement and to authorise mitigation activities is key to successful cooperation under the PA.

Outlook

Admittedly, this last section on lessons learned was on a rather abstract, fundamental level. On a positive note, we expect that more and more countries will start to consider their options when hands-on experience with pilots can be shared, most notably the legal text of the first bilateral agreements. Interventions under Article 6 complement and strengthen domestic action, for example by targeting remote areas, expensive measures, or early action. Also, it will be important to discuss the various co-benefits that may arise from cooperation through cleverly structured interventions. Co-benefits may not only flow from sharing the mitigation outcomes, but come in the form of capacity building, piloting of policy instruments, raising awareness and promoting sustainable development, to name but a few.

Still, some countries may find that cooperation under Article 6 is not an option – because it is not wanted politically, not required technically, or perceived as too challenging. In any case, we expect there will be only a limited number of countries willing to, or capable of, establishing the capacity to meaningfully engage in Article 6 transactions

Box 2: The Foundation for Climate Protection and Carbon Offset (KliK) was set up by the Swiss mineral oil association in 2012 to fulfil the legal obligation of the importers of petrol and diesel to partly offset the emissions resulting from the use of those fuels. Up to 2020, only emission reductions from domestic projects registered by the Swiss authorities under Switzerland's national scheme

within the given timeframe up to 2030. To put it bluntly, we strongly doubt that we will see another carbon market bonanza as we did a decade ago; rather, the compliance market will remain a boutique business. One of those boutique players will be the Swiss KliK Foundation (see Box 2), which already builds directly on the piloting experiences of the CCF and is actively sourcing suitable mitigation activities. The voluntary market, on the other hand, might grow to a respectable size, but if it dodges Article 6, it will jeopardise its environmental integrity.

Further Reading

CCF, Swiss Confederation (2016): Agreement 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, <https://www.klimarappen.ch/en/Background-documents.10.html>

IETA, University of Maryland, CPLC (2019): The Economic Potential of Article 6 of the Paris Agreement and Implementation Challenges, Washington, D.C., https://ieta.org/resources/International_WG/Article6/CLPC_A6%20report_no%20crops.pdf

are considered eligible to meet the obligation. In the period 2021 to 2030, the KliK Foundation expects that it will have to procure at least a volume of emission reductions of 50 million tonnes CO_{2e} from abroad. Those emission reductions will have to be certified under Article 6.2, or Article 6.4, of the Paris Agreement.

Testing Ground

A project developer's view on Article 6 pilots

by Jeff Swartz, Mireia Vilaplana, Susana Velez and Emily Sharples of South Pole

Article 6 unlocks a multitude of opportunities for countries to work together and enhance ambition for climate action under the Paris Agreement (PA). It builds on the lessons learned from the flexibility mechanisms of the Kyoto Protocol (CDM, JI, IET), and provides unique pathways for the private sector to directly engage in the achievement of targets set under Paris. Since the adoption of the Paris Agreement in 2016, Article 6 negotiators at the UNFCCC have faced tremendous pressure to design an

Article 6 rulebook that will create the most environmentally robust and cost-effective outcomes. Their job is not an easy one: Article 6 has three distinct components and many different interpretations and suggestions for its effective design. The news that Chile will no longer hold the COP together, while President Trump officially begins to withdraw the United States from the Paris Agreement does not help instil confidence in the UNFCCC negotiations.



BLUE HARVEST El Salvador - CATHOLIC RELIEF SERVICES by Maren Barbee (<https://flic.kr/p/RLYP7H>) / Flickr / CC BY 2.0 (<https://creativecommons.org/licenses/by/2.0/>)

Virtual pilot: using wastewater from coffee production for biogas generation is one of the Article 6 pilots developed by South Pole.

South Pole's response to the challenge facing Article 6 negotiators is to show how these policy concepts could be applied in a real-world policy setting. Through our long-term collaboration with governments, businesses and NGOs we believe that capturing the perspectives of each player, including investors, operators and project developers, is vital to designing a successful operational framework for Article 6. This is why we have teamed up with the Climate Cent Foundation and the Swedish Energy Agency to develop two Article 6 pilots in Thailand and Colombia respectively. With these pilots we aim to formulate learnings, best practices and incubate ideas that can help inform the framework design and implementation.

Virtual Article 6 Pilots in Colombia

The Swedish Energy Agency (SEA) gave South Pole a mandate to begin exploring opportunities for the implementation of virtual pilots under the framework of Article of 6 in early 2018. This was in order to provide SEA with real-world options for mitigation pilot activities or "virtual pilots" that would produce internationally transferred mitigation outcomes (ITMO) or other bilateral investment activities that may fall under Article 6 of the Paris Agreement. The idea of developing virtual pilots is to explore, with real examples, the activities that host countries and buyers must develop in order to carry out the emission transactions successfully.

A virtual pilot involves designing a project to the point of implementation, activities include: evaluating laws, partners, technology, costs and the resources needed to facilitate a project in the future. Virtual pilots therefore create templates of how a potential Article 6 transaction can take place, but no actual Article 6 transaction is carried out. While the rules are still being defined, in some cases a virtual pilot is more cost efficient and carries less risk than an actual pilot.

Swedish Energy Agency (SEA) had two primary aims for the project, firstly to explore how Article 6 transactions could be designed and secondly to help UNFCCC negotiations with policy recommendations.

We designed two virtual pilots in Colombia:

1. Power and/or heat generation with biogas from industrial wastewater - focusing on the coffee production and cattle ranching industries.
2. Installing solar PVs to replace energy generated from diesel generators in non-grid connected areas. The Amazon region, Pacific Area and San Andrés Island are specifically being targeted for these solar installations.

Through engaging with the Colombian Ministry of Environment, South Pole was able to understand Colombia's sustainable development priorities and activities for this NDC period. These engagements were key to ensure that the virtual pilots were aligned with the interests of the host country but also to understand the specific needs that Colombia will face with implementation of Article 6. As the energy and agriculture sectors have consistently been the country's largest GHG emitters and they offered scope for sustainable development gains, the virtual pilots aimed to find emissions reductions within these sectors. The development of this project was carried out following the recommendations of the Colombian government and the SEA.

Main findings from the Colombia Article 6 pilots:

- Several potential buyers (both public and private) have expressed interest in Colombia as a partner for the commercialization of ITMOs, creating confusion among government actors and will require significant administrative efforts to coordinate this interest. Several countries have approached Colombia directly to start the process to facilitate ITMO transactions, and this is a lot of work for the Ministry of Environment, especially as the government has not yet confirmed if it is interested in selling ITMOs.



Source: Photo by Dan Freeman (<https://unsplash.com/@danfreemanphoto>) on Unsplash

Making the shift: the Thai pilot activity foresees increasing the number of private electric vehicles in Thailand.

- Colombia is in the process of defining its internal processes to improve understanding of the impacts of Article 6 implementation and the impacts of ITMO transfers. A new law is under construction to regulate how the transaction of Emission Reductions will work in the future.
- The Government is also concerned about communicating too early on in the process with private sector actors; it doesn't want to create false expectations and confusion around a new carbon market before the rules are defined.
- There is a need for high quality official information for real calculations on the emission reductions (ERs) associated with ITMO transactions along with baselines, emission factors and inventories, which all must be transparent, real and verifiable.
- The countries involved in ITMOs transfers must ensure that the ERs generated are additional, real, measurable, and attributable to a specific activity and sector, while transparency is vital to mitigate against double counting.
- Countries must define common metrics for the calculation of ERs and ensure that their MRV systems are compatible. The definition of MRV systems and additionality will depend on

the type of selected activity. Countries must decide if they will use a PoA-style approach or a policy crediting approach. This is a very complicated matter that has to be defined before starting any ITMO transfer negotiation.

- ITMO prices will vary according to the investment needs of the project, but surely the value of the reductions will not cover the total value of the development and implementation of the actual ER generation project. Additional project implementation funding will be needed, which may come from the private or public sector.
- The host country needs to define the destination of carbon finance, in other words how the country will use the money that enters through the transaction of ITMOs. In Colombia, specific taxes have specific destinations, i.e. the money can only be used for a certain type of project. The money that will flow into the country through the ITMO transaction should therefore have a specific destination, such as more mitigation projects or adaptation to support the transition to a low carbon economy.

Electric Vehicles for Thailand

Switzerland has announced its intention to make extensive use of Article 6 of the Paris Agreement; between 2021 to 2030, an average 10% of Swiss GHG emissions are to be offset abroad. The details will be specified by the Swiss CO₂ Law, but this decision follows a long precedent of the country using foreign credits under the Paris predecessor's Kyoto Protocol to help meet its climate targets, see article 'Serious Challenges' elsewhere in this issue. This is because it has few remaining cheap abatement options given its virtually fossil-free power sector.

Following a call for pilot project proposals by the Climate Cent Foundation in late 2017, three pilot activities were selected, one being the SHIFT Project. Support for the project, a pilot between Switzerland and Thailand, was agreed by both governments after a few rounds of discussions. The economic sector to be targeted was chosen through the submission of a Project Idea Note (PIN), which presented an Electric Vehicle (EV) Fleet pilot and a letter of intent by the Thai Government to explore the design of a possible cooperation

under Article 6 of the Paris Agreement. South Pole was tasked with delivering the overall project activity design document (PA-DD).

The main objectives of the SHIFT project are:

- to accelerate the adoption of electric vehicles by private fleet-operators for mobility and logistic services.
- to charge EVs using renewable energy.
- to support the ambition of the Thai government to reduce GHG emissions in the transport sector, which currently accounts for 19.2% of the total GHG emissions of the energy sector (236,936.48 Gt CO₂e), which includes the usage of energy by the transport sector.

The mitigation potential from the transport sector according to the "Thailand's Nationally Determined Contribution Roadmap on Mitigation 2021-2030" is 41 Mt CO₂e: 31 Mt CO₂e will come from efficiency improvement and modal shift initiatives and 10 Mt CO₂e from the use of biofuels for transport. Electric vehicles are an emerging technology that provides an important link with the power system when coupled with variable renewables such as solar PV or wind. EVs are also a means to drive down levels of air pollution in dense urban areas such as Bangkok.

A first stakeholder consultation was organised in early August 2019, bringing together 55 private sector representatives (EV manufacturers, fleet owners, charge point operators, among others). The stakeholder consultation confirmed to us that:

- a) the lack of policy support is a key barrier to accelerate EV deployment and thus this initiative, combining international financial support with domestic policy support, is possibly ideal to achieve the desired result while being completely consistent with the intended purpose of cooperative action under the Paris Agreement,
- b) there is concrete interest in pilot activities by relevant implementation partners, and
- c) the expressed interest has the potential to reach the required scale, in terms of total quantity of delivered mitigation outcomes, within a reasonable time frame.

After the first stakeholder consultation, South Pole is now moving ahead to engage with potential implementation partners. Together with the Thai Government we are diving deeper into the design of the SHIFT pilot activity and identifying activities that could be part of the project. A second stakeholder consultation is planned for mid-November 2019 where a more detailed plan of the activities that are to be prioritised under the SHIFT platform will be presented. We will also use the meeting as an opportunity to explain the benefits for those already ready to join this EV initiative.

Meetings with the Thai Government including the Office of the Natural Resources and Environmental Policy and Planning (ONEP), the Energy Policy and Planning Office (EPPO) and the Office of Transport and Traffic Policy and Planning (OTP) are also planned in November to continue conversations on the proposed design of the activity under Article 6.2, how to scale-up the SHIFT project and to identify which bilateral topics the two governments, Thailand and Switzerland, should discuss to cooperate under Article 6 of the Paris Agreement.

Common Challenges and Policy Recommendations

- No host country will commit fully to corresponding adjustments until there are concrete rules adopted by the UNFCCC; the Article 6 Rulebook must be finalised as soon as possible.
- The risks of the host country in complying with its NDCs must be taken into account, the issue of deforestation in South America is of special importance.
- If a country decides to take part in Emission Reduction transactions, it will have to make the corresponding adjustments to its NDCs and national GHG inventory. This decision must be made taking into account the technical and legal aspects that must be adjusted to allow such transactions and to generate the greatest possible benefit.
- It is very important that host countries start developing the internal institutional frameworks that will govern such transactions and decisions under Article 6.
- Capacity building is very much needed for the host countries as they are still defining their NDCs and it is difficult

for them to pick sectors and prioritize activities, especially when you are seeking policy additionality. This also related to training and capacity building campaigns that inform stakeholders on how this new mechanism works.

- Countries and organizations interested in buying ITMOs must define a criteria selection for ITMO credit types.
- A Memorandum of Understanding or Letters of Approval from the host country are needed to start working on such Article 6 pilots.

Conclusion

Article 6 provides the foundation for the Paris Agreement to be both stronger in terms of climate ambition, as well as enhancing the involvement of the private sector. The Colombian and Thai Article 6 pilots described in this article have shown it is vital the Article 6 Rulebook solves: NDC achievement risk, institutional frameworks between both buyer and host country, and corresponding adjustment governance arrangements.

Over USD 345 million has already been committed to pilot climate action projects under Article 6. However, public climate finance alone is insufficient to achieve the commitments under the Paris Agreement. For the commitments of the Paris Agreement to be achieved in a cost effective, timely and efficient manner, ambition must spill over from the governments into the private sector. If done correctly, Article 6 has the potential to significantly improve the economic efficiency of implementing the NDCs by engaging the private sector.

We are therefore in strong agreement with others urging for clarity on the Article 6 rulebook. This is crucial for engagement. In order to redirect the flow of global finance into climate activities the private sector also must clearly understand the opportunities open to them. When corporates fully understand how they can use this fast-growing mechanism for international cooperation to source public finance and partners for projects that add business value, significant gains will be made in achieving the emission reduction goals set out by national governments under the Paris Agreement.

No Departure Clearance

Unresolved issues hamper implementation of the CORSIA aviation offsetting scheme

by Thomas Forth, Advisor to the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and Director of the Foundation "Future of the Carbon Market"

The recent 40th General Assembly of the International Civil Aviation Organization (ICAO) reaffirmed the willingness to take the missing steps to complete the ICAO CORSIA offsetting scheme. Resolution A40-19 lists historical decisions and achievements to date: The key decision for carbon neutral growth of CO₂ emissions was taken by the ICAO at its 39th General Assembly (2016), covering international flights until 2035 with the Carbon Offsetting and Reduction Scheme (CORSIA) in an aspirational approach. This aspirational component forms the core of the carbon pricing function via the CORSIA offsetting mode: Progress in reducing emissions from aviation will reduce the need for offsetting and in turn the cost of offsetting will trigger transformational change within the sector, such as shifting to alternative fuels. In principle, increased prices for carbon will accelerate this transformation.

But whether carbon pricing will take effect in the aviation sector depends on the one hand on the decreasing availability of cheap certificates for offsetting and on the other of the availability of technical options and the dynamics of their cost structure. At its best, the bidirectional component of carbon pricing starts functioning when price ranges of both components converge. For the aviation industry, it appears to be common understanding that this will be not realistic very soon, but will undoubtedly be a must within CORSIA's 15-year timeframe. This foreseeable delay in carbon pricing effectiveness once again raises awareness to the fact that one size fits all thinking is not enough. Complementary aviation-specific policies are needed which enable new tech-

nical innovations and solutions. For the aviation sector, this means the shift to alternative fuels, especially to Power-to-X (PTX).

Yet CORSIA is still a vision that could fail. Within the remaining 13 months up to CORSIA's take-off, the ICAO Council must decide on core elements of the CORSIA scheme and complete its work on the offsetting framework for CORSIA. As consequence, uncertainty about the environmental integrity of CORSIA is growing. And early signals to market to create supply for the very clear size of demand are missing. By purchasing emission reduction units in advance, airlines must take a high risk

What has been achieved so far?

With the voluntary participation of 81 countries, about 75 percent of CO₂ emissions from international flights will be capped at the average emission level of 2019/20. The monitoring process is currently ongoing not only for countries participating in the pilot phase, but for all countries in order to build the emission reference for a fully established CORSIA scheme in the following two phases up to 2035, when all ICAO member states will participate. For this midterm perspective, it is crucial that a highly effective regulation is installed in the pilot phase. Important steps have already been taken with the Emissions Units Criteria (EUC) and the experience gained from the activities of the Program Testing Group (PTG):



Source: Kobe Airport by Nagoya Fujii (<https://flic.kr/p/5ZAHry>) / Flickr / CC BY-NC 2.0 (<https://creativecommons.org/licenses/by-nc/2.0/>)

Ready for take-off? Uncertainty remains as to whether crucial issues can be resolved in 2020 or in the early pilot phase of the CORSIA aviation offsetting scheme.

- The EUC were officially published in March 2019. This EUC supporting document on the eligibility sets out clear criteria and accompanying principles. The document forms a good basis for the approving programmes, which will be allowed to deliver certificates for CORSIA compliance. However, operationalization of the EUC requires practice and in all probability further guidance. This is something to be considered, especially for the avoidance of double counting.
- The experience gained by the Program Testing Group in 2018 was disillusioning. The tested programmes fell far short of meeting the criteria. However, as a positive outcome, the tests revealed the programmes' shortcomings. Developers of the tested programmes should have found time to work on the findings and those of other programmes may have obtained insights to enable self-reflection and preparation for their actual CORSIA applications. The first round of applications took place in mid-2019 and the assessments are ongoing.

All in all, taking short implementation periods and other time constraints into consideration, the achievements to date do not allow CORSIA to be initiated and do not enable airlines to act. The real steps needed have still to be taken.

Steps to be taken

But what are these real steps and why can they not be taken easily at the next ICAO Council meeting next year?

Here, the focus is on the following three issues:

Avoidance of double counting

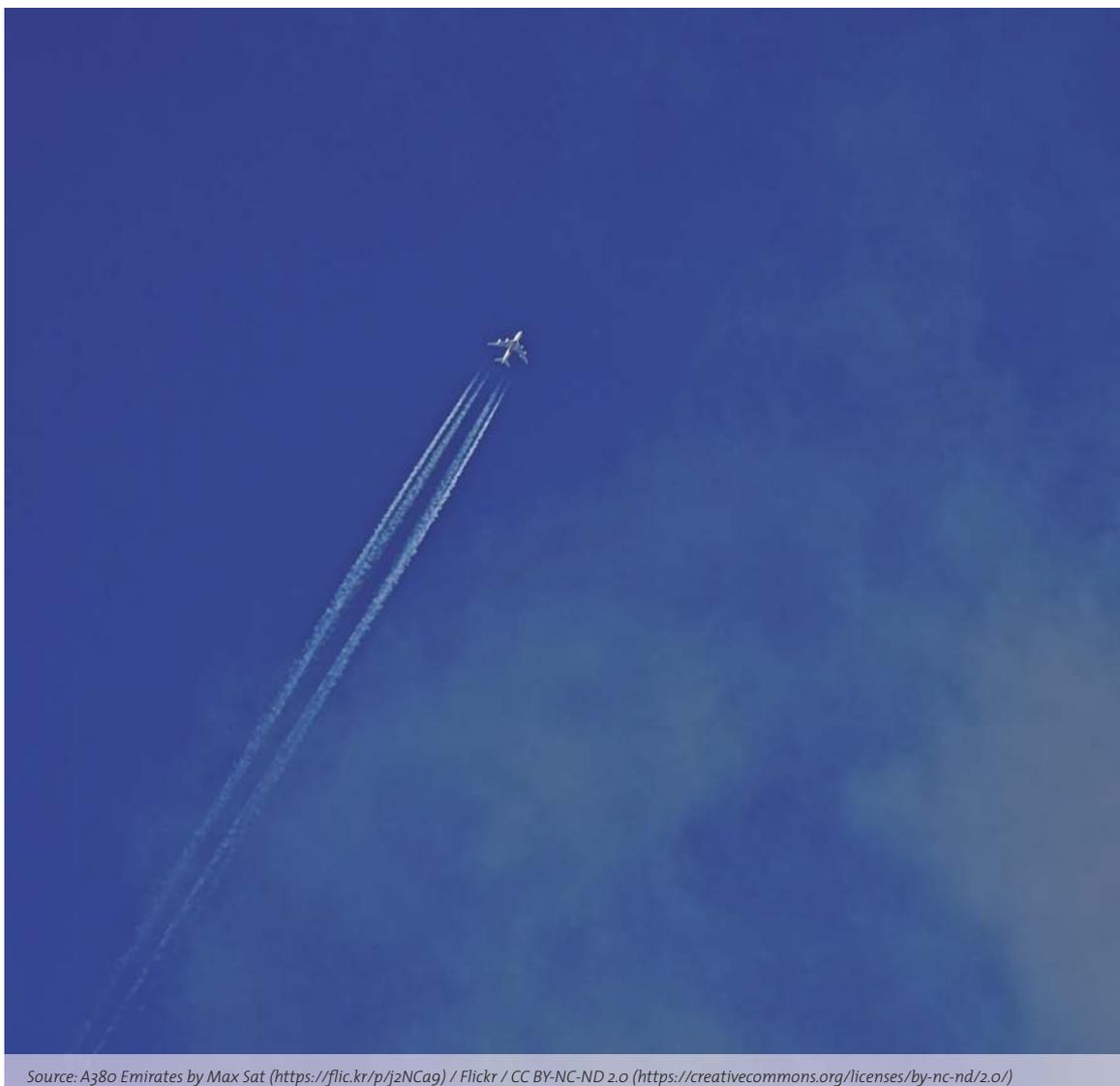
The missing decisions not only rely on the ICAO, but also on the UNFCCC decision regarding Article 6 and the reporting table as the subsequent work emerging from the Paris rules adopted in Katowice at COP24 for the Enhanced Transparency Framework (ETF). The ICAO's EUC criterion on the avoidance of

double counting of units could be more easily operationalised if international transfers of mitigation outcomes are reported in the reporting tables and aggregated in the summary table under the Paris Agreement's Article 77 (d). Without that, the ICAO must ensure the environmental integrity of CORSIA's compliance regime with the procedural guidance-like requirements of the Paris Agreement in Article 6.3 and Article 6.5 (cp. von Unger 2019).

It is expected that the ICAO's Technical Advisory Board (TAB) will give advice on this topic together with the recommendations on the eligibility of the 14 programmes in submitted applications for providing units for offsetting under CORSIA. The question here is when will the TAB come out with this advice? It would be surprising if information is released ahead of COP25 in Madrid. However, ICAO member states have to make up their minds early, and especially the members of the Committee on Aviation Environmental Protection (CAEP), at their next meeting in December 2019.

Vintages and timeframes

The issue of the decisions that will be taken on the generation of and the timeline for use of generated units is one of great political contention. In line with the Paris Agreement's long-term temperature goals, only new generated units should be eligible. In terms of the climate, it does not make sense to allow old certificates to be used for compliance in the near future under a new UN regime. However, this is also a very tricky issue. The question is simple: "What is new?". The ICAO is a separate UN regime and not bound to decisions of the UNFCCC, and thus not bound to the Paris Agreement. When ICAO member states want to place CORSIA's alignment with Paris Agreement on the the ICAO council agenda, it becomes evident that this a political issue. From the ICAO, the most fitting comparison might be seen in the political decisions made at the 39th ICAO General Assembly in 2016. The vintage question will be answered for all programmes, not only for the CDM, which has largely been taken into consideration.



Source: A380 Emirates by Max Sat (<https://flic.kr/p/jzNCa9>) / Flickr / CC BY-NC-ND 2.0 (<https://creativecommons.org/licenses/by-nc-nd/2.0/>)

On the right track? On the issue of offsetting aviation emissions, many open questions remain.

With the CDM debate, strong concerns have been expressed about the number of CERs flooding the CORSIA market. Apparently, that number is related to the vintage of the CERs and related definitions. Should all registered CDM activities still generating CERs be eligible, even if the activity started long before the 2016? Should all project activities become eligible, even if we know that certain projects types are no longer additional, for example renewable energy sources now at an advantage from the

impact of cost digression and seeing long hoped for economies of scale. Neither the debate nor the options are really up to date. The best indicator of a good solution is taking the climate standpoint and seeing what is acceptable in climate terms.

But then determining the vintage is only half of the decision needed. The timeframe on the use of certificates becomes important, especially when vintages are set too generously. When it comes to the climate impact, only new generated certificates

should be accepted. Considering whether it will be a vintage based on the time of the policy decision or the start date of CORSIA's pilot phase will immediately raise the question of whether airlines should be allowed to bank all eligible CERs for the compliance obligation until 2035 or not. For the climate, it is important to keep the numbers in mind. In general, the assumed impact on the climate in terms of CO₂ emission reductions by the end of CORSIA is about 2.5 giga tonnes at minimum, but probably less than 100 million tonnes in the pilot phase. Therefore, limiting the use of units generated before the start of the pilot phase is show of trust in CORSIA as the first global climate regime in the aviation sector. Any other decision will undermine the ability of the ICAO to contribute to the long-term goals of the Paris Agreement.

Eligible programmes

While the cross-cutting issues of the avoidance of double counting, vintages and timelines are crucial to set standards in environmental integrity, the question of greatest interest is which of the programmes submitted to CORSIA earlier this year will be eligible to provide certificates for offsetting. As mentioned above, the whole process will last until March 2020, when the ICAO Council will decide on eligible projects at the earliest opportunity. The ICAO allowed for a public consultation phase until 5th September 2019, but did not publish any information received. Summarizing, and based on the overview of the Carbon Pulse publication and the consultation input from experts the German Environment Ministry commissioned, what we know so far is that it will become difficult for each of these programmes to fulfil all of the EUC criteria. For more on this, see the files under (Schneider et al. 2019, Carbon Pulse 2019).

It is now up to the TAB members to decide whether with all the undisclosed consultation input and their own assessments, they come to a similar analysis and the decisions they will then recommend to the ICAO Council. The CAEP meeting this December may give a first indication of the outcome of the TAB

recommendations – as a committee, CAEP is formally permitted to make its standpoints known. In any case, ICAO member states should feel encouraged to go assess the recommended programmes themselves.

Outlook

In the event that the missing decisions are taken at the ICAO Council meeting in March 2020, the CORSIA offsetting part would be ready to start on January 1st, 2020. But what happens if there are deficits and gaps?

Without a reliable rule on double counting, the CORSIA scheme – recently confirmed at the GA40 as the only global market measure – will collapse. Avoidance of double counting calls for some kind of binary solution: you can avoid or you cannot. The start of the scheme would have to be postponed, or the ICAO would have to develop its own procedure to avoid double counting. This is possible, even with the time constraints involved, and could still be achieved in 2021.

By not limiting the use of certificates from both poles, the vintage date and the deadline for use of pre-2021 certificates, the CORSIA offsetting demand will be oversupplied with cheap and old certificates with little or no impact on climate change. Safeguards are needed.

On the questionable programmes that fail to meet several of the EUC criteria, the only response is that the programme is not eligible. The programme developers would then have to decide whether to reapply at later date.

On programmes with minor deficits, the question arises as to whether they can settle the issues involved. Formal adjustments are needed, and decisions should be taken by the ICAO Council; perhaps TAB can prepare those decisions.

One general conclusion that could be reached at this point in time, is that it is too early to say whether CORSIA will start on time. However, any

conclusion on resolving the remaining problems will depend on the question of how serious those problems are. Could they be resolved in 2020 or in the early pilot phase?

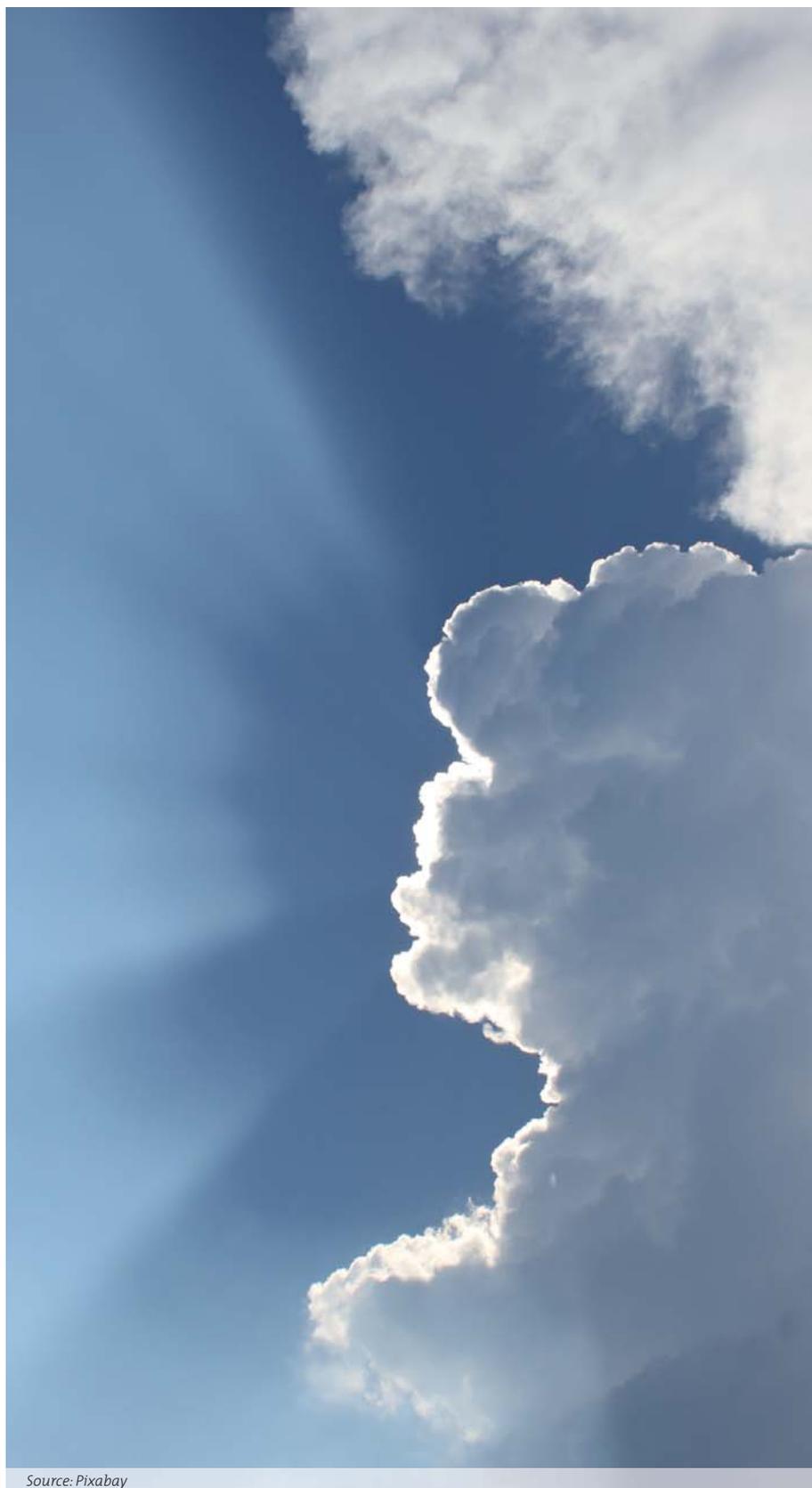
At this stage of the CORSIA process, and as mentioned before, it cannot be ruled out that serious issues will need much more time. In terms of the international political process, CORSIA comes into trouble – creating an emergency situation in which multilateralism would be challenged. To prevent a situation of this kind and related “unfriendly” debates and actions, all Parties to the ICAO should think about a preliminary start for the offsetting part of CORSIA, with reviews of the issues in question in 2022.

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CARBON MECHANISMS REVIEW

Applications for CORSIA: lessons learnt

Paper synthesizes key lessons from applications of offsetting programs for CORSIA and evaluates the degree to which the applicants satisfy the ICAO requirements. Download at www.carbon-mechanisms.de/en/CORSIA_lessons

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Glossary

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