CARBON MECHANISMS REVIEW

ISSUE 4 | 2016
NOVEMBER – DECEMBER

Confrontation or Convergence?

Analysis of Art. 6 proposals reveals mixed picture

Aviation Deal Settled

Two commentaries on the GMBM agreement

Content

November – December 2016

editorial

Dear Reader!

A mixed picture – this is what our analysis of the proposals submitted to the UNFCCC on Art. 6 of the Paris Agreement (PA) reveals. While Parties and observers are not surprisingly split over the level of oversight for Article 6.2 activites, most submissions do not discuss the question of contributing to increasing climate ambition at all.

This is all the more unfortunate, as it is not only a central requirement for market-based activities under the PA, but raising mitigation ambition is also a crucial strategy needed to secure the overall success of the Paris Agreement as a whole. It should therefore get much more attention in the oncoming negotations.

Apart from this analysis, the contributors to this Carbon Mechanisms Review report, among other things, on how the CDM can be meaningfully used for results-based finance and what progress the idea of a possible EU-internal project mechanism has made. Moreover, we present two commentaries on the recent aviation emissions deal.

On behalf of the editorial team, I wish you a good read!

Christof Arens

Wuppertal Institut

Carbon Mechanisms Review (CMR) is a specialist magazine on CDM/JI and new market mechanisms. The magazine also covers related topics such as nationally appropriate mitigation actions (NAMAs) and emission trading schemes. CMR appears quarterly in electronic form. All articles undergo an editorial review process. The editors are pleased to receive suggestions for topics or articles.

Published by:
Wuppertal Institute for Climate, Environment and Energy
(Wuppertal Institut für Klima, Umwelt, Energie GmbH)
JIKO Project Team
Döppersberg 19
42103 Wuppertal
Germany

Editor responsible for the content:
Christof Arens,
Energy, Transport and Climate Policy Research Group
Wuppertal Institute for Climate, Environment and Energy
E-Mail: christof.arens@wupperinst.org

Editorial team:
Christof Arens (Editor-in-Chief)
Thomas Forth, Lukas Hermwille, Nicolas Kreibich
Florian Mersmann, Wolfgang Obergassel, Timon Wehnert

Distribution:
Carbon Mechanisms Review is distributed electronically.
Subscription is free of charge: www.carbon-mechanisms.de

Layout:
Kleinefeld, www.v838.de

English Language Support:
Stocks & Stocks, Bonn/Düsseldorf
www.words-worth.eu

Photos:
Title page: André Reichardt/fotolia.com
Back page: ADB/Flickr.com

This magazine is compiled as part of the Joint Implementation & Clean Development Mechanism (JIKO) project at the Wuppertal Institute for Climate, Environment and Energy (http://wupperinst.org/p/wi/p/s/pd/592)
The editorial team works independently of the JI Coordination Office (JIKO) at the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.

ISSN 2198-0705


Photo courtesy of ENB / www.iisd.ca

Confrontation or Convergence?

Surveying Submissions on Article 6 of the Paris Agreement

Article 6 of the Paris Agreement established three approaches for countries to cooperate with each other: cooperative approaches, a new mechanism to promote mitigation and sustainable development, and a framework for non-market approaches. However, while the new "sustainable development mechanism" seems familiar as its principles strongly resemble the Kyoto Protocol's CDM, the other two approaches have so far not been clearly defined conceptually. Views by Parties and observers that were submitted under the UNFCCC at the end of September reveal some sharp differences in opinions on how Art. 6 should work.

Art. 6.1 of the Paris Agreement recognizes "that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity."

Art. 6 subsequently establishes three approaches for countries to cooperate with each other:

- First, Art. 6.2 and 6.3 provides the option for Parties to directly engage in "cooperative approaches" and to use "internationally transferred mitigation outcomes (ITMOs)" in achieving their NDCs. International supervision of these cooperative activities is not foreseen, but a work programme was agreed to develop guidance for Parties that want to engage in cooperative approaches.
- Second, Art. 6.4-6.7 establishes a new mechanism "to contribute to the mitigation of greenhouse gas emissions and support sustainable development", referred to by many as "sustainable development mechanism". In contrast to the cooperative approaches, this mechanism will be supervised by a body mandated by the Parties to the Paris Agreement. In addition, the Parties are to adopt rules, modalities and procedures which must be observed when implementing activities under Article 6.4.
- Third, Art. 6.8 and 6.9 provides for the use of non-market based approaches. Just how these are to work will be determined in the coming years with the development of a "framework for non-market based approaches".

All three approaches need to adhere to the cross-cutting principles established in Art. 6.1:

- Participation is voluntary for countries.
- Use of the cooperation mechanisms is to allow for raising climate action ambition, thus increasing the effort in terms of climate change mitigation or adaptation. This goes beyond the "zero-sum game" of the Kyoto Protocol, where emission reductions achieved under the flexible mechanisms were used one-for-one to offset emissions in the buyer country.
- The mechanisms are to promote sustainable development.
- The mechanisms shall ensure environmental integrity, meaning that all emissions and reductions will be properly accounted for.

The task of developing the guidance for cooperative approaches, the rules, modalities and procedures for the new mechanism, and the framework for non-market approaches has been mandated to the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA). After a first round of discussions at its session in May 2016, the SBSTA invited Parties and observes to submit views by 30 September.

While the new mechanism under Art. 6.4-6.7 seems familiar as its principles strongly resemble the Kyoto Protocol's CDM, the other two approaches have so far not been clearly defined conceptually. Consequently, submissions on the new mechanism go into implementation details whereas submissions on the other two approaches mostly try to define what the two approaches are.

What Are ITMOs?

The OECD Climate Change Expert Group (CCXG) notes that a mitigation outcome could in theory be expressed in terms of GHGs or in terms of non-GHG indicators (e.g. renewable energy capacity), which some NDCs focus on. However, CCXG also notes that none of the Parties with non-GHG NDCs have so far indicated an intention to trade with other Parties directly in terms of these non-GHG outcomes.

Among the Parties that express themselves on this issue, there so far is a clear preference to define ITMOs in tonnes of CO_2-equivalent. However, there is a split on what cooperative approaches are. Some hold that the concept should include any kind of cooperation between two or more countries seeking to transfer mitigation outcomes, which could include:

- Direct trade between governments;
- Units from domestic mechanisms, including allowances from emission trading systems and units from baseline and credit systems;
- Units from the new Article 6.4 mechanism;
- Units from existing UNFCCC mechanisms such as the CDM and JI.

By contrast, others postulate that Art. 6.2 should only provide for international transfers of mitigation surpluses for the achievement of NDCs. In their view, Art. 6.2 is not to cover domestic, subnational or regional emissions trading schemes.

Weighing the options: the Brazilian delegation's José Miguez.

Ambition, Anyone?

While the Paris Agreement mandates that Art. 6 should contribute to increasing climate ambition, most submissions on cooperative approaches do not discuss this issue in detail. Many simply assume that being able to cooperate will allow Parties to be more ambitious in their NDCs by making use of lower marginal abatement costs and/or foreign direct investment. By contrast, Brazil stipulates that only absolute emission reductions should be eligible to be transferred.

The US-based Centre for Clean Air Policy (CCAP) cautions that there is a high risk that an ITMO generated within an existing NDC of a seller country and used to meet an existing NDC of a buyer county would not result in additional ambition and could to the contrary result in double counting. By contrast, an ITMO that is generated and used going beyond the existing ambitions of seller and buyer country NDCs would be certain to lead to an increase in aggregate ambition.

Who Will Guide Cooperative Approaches?

On governance, there is a split on the question to what extent rule setting and enforcement should be done centrally, or be left to individual countries. Some countries propose to provide flexibility to "bottom-up" approaches, where Parties themselves would demonstrate environmental integrity. "Bottom-up" approaches could in their view best be tailored to the unique circumstances of the regions involved. Other countries posit that oversight by the implementing countries alone is not sufficient to ensure environmental integrity. They maintain that integrity can only be ensured if rules and governance structures are multilaterally-agreed and accountable to all Parties to the Paris Agreement.

What Types of Activities under the "Sustainable Development Mechanism"?

In contrast to the Kyoto Protocol, the Paris Agreement does not specify that the new "sustainable development mechanism" is about "projects", raising the question of the level of aggregation of activities (projects, programmes and/or sectors). Some countries argue for an "inclusive" approach in which projects, programmes of activities and sectoral approaches should all be eligible under the mechanism. Others envisage the mechanism to operate only at the project level, with rules very similar to those of the CDM.

Accounting for National Policies in the Sustainable Development Mechanism

When the rules for the CDM were discussed, there was a fear of creating a perverse incentive for developing countries not to strengthen climate policies. It was therefore decided that new national policies would not need to be reflected in the demonstration of additionality and setting of baselines of CDM projects.

The setting under the Paris Agreement is very different in that now all countries are expected to actively contribute to combating climate change. In the submissions, there is a corresponding consensus that additionality and baselines will need to account for national policies, except where NDCs are explicitly made conditional on the provision of climate finance.

Accounting Emissions

While in the Kyoto Protocol all commitments are of the same type – absolute multi-annual emission budgets – countries' contributions to the Paris Agreement have a huge variety of types. Some are targets for one year, some for several years, some refer to absolute emissions, some to emission intensity, some to a deviation from business as usual, and some not to emissions at all but to other indicators such as renewable energy. Accounting under the Paris Agreement will therefore be much more complex than under the Kyoto Protocol. Targets that refer only to a single year are particularly problematic as emissions in that year may not be representative of the country's usual emissions profile.

Some countries therefore consider that countries wishing to participate in cooperative approaches and the new mitigation mechanism should be required to establish and quantify a budget of emission allowances or an annual trajectory of emissions towards their NDC objectives. Others suggest to further explore how reconciliation might occur between Parties with different NDC types.


Photo courtesy of ENB / www.iisd.ca

Defusing the controversies: SBSTA Chair Carlos Fuller.

Assessing Sustainable Development Nationally or Internationally?

As has so far been the case in the CDM, the discussion on sustainable development revolves around the question of whether international provisions on cooperative approaches and the new mechanism should include international provisions on the promotion of sustainable development, or whether these should be left to the host countries. In particular developing countries posit that sustainable development issues are a national prerogative and should therefore not be subject to multilateral analysis under the UNFCCC. Others suggest that the UN Sustainable Development Goals provide a universal definition of sustainable development that could be used for assessing activities. In particular

non-governmental organisations also call for requiring to conduct local stakeholder consultations in a manner that protects the right to full and effective participation of affected peoples and communities. They also call for establishing an institutional grievance process as a means of recourse for project-affected people and communities.

To note, several submissions do not discuss sustainable development at all, despite the mandate in the Paris Agreement that activities under Art. 6 should promote sustainable development.

Defining Non-Market Approaches

Adoption of the framework for non-market approaches was mainly pushed by the Like-Minded Developing Countries[1]. In their submission, they outline some of the main purposes of the framework as assisting countries in implementing their NDCs in a holistic manner by facilitating access to finance, technology transfer, and capacity building for mitigation and adaptation, and contributing to map and register needs of countries and assisting them in matching them with means of implementation, as well as monitoring the support provided.

Other countries caution to avoid duplication of work with other processes under the UNFCCC. They suggest to focus discussions on possible synergies and coordination in non-market cooperation.

Various countries also suggest specific issues that could usefully be tackled under the new framework, including:

- Fossil fuel subsidy reform, this is mentioned by several countries;
- Phase-out of inefficient and polluting technology;
- Policy reform to create the enabling environment for increased deployment of renewable energy;
- development of NAMAs;
- reduction of black carbon;
- joint initiatives for the conservation of oceans and other ecosystems;
- the role of state-owned enterprises in fossil energy provision.

Ways Forward?

Some of the discussions on Art. 6 are continuations of previous discussions on establishing a "new market mechanism" and/or a "framework for various approaches". These discussions had for years revolved around the question of whether governance should be centralised or decentralised.

Evidently, these differences in opinion have not been settled. While cooperative approaches have been established as being subject to international guidance, not international governance, there still is the same controversy on whether the guidance should be binding and whether there should be international supervision or not. There also is controversy on whether the guidance should concern individual cooperative approaches or only the net mitigation results.

Similarly, discussions on the scope of the "sustainable development mechanism" echo past discussions on whether the "new market mechanism" should operate at the project or at the sector level.

Remarkably, discussions on non-market approaches seem to have moved past controversies on the usefulness of this issue, or lack thereof. There seems to be consensus that non-market approaches are ones that do not involve the transfer of mitigation outcomes. There also seems to be some convergence on the way forward: listing and working out examples and on this basis identify how to move on. Some submissions give specific examples of issues that could be worked on.

For the other two mechanisms, it may also be useful to take a step back and first discuss what issues will need to be resolved to make Article 6 operational. This approach is taken by the submissions of Canada and the EU. While the other countries lay out their positions in their submissions, Canada and the EU mostly lay out questions that will need to be answered. First getting a clearer picture of issues to be resolved may help defuse some of the controversies that have accumulated over the past years.

1 The group of like-minded developing countries includes China, India, and other Asian countries such as Malaysia, countries in the Organization of Petroleum Exporting Countries such as Saudi Arabia, and some Latin American countries such as Bolivia and Venezuela

Promoting energy access

Results-based finance within the framework of the CDM

Randall Spalding-Fecher, Francois Sammut & James Ogunleye, Carbon Limits AS

While universal access to modern energy services is a widely acknowledged global development goal, and the Clean Development Mechanism (CDM) has included methodologies to address most of the key energy access technologies, the impact of CDM on energy access to date has been very small. A recent study funded by the World Bank's Carbon Initiative for Development (Ci-Dev) tackled this issue with two goals in mind:

- Identify elements of viable and successful business models needed to promote energy access projects through results-based finance (RBF) to be delivered through the purchase of Certified Emission Reductions (CERs) under the CDM (called in short "CDM RBF"); and
- Identify reforms of CDM regulation required to facilitate the support of such energy-access investments by the CDM including through an RBF approach, as well as broader opportunities within climate finance to utilize RBF approaches for energy access.

This article presents a summary of the finding from this analysis (see blue box).

As background, results-based financing (RBF) is the payment for various development outcomes by a funder (often called the "principal") contingent upon the delivery of an agreed set of results by a recipient (often called the "agent"), with those results being subject to independent verification. Because the contracts between buyers and sellers of CERs have almost always specified that most of the payment was contingent upon the delivery of CERs, these contracts are also a form of RBF. However, RBF approaches may encompass a wider range of verified results (i.e. non-greenhouse gas (GHG) development benefits), a broader range of payment structures, and could include retirement of the CERs by the buyer instead of using them as an "offset" against their emissions reduction obligations.

Overview of questions on CDM RBF and energy access

Can CDM RBF help energy access businesses?

- What are elements of successful business models?
- Can CDM RBF support these directly or indirectly?

If so, how can CDM RBF help?

- How to structure the incentive?
- How to ensure reliable MRV and predictable "trigger"? - CDM Reform
- How to increase access to capital?

The elements of successful energy access business models can be broadly classified into four areas:

- Enabling environment: the external market framework for the sector, including regulations, policies, institutions, standards and testing facilities, and consumer awareness.
- Cost structure and cash flows: the key revenues and costs for delivering energy services, which are impacted by product cost, targeted subsidies, access to consumer financing, supply chain financing, and access to affordable fuel sources.
- Efficiency and structure: management capacity, distribution channels and network, collection systems, consumer mix, operational efficiency.
- Access to capital: corporate financing for growing businesses to create larger impact.

Supporting successful business models: key impacts from CDM RBF

CDM RBF can address many of the key elements for successful business models, with strongest direct impact on "cost structure and cash flows" (e.g. through the payment of direct incentives), and the standards and consumer awareness aspects of the "enabling environment" (e.g. by requiring that projects meet certain technical standards to qualify for payments).

Many of the critical "enabling environment" interventions in policy and regulation necessary to promote increased access, however, must be put in place before the energy access market can develop rapidly. There are several options for how a CDM RBF funder might support the policy aspects of the enabling environment: Establishing country eligibility criteria for the CDM RBF scheme, for example, would require certain market conditions to be in place prior to the carbon market intervention. Alternatively, a parallel funding instrument as part of a national programme of capacity building could be used by a CDM RBF funder. The CDM RBF funder could also partner with host governments to design the programme, to ensure that both parties had an interest in the success of the programme.

"Cost structure and cash flows" is the area where energy sector RBF has been used most often – to provide direct incentives to implementing agents following the verification of their results – and also how the investment in many CDM initiatives are justified. Successful use of RBF incentives, however, relies on strong intermediaries, local financing institutions, or supply chain financing that can bridge the gap between the time of investment and receipt of the incentive. RBF programmes need to identify and partner with institutions that can play these roles. Using a mix of payment milestones can also reduce the financing gap, as well as using incentives to directly support maintenance, after-sales service, and warranty enforcement.

Disseminating best practices in business models, and the use of some of these practices as eligibility criteria, could incentivise business model innovations and so positively impact the "efficiency and structure" success factors, but the impact from CDM RBF would be relatively indirect.

"Access to capital" is one of the most important issues in energy access, particularly to dramatically scale-up access. Upfront capita is needed, however, and a challenge with traditional results-based CDM funding has been the lack of knowledge and trust in the international and local financial community of the commodity which was to be delivered – meaning that contracts for CERs were not "bankable". The simplest way for an RBF scheme to support access to capital for project developers is through front-loading of revenues – making advance payments for a portion of the project's carbon revenue, based on a risk assessment and due diligence process. RBF funders could also development partnerships with equity investment funds and financial institutions to provide capital, while national governments could package CDM interventions within broader national mitigation initiatives such as NAMAs, to apply for upfront financing via climate financing facilities such as the Green Climate Fund. The impacts of the four success factors are summarized in Table 1 below, as well as how other climate finance-related instruments could support these success factors.

Table 1: The impact of CDM RBF and other instruments on elements of successful business models for energy access

	CDM RBF		Complementary Instruments	
	Direct	Indirect	Policy/ ODA	Capital
Enabling environment				-
Policy, tariffs import duties	L	L	H	-
Standards, awareness	M to H	M to H	H	-
Cost structure, cash flow				
Solar devices	L	M	-	H
Cook stoves	M to H	M	-	H
Grid, mini-grid	L	M	-	H
Efficiency and structure	L to M	L	M	L
Access to capital	L	L to M	L	H

Note: *L = Limited impact, M = Moderate impact, H = High impact*

Now that it is clear that CDM RBF can support certain elements of successful business models, the next question is how to design a scheme most effectively, including how to package the RBF components with other non-RBF financing instruments. This includes two ideas: how to design the structure of the CDM RBF incentives - the metrics used for results, price setting for those results and structure of payments; and how CDM reform can reduce the transaction costs and increase the predictability of delivery of CERs.

Structuring the incentive: measurement and pricing

Will CERs be the only measure for CDM RBF? While these funds would primarily use CERs as the verified result against which payments are made, there is a clear trend in climate financing to include additional metrics for performance other than GHG reductions. For energy access, this could be the usability of the energy services (i.e. hours of availability, reliability, affordability) or actual energy consumption levels.

In terms of price setting approaches for CDM RBF, the advantages of auctions merit further exploration, particularly when compared to the transaction costs and capacity needed for an "administrative" approach to pricing (i.e. the funder determining the price for CERs using various bottom-up cost estimates). However, certain administrative pricing approaches, such as estimating the costs of overcoming specific barriers or funding catalytic components of the overall programme, could provide an alternative that could be both cost-effective for funders and transformative for energy access markets. Administrative approaches to pricing also provide an opportunity for valuing non-GHG benefits and paying for multiple results by energy access programmes. In addition, linking CDM RBF pricing to other markets (e.g. trading exchanges for emission reduction commodities or other markets for social and environmental goods) can also provide a more rational basis for pricing, as long as these markets are well defined and robust.

Enhancing the predictability of the "trigger": CDM reform and beyond

For CDM RBF mechanisms to be effective, the CDM process must not only provide a trigger for payments, but do so in a timely and transparent manner. An incentive that is uncertain or delayed, even when the energy access goals may have been achieved, would undermine the entire CDM RBF scheme. This is why simplification and streamlining of the CDM can have a positive influence on the success of CDM RBF instruments. CDM

reform therefore has the most potential to impact the "cost structure and cash flow" element of successful energy access programmes, by reducing the transaction costs and time required to deliver CERs, as well as reducing the uncertainty associated with CER generation and potentially increasing the cash flows (i.e. if CER generation per household increases).

Expanding and simplifying the standardized baselines (SB) framework could support the increased use of carbon financing by energy access programmes, and reduce the transactions costs and time required to deliver CERs for a CDM RBF programme. Experience in least developed countries shows that data availability is often a problem. Proposing default values for common parameters that could be applied globally and/or by specific Designated National Authorities (DNAs) in their country would therefore make SBs more accessible in these countries. Recognizing existing national data on energy access, for example household survey data, as well as using official international sources, would also reduce the time and cost for SB approval. Where existing national data can be used, the cost would be minimal, although new data collection at the national level might need international support, including via climate finance.

Creating a standardized registration process and, for Component Project Activities (CPAs), a standardized inclusion process for activities considered automatically additional under the current rules would allow many energy access programmes to generate CERs more quickly and with lower transaction costs. The simplified process would eliminate the detailed validation step by a Designated Operational Entity (DOE) prior to registration, and substitute a simple checklist for determining eligibility, which the UNFCCC Secretariat would review as part of the standard completeness check. The projects would be registered on this basis, and all of the project characteristics and performance would be confirmed by a DOE during the first verification. Because no CERs would be issued until after first verification, such a change would not compromise the environmental integrity of the CDM. It would, however, dramatically reduce the transaction costs and time required to get to registration (e.g. 6 months instead of 2 years or more) – so that projects could start generating CERs earlier. The early registration could also reduce uncertainty for investors and RBF funders, and could increase the total revenue that projects can earn. The registration of the overall Programme of Activity (PoA) would remain the same, with a full validation by a DOE. Safeguarding the environmental integrity of the CDM would require regularly reviewing the automatic additionality provisions that would allow certain project types and locations to access this simplified process, as is currently the practice in the CDM.

Tackling access to capital

As one strategy for addressing the access to capital required by successful energy access business models, CDM RBF funders can front-load payments in Emissions Reduction Purchase Agreements (ERPAs). While there are some examples of linking project finance to delivery of CERs, carbon finance has not traditionally provided significant upfront capital for energy access programmes. For activities with lower risk of non-performance, more of the payments could be shifted to an earlier point of time in the project life. This could accelerate the energy access investments while still keeping operational incentives. RBF funders could consider whether a modest share of the value of the carbon revenue could be paid early in the project cycle (e.g. at registration), following the earlier example of World Bank carbon funds.

As an alternative to front loading payments, pre-issuance of a portion of CERs could bring forward the cash flows for energy access programmes and reduce the time required to recoup their investment, which would in turn reduce the need for upfront capital from other sources. The concept would be to issue a percentage of the expected first monitoring period CERs at registration, instead of waiting until after verification to issue any CERs. The percentage of CERs brought forward by a

year (or more) could relate to the historical performance of that technology under the CDM. After the first verification, the remainder of the CERs for that period could be issued, plus a share of the expected CERs from the following period. To safeguard environmental integrity (i.e. minimise the risk of issuing CERs for mitigation that never occurs), the pre-issuance practice could be restricted to technology areas where the risk that the project will not continue to operate as planned is low, or the share of pre-issuance could be reduced to account for increased risk of non-performance. A share of CERs could also be kept in a "buffer account" to mitigate the risk that emissions reductions will not be achieved. Because pre-issuance introduces additional risks, however, (since the "result" has not yet been achieved), partial up front financing would be the preferable approach to reducing the project owner's need for capital.

Financial instruments that specifically address upfront capital requirements are crucial to address this success factor for growing energy access businesses. Equity investment funds and structured financing tools could be packaged with CDM RBF schemes, so that recipients of performance-based payment contracts might qualify to receive other forms of capital financing. The role of donors in reducing risk in these funds, and "crowding in" private capital is essential. One avenue for bundling these complementary instruments, including the financing instruments, is to do so under the umbrella of national or sectoral mitigation progammes, such Nationally Appropriate Mitigation Actions (NAMAs) or similar instruments under the UNFCCC. These could encompass both CDM RBF instruments in the energy access sector as well as other elements such as capacity building, regulatory support, and provision of project and corporate financing to energy access businesses. The operationalisation of the new larger scale climate financing channels, such as the Green Climate Fund (GCF), could represent a substantial new source of support for broad sectoral energy access programmes and for a range of RBF initiatives for energy access.

Harnessing future carbon markets for energy access

Moving beyond the current CDM rules to explore sectoral or aggregated crediting for energy access programmes could overcome the barriers of high transaction costs and uncertainty under the CDM, and also expand the range of activities that could receive support. To broaden the scope of the crediting to a sectoral level, however, new methodological approaches are needed. This could potentially be part of the development of new market mechanisms under Article 6 of the Paris Agreement.

The practical challenges will be establishing a baseline for the consumption at an aggregate level and finding a way to capture the diversity of household access levels and previous energy use patterns in a highly aggregated measure of access. RBF funders could pilot such approaches using their own pipeline of projects as case studies of the options for setting these more aggregated baselines and emission reduction calculations. These could be examples of the "cooperative approaches" discussed in Article 6.2 of the Paris Agreement and/or could form the basis of negotiating the rules for the international mechanism under Article 6.4. Where the credits generated from energy access activities would be cancelled instead of used as offsets, such a system could even fall under the non-market mechanism in Article 6.8. In any case, supporters of the energy access agenda should work to ensure that the Article 6 rules can accommodate the needs of energy access business models, and support the scaling up of these technologies under the Paris Agreement.

The full report is available at: www.ci-dev.org/sites/cidev/files/doucments/Ci-Dev%20-%20Business%20Model%20Study%20-%20Energy%20Access%20%26%20RBF%20-%202015-11-25%20-%20FINAL.pdf

Aviation Deal: Breakthrough or Illusion?

Two commentaries on the ICAO offsetting scheme

In October, at its 39th meeting in Montreal/Canada, the International Civil Aviation Organization (ICAO) adopted a decision on implementing on market-based measure (MBM) to reduce greenhouse gas emissions from international aviation. This measure is to complement a basket of actions designed to achieve carbon neutral growth of the sector from 2020 onwards (the Carbon Neutral Growth Goal, CNG 2020).

The new market-based instrument, called Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), foresees that in order to address the relevant emissions, participating states have to aquire and redempt a corresponding amount of emission reduction units, stemming from, for example, the CDM, REDD+ activities, or voluntary market schemes. CORSIA is going to be introduced in different stages, beginning with voluntary participation from 2021 to 2026, and a mandatory phase from 2027 onwards[1].

The negotiations on the MBM have been extensive and were subject to heated debates; the assessments of the deal reached in Montreal thus differ significantly. Against this background, the Carbon Mechanisms Review has asked two organizations that took part in the negotiations to present their evaluation of the outcome. Aki Kachi is International Policy Director at CarbonMarketWatch and has observed the ICAO negotiations from an NGO's perpective, whereas Thomas Forth advises the German Federal Ministry of the Environment on carbon market related issues.

No Rest for the Weary

The nitty gritty of environmental integrity and moving beyond pure offsetting

by Aki Kachi, Carbon Market Watch

Parties to the International Civil Aviation Organization (ICAO) recently adopted a scheme to compensate future aviation emissions. The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is designed to make carbon emission growth neutral from 2020 levels (CNG2020). This is an important, but insufficient, output after 20 years of debate: the 1997 Kyoto Protocol's Article 2, paragraph 2 directed Parties to work through ICAO to mitigate emissions from international aviation. After so many years, it is understandable that policy makers want to take a break to pat themselves on the back. But climate change is an urgent issue and the effectiveness of CORSIA is entirely dependent on further technical discussions. Now is not the time for a vacation.

Why is it important to address international civil aviation emissions?

Aviation is a global top ten climate polluter, responsible for more emissions than Canada – a major oil producer. Emissions are expected to grow about 5% a year from 2015 to 2034[2]. These estimates exclude other gases emitted from airplanes and the fact that emitting at high altitudes warms the world more than emitting on the ground. Aviation could account for 27% of the global carbon budget under a 1.5 degree scenario by 2050[3].

1 Details on the CORSIA scheme can be found at http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx

2 "The aviation industry faces huge challenges if it is to meet its own self-imposed climate change targets, according to a new UN report." Carbon Brief. 8 August 2016. https://www.carbonbrief.org/aviation-consume-quarter-carbon-budget

3 ibid

Relevance of CORSIA

CORSIA is an important diplomatic achievement. It is, however, clear that even in the best case – where all offsets represent actual emission reductions and are not double counted – it will neither reach the CNG2020 goal nor does it mean that aviation is doing enough to fight climate change.

CORSIA is only one of a "basket of measures" to address aviation-related emissions, which includes biofuels (the carbon balance of which depends on how they are produced), and efficiency and operational improvements. But ICAO expects CORSIA to play by far the biggest role in trying to reach the CNG2020 goal. The problem is that offsets do not and will not reduce the actual emissions coming out of airplanes, and these will continue to grow. Far from "curbing" or "limiting" or "capping", offsets in the best case only compensate for emissions through reductions elsewhere – a zero sum game. In the worst case, they are little more than serial numbers providing additional income for activities that may have happened anyway, or that have already been paid and taken credit for. Sometimes, crediting produces perverse incentives to emit more or hold back ambition, while certain projects have serious negative environmental and social consequences.

Is CORSIA effective?

The scheme's environmental integrity is essential. Fundamental building blocks of an effective offsetting system of high environmental integrity include: accurate Monitoring, Reporting, and Verification (MRV) of airplane emissions to determine obligations; broad coverage of participating countries; the environmental integrity of the units used; robust accounting between climate targets; secure and synced registries for obligations and trading; transparency of information, including a public participation process; and airline compliance. Many of these factors are not clear and each could undermine CORSIA's environmental integrity.

A resolution of this kind can only go into so much detail, but even high level language regarding several important principles was omitted. Instead, these issues will now be deliberated in opaque technical meetings with limited public access, a world away from how deliberations in the UNFCCC function or how other regulatory decision-making on offsets, for example in the EU or California, have been conducted. This leaves the effectiveness of CORSIA uncertain.

Coverage

The size and kind of aircraft as well as the countries whose airlines will participate are a major factor in the effectiveness of the measure. CORSIA is voluntary until 2027. While around 65 countries have already come forth to say they will participate from the start, the late "mandatory" start date is a far cry from full participation from 2021. It also does not preclude future decisions to "discontinue the voluntary participation from the scheme".

Also, a number of exceptions were permitted for small aircraft and humanitarian, medical and firefighting aircraft. Further exemptions were made for countries with low aviation emissions, Least Developed Countries, Small Island Developing States, and Landlocked Developing States. More worryingly, some larger countries with rapidly growing aviation sectors, including India, Russia, Argentina and Venezuela, opposed even the unambitious CNG2020 and may "reserve" on the resolution, throwing their participation into question.

Participating states could make up for the exemptions and non-participation, but resistance from countries and airlines means the CNG2020 target will not be met. The International Council on Clean Transportation expects this to mean that CORSIA will fall short of compensating all emissions above the 2020 level by around 25%.

Effectiveness and integrity? Views on ICAO's aviation deal differ.

Environmental Integrity and Offset Eligibility

A vital factor affecting the environmental integrity will be the eligibility criteria for programs and types of units, including how old the projects are or when reductions occurred, sometimes referred to as their "vintage". Important high level language such as in the Paris Agreement: "environmental integrity and transparency, including in governance" was omitted. Instead, the opaque technical level will make recommendations on offset eligibility criteria. A welcome last minute change provided for automatic eligibility of units from the UNFCCC and the Paris Agreement subject to further eligibility rules, "including on avoiding double counting and on eligible vintage and time frame". Beyond that last minute addition, double counting is not mentioned anywhere in the resolution. Exactly how trading, accounting, and compliance will work under the Paris Agreement is still unclear, but a complication is that the Paris Agreement currently only refers to double counting between countries' nationally determined contributions (NDCs) and does not explicitly mention other sectors such as international aviation.

This last minute addition is giving UNFCCC credits limited eligibility; however, it does not exclude other offsetting programs. Yet many of these programs have been subjected to less scrutiny over the years and vary with regard to methodologies, stringencies and practices for

avoiding double counting. Vintage issues will be important to exclude an oversupply of cheap and sometimes more controversial credits from existing projects based on old and sometimes outdated offset methodologies. Many existing projects have questionable additionality or are based on inflated baselines. Most up and running projects are reducing emissions without CORSIA. Thus, creating a new market for existing projects may not lead to any further emission reductions, whereas using offsets from projects that are at risk of shutting down or from new projects would actually expand the mitigation benefit.

Compliance

Compliance with CORSIA is also essential. It is not entirely clear which aspects of the rules will be included in yet-to-be-developed "Standards and Recommended Practices" (SARPs) – ICAO's strongest regulatory instruments. The current rate of compliance with SARPs is unknown, but it is likely that many countries are already non-compliant with other SARPs (not necessarily related to climate change). In order to address this issue, ICAO has initiated a whole program called "No Country Left Behind" to help countries improve compliance[4]. Everything must be done to facilitate compliance with the rules and this must include greater transparency.

Review

On the one hand, it is encouraging that ICAO parties built a review clause into the future of CORSIA. On the other, the review does not necessarily mean a progression beyond measures. The first review is scheduled for 2022. If it determines that more ambition is needed, this will not take effect until 2025. The review could, however, also weaken CORSIA; an explicit provision to consider CORSIA's "impact on the growth of international aviation" is not promising. Further, in a parallel resolution on climate change in general, ICAO Parties removed a reference to an assessment of "the share of international aviation in the global carbon budget in light of the 2 °C and 1.5 °C temperature goals" when considering further climate change measures[5].

Next Steps

For the effectiveness of CORSIA, it is therefore vitally important that environmental integrity be the guiding principle for future technical discussions. Policy makers and civil society seriously interested in substantial regulation should advocate and ensure that the technical discussions on MRV, criteria for environmental integrity, accounting, and compliance come up with a result that is as robust as possible, and erring on the side of caution.

Given that it is clear that CORSIA will fall short of the CNG2020 goal, national and regional measures must go further to actually reduce aviation emissions and increase ambition as they have promised under the Paris Agreement. This means abolishing aviation fuel subsidies and ending international aviation's fuel tax exemption, which is valued at $60bn a year. It also means eliminating other tax breaks and state aid for aviation and airport expansions, investing more in research and development for efficient aircraft, mandating progress, and simply not flying whenever possible.

4 More information on „No Country Left Behind" at: http://www.icao.int/about-icao/NCLB/Pages/default.aspx

5 ICAO. Report of the Executive Committee on Agenda Item 22. 6 October 2016. http://www.icao.int/Meetings/a39/Documents/WP/wp_529_en.pdf

Much better than nothing

ICAO takes first step for offsetting - addressing climate change adequately is a different matter

by Thomas Forth, Advisor to the German Environment Ministry

With the decision on GMBM, the 39th ICAO Assembly delivered an important but still incomplete framework for the introduction of the so-called global market-based measure, the GMBM. Reaching this consensus was a fragile process that took many months. With 65 countries supporting the GMBM by the end of the ICAO Assembly, 85% coverage of international aviation had been reached, representing more than a critical mass. This is a good result even if some countries like India and Russia have taken a critical standpoint. The decision hopefully lays the foundation for total compensation of the increasing share of GHG emissions in the aviation sector.

GMBM will be introduced in a three phase approach: as voluntary phases, the pilot phase and phase 1 will hopefully reach this promised high coverage of aviation emissions. Both phases are planned to end in 2026 with the start of phase 2, which is intended to be designed bindingly. GMBM can thus be expected to be fully effective from 2026 to 2035. This is 10 years away and even if the coverage in the voluntary phases exceeds expectations, the introduction of GMBM has been set on a slow track. So what does full coverage of the growth of aviation emissions mean considering that emissions are not calculated on the basis of the RFI factor?

From the beginning of GMBM it should be remembered that GMBM neither tackles the total increase in flight emissions nor provides any contribution to overall global emission reductions by means of reduction or carbon neutrality targets. Thus, GMBM with its tendency towards offsetting should be strengthened throughout the next decade and not be postponed until a later phase 4.

Compared with a "do not decide" scenario on GMBM, the ICAO decision must be considered a success for the time being, but only in the political sense. However, it is evident that this is not enough to comply with the LTG, the long-term goal of the Paris Agreement and any de-carbonization vision. Much more effort and the use of further instruments in addition to the offsetting approach are needed in order to allow for climate-friendly transformation of the aviation sector. This could be induced with a broad set of instruments which includes carbon markets. The challenge here is to provide the right incentives with pricing carbon in the aviation sector completely. The combination of instruments, one triggering sectoral transformation, one offsetting the emissions which could not be avoided, is something to table on today's global political agenda. It should not be left until tomorrow. Discussions and initiatives to substantiate concepts and generate political will are needed at global level, along with the introduction of the actual GMBM approach, which is based on limited offsetting.

In the run up to GMBM's pilot phase, key questions must be answered in the course of the next few months. In Montreal, a consensus has been reached in which the avoidance of double counting is an issue that cannot be neglected. It comes down to the basic question of ensuring environmental integrity on the design level. Resolution 22/2 "Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme" stated the requirement explicitly in para 21: "Decides that emissions units generated from mechanisms established under the UNFCCC and the Paris Agreement are eligible for use in CORSIA, provided that

Source: abstrkt.ch / Flick.com / CC BY 2.0

Tackling the emissions: sequence of starting planes at Zurich Airport.

they align with decisions by the Council, with the technical contribution of CAEP, including on avoiding double counting and on eligible vintage and timeframe". The rationale behind the avoidance of double counting is well explained by Martin Cames and Lambert Schneider in their article "Defining the Essentials" (cp. CMR #3/2016). The decision thus raises questions concerning technical implementation.

From decisions to implementation

Aviation emissions are polluting the atmosphere, while offsetting certificates cannot be generated out of blue skies. Emission reductions have to be undertaken in the territories of Parties to the Paris Agreement. This may sound banal, but the picture becomes clearer when considering future technologies. Under the Kyoto-Protocol, use of CERs never posed a challenge to double-counting. Under the Paris Agreement, things have become more complex and are going to complicate offsetting approaches. Any deliberation on technical implementation of the avoidance of double counting should start with the National Determined Contribution (NDC) of the Parties to the Paris Agreement. There is substantial interest among Parties to reach their inherent or explicit emission reduction commitments as agreed politically at UN level. There is no incentive for governments to leave the opportunity to harvest cheap emission reduction potentials to foreign companies. And even for their national airlines, the question is basically the same: Does the government need these cheap emission reductions for its own commitment? This conflict of interest may appear discouraging to a certain extent.

An assessment of current market opportunities would thus be helpful to illustrate the chances of the new offset markets for airlines, service providers, intermediaries and project participants: About 80 Parties decided in

their INDCs to consider markets as an appropriate tool to increase their ambition. There is thus a clear trade-off of international support via carbon markets revenues or, with some restrictions, even climate finance money on the one hand and on the other with the country's own contribution. Going beyond the level of their own NDC is the ultimate purpose of the collaboration Article 6 PA, especially of Articles 6.4 and 6.5. Article 6 PA has greater potential to clarify which emission reduction activities can be performed only with supplemental resources coming from outside the country.

The carbon market instruments and tools, when adjusted to the framework conditions of the Paris Agreement, may be the means of choice here – especially in determining the new additionality requirement. One example for this could be the concept of standardized baselines (SBs) on various aggregation levels, which can define additionality in detail. With SBs and the Program of Activities (PoA) approach performed under the CDM, a country could decide to integrate these carbon market instruments into their own national climate relevant strategies, regulations and programs.

This is a simple concept, but it is not as simple to implement as it sounds. To implement it, host countries need far more capacity and support. And even then, it involves a huge technical workload for and internal policy coordination by the host countries. This is work which must anyway be carried out in order to implement Article 6 of the Paris Agreement. Parties that go this way are going to benefit more from Article 6 than others. And those Parties will be able to provide the spheres and scopes allowed under certain conditions for offsetting under ICAO. This is a most important policy issue where ICAO meets the territories of the Paris Agreement.

This is by no means off topic. Avoidance of double counting under ICAO has to be safeguarded primarily by the Parties to Paris Agreement. Their tracking systems, their reporting, their registries and as soon as possible their inventories must make transparent from which spheres and scopes the certificates are transferred to the ICAO registry on the airlines' accounts. And the registries must contain the numbers of certificates which are booked out and transferred to ICAO. For transparent and direct access to the information in the registries, ICAO must be asked to oversee avoidance of double counting.

For ICAO, it is an easy job and one could be tempted to mull over the reasons for the restrained debate under ICAO right up to the last day of the 39th Assembly. With regard to the Parties to the Paris Agreement, their technical burden in avoiding double counting is not all that great if it is accepted that tracking systems and book-keeping do not presuppose a fully electronic system which is integrated into a global ITL and covers all GHG emissions of the host country. This is a clear statement that the priority has to be set on the mitigation outcome and that the technical support systems could follow, starting with homemade auxiliary constructions which should be standardized by international guidance and be of a transient nature.

Left overs and next steps

GMBM cannot start without further regulation. Standards and recommended practices (SARP) on emission reduction units and on MRV should be developed by autumn 2017. The challenges of the avoidance of double counting and the readiness of Parties to participate on the supply side of offsetting certificates has to be supported. Initiating institutions and supporters should feel encouraged to do so. Host countries have it in their own hands to prepare for the opportunity of GMBM and should participate in the respective upcoming networking opportunities. Regarding the upgrade of the offsetting features of GMBM to accommodate higher ambition, the process has not been initiated to date. Finally, with a view to the fundamental criticism of the stocktaking with the long-term goal of the Paris Agreement, new concepts which integrate the sectoral low carbon emission pathway by expanding carbon pricing incentives might be the right idea along with the use of other instruments.However, no overview of such ideas and concepts is available at the present time. Support is thus needed for global exchange and debate on this issue.

A window of opportunity

The European Project Mechanism under the Effort Sharing Regulation

by Daniel Scholz, FutureCamp Climate and Roland Geres, FutureCamp Holding

The discussion on a so-called European Project Mechanism (EPM) started in 2015 when first papers on this issue emerged (cf. CMR #1/2015). Now, as the EU Commission's proposal for the Effort Sharing Regulation is available, it is time to revisit this discussion. The short input delivered here presents the current state of the debate as seen by the authors, also drawing conclusions on the prospects of an EPM under the post-2020 framework. Until 2012 the authors' company, FutureCamp, was strongly involved in implementation of JI projects in the EU and more recently in a research project that analysed the merits and the design options of an EPM.

The Effort Sharing Regulation and its flexibilities

Around 60% of European greenhouse gas emissions accrue in non-ETS sectors. These emissions are dealt with under the so-called EU Effort Sharing. With the current Effort Sharing ending in 2020, the policy making process for the framework up to 2030, the Effort Sharing Regulation (ESR) is in full swing. Final results are to be expected by the middle or the second half of 2017.

On 20 July this year the EU Commission tabled its ESR proposal[6]. It is based on the 30% target for the non-ETS sector in 2030 (against 2005 levels) as agreed by the Heads of State and Government in October 2014.

The ESR proposal shares out annual emission allocations (AEAs) for MS, based on GDP average per head. It also defines flexibilities that may be used by MS for meeting the targets: Apart from the existing flexibilities of banking, borrowing and trading of credits, these are firstly a one-off ETS flexibility for use of certificates from national EU ETS auctioning budgets. Nine countries with GDP per capita above the Union average may use it to shift compliance obligation (in total for all MS no more than 100 m from 2021 to 2030) from the ESR into the ETS scope. The other new flexibility is a land-use sector flexibility, which – according to the size of their emissions from agriculture – allows countries to use achieved domestic net mitigations in related sectors (afforested land, managed grassland and cropland) for ESR targets. Use of this flexibility is capped at 280 m in total for the years 2021-2030.

While the flexibilities in the Commission's proposal do not include a defined, centralized EPM instrument, the preamble (recital 14) highlights that there is large freedom for MS as to how to implement transparent transfers of AEAs, be it by "use of market intermediaries acting on an agency basis, or by way of bilateral arrangements".

Such arrangements could well entail EPM activities. The impact assessment that accompanies the proposal explicitly acknowledges the many values of projects through channelling investments for mitigation where needed while also "enhance[ing] cost-efficiency and fairness across the EU".[7]

6 COM(2016) 482 final, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016PC0482&from=EN

7 SWD(2016) 247 final, p. 78. https://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/10102-2016-247-EN-F1-1-ANNEX-1.PDF

Driving mitigation: the EPM is to create momentum for emission reductions

The EPM: Its charm of driving mitigation and its premises

The authors understand the EPM as a broader concept under which States may go ahead with the bilateral and unilateral (!) implementation of AEA credited activities. This means that the measures shall be financed from the value of set-free AEAs. It does not (!) mean that AEAs will become a private market commodity. As a framework, it would be generally open for all kinds of activities – from project-based approaches to more sectoral kinds of crediting/climate finance. The only relevant stipulation is that it would take place in ESR sectors. The character of a single activity would follow MS interests and conditions.

The most important benefit of an EPM (setting it apart from the new ESR flexibilities) is its potential to create momentum for emission reductions. The EPM may improve the actual emission trajectory under the ESR. Furthermore, in the face of the strict target allocation rules (by average GDP per head), the EPM may help shift mitigation to CEE countries with larger mitigation potentials and benefits, thereby helping overcome the anticipated lock-in effects and enhancing cost-efficiency. Moreover, the EPM may create a net benefit for host countries and their inventories – thereby inspiring political action among hosts with respective potentials. Examples of such provisions proved viable under JI, where respective benchmarks for crediting or levies on the issuance volume helped countries to improve their emissions position.

Making an EPM framework work comes with clear premises. The following three are of central importance. First, climate integrity is indispensable. It touches upon fundamental issues like additionality and double-counting. An EPM has to fulfil such quality requirements if it is to inspire countries as sellers. Thus, it must be founded on principles and provisions that deal with these challenges adequately.

Second, reliability of channelled trades is essential for both seller and buyer countries. Only if AEA delivery and receipt of payments is assured, can cooperation

on trades take root on a larger scale. Here again, the assured integrity may play a role. This is also true for transparency on prices and emission reductions/positions.

Third, practicability and manageability are essential criteria for project participants to invest. Availability of AEA price signals is important. This issue also concerns the design of an EPM. Only if transaction costs and administrative burdens are kept at a reasonable level can the private sector bring into play its important roles: Through identification of reduction measures, the financing of such measures and the ability to bear the risk that is still connected with a well-designed project.

Based on past experience with JI (especially track 1) within the EU, the odds are good that all three related issues may be properly addressed under an EPM. The provision of a central information site on transactions may support the creation of the required transparency.

Political hurdles for an EPM?

A review of the targets and flexibilities of the tabled ESR proposal sheds doubt on whether the policy framework does actually provide for substantial demand by MS, be it for AEAs and/or further mitigation. CAN Europe, for example, shows that tabled new flexibilities from the ETS and land-use sectors already more than just saturate MS needs for meeting compliance. Carbon Market Watch calculates a melting down of the 30% target in actual terms to just 23% of necessary emission reductions.[8]

If this holds up, the proclaimed objective to keep incentives for real additional action alive would be missed. (Too) little ambition under the ESR also means no or only little potential for an EPM. Notably, the one-off flexibility stands in direct competition to the EPM flexibility. In the end, the one-off flexibility could crowd out demand for an EPM by MS that otherwise could be inclined to use it as an alternative source for certificates.

Despite the many favourable arguments, the scenario still gives rise to questions: First, it is difficult to assess the actual ambition level of the complete ESR proposal as projected emission paths for MS are based on assumptions regarding the further strengthening of EU policies, e.g. for the transport sector. It is not certain that policies will turn out as ambitious as assumed in the impact assessment. Also, the complete package, including LULUCF, has not yet been decided. Second and no less noteworthy: It has not been ruled out that ambitions may be raised as result of the stocktaking process under the Paris Agreement. This could change the demand scenario for an EPM completely.

Another more cognitive hurdle is the assumption that an EPM necessarily entails high political and administrative costs. In a dedicated paper on design options, the authors of this contribution contested this perception. They showed that there are effective ways for omitting overly bureaucratic approaches through clever, mostly decentralized design of the instrument. For many such helpful elements intra-EU JI and GIS have already proved their viability.

But even if we take both a low ambition level for granted and concede that a decentralized state-driven EPM that uses many available and proven elements still comes at a certain political price, there are strong arguments to advocate for an EPM. We focus on this in the last part of this article.

To be or not to be: Why it is time for pilots

Despite the political hurdles for an EPM (with all the related uncertainty) there is a strong rationale for MS to start pilots now. At least four arguments can be put forward:

1. The question of how to raise ambition in the EU is already imminent. The important window for adjusting the European commitment to the 2°C/1.5°C reality may close even before 2020, and in 2025 at the latest. If, meanwhile, the EPM becomes a showcase for practicability and reliability of inter-state flexibility, this may generally help MS to aspire

8 CAN Europe (2016): Evaluation of the European Commission's Effort Sharing Regulation proposal; Carbon Market Watch (2016): The 2030 Effort Sharing Regulation – How can the EU's largest climate tool spur Europe's low-carbon transition?

more and the EU to organize political consensus. In the end, an EPM may provide an efficient tool to overcome the structural lock-in effect from strict attribution of targets and thus reduce overall costs for the benefit of all. It has the potential to facilitate CEE countries to become AEA sellers and attract additional finance for coping with gradually more stringent targets.

2. Furthermore, it is also true in general that the EU needs enhanced and visible cooperation on all levels and in all policy fields. In climate policy, with closely interconnected and important issues like energy transformation, economy-wide decarbonisation, etc. and all related effects on innovation, employment and transformation, an EPM may become an important stepping stone in European policy cooperation – and in how it is perceived by the general public. Cooperation on real projects on the ground (rather than on hard-to-communicate European programs) may help create political capital that is needed right now.

3. Under the Paris Agreement, the importance of involving the private sector with all its potentials for effective mitigation is politically acknowledged. With an EPM, the EU may send yet another signal (internally and internationally) that it takes this confirmation seriously. In contrast to all other ESR flexibilities, the EPM may facilitate the involvement of the private sector directly. It may also define a channel for voluntary offset project development where currently the double-claiming issue causes headaches.

4. Moreover: The Paris outcome on carbon markets was cheered by many – but in order to make it operational, the remaining workload on the international level is immense. With a functioning EPM, the EU may help move forward through bottom-up development of approaches by MS. This may result in a framework that could become a blueprint for ITMO trading. With the aspiration to meet all three aforementioned aspects, i.e. carbon integrity, reliability and manageability, the endeavour of an EPM may become a substantial contribution to the development of a functioning flexibility framework for GHG mitigation under the UNFCCC.

In sum, EPM pilots today could bring many valuable benefits to climate policy, both in Europe and beyond. It thus makes sense to start trials now.

Further reading:

Geres, Roland, Daniel Scholz, Lina Li, Dennis Tänzler (2016): Design Elements of an EPM. The publication can be downloaded at:
http://download.future-camp.de/EPM-project/files/EPM_Design_Elements_2016-05.pdf

Geres, Roland, Daniel Scholz (2016): Use of Project Mechanisms in Europe – insights from Joint Implementation (JI). Download at:
http://download.future-camp.de/EPM-project/files/EPM_JI_Reference%20Mechanism_2016-05.pdf

Geres, Roland, Felix Nickel, Daniel Scholz, Lina Li, Dennis Tänzler (2016): The Merits of an EPM. This publication can be downloaded at:
http://download.future-camp.de/EPM-project/files/EPM_Merits_2016-05.pdf

Graichen, Jakob, Hannes Böttcher, Verena Graichen (2015): Enhanced flexibilities for the EU's 2030 Effort Sharing Decision. The publication can be downloaded at:
https://www.oeko.de/oekodoc/2373/2015-537-en.pdf

Mayer-Ohlendorf, Nils, Matthias Duwe, Benjamin Görlach, Ennid Roberts (2015): EU Effort Sharing Decision after 2020: Project-Based-Mechanisms and Other Flexibility Instruments. Download at:
http://ecologic.eu/sites/files/publication/2015/esd_flexibility_instruments_09072015.pdf

Tuerk, Andreas, Jan Cochran, Istvan Bart, Oliver Sartor (2015): Enhanced flexibility in the EU's 2030 Effort Sharing Agreement: issues and options. This publication can be downloaded at:
http://climatestrategies.org/wp-content/uploads/2015/03/CS-2030-Enhanced-flexibility-in-the-EU-2030s-Effort-Sharing-Agreement.pdf

From Kyoto to Paris and beyond

On the interconnections between Sustainable Development and Climate Policy

by Marion Verles, Owen Hewlett and Sarah Leugers, The Gold Standard

Why should UNFCCC negotiators care about the Global Goals? Why should we move away from silo thinking and craft strategies that recognise the interconnected nature of development and climate change? Put simply, why should we think of an improved cook-stove initiative as a carbon project? Is it right to think of gender empowerment as a 'co-benefit' to climate mitigation?

To rise to the ambition of the Paris Agreement and Agenda 2030, greater ambition for climate security and sustainable development is needed. This article outlines a vision for how the Global Goals can be a lever for more ambitious climate action.

Sustainable Development, from Kyoto to Paris

In the Kyoto Protocol, sustainable development is mentioned three times. The concept is used to qualify the overarching purpose of policies and measures implemented by the Parties: 'to promote sustainable development' (Article 2.1) and 'to achieve sustainable development' (Article 10). The concept also qualifies the objective of the Clean Development Mechanism 'to assist Parties ... in achieving sustainable development' (Article 12). However, these provisions do not propose a holistic view of the development and climate challenges. Rather, they simply provided reassurance to the Parties that climate mitigation efforts would not conflict with their development aspirations.

Compare that with the Paris Agreement, where sustainable development is mentioned 22 times – six times in Article 6 alone. This includes the formal acknowledgement of the 2030 Agenda in the Preamble of the Agreement, the recognition of sustainable development 'co-benefits' from mitigation actions (§109 of the Paris decision) and the recognition of the 'intrinsic relationship that climate change actions .... have with equitable access to sustainable development' (Annex Preamble).

Seventeen years after Kyoto, the Paris Agreement shows an evolution in the way an international agreement for climate security is perceived. It no longer safeguards against an obstacle to development. It represents the vehicle by which development is ensured. In Kyoto, negotiators were concerned about the costs of climate action. In Paris, negotiators saw its value - and the potential of sustainable development as a lever to raise ambition.

This evolution takes its roots inside and outside the UNFCCC process. Internally, two main drivers are the acute realisation of the CDM's failure to deliver on basic sustainable development expectations - such as preserving human rights - and the acknowledgement that sustainable development 'co-benefits' are powerful allies to unlock funding for mitigation actions. Externally, the most powerful catalyst was the unprecedented consultation process and the subsequent adoption of the 2030 Agenda for Sustainable Development.

Global benefits: the SDGs provide a common reference framework

Demystifying Sustainable Development

Though it's difficult for outsiders to imagine at a time where sustainability strategies and sustainable life-styles are a global trend among affluent populations, sustainable development has been – and still is – a sensitive and controversial issue. What is divisive about agreeing to 'meet the needs of the present without compromising the ability of future generations to meet their needs'? It seems like reasonable common sense.

Myth 1 - A broad concept without clear definition

Critics argue that sustainable development means everything to everybody. The term has been used extensively by such a large range of people in different contexts and with varying degrees of commitment that some claim it has lost its meaning. Though the recent approval of the Global Goals provides a common reference framework and solves this issue in principle, skeptics cite the non-binding nature of the Global Goals and the lack of appropriate review mechanisms as major limitations. These shortcomings indeed might

support the argument that the numerous mentions of sustainable development in the Paris Agreement are pure rhetoric.

The reality is that while the Global Goals neither fit neatly in a perfect 'log-frame' nor a memorable round number, they unquestionably provide a much stronger reference framework than their predecessors - the Millennium Development Goals, for three reasons. First, they were designed through the most inclusive consultation process in human history, which brought attention from high level decision makers as well as the private sector. Second, they apply to all countries – developed and developing. Third, though the 17 goals, 169 targets and 300+ indicators form a common framework, the 193 signatory countries from Afghanistan to Zimbabwe have pledged to set their individual national priorities for sustainable development and answer to the needs of their own people.

Above and beyond the development and approval of the Global Goals, the language used in the Paris Agreement is much stronger than in previous texts and much stronger than anticipated from those watching from the outside. This is particularly explicit in Article 6 where all 3 international collaboration frameworks include references to sustainable development as a core objective. The Article lays out clearly that a primary objective of international cooperation is to allow for higher ambition and to promote sustainable development. Article 6.4 and the related decision 37 (b) on rules, modalities and procedures for the mechanism provide a 'strong mandate for quantitative sustainable development assessment' (cp. ‚Best of two Worlds', Carbon Mechanisms Review #3/2016). This means that outcomes like improved health, economic growth and gender equality are co-benefits no longer.

'Twin Tracks': Paris Agreement Article 6 Sustainable Development Provisions

Article 6.1 sets the general principle that voluntary cooperation allows for higher ambition and aims to promote sustainable development and environmental integrity.

Articles 6.2 and 6.3 establish a bottom-up mechanism whereby Parties can decide to enter into voluntary cooperation and transfer mitigation outcomes. The text clearly states that in doing so 'Parties shall ... promote sustainable development and ensure environmental integrity'.

Articles 6.4-6.7 establish a centralised mechanism placed under the authority of the COP to contribute to mitigation of greenhouse gas emissions and foster sustainable development. This dual objective is reminiscent of Kyoto Protocol's Article 12.2 establishing the clean development mechanism. Finally, articles 6.8 and 6.9 define a 'framework for non-market approaches to sustainable development'.

In each of the four sections of Article 6, sustainable development refers to the ultimate objective of the mechanisms created. Each time, sustainable development is associated – as an objective – with climate mitigation objectives.

Myth 2 - Fear of interference with national prerogatives

Within the context of the UNFCCC negotiations, the most prominent myth is not so much the lack of a clear definition, but rather the perception that imposing a top-down definition of sustainable development would undermine Parties' ability to decide upon their own development pathways. Some see sustainable development provisions as seeds that could later on limit

Parties' ownership of their national development priorities. The central element of this critic lies in the perceived incompatibility between a globally accepted definition and bottom-up national priorities setting. While the Global Goals provide key elements of a common language for sustainable development matters, they in no way set country level priorities. Rather, they serve as a framework within which countries can develop their own priorities, the so-called 'National Agenda 2030'.

Taking a step back, we should remember here that the Parties to the Paris Agreement and the Parties who adopted the Sustainable Development Goals are one and the same. However, the negotiators – the people at the table – differ. This provides context for such a gap, but bridges can and must be built to brief and train negotiators in the two processes on relevant elements in the other.

Myth 3 - Sustainable development provisions are incompatible with market mechanisms

Proponents of market mechanisms argue that markets are designed to deliver on one objective and would underperform if tasked to consider multiple aims. This argument has long been used to justify the need to keep sustainable development provisions of the Clean Development Mechanism to a minimum. More recently, with the design and launch of the CDM Sustainable Development Tool, advocates of markets lobbied strongly to see it remain optional arguing that it would otherwise create an unnecessary barrier.

History though has proved them wrong.

When Gold Standard was created in the early 2000s, critics objected, claiming that markets were not designed to take into account the multifaceted nature of sustainable development and could not handle the complexity associated with sustainable development impacts. A decade later, voluntary carbon markets have led the way in demonstrating that market mechanisms can deliver sustainable development outcomes.

Scandals associated with CDM projects' human rights violations and questionable additionality paved the way to a series of enhancements including the development of the CDM Sustainable Development Tool that mirrored that of Gold Standard's; thus demonstrating that the lack of consideration given to sustainable development could undermine the very existence of markets.

This is confirmed by the global trend towards 'de-commoditisation' with an increasing emphasis on the particular attributes and what are today called 'co-benefits' of projects. Very few are the carbon buyers who disregard the sustainable development impacts of climate mitigation projects. This trend is not limited to carbon markets, it is far reaching as most commodities are 'de-commoditised' with quality labels, guarantees of origins, environmental and social attributes.

Myth 4 – Sustainable development is too complex, it cannot be measured

An additional frequently cited challenge among UNFCCC negotiators and carbon markets practitioners is that sustainable development is too complex to be cost-effectively measured. The multidimensional nature of sustainable development, the tension between short-term outcomes and long-term development impacts and the complex management of trade-offs are real and important barriers to measuring sustainable development contributions on the ground.

Since 2004, Gold Standard has pioneered pragmatic and innovative ways to assess and certify activities' holistic contributions to sustainable development. Through continuous innovations in processes and methodologies, Gold Standard projects have demonstrated that it is possible to qualitatively and quantitatively assess sustainable development on the ground. Now with the upcoming launch of Gold Standard for the Global Goals, the organisation hopes to establish a global benchmark for best practice development actions that deliver climate and sustainable development dividends.

Weighing the impacts: most mitigation projects offer a number of non-GHG reduction benefits

Sustainable Development Beyond Paris

There are indisputable reasons why strong sustainable development provisions in post-2020 mechanisms are a good thing. First, we cannot say we did not know – carbon markets have shown that public acceptance of market mechanisms is dependent upon strong safeguards and real sustainable development benefits. Without those in place, the next generation of market mechanisms will face the same resistance from public opinion and leading civil society organisations. And we cannot either afford not to get this right up front – time is running out, we need support across all stakeholders.

Second, sustainable development is a fundamental driver for higher climate ambition. The assessment and the recognition of sustainable development benefits of mitigation actions is very often a pre-requisite to resonate with host country ownership and ensure these actions receive long term support. It is compelling to see how national and sub-national governments position what many view as 'climate actions'. Very often, these actions are presented as priority development programs; be they a national household energy program, a city wide sustainable public transport scheme or a regional water management strategy.

Third, sustainable development benefits that are robustly quantified can secure confidence to attract funding because of the economic and social value they deliver. Private sector players require clear return on investment; quantifying and valuing sustainable development contributions can unlock much needed private sector funding.

Finally, at country level, is it realistic to expect that countries will track climate and sustainable development progress separately? Is it possible to integrate and even merge monitoring and reporting requirements towards UNFCCC and Agenda 2030 processes? Surely a starting point is to capture the contributions of climate actions towards Agenda 2030.

Operationalising Sustainable Development

Gold Standard calls for the creation and endorsement by the Parties of a globally accepted approach to assess sustainable development contributions of climate mitigation activities. Building on the lessons from the carbon markets and the structure proposed by the Global Goals, the proposed approach should provide a comprehensive set of tools and methodologies to assess sustainable development contributions of mitigation actions in various contexts.

Guiding principles for the operationalisation of sustainable development provisions of Article 6

Sustainable development provisions of future mechanisms will be shaped by so-called 'modalities and procedures'. Gold Standard calls for these to:

- Take into account countries' ownership of sustainable development priorities while building upon the framework provided by the Global Goals;
- Be developed with the long term vision to create a globally accepted approach for the assessment of sustainable development contributions of climate mitigation activities;
- Remain consistent if not similar across the mechanisms;
- Build upon the lessons from the carbon markets including the CDM Sustainable Development Tool and Gold Standard principles and methodologies;

In addition, digitalisation of methodologies, online reporting and monitoring solutions should be made a key priority to ensure accessibility and affordability. The creation of a central data repository on impacts of climate actions could literally transform the way the world handles these issues.

Gold Standard calls for the creation and endorsement by the Parties of a globally accepted approach to assess sustainable development contributions of climate mitigation activities. Building on the lessons from the carbon markets and the structure proposed by the Global Goals, the proposed approach should provide a comprehensive set of tools and methodologies to assess sustainable development contributions of mitigation actions in various contexts.

The strongest approach will paint the real picture of the benefits delivered by well rounded, holistic climate actions such that:

- Household energy solutions like domestic biogas digesters or improved cooking devices no longer stand for carbon projects but are recognised for the social and environmental value they deliver;
- Jobs created by renewable energy programs are factored into the investment equation;
- Health benefits of sustainable transport programs are fully captured and maximised;
- A municipality, a national government or a project implementer no longer has to choose between climate and development action.

Recognising that each nation is first and foremost accountable to its own population, the proposed approach would ensure that actions have been designed according to national priorities and in consultation with relevant stakeholders at local level. Because climate and development objectives may sometimes conflict – for example forests are a well-known carbon sink but they require significant volumes of water which may be needed for other usages – the approach will develop tools to assess and mitigate trade-offs that may arise.

Such an approach will provide a benchmark to assess whether an activity is worth doing or funding:

- Design stage activity requirements will provide assurance that the activity follows international best-practice: Is inclusive of stakeholders, has proper safeguards, contributes holistically to sustainable development, demonstrates appropriate management of trade-offs and has a robust impact monitoring plan.
- Impact quantification methodologies building upon the framework provided by the Global Goals will offer solutions to track contributions towards specific SDG targets.

An internationally recognised standard for the certification of climate mitigation activities and their related sustainable development contributions would empower us to:

- Translate general requirements into detailed rules adapted to the realities of diverse mitigation activities on the ground;
- Enable third-party audits by accredited entities via a standardised certification process and accreditation guidelines;
- Develop globally accepted methodologies to not only quantify impacts such as carbon or health, but to channel finance where it's most urgently needed to drive the transformation we need;
- Ensure transparency through a public registry of tradeable units (e.g VER/ITMOs) or certified statement of outcomes;
- Ensure transparent grievance processes that gives voice and power to people on the ground.
- Meet the ambition needed for climate security and equitable and sustainable global development.

Challenging Times

China is determined to launch its national ETS in 2017, but struggles with the complexity of setting up a well-designed carbon market

by Dr. Ralph Westermann, UPM Umwelt-Projekt-Management GmbH

On 3 September 2016, China and the US ratified the Paris Agreement just before the G20 Summit held in Hangzhou, the capital of Zhejiang Province in eastern China. Only one month later, on 4 October, the European Union also approved the ratification of the global climate deal. This will enable the agreement to come into force less than a year after it was signed in Paris and right in time for the next COP 22 climate summit that will be held from 7 to 18 November in Marrakech, Morocco.

Speaking at the opening of the G20 business forum, China's president Xi Jinping made no direct reference to his country's decision to ratify the Paris agreement. He did say, however, that China would continue to tackle the causes of climate change and environmental degradation, and even vowed to close coal mines and steel mills as part of that effort.

China's Paris ratification and Xi's G20 statement confirm once again that the Chinese government is serious about mitigating global warming and that it is working at full speed and under heavy pressure to prepare China for the post-Paris climate regime and a sustainable low-carbon future.

One of the cornerstones of China's climate policy for the next decades will be China's new national Emissions Trading System (ETS). It will go into operation in 2017 but, inspite of important progress achieved, it still faces some huge obstacles.

Heavy work load and tight schedule

On 11 January 2016, the National Development and Reform Commission (NDRC) published the "Notice on Key Works in Preparation for the Launch of the National ETS" that outlines the sector coverage for its national ETS, reaffirms the 2017 start date and outlines four major tasks for 2016:

1. **Compiling the covered entities list:** The notice lists eight sectors to be included in the ETS from 2017: petrochemicals, chemicals, building materials, iron and steel, non-ferrous metals, paper making, power generation and aviation, that are further divided into 15 subsectors. All entities from these sectors whose energy consumptions exceed 10,000 tonnes of standard coal equivalent in any year between 2013 and 2015 are considered for inclusion in the ETS from the start. The local Development and Reform Commissions (DRCs) and the Civil Aviation Administration of China (CAAC) are requested to report all entities that fulfil these requirements to the NDRC by 29 February.

2. **Collecting verified historic emissions data of covered companies:** To support the NDRC with elaborating the national allocation plan in 2016, local DRCs will collect emissions reports for 2013 to 2015 from entities in their regions in accordance with the MRV guidance documents published previously by the NDRC. Companies are also required to report production and other industry-specific data that may be used for benchmark allocation. The reports must be verified by a third-party chosen by the local DRCs. Both the emissions and verification reports must then be checked by local DRCs and sent to the NDRC by the end of June 2016.

3. **Developing and selecting third-party verification organizations and personnel:** The NDRC is currently drafting regulation for third-party verification for the national ETS. Before this is finalized, local DRCs are asked to select suitable institutions and personnel to carry out the verification tasks.

4. **Intensify capacity building measures** for government institutions, covered entities, verification bodies and other market participants.

In a press interview on 3 August 2016, Jiang Zhaoli, the Deputy Director General of the NDRC's Climate Change Department, disclosed some more details about the ongoing preparations for the national ETS. He stated that the ETS will initially cover 7,000 to 8,000 entities. While provincial governments will be in charge of allowance allocation and ensuring ETS compliance, the rules and standards for the national carbon market will be set by the NDRC. China is considering a rolling model for allocation and compliance for the national scheme. If adopted, this would mean that participating companies would be divided into groups – for instance, by sector. These groups would then receive their allowances on different dates and be subject to differing compliance deadlines. The initial allowance allocation will be rolled out across different regions in China starting from October 2016 and should be finished by the end of March 2017. Economically advanced areas in China, such as Jing-Jin-Ji (Beijing, Tianjin and Hebei), the Yangtze River Delta, and the Pearl River Delta, will be encouraged to auction a share of allowances. Emissions trading is expected to begin in the first half of 2017, albeit at low levels.

The extended deadline for all provinces to submit their verified historical emissions data was 30 September 2016, whereas aviation sector verification will not commence before 30 October 2016. However, based on the latest results, fewer than ten provinces successfully completed their verification and submitted required historical emissions data in time due to a lack of third-party verification companies and own capacity. Thus, it is unlikely that the national allowance allocation will begin in October 2016 as both data and allocation methods are not yet ready. One possible scenario would be to initiate a pre-allocation in October for several individual sectors or entities in certain regions like pilot markets.

Despite some delays and setbacks in the preparatory phase of the national ETS, in the last week of September Jiang Zhaoli reiterated that it will commence as

planned in 2017 and provided initial insights into China's plans for its nationwide carbon market after 2020:

- China will expand the coverage of its national ETS after 2020 by:
- Including more sectors
- Lowering the threshold of enrolled sectors from 10,000 tonnes to 5,000 tonnes of annual energy consumption (coal equivalent).
- For those enterprises not included in the emissions trading scheme, a carbon tax might be levied after 2020.
- In terms of allocation methods, only benchmarking will be used after 2020.

The table below summarizes the current status and the remaining tasks with respect to the roll-out of China's national ETS (Table 1):

Milestone	Target date by NDRC	ICIS expectation	Status
Submission of entity lists	29 February 2016 (originally) and 30 June 2016 (for updated lists)	N.A.	By 1 May 2016, 28 provinces have submitted their lists including approximately 4,000 entities; NDRC requires local DRCs to update their installation lists by including the standby generators and submit again along with verified historical data.
Submission of verified historical data	30 June 2016 (originally); extended to 30 September (except aviation sector)	End of October 2016	Only less than 10 provinces submitted verified data by 30 September 2016 to NDRC; no new deadline announced by NDRC yet.
Release of Interim Management Approach for CCER Projects	July 2016	Delayed	The Interim Approach is in the internal approval process.
Release of allowance allocation plan	Late Q3 or early Q4 2016	N.A.	NDRC is finalizing a draft plan for State Council; after approved, detailed allocation guidelines for each enrolled sector will be released.
Legislation of Regulation on Emissions Trading Management	End of 2016	N.A.	NDRC submitted the Regulation to State Council last December; the Regulation is on the list of State Council's 2016 legislation work plan.
Release of transition plan from pilots to the national scheme	N.A.	Late 2016 or early 2017	NDRC already announced that pilot allowances are bankable to the national scheme.
Launch of the National Allowance Registry System	N.A.	H1 2017	The National Allowance Registry System is in test phase at the moment.
Allocation of national allowance	October 2016; done by Q1 2017	H1 2017	NDRC is working on data collection and the allocation plan; a rolling compliance cycle design might be adopted.
Announcement of exchanges for the national scheme	N.A.	H1 2017	N.A.
Release of CCER eligibility rules and limits	N.A.	H1 2017	N.A.

Table 1: Status of preparations and open tasks for China's national ETS
Source: ICIS Tschach Solutions, China ETS Portal (https://www.icis.com), slightly modified by UPM

One of the listed open tasks for China's authorities is to manage the migration of the seven ETS pilots to the national ETS.

Difficult transition

The question of how and when China's seven existing ETS pilots are to be aligned with the upcoming national carbon market has been a key issue since the pilots began and a smooth transition from the pilot stage to a fully operative national scheme is of utmost importance. To avoid any friction, China will follow the principle of "unification with flexibility" in linking the national market with the pilot markets. The main challenge will be reconciling the differences between the basic ETS components of the existing pilot systems and the new national system, e.g. legislation, coverage, allowance allocation, monitoring, reporting and verification (MRV), compliance mechanism and trading platforms (Table 2).

A very fundamental challenge is the decision between continuing or abandoning established ETS pilots. Theoretically, options include officially ending the pilots, continuing their separate operation, or choosing an approach where entities covered by the pilots are opted in to the upcoming national system. In practice, however, none of the seven pilots has announced that operations will stop. Instead, all pilots will most likely carry on for at least one additional year until mid-2017 and the end of 2016 compliance, although Beijing, Guangdong, Shanghai and Tianjin remain the only ones to have formally extended their scheme rules. The Beijing municipal government, for instance, confirmed on 26 January 2016 that it would extend the market beyond June 2016 but did not specify an end date. Some observers have interpreted this announcement as a signal that Beijing might continue with the municipal ETS even after the national market begins, but only for facilities too small to join the nationwide scheme. Other pilots could follow Beijing's example.

Another severe problem that urgently needs to be solved prior to offically launching the national ETS is the pilots' substantial over-allocation of allowances which has accumulated an immense permit surplus, likely in the tens of millions. The NDRC has yet to make a decision on whether and to what extent these will be eligible for use in the national market. Ruling them out, would make them virtually worthless overnight, potentially bringing the allowance market price in the pilots down towards zero. Allowing them might cause the national market to be over-allocated from the outset and could even encourage the pilot regulators to continue their excessive allocation practices.

In April 2016, NDRC's Jiang Zhaoli told a conference in Beijing that carbon allowances from China's pilot emission markets can be carried over to the national ETS and will probably be given a value depending on the degree of over-allocation and the price levels in their market of origin. This would mean allowances from those regional pilot markets that had received too many permits or where the price level is below certain thresholds will be discounted in the national carbon market, resulting in lower conversion ratios between these pilot allowances and the China Emissions Allowances (CNEAs) of the national scheme. With these differentiating carry-over rules for pilot allowances, the NDRC would, on the one hand, sanction exaggerated pilot allocations and, on the other, prevent the new carbon market from being flooded with excess permits from the existing ones.

If the latest monthly average prices of pilot allowances are viewed as one potential indicator for the adequateness of historic allocation, the Beijing ETS has been best managed in comparison to other pilot markets and thus, at present, Beijing Emissions Allowances (BJEAs), recently priced at CNY 53 (roundabout EUR 7.1), will probably fetch the best conversion ratios (i.e. least discounts) for the national ETS (cp. Figure 1 on page 39).

Nonetheless, until a final decision is made and announced by the responsible regulatory bodies, the uncertainty about pilot allowance eligibility in the national ETS will continue to affect the pilot markets negatively as liable entities and traders do not know for which conversion scenario they have to prepare.

A similarly ambiguous situation applies for China's emerging national CCER carbon offset market.

Strict controls for CCER offset supply

2016 saw a strong expansion of the CCER project pipeline from 1,116 projects in validation or registered at the end of Q3/2015, to 2,468 one year later.

ETS Component	Main Barriers and Uncertainties	Description
Legislation	Current regulations may need adjustment	Pilot markets will have to adjust regulations and rules concerning coverage, MRV, allowance allocation, offset mechanism, and compliance mechanism to align with the national carbon market.
Coverage	Sectors covered by the pilot markets may not be covered by the national market	If sectors are covered by both systems, pilot carbon markets must consult with and request the National Development Reform Commission (NDRC) to propose accounting guidelines and allowance allocation methods or apply accreditation of methodologies proposed by local carbon pilots, so that they can be certified as national methodologies. If sectors are not covered by both systems, the local DRC must manage and regulate two carbon markets at the same time, meaning they must coordinate the relationship between the two carbon markets.
	Enterprises may be covered by the national carbon market but not the local carbon market	The local DRC must take steps to educate such enterprises about participation in the carbon market, enhance their capacity, and consider including them into the carbon market during the transitional period.
Allowance Allocation	Misalignment of the allowance allocation between the pilot carbon markets and national carbon market	Under the national carbon market, entities covered by the pilot carbon markets have to recalculate their allowances according to the national allowance allocation method, which may reduce the number of allowances and therefore put pressure on the enterprises. It is suggested that pilot carbon markets start pre-allocation according to the national allocation method at an early date and submit allocation results to the NDRC to fight for leeway for enterprises covered by the local pilot markets.
	Strictness of allowance allocation methods	According to the national allowance allocation design, local governments are free to apply even stricter allowance allocation methods based on national allocation methods such as a stricter baseline, carbon intensity reduction factor and even an allocation auction mechanism. Stricter allocation methods may give further play to the carbon market as a policy tool for emissions reductions but could also put more pressure on covered enterprises.
	The policy regarding the carryover of allowances from the pilots to the national carbon market	It is unclear how the allowance balances from the pilots will be carried forward to the national carbon market.
MRV	Monitoring, reporting and verification will be in accordance with the national guideline	The new national MRV system will apply to the eight sectors covered by the national ETS, such as power sector, petrochemical production, chemical production, building materials, crude steel production, nonferrous metals, paper making, and aviation. Local carbon markets that continue to operate after the launch of the national system may choose to cover additional sectors and use their own MRV systems to cover these additional sectors.
	Pre-registration for third-party verifiers need to re-register	The third-party verifier and personnel registration qualifications among the local carbon markets are different from the national qualification requirements in terms of registered capital, performance, and expertise. Whether registered verifiers will remainqualified or need to re-register still needs to be clarified.
Compliance Mechanism	The readiness of the local carbon markets for the first compliance period of the national carbon market	Compliance and penalties are the responsibility of local authorities. Local authorities are expected to finalize the list of covered enterprises as soon as possible, inform enterprises about compliance, create accounts within the registry system, and clarify the institutions responsible for regulation and enforcement.
Trading Platform	The success of the national trading platform requires support from competent authorities	Successful implementation will require policy and financial support to local authorities that is greater than what they currently have.
	Reform of existing policies	As the design of and implementation rules for the national market are unveiled, local markets must adjust accordingly to avoid policy mismatch.
	Trading sys tems must be aligned	At present, local trading systems are only connected with local registry systems. These will need to be linked to the unified national registry system.

Table 2: Remaining barriers and uncertainties for the transition of China's ETS pilots to the national ETS
Source: Partnership for Market Readiness (PMR), China Carbon Market Monitor Q1/2016, No. 4

In the same period, the number of approved CCER issuances increased from 90 with monitored emissions reductions of 26m tCO2e to 400 with monitored emissions reductions of 71m tCO2e and an issued CCER volume of 51m tCO2e (Table 3).

Whereas the total amount of type II, III and IV CCER projects in the pipeline has remained relatively stable (330 in 2015 versus 356 in 2015), the number of type I projects grew by a factor of 2.6, from 786 to 2,052. This means that, at present, approximately 83% of all 2,468 CCER projects are type I projects.

The accelerated CCER project applications and the structural shifts between project type preferences reflect expected regulatory changes that might strongly affect the eligibility of certain CCER offsets in the national ETS.

The NDRC will most likely release the "Interim Management Approach for CCER Projects" in Q4/2016. However, on 4 July 2016, NDRC representative Jiang Zhaoli informally mentioned some details of the new offset guidelines for the national market. The most important restrictions refer to project registration and allow strict control of CCER supply into the national ETS by the NDRC:

- New projects, excluding agricultural and forestation activities, should meet the following two criteria for registration:
  - Starting construction after 1 January 2015
  - Completing the validation report within two years after the commencement date
- Meanwhile, the criteria are less tight for agricultural and forestation projects:
  - Starting construction after 1 January 2013
  - Completing the validation report within three years after the commencement date
- Projects within the emissions boundary of the entities covered by the national ETS, such as industrial gas projects, will not be accepted for registration.

With respect to categories, the possible constraint on the commencement date of CCER projects would basically rule out all Category II, III and IV projects. Only some Category I projects would be allowed under the national ETS.

In terms of scope, only industrial gas projects might be banned, although large hydro power projects will be extremely risky. In addition, there is also a possibility that the NDRC might consider limiting the issuance volume of some scopes like fugitive emissions from fuels by updating their methodologies.

If all of these restrictions above were implemented, ICIS Tschach estimates that only about 10% of all 2,468 CCER projects in the pipeline would be eligible under the national ETS. Even if there are two more years to go before the first compliance deadline in Q2/2018, this would cut potential CCER supply considerably and make life difficult for many CCER project developers with ineligible projects.

On the other hand, there is no doubt that the pilot markets have not only been heavily oversupplied with emissions allowances, but also with CCERs. Until now, only less than 10m CCERs have been surrendered for compliance since the first CCER issuance (approximately 2.5m CCERs for 2014 compliance and slightly more than

CCER Project Types

According to the "Voluntary GHG emission reduction projects validation and verification guide" released by the NDRC, China based projects can apply as CCER projects if they have started construction after 16 February 2005 and meet one of the following criteria:

1. Projects are developed using methodologies approved by the NDRC (Type I)
2. Projects are approved as CDM projects by the NDRC but have not been registered by the CDM Executive Board (Type II)
3. Projects are approved as CDM projects by the NDRC and their emissions reduction is generated before the effective date of CDM registration (Type III or pre-CDM)
4. Projects are registered with the CDM but have not had any CER issuance yet (Type IV)

Table 3: CCER Project Pipeline and Issuance Statistics as per 28 September 2016

	CCER projects in validation			Registered CCER projects			Pending CCER issuance approvals		Approved CCER project issuances		
Project Category	Number of CCER projects in validation	Annual emissions reduction (tCO2e)	One time emissions reduction (tCO2e)	Number of registered CCER Projects	Annual emissions reduction (tCO2e)	One time emissions reduction (tCO2e)	Number of pending CCER issuances	Monitored emissions reduction (tCO2e)	Number of approved CCER issuances	Monitored emissions reduction (tCO2e)	Issued CCER Volume (tCO2e)
I.	1,383	136,000,872		669	65,792,130		134	16,400,614	240	24,056,349	16,335,194
II.	44	4,576,773		59	9,944,686		12	5,259,268	26	7,239,927	6,687,155
III.	35		11,080,814	205		66,610,479	21	3,086,590	134	40,046,119	28,028,638
IV.	13	892,243		0	0		0	0	0	0	
Total	**1,475**	**141,469,888**	**11,080,814**	**993**	**75,736,816**	**66,601,472**	**167**	**24,746,472**	**400**	**71,342,395**	**51,050,987**

Source: ICIS Tschach Solutions, China ETS Portal (https://www.icis.com), modified by UPM

7m CCERs for 2015 compliance). But, as shown above, as of 28 September 2016, there are around 51m issued spot CCERs in the market and many CCER projects in the queue for new CCER issuances (Table 4).

This glut has a bearish effect on the CCER price. According to ICIS Tschach, the current prices of pilot CCERs (for 2016 compliance) range from CNY 5 to CNY 13 (EUR 0.67 to EUR 1.75). In the future, the upcoming national ETS might generate more demand for CCERs and support the CCER price. Yet, for the time being, its likely price impact is still hard to quantify as many parameters still need to be determined.

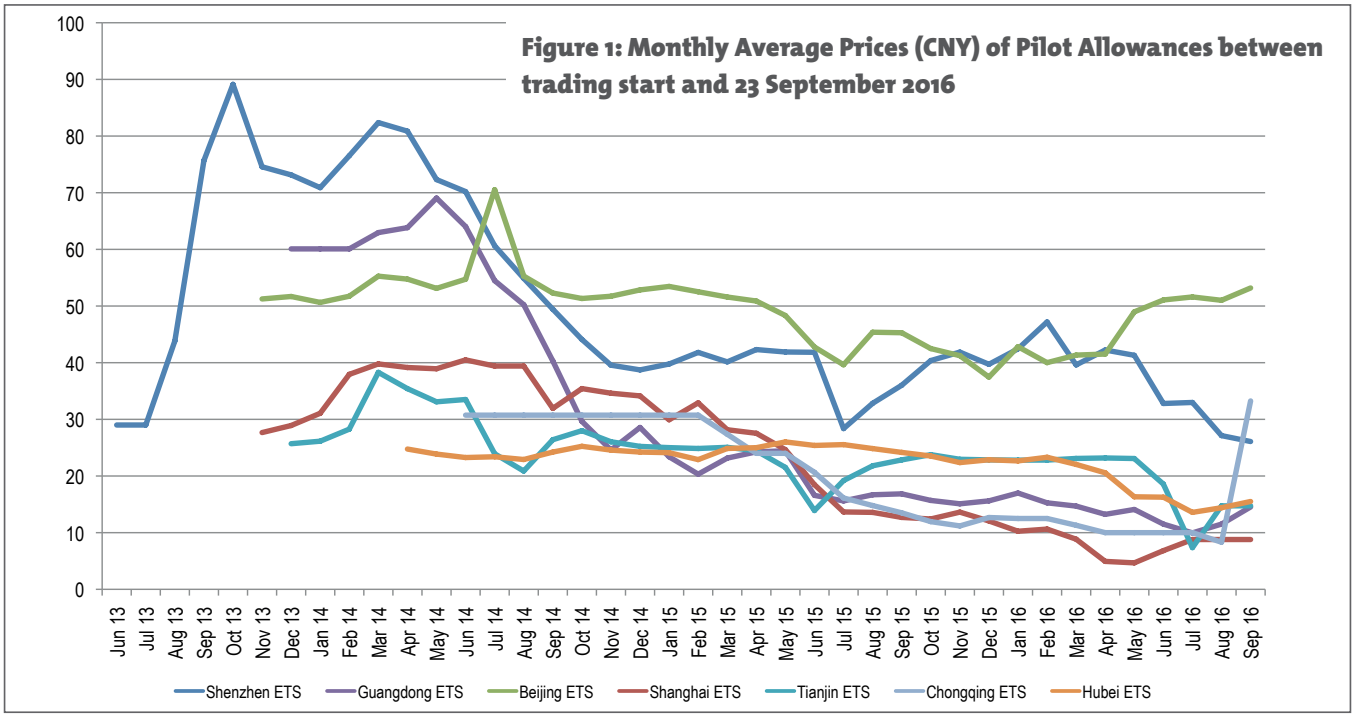
China's efforts to establish an effective and efficient carbon market on national scale need to be assessed in the wider context of China's other environmental policy mechanisms.

Table 4: 2014 and 2015 Compliance of China's seven pilot ETSs as per 28 September 2016

	Shenzhen ETS	Shanghai ETS	Beijing ETS	Guangdong ETS	Tianjin ETS	Hubei ETS	Chongqing ETS	Total or Average all ETS
2014 Compliance Status	99.68%	100%	100%	100%	99.11%	100%	85%	97.68%
Eligible and issued CCERs for 2014 Compliance (m tCO2e)	3.0	1.5	1.2	1.4	1.1	0.8	7.8	16.8
Surrendered CCERs for 2014 Compliance (m tCO2e)	0.9	0.5	0.6	0.4	0.3	0.6	N.A.	2.76
2015 Compliance Status	99.84%	100%	100%	100%	100%	94.01%	N.A.	98.96%
Eligible and issued CCERs for 2015 Compliance (m tCO2e)	7.5	10.1	9.3	21.0	9.1	0.3	22.2	79.5
Surrendered CCERs for 2015 Compliance (m tCO2e)	1.0	1.1	0.6	4.2	0.0	0.3	N.A.	7.2

The total eligible and issued CCERs do not add up to the total CCER issued volume from the CCER pipeline, because certain CCERs are eligible in more than one pilot ETS. Therefore, double-counting of CCERs is possible.

Source: ICIS Tschach Solutions, China ETS Portal (https://www.icis.com), modified by UPM



Source: Tanjiaoyi (http://k.tanjiaoyi.com/), modified by UPM

Risks and rewards

As can be observed, China's national and subnational ETS authorities, as well as the affected liable entities, are already struggling hard to master the complex regulatory tasks related to the introduction of a well-designed national ETS alongside viable co-existing pilot markets and a functional interconnected CCER carbon offset market, and even more so within the tight time frame given by the Chinese government.

In this tense situation, on 21 September 2016, to curb energy consumption, the NDRC announced plans to set up capped pilot energy markets in the four provinces of Zhejiang, Fujian, Henan and Sichuan. These pilot markets will also commence in 2017, and energy permits trading might be extended to other regions after 2020 if considered useful. This move will add another type of environmental market to China's three interwoven carbon market layers mentioned above and the intended markets for air pollution credits and water rights.

And although China recently dropped a carbon tax from a new environmental law, this additional carbon pricing approach will certainly remain on the political agenda and might be applied as from 2020 - most likely to address those small emitters not enrolled in the national ETS.

Also, all of these new economic instruments of environmental policy are largely interdependent and need to be established more or less simultaneously and in a co-ordinated manner during a fragile phase of economic slow-down and reduced industrial output in China.

Given the circumstances, this ambitious approach of the Chinese government therefore harbours a considerable risk of institutional overload, both for regulatory authorities and regulated entities, even in a country that is used to fulfilling comprehensive Five-Year-Plans. In the worst case, such excessive administrative burden could result in deficient and misaligned market instruments that will either fail to accomplish China's targets for climate and environmental protection or only meet these objectives at unnecessarily high costs.

But, there is a positive scenario as well. If China uses the coming years successfully and overcomes the large conceptual and organizational challenges related to setting up and managing overlapping environmental markets without compromising their original purpose and functionality, the reward could be enormous: In the next decade, China would have one of the world's most advanced systems of climate and environmental policies, including a fine-tuned set of complementary market-based implementation mechanisms capable of achieving China's Paris commitments and ensuring its sustainable development.


Source: ADB / Flickr.com

Engaging Stakeholders

A networking approach for sharing experiences and facilitating partnerships in the Chinese carbon market

by Bernhard Felizeter, German Industry & Commerce Greater China Beijing

Although several German enterprises are already involved in the Chinese emissions trading pilot schemes, the market offers promising business opportunities and further potential for cooperation with Chinese enterprises and institutions. Due to their experience in more established emissions trading markets in other countries, German companies are willing to share their expertise with China in shaping the upcoming national emissions trading scheme (ETS). Mobilizing German companies and stakeholders and supporting their participation in the evolving Chinese emissions reduction and trading markets is therefore crucial.

Since the beginning of 2015, German Industry & Commerce Greater China Beijing (AHK Greater China Beijing) has been implementing the "Carbon Market Project" in China on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The two-year project aims at engaging relevant stakeholders for emissions trading in China, consolidating interest among German companies in the Chinese carbon market and facilitating partnerships. The project builds on AHK Greater China Beijing's large network of stakeholders in the field of emissions reduction and climate protection of that has been in place since 2008 through a wide range of events and targeted activities supported by BMUB.

As part of the current project, AHK Greater China Beijing organized a series of six networking meetings in Beijing 2015 and 2016, with two more events planned during the coming weeks. Meetings typically comprise of presentations by two experts followed by a discussion and networking session together with 25 to 30 selected participants. The meetings already held included presentations from leading experts from the National Center for Climate Change Strategy & International Cooperation (NCSC) and the Energy Research Institute (ERI) at the National Development & Reform Commission (NDRC), who were part of China's negotiation team for the COP21 Agreement in Paris. Also, speakers from institutions directly involved in implementing the ETS were invited, such as China Beijing Environment Exchange (CBEEX), China Quality Certification Center (CQC), as well as leading think tanks and universities like the World Resources Institute (WRI), Innovation Center for Energy and Transportation (iCET), Carnegie-Tsinghua Center for Global Policy, Tianjin University of Science & Technology and Tsinghua University. In addition, senior experts from private sector companies such as SinoCarbon Innovation & Investment, Bureau Veritas and MotionECO actively contributed to the events.

The meetings presented a useful platform to facilitate exchange and further promote cooperation between German, Chinese and international stakeholders related to carbon markets in China. More than 150 representatives from enterprises, business associations and chambers of commerce, international organizations, NGOs, embassies, consultancies and academia attended the events. Besides the networking meetings, as part of the project, AHK Greater China Beijing has been regularly publishing its "Econet Monitor" magazine in German as well as in English and Chinese in order to support wider exchange of information on China's environmental and climate protection markets.

From ETS pilots towards a national ETS

Starting in mid-2013, the Chinese government began implementing its plans for an ETS by launching its first pilot project. There are now seven pilot schemes in the cities of Beijing, Tianjin, Shanghai, Shenzhen and Chongqing, as well as the provinces of Guangdong and Hubei.

During the past few years, the ETS pilots have developed quite heterogeneously. Whereas Beijing and Shenzhen include a large number of small emitters from diverse sectors, Hubei is characterized primarily by large industrial emitters, making up roughly half the trading volume of the Chinese carbon market. Shanghai is unique in that China's largest city has two standards for including enterprises: one designed for industrial enterprises, such as electricity and steel in addition to a non-industrial standard, involving, for example, shopping malls and commercial office buildings. Also, Shanghai and Guangdong are currently the only pilot schemes that include aviation in their trading schemes. The pilot ETS in Beijing that was launched back in November 2013 was the first project that initiated regional partnerships for emissions trading – for instance with the city of Chengde which is situated northeast of Beijing. In June 2016, Shenzhen's pilot scheme also linked its ETS with Baotou in the north Chinese autonomous region of Inner Mongolia – a city where much of the world's rare earth supply is refined.

By the end of January 2016, NDRC had declared the eight sectors that will be included in the national Chinese ETS that starts up in 2017. Apart from petrochemical, power, chemicals, construction materials, nonferrous metals, steel and papermaking industries, the aviation sector will form an integral part of the upcoming ETS.

So far, leading pilot ETS schemes such as Beijing and Shenzhen were able to acquire valuable practical experience that some other Chinese pilots are not able to offer. When it comes to establishing the features and regulations for the upcoming national ETS, it is therefore necessary to consider and build on the experience of the leading pilot projects, while at the same time developing an adoptable and suitable system for all seven existing pilot projects as well as other regions.

Efficient regulation and allocation mechanisms

China and other countries establishing an ETS need to avoid the build-up of a substantial surplus of emissions allowances, leading to low carbon prices and thus a weaker incentive to reduce emissions. As a result, suitable design features for the trading schemes as well as regulation measures need to be applied. In this context, in November 2015, AHK Greater China Beijing organized a networking meeting on the topic of efficient regulation mechanisms for a dynamic Chinese carbon market. At the meeting, experts informed participants about the experience gained with emissions trading pilots in China as well as potential regulation instruments, such as a carbon tax, and their effects on emissions trading.

The allocation of emission allowances can be done either through "grandfathering", where allocation is based on historical emissions of enterprises – meaning the enterprises that emit most could receive more allowances – or through benchmarking, where the government and industry experts set a specific benchmark for emission output for industry-specific enterprises, for instance based on tons of carbon dioxide per product unit. Benchmarking thus offers the potential for a fairer system as it provides a consistent allocation methodology for both new and existing market participants and rewards early action as well as upgrades in technology. Nevertheless, due to insufficient availability of data, grandfathering is still the more widely used method for allocation across technologically divergent industries in China.

MRV

Apart from the significance of an accurate and fair allocation method for allowances, a suitable system for monitoring, reporting and verification (MRV) will be essential for an efficient and credible Chinese ETS. According to the NDRC, Chinese as well as foreign industrial enterprises meeting certain criteria are required to measure, monitor and report their carbon emissions under the upcoming national ETS. The data must be verified by a third party entity selected by the local DRCs that assume a key role for implementing a long-term MRV system. Therefore, enterprises need to prepare themselves as early as possible for China's national ETS and learn how to quantify their carbon emissions and train qualified validation personnel. Against this backdrop, AHK Greater China Beijing organized a networking meeting in August 2016. The discussions at the event indicated that there is still a substantial need for further capacity building and training measures in this regard – both for the companies covered by the ETS as well responsible authorities and third party verification bodies. Official training materials recently published by NDRC can provide support during this process. Experience has also shown that it is essential to maintain communication and keep the industry informed about developments regarding emissions trading and the accompanying MRV system, to focus on a manageable number of emitters and to regularly revise market rules to adapt them to market realities.

Market mechanisms for the transportation sector

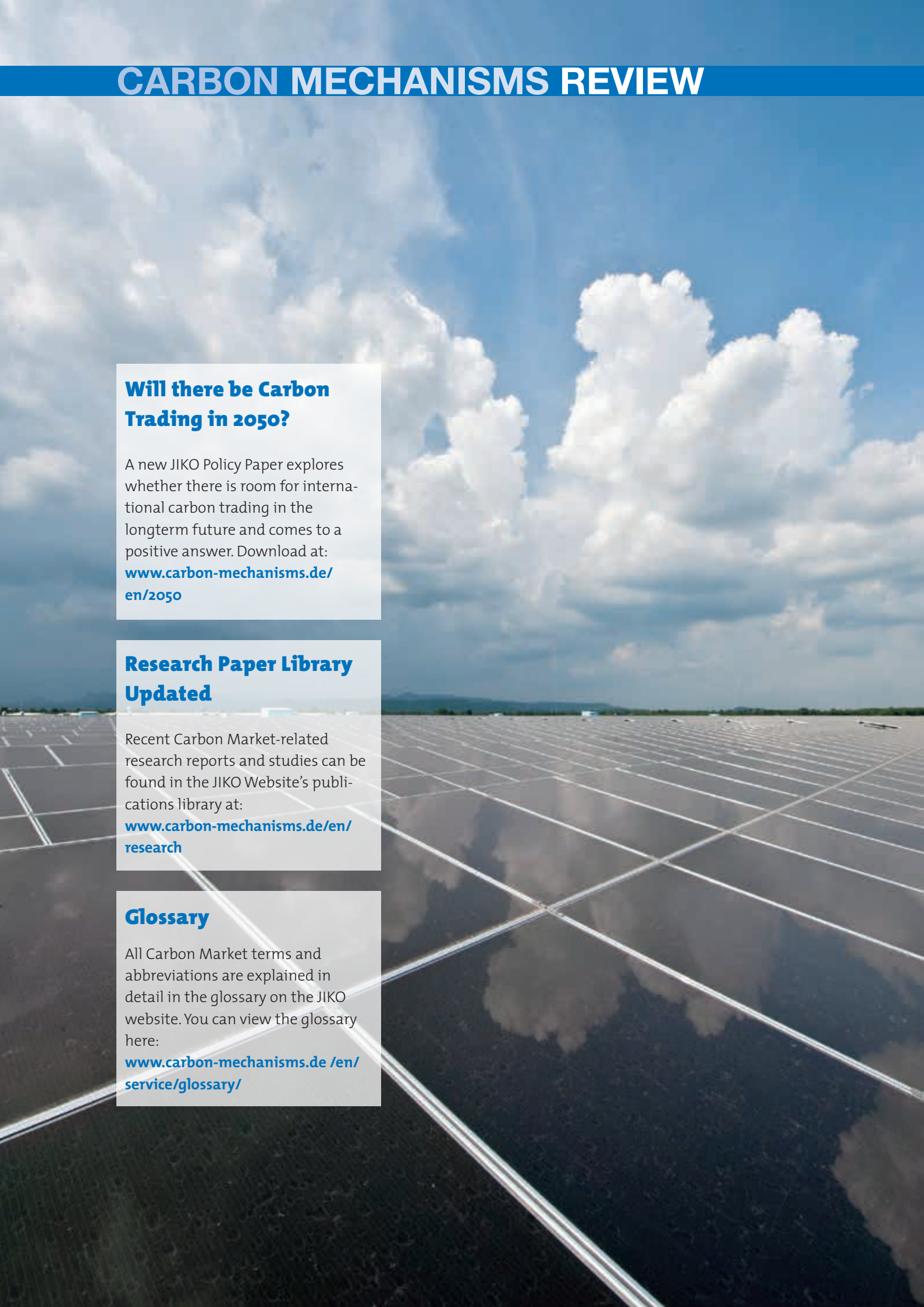
Apart from discussing the developments and features of the ETS in China as a whole, some of the networking meetings focused on specific sectors: As a major user of energy, the environmental impact of the transportation sector in China and other countries is significant. The aviation sector for instance was able to successfully reduce its fuel consumption and carbon emissions during the past few years. However, when it comes to overall greenhouse gas emissions, the climate impact of the fast growing aviation sector remains high. Hence, in April 2016, AHK Greater China Beijing organized a networking meeting on opportunities for emissions reduction in the Chinese aviation sector and the implications of its integration into the national ETS. During the discussions it became clear that not all issues regarding the inclusion of the sector in the Chinese ETS have been sufficiently examined. For example, a suitable pricing structure and emission allowances allocation system still need to be determined and the collection of reliable carbon emissions data from air transportation and airports in China enhanced. The emissions reduction potential of biofuels in aviation was another topic discussed. The experts of the meeting concluded that there is still further need for research concerning the quality of biofuels and that pilot projects would be useful in this regard.

Another networking meeting in August 2015 focused on the market-based mechanisms for the promotion of electric vehicles. China is now considering the introduction of a credit scheme for vehicle manufacturers in order to support the further development of electric mobility, now that the government is gradually phasing out subsidies for this sector. According to the proposed scheme, car manufacturers that produce more than 50,000 vehicles per year can earn credits for low-emission vehicles. Automakers that fail to meet the set goals will have to buy credits from other car manufacturers or will be fined. The participants of the meeting all agreed that market-based incentives such as a credit scheme will increase market penetration for more innovative and efficient technologies, while also pointing out that the further expansion of the charging and grid infrastructure for electric vehicles needs to be in line with this development through a higher share of renewable energy.

Focus on capacity building: interactive workshops support mutual learning.

Looking ahead

During the current transition from the pilot phase to a national ETS, developments in the Chinese carbon market on its way to becoming the world's largest ETS remain extremely interesting. After organizing two more meetings in November and December 2016, AHK Greater China Beijing will continue its networking approach throughout the coming years. Further events and publications regarding emissions trading, as well as the environmental and climate protection sector in China, will support information exchange among German, Chinese and international stakeholders and facilitate business partnerships and cooperation in the Chinese market.



Will there be Carbon Trading in 2050?

A new JIKO Policy Paper explores whether there is room for international carbon trading in the longterm future and comes to a positive answer. Download at: **www.carbon-mechanisms.de/en/2050**

Research Paper Library Updated

Recent Carbon Market-related research reports and studies can be found in the JIKO Website's publications library at: **www.carbon-mechanisms.de/en/research**

Glossary

All Carbon Market terms and abbreviations are explained in detail in the glossary on the JIKO website. You can view the glossary here: **www.carbon-mechanisms.de /en/service/glossary/**