CARBON MECHANISMS REVIEW

INNOVATE4CLIMATE SPECIAL ISSUE

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Dear Reader!

With the negotiations on the rulebook for the Paris Agreement's Article 6 drawing to a close in Bonn, the carbon market community sets off for Barcelona to attend the Innovate4Climate 2017 – the new conference and trade fair week covering carbon markets and climate finance. Carbon Mechanisms Review is thus proud to be able to contribute to this event with an I4C special. Taking up the inclusive nature of the conference, we feature an interview with Karsten Sach, member of the GCF Board, giving his views on the status of the fund, the interdependencies with the CDM, and the interplay with NDCs. We also have four short opinion pieces on the future of the voluntary carbon market, which has to adapt to the new Paris Agreement architecture.

Additional topics covered in this issue of Carbon Mechanisms Review involve the implementation of Article 6 (especially with a view to the guidance for Article 6.2) and new additionality assessment requirements. We also report on the International Carbon Asset Reserve, a new concept for reducing risks when linking carbon markets. Finally, we present an analysis of barriers to integration of sustainable development benefits into market mechanisms, a topic which is again attracting attention after the adoption of Agenda 2030.

On behalf of the editorial team, I wish you an informative read and a successful I4C week.

Christof Arens

Wuppertal Institut

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„The GCF must prove that it can meet the expectations placed in it“

GCF Board member Karsten Sach on the situation of the Fund, interdependencies with the CDM, and the role of NDCs

Interview with Dr. Karsten Sach, Director General Climate Policy, European and International Policy, BMUB

The first edition of the new conference format Innovate4Climate – Finance & Markets Week (I4C) will be held in Barcelona from 22 to 25 May. I4C is a rebranded Carbon Expo trade fair organised by the World Bank and is designed to serve as a global platform for climate financing matters. It is hoped that the event will become the world's biggest trade fair on climate financing, transformative policy and carbon pricing. I4C addresses private and public stakeholders from the project development and technology provider sectors along with investors and other market players. The event is based on the World Bank Group's aim of promoting climate action in development cooperation: in its Climate Change Action Plan, the World Bank Group aims to increase the share of climate financing from 21 to 28 percent by 2020 and provide assistance to countries in implementing their NDCs. Thus, interplay between various climate policy instruments plays an increasingly important role in aiding the development of innovative concepts for the creation of a market for mitigation activities.

Carbon Mechanisms Review: Mr. Sach, climate change experts from around the world are gathering in Barcelona to attend the Innovate for Climate trade fair, where they will discuss the links between climate financing and the carbon markets. The Green Climate Fund is a key climate financing tool and you represent Germany on the GCF Board. How would you describe the progress made in developing the Fund so far?

Karsten Sach: The progress achieved to date is good. We established the GCF in record time. In the space of just a few years, we have gone from a COP decision to an institution that approves projects and programmes as a matter of course. The GCF performs pioneering work on various levels: we require that the projects it funds support a paradigm shift and we have accredited more than 40 implementing entities (IEs), many of them from developing countries. And through the GCF Private Sector Facility we work closely with the private sector. The GCF is also testing new financing mechanisms which go beyond the traditional awarding of grants and approval of loans. We also work in an exemplary way in a cooperative partnership comprising donor and recipient countries, and with civil society participation.

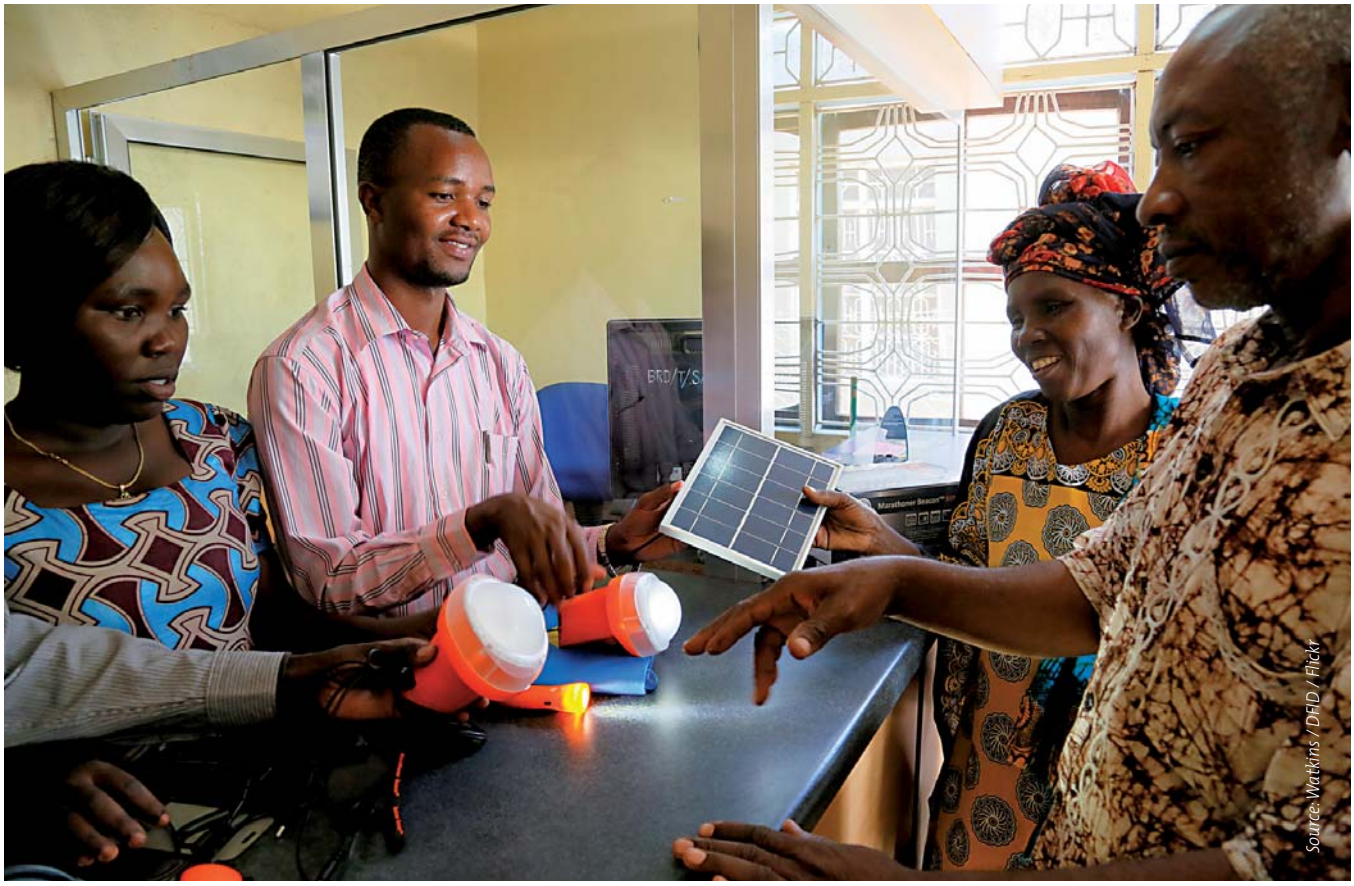
But having said that, the Green Climate Fund is still a very new fund and it has some teething problems.

Paradigm shift: GCF projects are to contribute to transitioning towards low-emission sustainable development pathways.

We need to accelerate implementation of projects that have already been approved. And we need to formulate more clearly the type of projects that the GCF funds as opposed to those funded by the traditional institutions involved in development cooperation. The GCF Secretariat, which processes funding applications, must be given considerably more resources. These challenges are all being addressed with vigour, both by the GCF Board and by the new head of the GCF Secretariat, and I am confident that we will come up with timely and ambitious solutions.

The Board has approved 43 project proposals so far. What would you say are the outstanding components of the portfolio and what would you describe as its factors for success?

Looking at the GCF portfolio overall, I'd say that one highlight is that there's a good balance between reduction and adaptation projects, and that the GCF is living up to its mandate to consider the poorest and most vulnerable countries. Many GCF projects are of especially high quality. Of the projects reviewed in the last session, I believe the Global Energy Efficiency and Renewable Energy Fund (GEEREF Next) project – an initiative of the European Investment Bank (EIB) – is particularly worthy of note. With GEEREF Next, the GCF leverages the supply of significant volumes of private capital in an innovative way by making public risk capital available for climate action investment in renewable energy and energy efficiency activities. There are also a number of projects being conducted by national implementing entities which are characterised by the fact that



Fostering low-emission energy access is one example of the GCF's transformational goals.

they are especially well adapted to local conditions and have the potential to bring about a real paradigm shift. Here, I'm thinking of an adaptation project initiated by the National Bank for Agriculture and Rural Development (NABARD) in India and a XacBank project in Mongolia that helps women-owned small and medium-sized enterprises (WOSMEs) to increase their energy efficiency.

The global carbon market crisis has resulted in many CDM projects being either stalled or stopped altogether. Against this backdrop, where do you see the interdependencies between the CDM and the GCF? Should stranded but good, transformative CDM projects be funded by the GCF?

The proposal to use the CDM is not new, but is based on the recommendation contained in the 2012 High Level Panel Report on the CDM. Compared to the situation back in 2012, we face a far more complex situation today. According to the EU, the CDM has no development prospects under the Paris Agreement, but we would of course welcome it if current CDM projects could be adapted to comply with the Agreement's provisions. First and foremost, that means overcoming the offsetting approach of the Kyoto Protocol and taking into account that under the Paris Agreement all countries have agreed to reduce their emissions. The crucial question concerning the CDM thus focuses on the relationship between emission reduction activities and host countries' NDCs. This is by no means merely an issue concerning the international rules and procedures that must be agreed under the Agreement's Article 6. Host countries' decisions as to whether they require the emissions reduction activities commenced under the CDM to fulfill their NDCs, either in part of in whole, and thus have a vested interest in their continuation post-2020 also play an important role. Until such time as the options for using the CDM under Article 6 of the Paris Agreement go into effect, I think the initiatives which – subject to specific requirements – take up reduction opportunities in the CDM

project pipeline can be extremely helpful. These initiatives include the World Bank's Pilot Auctioning Facility for methane and nitric acid abatement, and the Nitric Acid Climate Action Group (NACAG) which was initiated by Germany and takes a transformative approach. Continuation of cost-effective emission reduction activities under the CDM should thus be secured until the CDM expires in 2020, when regulation of such activities will be transferred to the host countries of the projects involved. Through initiatives such as these, the cherry-picking aspect of offsetting can be overcome and host countries' climate change policies can be improved. We need strategies of this kind, therefore, both to achieve a level playing field for the global carbon market at an early juncture and to align the ambitions of all Parties to the Paris Agreement in achieving the Agreement's long-term decarbonisation goal.

With the adoption of the Paris Agreement, all countries have agreed to support the international climate change mitigation effort and their climate action plans are contained in their nationally determined contributions or NDCs. Is there any overlap between the activities supported by the GCF and countries' NDCs? Has the GCF discussed this issue, for example in respect of the potential risks involving double counting and double funding?

The issue is relevant in several ways. It is both clear and an uncontested fact that accounting and transparency must ensure the avoidance of double counting under the market mechanisms. At the end of the day, this also applies for all internationally funded emission reductions. There are three main reasons why we need rules and procedures under the Paris Agreement. Firstly, no tradable certificates should be issued for emission reductions enabled through climate financing. A robust accounting procedure is needed to support these measures. Secondly, subjecting climate-financed reductions to accounting brings out the impact of climate financing. My third point builds on this and focuses on the interplay between climate financing and the carbon markets. Use of climate financing allows for systematic implementation of climate action strategies that mobilise host countries' own resources – resources which they can then use to attain their own NDCs and to stimulate additional emission reductions with the aid of the mechanisms under Article 6. Article 6 can be used to increase their ambition, either by intensifying their efforts under their current NDCs or, taking a longer-term approach, by enabling them to raise their ambition in their subsequent NDCs.

Since its first Board meeting in August 2012, the GCF has carried out some considerable pioneering work. What would you say are the main challenges facing the Fund in the coming years?

In the course of the next two to three years, the GCF must prove that it can meet the high expectations placed in it. This period includes the first round of replenishing the GCF, which the current geopolitical situation will not exactly make easy. The GCF faces three challenges which we are already addressing. First, the processes through which a GCF project must pass – from the application phase through to implementation – must be further rationalised to enable projects to be implemented at a faster rate. Second, if it is to lend pro-active support to both implementing entities and host countries, the resources available to the GCF Secretariat must be stepped up. Third, the Board must formulate the Fund's unique features more clearly in the guidelines setting out the type of projects that should be submitted to the GCF. I am very confident that the Board will master these challenges in cooperation with the partner countries, the GCF Secretariat and the stakeholders involved.

You will be attending the I4C conference. What are your expectations concerning this first event of its kind?

I believe that the I4C will develop into a trade fair for the mitigation action market. Germany is an I4C partner country and will be represented for the first time in Barcelona by both the Federal German Ministry for the Environment (BMUB) and the Federal German Ministry for Economic Cooperation and Development (BMZ). At the German Pavilion, we will showcase a broad range of German projects, initiatives and businesses from the carbon market and climate financing sectors. And Germany will actually be hosting I4C in 2018.

Mr. Sach, thank you for your time.

Rebooting

Four stakeholders' views on the future of the voluntary carbon market

The Paris Agreement (PA) has brought about a fundamental change to the international climate policy landscape: for the first time, all countries are to contribute to mitigating climate change be they developed or developing countries. The PA thus establishes a new universal legal framework and obligates all countries to develop and communicate so-called Nationally Determined Contributions (NDCs) in which they formulate their climate change mitigation and adaptation goals as well as indicate policies and measures to attain them.

While this new bottom-up architecture has significant repercussions for market-based activities in general (see "striking the right balance" and "NDCs, Article 6 and Additionality Assessment" elsewhere in this issue), it creates considerable challenges, especially for the voluntary carbon market, as it has to reconsider its role and its interdependence with the formal climate change mitigation efforts of national governments – including the questions if and how voluntary activities are reported.

The Carbon Mechanisms Review has therefore asked four major stakeholders of the voluntary market to present their views on these challenges the market faces.

A New Paradigm for Voluntary Climate Action: 'Reduce Within, Finance Beyond'

by Marion Verles, Chief Executive Officer, The Gold Standard Foundation

Introduction

The voluntary carbon market has made a significant contribution to climate mitigation, preventing 329 million tonnes of carbon dioxide equivalent emissions ($mtCO_2e$) between 2005 and 2016, representing a value of $4.6bn.[1] With commitments under the Paris Agreement falling short of what is required to keep global temperature rises below 2°C, voluntary climate action can and must help bridge the gap.

Yet, despite its track record, the voluntary carbon market faces two life-threatening challenges. First, the call to action to 'offset' emissions has been criticised as providing permission to 'pollute now, offset later' – challenging the credibility of corporate climate commitments.[2] Second, the risk of double counting will become a global challenge post-2020.

Does this mean that the voluntary carbon market is in a terminal phase?

Voluntary climate action today: high demand and new trends

As consumers become more conscious of the brands they support, companies are raising their game with ambitious climate commitments. Under initiatives such as RE100 and Science

1 State of the Voluntary Carbon Markets 2016. Ecosystem Marketplace. Available from: http://www.forest-trends.org/documents/files/doc_5242.pdf [Accessed April 2017]

2 Leugers 2016, 'Offsetting: Success in projects, failure of communications.' Available at: http://www.goldstandard.org/blog-item/offsetting-success-projects-failure-communication [Accessed April 2017]

Climate action with additional benefits: a Gold Standard solar cookstoves project in Madagascar.

Based Targets, companies are pledging significant emissions cuts and often purchase carbon credits to contribute towards achieving their goals.

In 2015, a record 39.5 million tonnes of emission reductions (carbon credits) were retired on the voluntary market. And with increased demand come new requests. As they align their business strategies with the Sustainable Development Goals, companies want the climate projects they support to contribute holistically to sustainable development – a requirement of all Gold Standard certified projects. Additionally, companies are increasingly interested in funding offset projects which are based in their supply chains or the same country as their headquarters ('domestic offset projects').

Laure Mandaron, Director for Sustainable Development at La Poste, which pledged to go carbon neutral in 2012, explains: "As our carbon neutral program became more mature, stakeholders voiced their expectation that a share of our investments be targeted at areas where we operate – meaning France – as opposed to developing countries only."

The double counting conundrum: a barrier to domestic offset projects

Double counting can occur when more than one party claims the same emission reduction. If, for example, La Poste purchased and retired carbon credits from an offset project in France – a country with a compliance target under the Kyoto Protocol – there's a risk that the resulting carbon credits could be included in both France's reporting against its Kyoto target and in La Poste's climate reporting.

To mitigate this risk, voluntary standards require projects to retire an equivalent amount of emission reductions from a project in a country without a Kyoto target. As it adds to the cost of the certification process, this approach is often cited as a barrier to developing domestic offset projects.

While currently limited to domestic offset projects, double counting will become a global issue in 2020, as nearly every country will have a Nationally Determined Contribution (NDC) under the Paris Agreement and include emission reductions in their national inven-

tory. Solving the double counting conundrum in the context of domestic offset projects today can help us prepare for the post-2020 regime.

A new paradigm for voluntary climate action

Post-2020, a significant share of offset projects will be in countries subject to a target under the Paris Agreement. It will become increasingly difficult to source credits that are free of the double-counting risk. Far from spelling the end of voluntary carbon markets, reframing offsetting and setting a new paradigm for voluntary climate action can open up new opportunities and overcome the double counting conundrum.

Gold Standard proposes that best practice corporate climate action is composed of two connected commitments: 1) Reduce operational and supply chain emissions in line with what is required by science to stay well below 2°C, and 2) Finance emission reductions elsewhere in an amount at least equivalent to greenhouse gas (GHG) emissions the company is unable to avoid.

Carbon credits versus certified statements of emission reductions

The purchase and retirement of carbon credits will remain a valid mechanism to achieve carbon neutrality wherever there is no risk of double counting in the post-2020 regime. For projects which do face a risk of double counting, Gold Standard plans to allow projects to issue 'certified statements of emission reductions' at the end of the certification process in lieu of tradeable carbon credits. Companies that fund these statements cannot own or retire them, or claim to have reduced their own footprints, but can claim to have financed emission reductions beyond their own operations and supply chain by supporting a country in achieving its national target or NDC.

This new option provides the flexibility for climate projects to issue either tradeable carbon credits or non-tradeable 'certified statements of GHG reductions.'

An important implication is that emission reductions funded through certified statements would remain in the national inventory of the host country. Early outreach shows that many companies support this approach. "A share of our investments goes to emission reduction projects in France because it makes business sense, and because this fully aligns with our corporate commitment to support local economic development," says Mandaron. "We are happy with the fact that these projects contribute to France's national climate strategy."

This new paradigm offers flexibility and scaling potential, setting the stage for voluntary climate action to maximise what it has done best for more than a decade – raise ambition.

Setting the pace

Voluntary Carbon Markets in a post-2020 world

by Caspar Chiquet and Marco Magini, South Pole Group

The private sector plays a crucial role in the fight against climate change. Private sector investors act on positive policy signals from governments, such as carbon pricing, which trigger investment decisions in renewable energy and energy efficiency. The $100 billion in annual funding pledged under the Paris Agreement for financing the transition to low carbon economies in developing countries will only deliver the required results if they can leverage significant private sector investments.

But private sector actors often outpace the sluggish pace of international action, which is determined by consensus and compromise. Ambitious corporations are leading our society with their voluntary contributions to environmental protection and sustainable development. Market-based approaches have helped them to quantify their contributions and ensure lasting results from their interventions.

Voluntary carbon projects, funded mostly by private sector actors, have reduced almost a billion tons of emissions over the past decade[1], with steady growth in volume in recent years. More importantly, the voluntary carbon market has played an important role in advancing standards and best practices, especially in the area of quantifying co-benefits and sustainable development. Voluntary action from the private sector can help the international community in accelerating

Source: ADB / Flickr

Setting the pace: electric trike in the Philippines.

climate action, raising ambition and improving both governance and transparency.

Voluntary action under the Paris Agreement

The decentralized nature of the Paris Agreement broke the deadlock in international climate change negotiations, exemplified in the disappointing COP 15 in Copenhagen in 2009. At the same time, the diversity and complexity of close to two hundred differing climate change pledges, coupled with the absence of a centralized management body, present a significant challenge for the co-existence of voluntary carbon markets with the emerging regime under the Paris Agreement. Nevertheless, certain implications are already clear:

- The area within which voluntary standards can operate without interaction with the host country's inventory and accounting will grow smaller as NDCs gradually expand following future stocktaking exercises, increased capacity and ambition from developing countries to contribute their share to emission mitigation.
- As NDC coverage expands to cover entire economies, voluntary purchases of mitigation outcomes have to mirror the rules for ITMOs under the Paris Agreement, which are restricted to transactions between two Parties. Transfers of mitigation outcomes from a sector covered by an NDC will need to be accounted for by the exporting host country even if they are not claimed against another country's NDC, but as an emission reduction achieved by a private sector actor (e.g. for carbon neutrality).

It is possible that this will further strengthen the importance of co-benefits: significant contributions to sustainable development achieved by exporting projects might become a requirement for a host country to authorize a transfer and account for the export in its reporting under the Paris Agreement. That way, the host country forfeits the claim to mitigation outcomes associated with the project in exchange for substantial international assistance in advancing its other sustainable development goals apart from carbon.

- After low-hanging fruit have been addressed and a country's mitigation action moves right on the MAC curve, regulators may become increasingly averse to exporting their emission reductions. Voluntary buyers could then try to compensate for that through a variety of means, including sharing mitigation outcomes with the host or targeting projects and sectors that are delivering multiple additional policy objectives. Projecting that logic forward, it is likely that voluntary buyers may shift their contributions away from purchasing emission reductions, and claim environmental benefits apart from carbon instead, quantifying the contribution to a host country's NDC, without using the resulting reductions themselves. This approach shares many characteristics with international cooperation envisaged in the Paris Agreement, where countries cooperate but no mitigation outcomes are transferred. The Paris Agreement calls this "non-market approaches".

It is evident that existing voluntary standards will have to closely follow the developments around the operationalisation of the Paris Agreement and come up with modalities regulating the interaction with NDCs of host countries, as well as standardised interfaces with host country accounting for voluntary projects transferring units out of an NDC. Understanding the motivation of private sector actors when they engage in voluntary carbon projects, and informing them about the challenges surrounding the transition into a post-2020 regime, will prove crucial to ensure their continuing support and willingness to deal with the uncertainties of an evolving market.

Documenting Sustainable Development

Voluntary carbon standards have pioneered the documentation, and in some cases, quantification of co-benefits and contributions of projects towards sustainable development. A set of well-tested standards and procedures has evolved over the past ten years, with thousands of applications to projects around the world. Since all the major voluntary standards rely to a certain extent on existing infrastructure operated by the UNFCCC (including methodologies, tools, and accreditation of DOEs), they are designed in a modular way and can easily accommodate upcoming changes in international supporting infrastructure and governance. The Gold Standard is realigning itself with the UN SDGs[2], and more specialised standards such as the CCBS[3] can be applied to the same effect in their respective domains. The concept of co-tagging social and environmental benefits makes it possible to certify these aspects for projects and programs under a different standard, including the UNFCCC Clean Development Mechanism (CDM), as well as the prospective future mechanism under Article 6 of the Paris Agreement.

The nature of international climate change politics will likely lead to a very basic interpretation of the prominent call for sustainable development in the Paris Agreement, with ample room for interpretation left to participating countries. But at the same time, the explicit bilateral nature of mitigation outcome transfers under the Paris Agreement make it very viable that the buy side of a transaction can negotiate with its trading partners for the application of its own, more stringent definition of what accounts for sustainable development – or it can opt to use one of the existing, road-tested standards with a decade of practical application in voluntary markets.

Raising Ambition

Voluntary carbon markets will likely continue to grow until well after 2020. They can make an important contribution in assisting the public sector in bridging the gap between now and an operational mechanism under the Paris Agreement, making sure that emission reduction projects have access to finance throughout this lengthy transition period. Furthermore, voluntary standards are able to go well beyond what an international mechanism based on consensus is able to codify: they can form the toolset with which more ambitious countries follow through on their commitments to sustainable development through the use of co-tagging and voluntary application to transfers of international mitigation outcomes. Finally, voluntary action from the private sector can tackle projects currently not covered by a country's NDC, or support developing and least developed countries in their NDC by supporting mitigation action without claiming and transferring resulting emission reductions out of the host country. If international voluntary standards set the pace at which we transition into a post-2020 world, private sector actors will stay engaged and committed towards contributing their share in delivering the ultimate goal of the Paris Agreement: to limit global warming to below 1.5 degrees Celsius.

1 Raising Ambition: State of the Voluntary Carbon Markets 2016. Forest Trends' Ecosystem Marketplace.

2 http://www.goldstandard.org/articles/gold-standard-global-goals

3 http://www.v-c-s.org/project/ccb-program/

From Kyoto to Paris: Call for a new climate finance mechanism

For developing countries striving to achieve climate targets, a Direct Incentive Mechanism could fill Kyoto-Paris void

by Alexandra Soezer, UNDP

Article 6 of the Paris Agreement introduced new mechanisms with the intention, among others, of incentivising the private sector to directly engage in climate actions. However, in the absence of clear supply and demand for mitigation outcomes (other than with the Kyoto Protocol), these intended mechanisms might fail to create a functional carbon market in the shorter term.

Under the Kyoto Protocol, high-polluting, developed countries (Annex I countries) generated demand for certified emission reductions to meet their commitments. At the same time, developing countries (non-Annex I countries) who were exempt from emission reduction commitments supplied such emission reduction units. Essentially, developed countries paid developing countries for these 'carbon credits', with payments going towards projects that would reduce carbon emissions and would otherwise may never have received investment.

Accelerating direct investment in climate finance

Flash forward to 2017 and the Paris Agreement, where climate finance has fallen primarily on the shoulders of the Green Climate Fund (GCF) or global or regional development banks. While these funds are enabling progress on ambitious and worthwhile projects, the proposal and approval system is complex, expensive and lengthy. These initiatives are most often conducted by national governments in conjunction with multilateral agencies, such as the UN Development Programme. While this is proving useful in getting climate initiatives off the ground, efforts have been limited to governments, with little to no engagement from the private sector.

In the absence of a functioning carbon market, I propose that a new mechanism – the Direct Incentive Mechanism (DIM) – could provide direct incentives upon delivery of results for the private sector to invest in developing country markets. DIM could be built upon and managed by a well-established finance platform, such as SunFunder and Jointrine, which would further provide access to finance for the implementation of a project if a private sector actor has no access to finance in order to overcome a major barrier to project implementation.

A global, transparently managed DIM could build on the foundations left over from the Kyoto mechanisms (standardized baselines, monitoring standards, etc.), and cost-effectively leverage private sector investment for the implementation of climate targets – the so called 'Nationally Determined Contributions' or NDCs. As many countries identified 'unconditional' and 'conditional' climate targets, which were dependent on international support being made available, the DIM could help strengthen international climate ambition by financing the 'conditional' part of the NDC targets.

Pulling together: wastewater treatment in Thailand.

A 'stop gap' to turn ambition to action

The DIM could serve as a sort of stop-gap and offer incentives for private sector investment in developing markets that are otherwise deemed 'risky'. As many countries are working to de-tangle bureaucracy and clarify rules and regulations so as to de-risk the investment environment, the DIM could help fill this space in the interim by offering a sound and yet efficient vetting process for all participating parties, be they public or private. This would lower risks and transaction costs for all, while speeding up the transition to green economies: Governments would be able to accelerate NDC implementation in the context of their development priorities by bringing private sector actors on board, and leverage private sector funds to invest at scale.

For private sector actors, on the other hand, the DIM would provide a standardized, simple approval process. The DIM will be accessible to all private sector actors and will provide payments for real and measureable GHG emission reductions upon delivery of mitigation outcomes. The simple application process would not require expensive international consultants so that also medium-sized companies from developing countries could easily participate. The approval process would be fast, which would lead to quick investment decisions. Also, through the financing platform's network of socially responsible investors DIM would be able to provide direct access to finance for companies from countries without sufficient access to finance.

Last but not least, a consistent, transparent standard for calculating and monitoring of GHG emission reductions would increase transparency among parties' reported NDC results.

The significant number of expected private sector participants would create a critical mass of green investments and a momentum that could increase confidence in green technologies, lead to replications at scale and offer a high potential for South-South learning.

Exit Strategy

The DIM would continue to operate until it effectively generates sufficient private sector investment to help participating countries to achieve their NDC targets and deliver emission reductions beyond their conditional targets. It would also enable them to participate in collaborative approaches under the Paris Agreement and use internationally transferred mitigation outcomes to sell their surplus emission reductions and further enhance their contribution towards the global climate goals.

Such a new global instrument could kick-start NDC implementation, develop replicable success stories, increase the confidence of the private sector in its central role in operationalization of NDC implementation and allow the public sector to focus on its key role as regulator of a market that embraces a strong and successful private sector as an agent of change.

Amplifying climate protection

by René Estermann, Foundation myclimate

What happens to the instrument of voluntary compensation under the Paris Agreement? Of course, the question is exciting, and coming developments and new regulations will sustainably change the landscape. But, clinging to the system is by no means as exciting as focusing on what has triggered it: the many projects developed under the "voluntary carbon offsetting" scheme. These are true success stories, especially after COP21 in Paris and the agreement of the CORSIA aviation scheme. These projects still have a potential for effective climate protection that has not yet been fully exploited. Even the underlying systematics and methodology have not been rendered obsolete despite new framework conditions, but are more in demand than ever before.

Does the market for voluntary compensation disappear?

Current figures from the World Bank provide a clear answer to this question: as of 2016, only 12% of the emissions produced worldwide are priced with a target of 25% by 2020, and 50% by 2030. This means that almost 90% of the world's emissions have no price today, so no value and no political lever – bringing the issue into perspective.

The playing field for private and corporate climate protection efforts therefore remains large. It is not only large, but also attractive, especially if it is also distinguished from the obligatory measures. The many "community-based" projects developed in the voluntary compensation market

The voluntary market as an amplifier: a myclimate solar cook stove project in Madagascar.

are excellently positioned with many SDG benefits. Support of such ambitious projects on a voluntary basis still offers great added value, which can be communicated effectively and corresponds to the steadily increasing demands on the CSR policies of larger companies.

Keyword NDCs

The challenge of "double counting" is becoming more and more prominent due to the new system and the commitment of all countries, including the developing and emerging countries, of the world. Clear rules must, of course, be defined in order to prevent this. Emission reductions from the voluntary market or for voluntary CO_2 compensation can only be used after 2020 if they are not in addition to the 'unconditional targets' of the submitted NDCs. Or only if they take place within the framework of "conditional NDCs" or areas not covered by the NDCs. Accounting and transformation rules must be worked out without delay (myclimate is involved in pilot projects). Transparency within recognized MRV systems can be based on proven CDM and Gold Standard project development methods, as proven processes and systems can be adapted and applied.

As already described, the NDCs communicated so far do not cover all areas of social and economic life. In addition, and quite rightly criticized, the recent NDCs bring too little ambition. Particularly with regard to emerging and developing countries without a central energy supply, the NDCs are not covering any emissions and otherwise problematic factors such as private cooking or private off-grid power generation. There is still huge potential for voluntary climate protection management, including with a view to deforestation.

Purposeful use of funds

From 2020 onwards huge amounts of money will be transferred from the wealthy countries to the poorer countries. $100 billion is expected to flow annually to help the developing and emerging countries achieve sustainable growth and fulfill their own NDCs. Climate finance initiatives can also benefit from the experience, networks and the existing carbon market solutions. Investments in climate protection projects that follow

a community-based approach have proven very effective (impactful) because they help many households directly.

The channeling of money transfers exclusively through state authorities raises the question of how to make sure that the largest possible part of the money transfer is actually invested in suitable projects and the set goals are reached. Once again, based on the system of voluntary compensation, a complete and transparent infrastructure with credible, efficient international institutions is available. These also create transparency about the "social benefits" (meaning SDGs) achieved in conjunction with the emission reductions. The need to measure, depict and identify them will also intensify under the new framework conditions. Actors in the voluntary compensation market have built up a lot of experience, knowledge and tools, which they can also contribute in the future and to a greater extent.

Vessel to "net-zero"

With the Paris Agreement, the world has committed to a “net-zero” society. Between will and reality, however, there is still a great gap. The most effective way to close this gap leads to the headline "Polluters Pay". "Polluters Pay" means: a global and permanently valid polluting fee for CO_2 emissions, and is a powerful amplifier for climate protection. Pollution emitters (companies, private persons and institutions) pay an emission fee which is used to solve the climate problem. Solving the problem could mean both: first, financing high-quality climate protection projects and, hence, full offsetting. It could also include funding for local-based emission reduction measures. The polluters pay idea is anything but new. It is common in terms of waste management as well as for waste water treatment: in Switzerland, for instance, paying a fee according to own waste production is an undisputed reality. Hardly anyone remembers the controversial, drawn-out discussions forty years ago before “Polluters Pay” was implemented on communal and broader scale. The system would work perfectly with CO_2 emissions and result in strong support for large-scale global climate protection. And it would naturally raise awareness to both companies’ and individual’s carbon footprints, creating a strong incentive to keep them as low as possible. Finally, “Polluters Pay” means full-cost CO_2 pricing, regardless of whether it starts in local communities or in some states that want to become pioneers.

The system also needs as much transparency as possible along with trusted authorities. Those authorities necessarily need impactful, proven projects, such as those brought forth by voluntary compensation schemes and which still have enormous development potential: 1.5 billion people live without electrical power, 2.5 billion people still cook on open fires or with charcoal, 2.5 billion people still have no toilets, and 700 million people are still without access to clean water.

Hopefully, the NDCs will become more ambitious over time and the policies and action contained in them will be implemented. However, there is still a sufficiently large field for additional climate activities. More and more individuals, and also companies, want faster and more climate protection, and voluntary commitment is always at the forefront of government activities. A voluntary market for CO_2 compensation remains valid post-2020. It serves to establish a credible and market-leading position in sustainability. It serves as an instrument for ambitious societies and at different levels up to individual states, thus providing important stimulus for a sustainable economy – for example, in the form of a "climate-neutral Germany" or a "climate-neutral Switzerland". Leaders will always top political obligations.

Years of experience of voluntary CO_2 compensation have given rise to excellent projects, experienced and powerful actors, effective methods and trustworthy partners and systems. These players guarantee effective climate protection, including sustainable development, and will continue to do so at international level. They can and will benefit from the direction given by Paris, but will also provide direction themselves.

So does the voluntary compensation system have a future? Or should the question be, what does the future of global climate protection hold? The attributes "voluntary" or mandatory are not decisive. It all boils down to responsibility, speed and quantitative and qualitative impact. Voluntary compensation is a proven system with recognised standards, has trustworthy and experienced implementation partners, and produces effective projects with a huge impact in respect of the SDGs.

Article 6.2 at the half-way mark

How can it champion flexibility, integrity and ambition?

By Andrew Howard, Koru Climate

We are now half way between when the Paris Agreement was adopted and when the rules for its operation are to be agreed. In November 2018, at the end of the first session of the CMA[1], decisions are due on how each of the Agreement's articles is to function, what responsibilities countries are to carry and how environmental integrity is to be safeguarded. The voluntary cooperation under Article 6 of the Paris Agreement is to be right there with the other articles.

Article 6 facilitates voluntary cooperation among countries in achieving the targets and actions they have pledged in their nationally determined contributions (NDCs). These are very diverse – differing in form, level and coverage – in keeping with how the Paris Agreement has prioritized universal and ambitious climate effort over any top-down definition of countries' actions.

The context for this cooperation is set out in Article 6.1 as one that allows for higher ambition and promotes sustainable development and environmental integrity. Beyond this, however, the diversity of the cooperation under Article 6 is expected to be similarly diverse as the NDCs themselves.

Many countries will implement cooperative approaches of their own design under Article 6.2, through which internationally transferred mitigation outcomes (ITMOs) may count towards achieving the NDCs of countries that have invested in or purchased them. These approaches could alternatively be used as means to facilitate climate finance or contribute to an overall mitigation in global emissions. Countries may also use the UNFCCC-governed crediting system established in Article 6.4 or cooperate on non-market approaches under Article 6.8.

Building robustness out of diversity

A new report[2] identifies features and implications of countries' NDCs that are particularly relevant to the design and use of carbon markets in the context of Article 6. Written primarily for the UNFCCC negotiators busy on the future guidance, it maps out the issues relating to NDCs and in particular Article 6.2 that they need to address. Many complex and interlinking issues concerning NDCs and Article 6.2 still remain to be resolved.

Much of what the negotiators need to specify for carbon markets is likely to focus on the interplay of three factors:

- NDC features: how can NDCs provide an improved basis for the operation of market instruments?
- NDC and ITMO accounting: how can emission reductions be transferred and count towards NDCs, while maintaining environmental integrity?
- Generation of mitigation outcomes: how can the environmental integrity of emission reductions be assured?

Environmental integrity needs to ensure that the cooperation does not undermine efforts to reduce global emissions. The reference to global emissions is important, as inappropriately accounting for transfers could increase aggregate emissions across two countries, even if the original reduction had been in order. The use of carbon markets must therefore not inadvertently result in an increase in global emissions.

1 *The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.*
2 *Features and implications of NDCs for carbon markets. Prepared by Koru Climate, Climate Focus and Perspectives for the Swedish Energy Agency, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, and the Swiss Federal Office for the Environment, 2017, available at http://www.energimyndigheten.se/en/cooperation/international-climate-cooperation/climate-policy-research-programme/results-from-the-climate-policy-research-programme/*

Transparency needed: understanding the assumptions in business-as-usual projections is key.

Strengthening NDC features

Countries' NDCs are diverse in many aspects: target types, timeframes, metrics, sectoral scopes, and the distinction between what countries pledge "unconditionally" to do themselves and the action they make "conditional" on receiving support from other countries. Many targets use metrics relating to the quantity of greenhouse gas (GHG) emissions and are expressed in absolute, relative or intensity terms. There are also action-based targets that measure the actions and not the emission impacts.

For these NDCs to be clear, transparent and understandable, negotiators will need to agree that countries provide information relevant to their NDC types. Understanding the ambition of NDCs requires comparability across targets and information to assess how conservative the assumptions in business-as-usual emission projections are. Common NDC timeframes would also strengthen transparency and comparability.

A major issue that has emerged from the diversity of NDCs is that single-year emission targets (for example, for 2025 or 2030) cannot be compared with targets for multi-year periods (for example 2020-2025 or 2020-2030). This difference becomes even greater when ITMOs are used, as a net acquirer of ITMOs with a single year target, for example, may well have needed more acquisitions if they were accounting over a multi-year period. Countries could agree to at least provide information on their expected emission trajectories over time, if they do not already put forward targets for multi-year periods in their NDCs.

The boundary between unconditional and conditional NDC pledges also needs to be clarified. Countries can provide further information on how they have defined this split but it would help if all countries were to adopt a common understanding. This split is important in determining which activities under crediting systems are additional and what quantity of emission reductions they should generate.

Also, to complicate matters further, NDCs may cover entire economies or may be limited to specific sectors. A comprehensive move towards economy-wide emission reduction or limitation targets would help comparability and, even more importantly, help raise ambition. However, this can only be expected to happen incrementally.

Accounting for NDCs and ITMOs

Accounting is the assessment of countries' progress towards, and ultimately the achievement of, the contributions they have pledged through their NDCs. As such, accounting is directly linked to the nature of those pledges and determines what may contribute to their achievement. Article 6 and decision 1/CP.21 require that, when international transfers are made, robust accounting shall be applied on the basis of "corresponding adjustments" to, inter alia, avoid double counting.

ITMOs accounting therefore needs to work within the wider scope of NDC accounting to be agreed under Article 4.13 of the Paris Agreement.

Two different levels of the interaction between countries may be distinguished in relation to ITMOs:

- The transfers themselves and their "tracking" in participating countries. How this is undertaken will be determined by the countries implementing the cooperative approaches. Different methods are possible, with more complex market approaches typically making use of registry systems. The tracking systems put in place by countries need to be adequate for their needs while also ensuring a sufficiently strong basis for the accounting.
- The reflection of transfers in the accounting of NDCs. This is to occur through corresponding adjustments relating to the NDCs of each participating country. This accounting is to be conducted at the national level and reported to the UNFCCC in line with the transparency framework under Article 13.

A clear distinction between these transfer and accounting levels allows countries flexibility to tailor transfers to their specific forms of cooperation. An emission trading system (ETS) designed for holdings and transfers by private sector companies, for example, will bring its own specific needs for tracking.

The task of the accounting framework is to define what types of transactions should lead to what sorts of accounting adjustments.

A range of issues needs to be considered for the guidance being developed on accounting, including:

- **In relation to transfers:** Should the accounting system focus only on ITMOs quantified in GHG terms? Are "allowances" or "credits" needed or can emission reductions be transferred directly? Are transfers made in the context of the Article 6.4 also to be considered ITMOs and covered by the same accounting? What information needs to be tracked? What tracking systems are needed?
- **In relation to adjustments:** How are corresponding adjustments to apply? When are corresponding adjustments not needed? What other adjustments may be needed? What should trigger adjustments?
- **In relation to other accounting issues:** Are eligibility requirements needed? How should any restrictions on linking be taken into account? How can ITMOs for single-year targets be made more representative? Who may use an ITMO if an NDC is not achieved? What degree of intertemporal transfers, such as banking, is appropriate? How should transfers with the International Civil Aviation Organization (ICAO) be treated? How should accounting results be reported? What information needs to be reported? How can the reported information be compiled and assessed?

It is important that the tracking of ITMOs provides a solid basis for making the accounting adjustments later. A universal system for assigning serial numbers to the emission reductions and units would considerably improve this tracking and associate each with important information on activities and reductions that countries and the accounting system need to keep.

Many cooperative approaches, especially where they involve private or public sector entities and secondary trading, will establish registry systems. These will need to link to each other if transfers are to be made. There are different models, from the centralized approach of Kyoto with real time verification against the rules, through to fully decentralized peer-to-peer networks. As long as certain standards are met to ensure

compatibility, one size need not fit all, and a centralized system could be provided for those who prefer it but only on a voluntary basis.

Adjustments made in the accounting system need to be expressed in the same metric as the NDCs they are to count against. Where they contemplate the use of ITMOs, NDCs are almost universally expressed in GHGs. The complexity of tracking and adjustments can therefore be considerably reduced by focusing, at least initially, only on ITMOs that use GHGs as a metric and standardize the global warming potentials used. This would be consistent with the call in Article 4.4 for countries to move towards emission reduction or limitation targets that are economy-wide.

The accounting system will need to make clear what adjustments are needed under what circumstances, including international transfers but also addressing any cancellation or banking. A single, universal system of accounting for all transfers under Article 6 is needed – encompassing both Articles 6.2 and 6.4.

Adjustments can be applied to emissions recorded in a country's national inventory or to a "budget" of emissions allowed under the relevant NDC target. The two approaches are mathematically equivalent, although countries involved in trading or crediting may well opt for the budget basis while others may find it easier to use the emissions basis. This flexibility would not compromise the accounting system, although it may be easier if all reporting to the UNFCCC used the emissions basis.

The robustness of the accounting system may be helped by setting eligibility criteria for the systems and processes that countries need to have in place to transfer or use ITMOs.

Reporting on transactions and accounting adjustments will need to be made at least on a two-yearly basis, in line with the reporting on progress in achieving NDCs under the transparency framework. As well as determining what information each country should report, it will be necessary to clarify how that information will need to be compiled and assessed to ensure that no double counting has occurred. This can also create an overview that can make sense of all the individual country perspectives on this data.

Ensuring environmental integrity when generating ITMOs

Guidance is needed to ensure the environmental integrity of the mitigation outcomes which are transferred as ITMOs. This raises issues around what countries do to implement baseline setting and additionality, as well as measurement, reporting and verification (MRV) procedures, in their cooperative approaches under Article 6.2. What should be the nature and degree of UNFCCC guidance? Should there be stronger guidance for ITMOs generated outside of the scope of NDCs?

Getting CMA agreement on common principles would help ensure consistency in the type and quality of ITMOs generated in different countries, enhancing their credibility and facilitating their exchangeability. These would serve as a point of departure for countries in elaborating their own standards. They would need to ensure that additionality assessments and baseline setting properly reflect the unconditional component of the host country's NDC. The implementation of MRV needs to lead to transparency, completeness, conservativeness, accuracy, reliability of data and continuous improvement.

The context in which these principles operate is key. Frameworks of international governance can be established to oversee decision-making and ensure that standards are being adhered to. Establishing common guidance can then reduce the risk of inflated baselines, promote comparable methodologies and harmonize MRV approaches. This is an approach that is familiar from the Kyoto Protocol.

Alternatively, stringent targets at the level of NDCs or trading systems incentivize countries to be conservative in determining the ITMOs that may be generated and passed to other countries. If they are not, they will face trouble in achieving their own NDCs. However, if targets are less stringent, possibly with expected emissions already below target levels, the incentive to be cautious is weaker.

Strong ambition and transparency can therefore exert a decentralized force to maintain environmental integrity and, in doing so, reduce pressures to have strong forms of international governance. The challenge is of course that it is politically difficult to introduce assessments of target stringency. Seen conversely, therefore, international governance may need to be stronger when ambition is not present or when it is

impossible to be sure. Ambition and international governance here are a form of trade-off.

Perhaps another way is to use international governance only for areas of higher risk to environmental integrity. For example, it could be required that emission reductions outside of the scope of NDCs must be verified under the Article 6.4 mechanism or use equivalent standards.

Finding balance in CMA guidance

The CMA guidance on Article 6.2 will have to walk a fine line between those wishing to retain full flexibility and those advocating common and elaborated guidance and/or strong international governance. The table below illustrates a possible way to treat key issues across the areas of NDC features, transfers, accounting and ITMOs generation, which may facilitate and promote the effective use of carbon markets in operationalising Article 6.

This represents only one way forward – one that can be varied in many ways. It tends more towards coordinated or harmonized approaches, but seeks to not unnecessarily limit national implementation. Stronger harmonization can facilitate and promote effective cooperation and bring more transparency, predictability and confidence in environmental integrity. In a context of less harmonization, many countries would still implement cooperative approaches with high levels of integrity but measures to give confidence to other countries would still help.

Balancing CMA guidance on NDCs and carbon markets under Article 6

NDC features	Transfers and tracking
• Promote clarity on NDC coverage of sectors and emissions • Promote clarity on conditional and unconditional NDC components • Use multiple year targets and emission budgets, or provide expected emission trajectories • Make available information to support assessments of target stringency	• Use a GHG metric (e.g. tCO_2e), based on common global warming potentials • Establish common standards for tracking systems, including basic transaction types, universal serial numbers, and inclusion of key activity information in serial numbers • Provide centralized registry infrastructure and a transaction log, but allow countries to opt-in to use it on a voluntary basis • Specify seller liability for ITMOs in event of NDC non-achievement
Ensuring robust ITMO generation	**Adjustments applied for NDCs**
• Set principles for baseline setting, taking account of NDC pledges • Set common definitions and principles for additionality assessments, also taking account of NDC pledges • Set principles for MRV approaches • Promote use in Article 6.2 of guidance available from the Article 6.4 mechanism • Require ITMOs from outside the scope of NDCs to be generated via Article 6.4 • Promote the integration of measures to achieve overall mitigation	• Ensure clear and universal adjustments for transfers, cancellation and banking • Ensure basic eligibility criteria are met before ITMOs may be used for NDCs • Ensure a universal accounting system across all transfers under Article 6 • Ensure country reporting on cooperative approaches and systems implemented, with annual transaction information • Undertake reporting on adjustments on a single basis (emissions or budgets) • Ensure clear rules for any banking, borrowing or use of pre-2020 outcomes

Ultimately, how comfortable people feel about the "light harmonization" sought in the table will depend on whether it is seen as pragmatic and facilitative, or as restrictive and unnecessary. It will also depend on the balance of ambition and international governance that can be struck.

The guidance under Article 6 also needs to pay attention to its impact on incentives for the extent and breadth of ambition. Article 6 is to help increase ambition in climate action, particularly in relation to mitigation. This needs ambitious NDCs or strong ETS targets, as well as meaningful carbon price signals. How effective Article 6 is in increasing ambition over time can be helped in a number of ways: ensuring transparency and the extension of targets; supporting developing countries in expanding the scope of their NDCs; using the Article 6.4 mechanism to address emission reductions originating outside of the scope of NDCs; extending the concept of "overall mitigation"; and linking the scope for transfers to a country's progress in achieving its NDC target or reducing its emissions.

The remaining year and a half until the rules for Article 6 are to be agreed represent a formidable challenge. Countries have to face many issues that are difficult both technically and politically, reach common understandings and find wording that balances flexibility with sufficient clarity and specificity. There is no time to waste.

The International Carbon Asset Reserve

Prototyping for instruments reducing risks and linking carbon markets

by Jürg Füssler and Anik Kohli, INFRAS

The Paris Agreement recognizes the role of markets to combat climate change and its Article 6 contains provisions to support the transfer of "internationally transferred mitigation outcomes". Carbon market instruments are evolving in numerous jurisdictions around the world. As of 2016, emission trading schemes (ETSs) were operating across four continents in 35 countries, 13 states or provinces, and seven cities, covering 40 percent of global GDP.[1] This bottom-up development of domestic instruments has led to fragmentation and heterogeneity in design and regulation of such instruments across jurisdictions.

There are several benefits in linking ETSs or equivalent market-based instruments. Economic benefits include cost savings, reduced price volatility, or increased market liquidity. Political benefits include exchange of information, streamlined compliance processes reducing administrative costs, improved governance, levelling of the international playing field, or support of global cooperation.[2] However, full linking of systems is also costly. For example, it requires significant efforts in aligning the partnering systems and entails reduced levels of sovereignty for participating jurisdictions.

As an alternative to full linking, restricted linking[3] via an International Carbon Asset Reserve (ICAR) may be explored. ICAR is a mechanism that facilitates interconnection among heterogeneous ETSs and equivalent market-based instruments and provides jurisdictions worldwide the possibility to tap into a

1 *World Bank (2015): State and Trends of Carbon Pricing. Technical report, World Bank Group – ECOFYS, Washington DC.*
2 *Papers focusing on various aspects of these issues include C. Flachsland et al. (2009), M. Ranson and R. Stavins (2015), D. Burtraw et al. (2013) and D. Bodansky et al. (2014).*
3 *Generally, the form of a link between carbon markets of any two jurisdictions will lie along a spectrum that ranges from a very loose alignment of programme elements (restricted link) to a very tight alignment of programme elements (full link).*

larger pool of allowances. In addition, it can also offer services to mitigate risks arising from carbon instruments despite programme heterogeneity. Finally, it also provides an opportunity to lower mitigation costs whilst also preserving national sovereignty of member jurisdictions.[4] This article sketches three possible ICAR architectures for further discussion. The text is based on a report[5] by INFRAS and the Grantham Research Institute on Climate Change and the Environment, commissioned by the World Bank Group's Networked Carbon Markets Initiative.[6]

ICAR Prototypes

Overview

There are various options for designing ICARs. Fuessler et al. (2016) present three options with distinct characteristics (see Table 1).[7] These "prototypes" may be used under different circumstances.

Generic institutional setting

Each type of ICAR requires at least three generic institutional and regulatory elements:

- An agreement between participating jurisdictions that defines
  - The rules for the operation of the ICAR
  - The rules regarding the rights and responsibilities of each member state/jurisdiction
- A governing "executive body" that supervises the ICAR and decides on the application of the rules (typically formed by representatives of all participating jurisdictions)
- An operational "secretariat" that operates the ICAR on a day to day basis

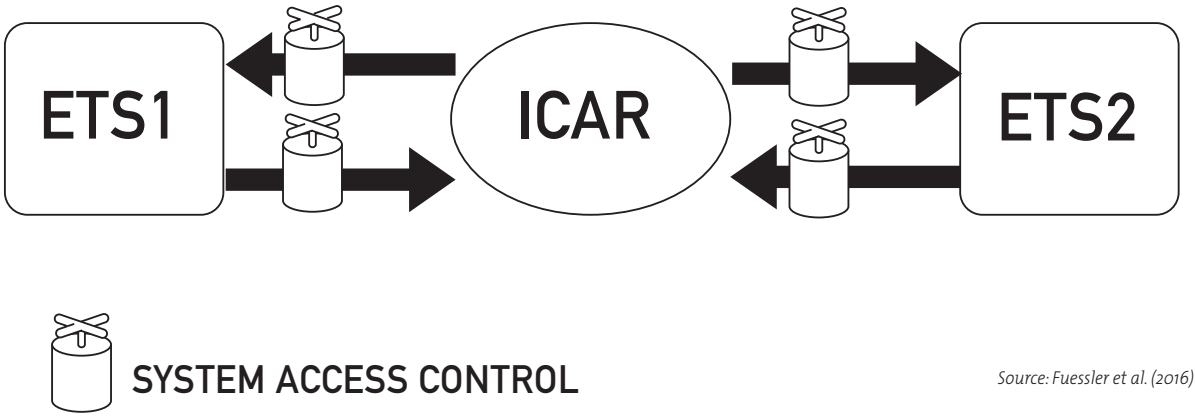
Table 1: ICAR Prototypes

Element	«Platform»	«Central Hub»	«Gateway»
Involved carbon markets	ETS – ETS	ETS – ETS	ETS – non-ETS
Approach	«Hands off»	«Hands on»	«Facilitator»
ICAR Service	Platform for restricted trading of emission permits	Marketplace for emission permits and risk mitigation	Gateway for transfer of credits & provider of insurance services
Units	Local Units	International Units	International Units
Reserve	No	Yes	Yes

ETS: Emission Trading Systems; International Units (IUs) are aligned with the "internationally transferred mitigation outcomes" transferred under the Article 6 mechanisms of the Paris Agreement.
Source: Fuessler et al. (2016)

4 *This article uses the term jurisdiction, because ETSs and other market-based instruments can be set up and linked not only on national, but also sectoral, subnational, or regional levels.*
5 *J. Füssler, A. Wunderlich and L. Taschini (2016): International Carbon Asset Reserve – Prototyping for instruments reducing risks and linking carbon markets. Final Report for the World Bank Group – Networked Carbon Markets. http://pubdocs.worldbank.org/en/342101466013221524/Final-report-ICAR-Prototype-June-2016.pdf*
6 *For more information on the World Bank Group's Networked Carbon Markets initiative, see: http://www.worldbank.org/en/topic/climatechange/brief/globally-networked-carbon-markets*
7 *This work builds on earlier work on ICAR. ICAR-M, ICAR-MP and ICAR-R as discussed in C. Comendant, S. Frankhauser and L. Taschini (2015) and on design options for ICARs including insurance functions as discussed in J. Füssler and M. Herren (2015).*

Figure 1: ICAR Platform



Source: Fuessler et al. (2016)

ICAR Prototype 1: Platform

The primary objective of the ICAR Platform prototype is to facilitate restricted linking of ETSs and use the potential of low-cost abatement opportunities that are geographically spread across the participating jurisdictions. The ICAR Platform consists of a decentralised trading platform, i.e. a marketplace where market participants can buy and sell allowances originating from multiple (possibly dissimilar) ETSs.

Membership is open to any jurisdiction and there are no minimum requirements in terms of programme design. Jurisdiction sovereignty and programme independence are paramount. Participating jurisdictions retain control on the domestic market by (i) imposing quantitative restrictions on the outflow of domestic and inflow of non-domestic allowances as well as by (ii) imposing qualitative restrictions on the inflow of non-domestic allowances.

Each jurisdiction can control the timing, type and volume of allowances export or import. Allowance export mitigates the impact of low domestic prices, whereas export control mitigates the exposure to high foreign demand. Allowance import mitigates the impact of high prices. Via quantitative import restrictions jurisdictions can control the permit inflows and the geographical location of foreign mitigation activities, whereas via qualitative import restrictions jurisdictions can differentiate between compliance values that they assign to non-domestic allowances in comparison to domestic allowances.

A regulator may choose to assign a non-domestic allowance with a different compliance value in order to acknowledge the difference in various elements of the domestic and non-domestic programmes. In particular, differences may arise with respect to ambition levels of ETS caps, monitoring, reporting and verification (MRV), registry systems, banking and borrowing provisions, compliance periods, and cost containment measures, including offset types and limits. Whereas differences in MRV and allowance tracking systems may be acceptable, a lower (higher) degree of ambition in other programme elements (e.g. cap level, cost management provisions) may be more difficult to accept (achieve), resulting in lower (higher) compliance values being applied to non-domestic allowances within the domestic market. The assessment of an allowance will be implicitly reflected in the allowance bid price of buying jurisdictions.

Thus, the ICAR Platform is a de-centralised system that offers a pool of non-domestic allowances available for trading, from which a jurisdiction will import those that have a compliance value equal to or higher than that of domestic allowances. The participating jurisdictions set their own compliance compatibility criteria. The ICAR Platform assists jurisdictions with the matching process and/or uses the criteria to screen out juris-

dictions that are compatible with the jurisdiction initiating the bid process.

ICAR Prototype 2: Central Hub

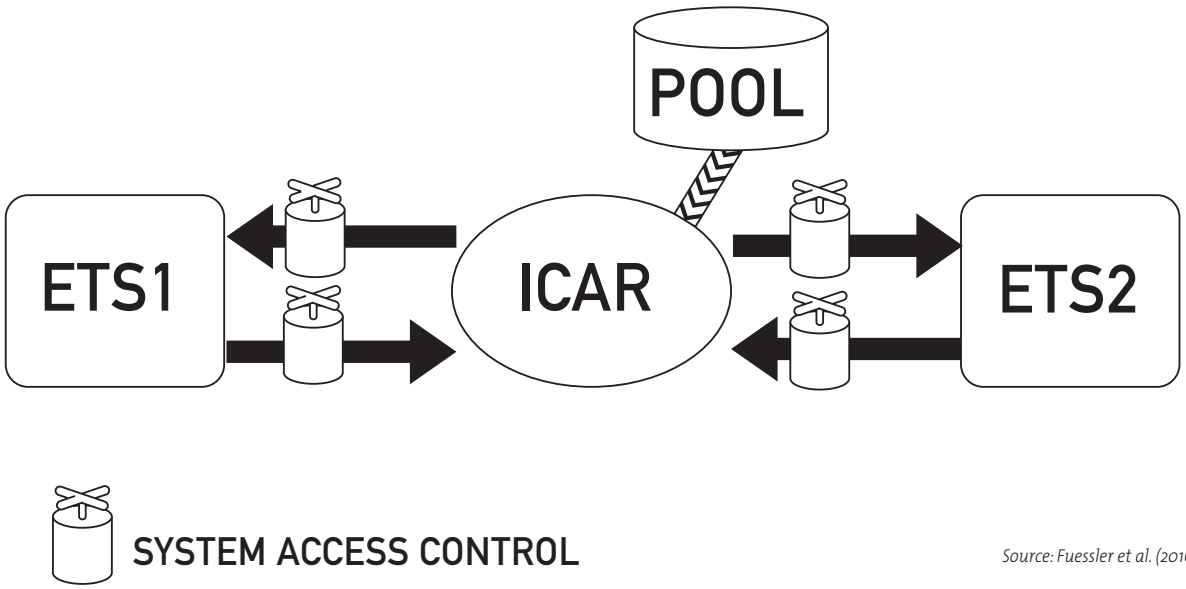
The primary objectives of the ICAR Central Hub are (1) to facilitate the restricted linking of ETSs so that low-cost abatement opportunities that are geographically spread out can be tapped into; and (2) to provide a tool for mitigating carbon risk via a centralized intermediation service and via the provision of allowance buy and sell services. By intermediating the exchange of allowances among member jurisdictions and by creating International Units (IU), the ICAR Central Hub mitigates the risk that imported allowances are over-valued. At the same time, by providing buy and sell services the ICAR Central Hub generates a pool of allowances that can be used by member jurisdictions to address local market imbalances, ultimately mitigating carbon price risk.

Implicit membership criteria may exist through the ICAR agreement requiring a certain level of compatibility with respect to the ambition of the ETS, MRV, registry systems, banking and borrowing provisions, and cost containment measures, including offset types and limits. A pool of internationally-fungible allowances (or IUs) will be available to market participants. The allowances for the pool are bought from participating jurisdictions by the Central Hub. The allowances are attributed weights that need to add up to one to create an IU. Once an IU is issued, the underlying allowance(s) is (are) cancelled and removed.

The market participants' recourse to the Central Hub's services is rule-based and aims at mitigating market risks on both the allowances buy and supply sides. The Central Hub's services are triggered when member jurisdictions face a contingency. The particular local conditions that constitute a contingency are pre-agreed with each jurisdiction and require the approval of all participating jurisdictions. Operationally, this will be decided by the executive body of ICAR.

There are a number of options for the design of a trigger.[8] The Central Hub's buy and sell services could be triggered based on changes in the economy, the allowance price, or the allowance quantity. The first option requires the identification of a proper economic activity indicator. This is a daunting task:

Figure 2: ICAR Central Hub



Source: Fuessler et al. (2016)

8 *We refer to M. Hasegawa and S. Salant (2014) and G. Grull and L. Taschini (2011) for a discussion on price-based triggers and to S. Kollenberg and L. Taschini (2015) for a discussion on quantity-based triggers and the Market Stability Reserve.*

The canonical indicators (GDP, electricity consumption, share of renewables generation, etc.) do not promptly capture relevant changes in the economy.

Allowance price- and quantity-based triggers are more transparent and simple to implement. For instance, the ICAR executive body and the perspective member could set a price threshold, so that a maximum price in a participating ETS activates the supply service and a minimum price activates the buy service. Prices are already the indicator used to change allocation of allowances in California and in RGGI.[9] Similarly, the ICAR executive body and the perspective member could set a quantity threshold so that a maximum quantity of allowances allocated and unused for compliance activates the buy service and a minimum quantity activates the sell service. As part of the EU ETS reform, the European Commission has approved the implementation of a quantity-based adjustment of allowance allocation, the so-called Market Stability Reserve.[10]

Once the trigger is activated, the Central Hub can buy allowances and sell IUs. It is imperative that market participants are provided with transparency and predictability of the rules by which the jurisdiction's regulator will assess whether the domestic market requires adjustments and the policy options available to undertake such adjustment, including Central Hub services. To this end, at the time of its membership acceptance, the executive body and the regulator of the perspective member jurisdiction will communicate to the local participants the rules by which the Central Hub will be active on the domestic market. Once the trigger is activated, i.e. the price goes below the price floor, the Central Hub has the obligation to buy allowances. The Central Hub will then procure allowances by an ascending permit-buy auction for the market players.

When trading is restricted, market participants are regulators; when trading is unrestricted, market participants are compliance entities. If the price rises above the price ceiling, the Central Hub is again triggered and issues IUs against local allowances and has the obligation to hold a descending IU sell auction for domestic market participants. In order to preserve the control on the environmental target, the rules such as the maximum number of IUs that can be sold are pre-agreed between the executive body of the Central Hub and the regulator, as part of the ICAR agreement. These IUs will have to be removed from the local market by the regulator at some point in the future.

ICAR Central Hub can complement or supplement member jurisdictions' own price containment mechanisms or provide price containment services directly to (private sector) ETS participants. The reasons that a jurisdiction would prefer ICAR's sell-side services rather than create and manage its own local reserve are (i) a local reserve is costly financially and politically; and (ii) because ICAR taps into a wider spectrum of low mitigation options the price of IU's should be lower than that of local allowances and (iii) the pooling of risks can lead to a reduction of risk mitigation costs. [11]

ICAR Prototype 3: Gateway

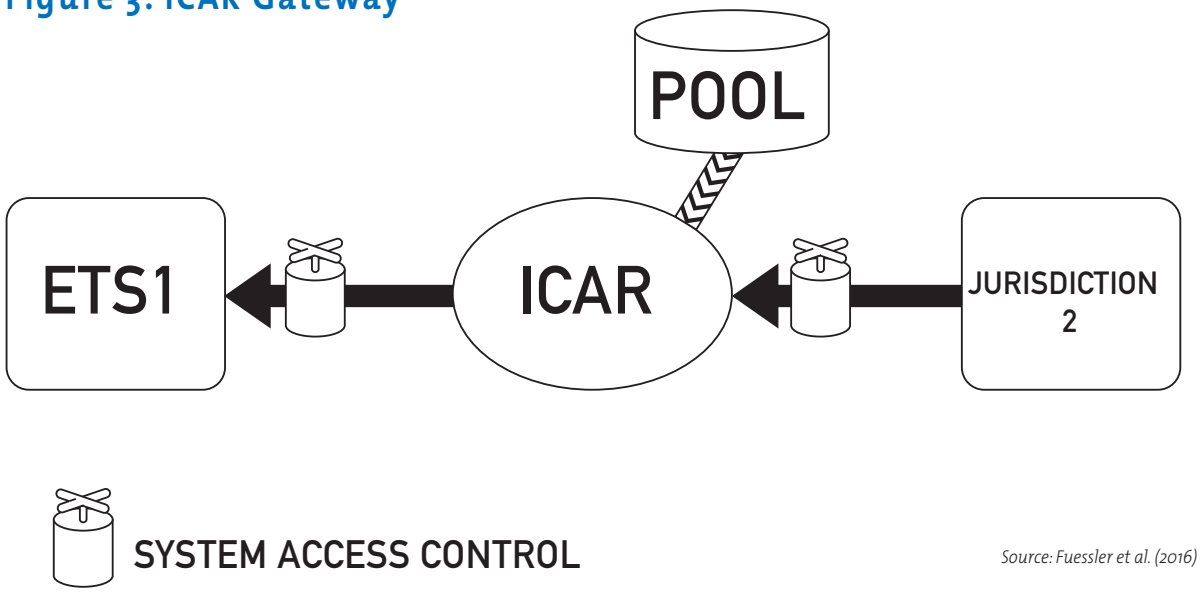
The primary objective of the ICAR Gateway is to facilitate the transfer of units from a jurisdiction with a carbon instrument other than ETS (including project based offsetting mechanisms, aggregated level instruments or policies, etc.) to buying members with demand in units from their ETS. The ICAR Gateway provides not only a trading platform, but also insurance services to both sides, the seller (e.g. guaranteed minimum uptake, price floor) and buyer (e.g. delivery guarantee, price ceiling). Thus, it contains risk mitigation instruments for market risks as well as project risks. In addition, it may even include services to foster mitigation action in the host country.

Membership is open to any jurisdiction as long as they are eligible to use a commonly accepted international mechanism. An important prerequisite for a host country's participation in the Gateway are stringent provisions against double counting of units. The Gateway facilitates the transfer of internationally-fungible allowances (or IUs). In addition, the Gateway maintains a pool of IUs and capital to reduce the costs for risk mitigation.

For the jurisdiction hosting the mitigation actions, the Gateway provides an interface to the local carbon instrument: It pays for MRV'd mitigation outcomes according to pre-defined

9 We refer to Hasegawa and Salant (2014) and Gruell and Taschini (2011) for a discussion on price-based triggers.
10 We refer to Kollenberg and Taschini (2015) for a discussion on quantity-based triggers and the Market Stability Reserve.
11 On the benefits of pooling see also section 3.1 in J. Fuessler and M. Herren (2015): Design Options for an International Carbon Asset Reserve. Networked Carbon Markets – A Knowledge Series. the World Bank Group.

Figure 3: ICAR Gateway



Source: Fuessler et al. (2016)

rules and covering some of the risks. If needed, the Gateway supports the host jurisdiction in translating the measured mitigation outcomes (e.g. kWh of renewable power produced, level of fuel efficiency standard achieved) into IUs according to internationally accepted rules and methodologies. For the jurisdiction buying allowances, the Gateway ICAR offers IUs of guaranteed quality, volume (and price).

The Gateway ICAR can also provide numerous insurance functions, depending on the needs of participants, available resources and "risk appetite".[12] Similar to the Central Hub ICAR, the Gateway can provide price floors and ceilings to the sell and buy side. For the jurisdiction hosting the mitigation activity, the Gateway could provide a wide range of risk mitigation functions. This may include mitigation against risks of non- or underperformance of mitigation activity, risk of non-permanence of agriculture, forestry and other land use units, risk of non-eligibility of units in carbon markets as well as technical risks such as electricity price and outage solutions (ELPRO), hedging against low solar irradiation for PV, etc. As these risks often represent key barriers for the scaling up of mitigation action, the risk mitigation provided by the Gateway may play an important role in unlocking the diffusion of low carbon technologies in host countries. For the jurisdiction buying allowances, the Gateway can provide customized products such as maximum price ceilings as needed by buying entities in member ETSs.[13]

The World Bank's Prototype Carbon Fund (PCF) is an early example of a concept similar to the Gateway ICAR. The PCF entered into agreements to buy future units from would-be CDM projects at a pre-agreed guaranteed price. The model was very successful in starting a market and building up CDM related capacity in governments and the private sector in many countries even though many uncertainties on the emergence of a robust CDM market prevailed.

Way forward

ICARs may provide services along a continuum of restricted and fully-linked ETSs and equivalent market-based instruments. Ultimately, an ICAR may facilitate the exchange of different carbon units among heterogeneous jurisdictions

12 See also discussion of risks and ICAR risk mitigation functions in J. Fuessler and M. Herren (2015): Design Options for an International Carbon Asset Reserve. Networked Carbon Markets – A Knowledge Series. the World Bank Group.
13 As a variation, the Gateway ICAR could also serve as a provider of MRV'd mitigation outcomes for results based finance in the framework of climate finance.

worldwide. It can also provide the benefits of intermediate services as the system matures.

In an initial phase, the ICAR Platform can connect jurisdictions even if jurisdictions do not satisfy preconditions required under full linking. Through learning by doing and stepwise opting-in of additional ETSs it promotes an organic growth of interconnected markets. In this early stage, the ICAR Gateway could also emerge in a domestic form to facilitate the transfer from non-ETS carbon instruments to an ETS within the same jurisdiction. In a next phase, the ICAR could issue IUs. This is a significant step as it measures mitigation efforts against a universal set of rules that are enforceable, at least within the group of ICAR member jurisdictions. In addition, the ICAR could keep a pool of allowances to mitigate price risks. In this phase, all three types of ICAR discussed in the article could coexist. In a final consolidation stage, a critical mass of jurisdictions would be linked and this may exert a "gravitation pull" on non-member jurisdictions to also link their ETSs or non-ETS carbon instruments.

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NDCs, Article 6 and Additionality Assessment

Stepping up climate action via carbon markets

by Thomas Forth, Advisor to BMUB

Projections of the 2030 emission gap, including the INDC pledges submitted up to November 2016, range from 21 – 24 GtCO2e for the 1.5°C compatible pathway and 6 GtCO2e less for the 2°C pathway. Lowering the gap calls for an increasing impact of mitigation action by Parties domestically and in cooperation. Article 6 offers a set of cooperation opportunities for the involvement of the private sector. To date about 80 countries have given formal notice that they want to use market mechanisms to meet their mitigation objectives.

The Paris Agreement has three answers for raising mitigation ambition in line with its long-term goal (Article 2): strengthening the NDCs over time (Article 14), climate finance (Article 9) and cooperative approaches (Article 6). I understand Article 2 constitutes an inherent overall target which has consequences for Articles 6, 9 and 14. And, of course, there are dominant own issues to implement in each of these Articles, but they play a role for concerted efforts within the architecture of the Paris Agreement.

At the risk of raising yet again the issue of an increasing emissions gap, some critics never seem to tire of telling stories of vanishing opportunities for carbon market opportunities. I find this rather odd, both in times of progressive economic and social globalization, and given the need for climate finance to mobilize the private sector. In the following I will thus attempt to set out the rationale that the NDCs are the key in deciding whether measurable and accountable mitigation outcomes are better classified as carbon market or climate finance activity.

NDC classifications for mitigation outcomes

The classification of emission reduction activities at all scales, from project-based to sectoral approaches, governs whether, most notably, questions of additionality have to be answered or if the activity has contributed to net emission reductions globally. Use of the set of cooperation approaches under Article 6 should not be restricted by narrowing the NDC types, but should instead be defined by the role they play in the implementation of the implementing country's NDC. This is the case for all certifiable und accountable emission reductions, even if no tradable certificates are to be issued. And only in the event of traded certificates or transferred mitigation outcomes is the role of the acquiring Party of relevance for the accounting system. For this reason I prefer the perspective of the implementing country.

The following deliberations build on the existence of a well-implemented, robust accounting system, including not only a technically ruled out avoidance of double counting, but also the avoidance of double claiming on the impact side of cooperative mitigation activities. Therefore, relevant items of robust accounting and environmental integrity have to be addressed – both in the Guidance to Article 6.2 and in the Modalities and Procedures for Article 6.4, if not technically linked to the ITMO regulation. Last but not least, regulation might be needed on Article 6.8 regarding the impact of cooperative mitigation activities, allowing for efficient use of finance resources and an effective assessment of measures.

The key to NDC classification is the question of additionality within the territory of the implementing country. The

Scenes from the Kyoto world: CDM biomass-based power generation project in Tamil Nadu, India.

determination of the additionality of a mitigation outcome depends on its use within the NDC. Therefore, Article 6 might provide the opportunity for cooperation in non-additional areas when transfers are excluded. The answer appears vague and inadequate, because there might be no dominant interest in the negotiations to fall back on a single, measure-based additionality procedure instead of applying more advanced, standardized and policy-based procedures. Going along with this, I separate the mitigation part of NDCs into three categories related to the criteria of implementing country-defined conditionality and non-conditionality. A third category builds a box for the left-overs, which have not been addressed to date. This separation serves only one strategic purpose, to provide a clear set of criteria for the possibility of using ITMOs or transferable certificates.

Starting with the non-conditional NDC means starting with self-assessment, trying to bring forward what Article 2.2 PA requires from Parties. With the conditional NDC part, the fields of cooperation appear defined, but there is no requirement to transfer mitigation outcomes. The third category encompasses only residual, untapped emission reduction potentials and/or undisclosed areas of domestic climate change policy. This category should be cleared as quickly as possible with the following NDCs.

Category 1: Non-conditional NDCs

These are Parties' own contributions to the Paris Agreement. The question here is whether these own contributions depend on being implemented without international cooperation or whether it is enough that they only exclude the transfer aspect, meaning that they do not result in ITMOs. If the latter is the case, then climate finance must be used, be accounted for as such and the mitigation outcome assessed. Perhaps it is necessary to disregard the fact that non-conditional NDCs follow linguistically formal, questionable definitions, thus making them dependent on purist financing concepts. This is a similar situation to the case with economically stronger countries concerning foreign investment to reduce emissions within their territories. These mitigation activities are not additionally accounted for as a deduction from the inventory in the registry system.

The respective mitigation outcome remains entirely in the host country and is accounted for as having been achieved under the non-conditional NDC. The substantive definition of non-conditional NDCs would then solely mean that the intended reduction is to be achieved, regardless of how and by whom. The transfer of ITMOs and/or certificates cannot be used as an incentive here. The extent to which it makes sense to actually use climate finance in this area and to utilise Article 6 for matters concerning MRV and accounting must be addressed on a case-by-case basis if implementation can indeed only be achieved with international support.

Category 2: Conditional NDCs

By way of contrast, conditional NDCs, the conditional character of which relates to Article 6 of the Paris Agreement, are predestined to allow trade of ITMOs or certificates and can put the incentive function to good use. However, use of the underlying cooperative approaches must not be seen as a given. Article 6 gives implementing countries the opportunity to use international support to achieve net emission reduction effects towards meeting their non-conditional targets in their inventories or registries. This net emission reduction effect would, however, be a shared result that the financing Party can report in relation to climate financing and mitigation outcome. That also means that the financing countries may also claim a share of the net emission reduction. With regard to transfer of ITMOs or certificates between countries, the host country's mitigation activity must be defined.

If, however, the transfer of the rights to the mitigation outcome is agreed and actually takes place, then the buying country does not initially secure a net emissions reduction for the transferred share of the outcome. The net emissions reduction is not automatically transferred, because it is dependent on how it is used by the respective owning Party. That means, of course, that there is a chance that the mitigation outcome achieved in the host country can also be claimed after the transfer. This is, however, solely reliant on how the buyer uses the reduction. If the reduction is to be used for compliance under the Paris Agreement, the net emissions reduction effect is lost. With other types of use, such as retiring certificates or counting a reduction as a mitigation activity conducted under a non-conditional NDC, a net reduction would occur.

Category 3: Left-overs – activities conducted other than under notified NDCs

Host countries also have emissions which are not covered by their NDCs. The reasons behind such emissions are varied. It is an independent political decision whether a host country includes all of its emissions in its NDC and thus formulates its targets in an holistic climate action plan, or only includes part of its mitigation activities in its NDC and thus only some of its targets. A second, separate point to consider is the extent to which targets contained in NDCs are supported by concrete measures. Even if a Party has decided on an economy-wide target, its reach is extremely limited if policies which suffice in meeting the target are only introduced in a few sectors. The question then arises as to how, in the case of an economy-wide target, sectors are to be dealt with that are neither addressed nor needed to fulfil the NDC. To exclude the use of ITMOs and/or certificates would undermine the broad cooperation opportunities provided for under the Paris Agreement and would be wrong given the challenges of closing the emissions reduction gap.

However, as a prerequisite, a criterion will have to be formulated for use when an economy-wide target is set so that the transferring country makes clear both the mitigation potential it plans to use in achieving its reduction target and the progress it is making in doing so. But apart from that, it can be expected that beyond the first two successive NDC cycles, national climate change policies will be formulated such that they make Category 3, which is effectively an interim category, completely obsolete. The mitigation potential listed under Category 3 could, where it addresses activities, then be assigned to categories 1 and 2. This would give rise to a dynamic process which assists the development of national climate change policies in mitigation areas not yet covered and enables international cooperation.

There is no need to exclude this type of mitigation potential from Article 6. On the contrary, if classification as NDCs remains the sole criterion, we are squarely in net emission reduction territory. However, the environmental integrity of cooperation activities could in no way be deemed as given if business as usual activities were able to be classified as net emission reductions just because they are not listed in the NDC. The same applies for NDC Category 2 activities where the transfer of certificates is planned. This brings us, therefore, to the overarching question of how to identify and quantify the additionality of mitigation activities conducted using international market mechanisms.

Overcoming the inadequacies: did the CDM's E+/E- rule stymie the dynamic nature of transformation?

Rethinking Additionality: Existing model has its limits

The underlying question arises as to whether the additionality concept can still function if the definition of the three NDC categories serves as the basis for mitigation outcome and transfer of certificates between countries. As a matter of principle, those who finance mitigation activities have a vested interest in being able to identify whether the intended mitigation outcome has occurred and that it was brought about by the activity they actually financed. Interest in the additionality of the mitigation outcome goes beyond the economic aspect of monitoring success. That was the underlying idea when establishing the CDM: additionality test, use of methodologies, independent verification and host country approval all worked together and were meant to guarantee the robustness of a project-based mitigation outcome.

That criticism was and still is distinguished by a rejection of market-based approaches and a characterisation of CDM transaction costs as being too high. Regardless of how largely lobbyist positions like this are viewed, a clear development trend was seen with the CDM which was based on simplifying its use. Such simplification measures include the positive lists, standardisation and the programmatic approach. In all of these areas, an interest in providing greater robustness is reflected in investment decisions from the outset. Where the issue at hand under Article 6 concerns the upscaling of sectoral-based mitigation activities and greater policy integration, this trend or rather this process must be forcefully pursued. With the policy components, it is possible for the first time to raise the question of transformation at policymaker level.

This is a key aspect of sustainable climate change policy which was sorely lacking in the CDM or rejected outright in the form of policy CDM. While other aspects, such as freezing baselines using the E+/E- rule and prolonged crediting periods have increased the robustness of investment decisions, they have also stymied the dynamic nature of transformation. We could say it is a case of retaining or discarding arrangements made for reasons of pragmatism and legal certainty. The challenge under Article 6 of the Paris Agreement, therefore, will be to overcome the inadequacies of the CDM model as practiced.

New issues

With a new definition of additionality, the question must be answered (taking into account the NDC categories) as to whether an activity is financed as a business-as-usual activity and whether the mitigation outcome has been properly

accounted for. The CDM introduced standards for this purpose at the level of individual investment and also at programme level. Here it would make sense to redefine those standards' scope of use, both in terms of timeline and content, in order to enable shorter crediting periods and integrate policies related to NDCs.

A new aim under Article 6 is to establish more complex market-based and cooperative mechanisms which take account of mitigation outcomes not just at individual project or PoA level, but also at a higher aggregation level. This would lead to a need for further development of CDM methodologies. Through the use of baselines and benchmarks, sectoral and sub-sectoral rules can prescribe both the extent to which activities may be classified as part of NDCs and the point at which they may generate transferable certificates and/or net emission reductions. It would thus be highly desirable if, in respect of these issues, the potential for standardisation options offered by the methodologies could be used. In terms of the cooperative mechanisms, this is feasible at both individual project and programme of activities level. It is also possible that the methodologies developed and made available under Article 6.4 could be used under Article 6.2. The guidance provided by Article 6.2 could contain a recommendation to this end.

The matter would, however, become more complicated where complex cooperation activities are involved which are either based on the sectoral approach or designed to trigger transformational processes. In this case, Article 6 would encroach considerably on national climate change policies. It is entirely conceivable that use of such methodologies could be made binding under the Paris Agreement Article 6, as was the case with the CDM. While that may be fairly realistic in respect of sectoral mechanisms and certificate issuance, it would be extremely difficult if national policies were to be placed below those of international climate change regimes.

The matter can, however, be isolated. Only when certificates are transferred between countries, or rather when implementing policies allow their transfer, must the issue of additionality be addressed. This situation becomes very complex, however, when the various aggregation levels of the activities and their placement in NDCs have to be taken into account. How much international oversight would there need to be if national policies are to be assessed for additionality? Or, to put the question another way, how much insight would the Parties that already have well-developed climate change policies be willing to give if they allow the inflow and outflow of transferable certificates?

Use of JI in and by Germany could serve as an example here: international methodologies were used, but the policies themselves were not assessed. Germany established the JI 1st Track requirements after those for JI 2nd Track, but, as is usual with JI 1st Track, refrained from UN participation. Credibility was secured through the application of the methodologies along with independent certification. In the considerations described above, both of these elements enable a comparison of different types of mitigation activities despite the lack of verification options under Article 6.2. Matters are complicated, however, if the activities are additionally designed to trigger transformational effects.

This possibly brings us to an area of the Paris Agreement which can not be governed by modalities and procedures, guidance, robust accounting and environmental integrity standards, but which can instead be aimed for as the outcome of applying Article 6.

Conclusion

The goals of transformation, sustainable development, development pathways in line with a 1.5 °C target, long-term decarbonisation and closing the emissions gap within the next decade can only be achieved if mitigation activities are conducted on a vast scale. They are all grounds on which to develop the necessary scale of mitigation along with suitable instruments. The interplay between the various mitigation mechanisms which focus on mechanisms and NDCs is the key to raising ambition among Parties to the Paris Agreement. One key finding in all of this could be that Article 6 can offer additional, robust ways to engage in mitigation cooperation.

However, those who see the Paris Agreement as a continuation of the Kyoto Protocol are not thinking far enough ahead. The task at hand is, with a robust accounting system in place, to strike a balance between the pivotal role of the NDCs and a broader additionality concept. Interpreting Article 6 in a similar way to the CDM would jeopardise the implementing countries' strong position in formulating and implementing their NDCs.

Learning from the Past

Barriers to integration of sustainable development benefits in market mechanisms

by Verena Seemann, DEHSt

Due to an unbalanced incentive structure, not as much attention has been paid to achieving sustainable development benefits (SD benefits) as to achieving mitigation in the CDM. There remains a lack of mandatory guidance and ex-post assessment of sustainable development impacts, mainly owing to the insistence of many developing countries on determining what constitutes sustainable development within their own national circumstances.

Given that on the compliance market the buyer's objective is primarily to achieve their mitigation requirements, this broader market has only rarely sparked more systematic efforts to assess SD-benefits than what the formal requirements provide through the assessment by national designated authorities. This has resulted in some controversial activities being supported through the CDM that have not provided much in the way of sustainable development outcomes.

To facilitate the broader inclusion of co-benefits in the aforementioned existing market mechanisms, relevant barriers need to be identified and properly addressed. Barriers are not only rooted in the different positions of the negotiating parties under the UNFCCC, they are repeatedly formed on the basis of systematic issues which can be more difficult to isolate and resolve. Understanding the intricacies of various barriers that hinder co-benefits and how these

Table 1: Barriers impeding the inclusion of SD-benefits
(Source: Authors of the research project)

Barrier 0	Possible trade-off between dual goals of climate change mitigation/adaptation and sustainable development
Barrier 1	Lack of clarity regarding scope and modalities of market mechanisms
Barrier 2	Lack of a strong mandate for inclusion of sustainable development benefits
Barrier 3	Question of sovereignty regarding the definition and assessment of sustainable development
Barrier 4	Lack of a common, universally accepted definition of sustainable development
Barrier 5	Lack of monetary or regulatory incentives for MRV of sustainable development benefits
Barrier 6	Lack of clarity regarding possible roles and responsibilities of different stakeholders in the context of sustainable development benefits
Barrier 7	Lack of standardised technical frameworks for MRV of sustainable development benefits
Barrier 8	Added complexity of SD-benefit assessments and respective transaction costs
Barrier 9	Lack of experience and capacity for MRV of sustainable development benefits

Source: World Bank / Community Development Carbon Fund

Climate change mitigation plus employment benefits: installing solar home systems in Bangladesh.

barriers are connected is crucial for recognising and recommending holistic solutions that can be sustained and broadly supported in the longer term.

Therefore, as part of research project commissioned by the German Environment Agency, researchers were tasked to assess possibilities for enhancing the role of SD-benefits in the context of activities supported by future market mechanisms under the UNFCCC and to identify and then discuss barriers in implementing co-benefits and ways to overcome them. This article outlines and presents key results from that research project, focusing on the analysis of barriers preventing the effective inclusion of co-benefits in market mechanisms and thereby potentially sustaining the weak delivery of significant co-benefits by future market mechanisms.

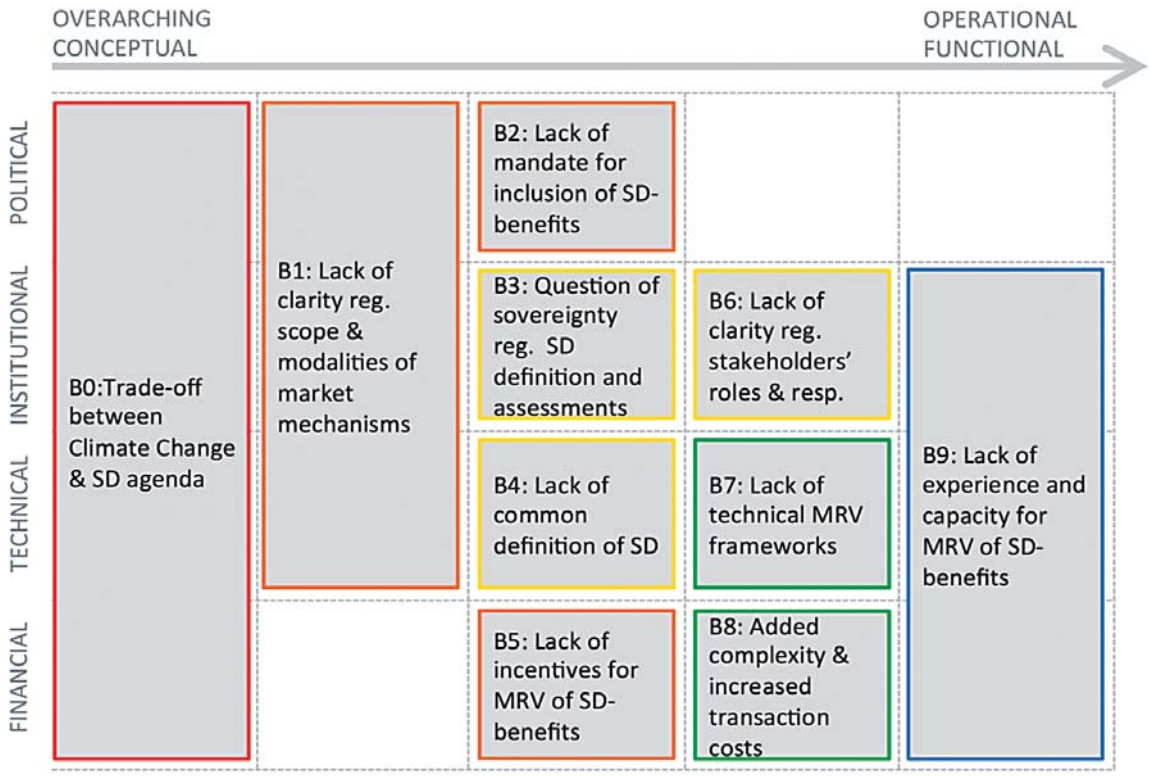
Barriers to the inclusion of co-benefits

To identify the barriers that currently limit the consideration of sustainable development benefits in existing climate policy instruments, the authors build on the motives and drivers discussed in the desk review of relevant submissions to the UNFCCC, on further literature and feedback obtained in expert interviews with relevant stakeholders prior to and after the COP 21, and the authors' own expert assessment.

Ten barriers have been identified, which are listed in table 1.

Figure 2: Barrier landscape according to types and clusters

(Source: Authors of the research project)



Barrier classification

To facilitate the understanding of each barrier, they were categorised according to institutional, political, technical and financial types. These categories draw attention to the fact that some types of barriers are more fundamental and conceptual in nature (political and institutional), while others tend to be monetary and operational (financial and technical). These groups can therefore already give an indication of the means and difficulties in overcoming a barrier. The barriers were then clustered according to their type and nature.

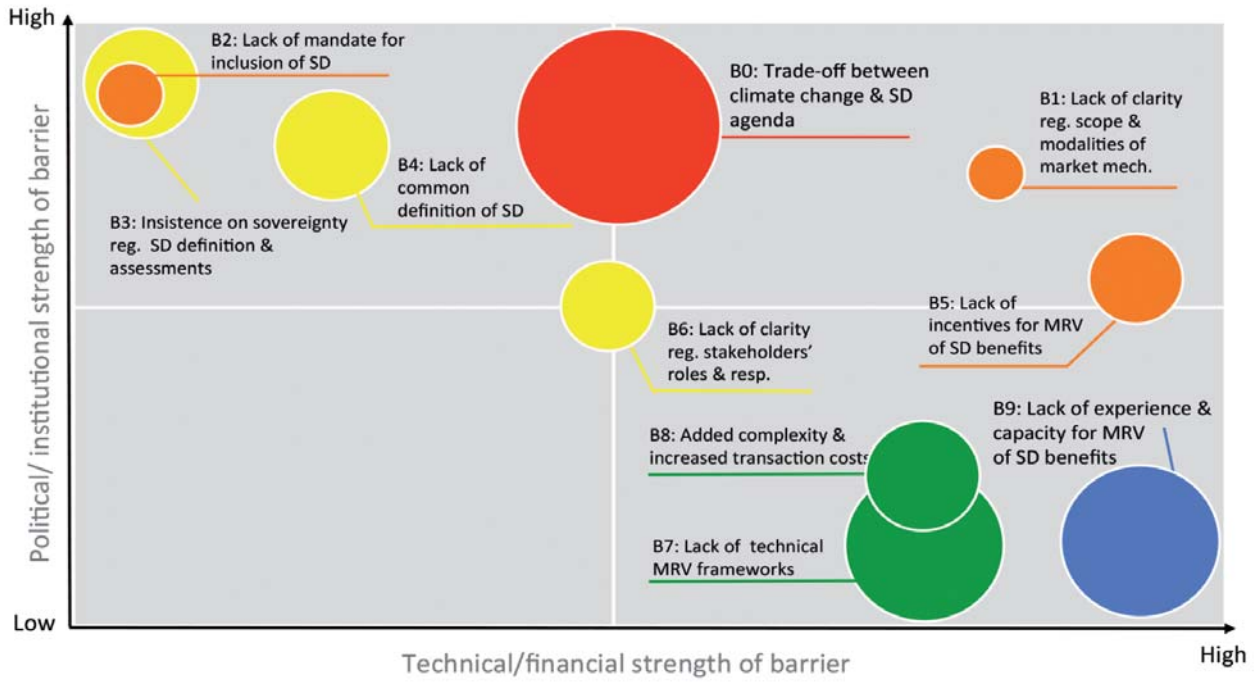
The barriers on the left of Figure 2 are more overarching and conceptual in nature, whereas those on the right can be regarded as operational and functional. The implication is that the more fundamental barriers on the left of the chart are the cause of the subsequent technical and operational barriers. For this reason, it is difficult to address the barriers on the right of the spectrum without first solving the barriers on the left (except for the overarching barrier B0).

The barriers can be grouped into five main clusters. Within each cluster they are closely connected and linked to the same underlying problems.

The red cluster encompasses the overarching barrier related to the potential trade-off between the dual goals of climate change mitigation and SD-benefits, in the sense that it is challenging to achieve both desired outcomes without prioritising one over the

Figure 3: Assessment of barriers according to their relevance in the UNFCCC context and strength

(Source: Authors of the research project)



other. This overarching barrier is basically the cause of several of the subsequent barriers. It also represents one of the most difficult barriers to address due to its wide effects beyond the UNFCCC, including but not limited to the entire development community as well as coordination and conflicts at the national level (e.g. between environment ministry and line ministries).

The orange cluster includes barriers that are related to questions about the underlying reasons for and the intention behind assessing co-benefits. It is formed by barriers of a particular political and institutional nature at the UNFCCC level, and is related to market mechanism fundamentals such as the lack of clarity regarding the scope and modalities of the future market mechanism and cooperative approaches, the lack of a strong mandate for inclusion of co-benefits and thus, vague regulatory and monetary incentive structures for MRV of SD-benefits.

The yellow cluster encompasses barriers that require clarity regarding the meaning of sustainable development in the UNFCCC context and countries' right to define sustainable development according to national conditions or needs. The three barriers in the yellow cluster can be easily solved from a technical perspective, but would face strong political and institutional challenges given the history of SD under the UNFCCC. These barriers are mainly rooted in historic disagreements between UNFCCC Parties on the

question of how to define and assess sustainable development. Addressing these three barriers without solving the more fundamental orange cluster would be an unavailing exercise because the answer to what sustainable development means would only be effective once the purpose of SD-benefits under the Paris Agreement is clear. At the same time, the yellow cluster represents a crucial set of questions that would have to be answered before the green and blue clusters can be addressed.

The green cluster comprises technical and financial barriers which demand clarity on the modalities of sustainable development assessment and the consequences thereof. These barriers seem relatively straightforward to address if the previous, more political and institutional clusters can be overcome. However, this cluster cannot be solved in isolation from the preceding yellow one.

The final blue cluster consists of an important barrier with institutional, technical and financial components concerning the lack of experience and capacity for MRV of SD-benefits in the context of market mechanisms. This cluster located on the far right of the barrier landscape is considered an "end of pipe" problem, which requires clarity on most of the questions raised by the previous clusters before it can be effectively addressed.

Assessment of barriers

After classification, the barriers were assessed according to their relevance in the UNFCCC context, relevance for stakeholders and mechanisms and their political, institutional or technical and financial strength. Figure 3 shows the schematic representation of the barriers in political/institutional and their technical/financial respect. The overall relevance in the UNFCCC context and beyond is represented by the size of the circles.

The larger the circle of a barrier, the more relevant and beneficial a solution beyond the UNFCCC context is. This includes in particular the barriers on MRV and the trade-off between climate and sustainable development agenda. They will require discussion among the Parties to the UNFCCC and beyond, e.g. development agencies.

It would be tempting to single out barriers in the lower left quadrant as "low-hanging fruits" which could be easily addressed because they are considered rather weak. However, such low-hanging fruits are completely absent. The barriers featured around the top right quadrant (Barriers B0, B1 and B5) represent the most challenging ones, as they are the most difficult to overcome in terms of political/institutional as well as technical/financial strength. Solutions to these barriers require significant political and institutional support, technical expertise and financial commitments or resources and will call for dialogue to bridge diverging views among the Parties to the UNFCCC.

It could be inviting to single out barriers in the lower right quadrant of Figure 3 as being relevant in the UNFCCC context and with the highest chances of being addressed due to weak political or institutional resistance. However, as concluded from the assessment of Figure 2, there is a clear logical sequencing of barrier clusters. This implies that the orange cluster has to be addressed before the yellow cluster, followed by the green and blue clusters in order to effectively address SD-benefits under the Paris Agreement. Furthermore, given the uncertainty and unpredictability of the political process under the UNFCCC, it is suggested to approach barriers within one cluster from the top of the chart downwards, focussing on the most difficult political/institutional challenges first before moving on to barriers within the cluster which are potentially easier to address.

The upper left quadrant represents the barriers that are most challenging in political and institutional terms. Barrier B3 "Insistence on sovereignty in sustainable development assessments" is the strongest political/institutional barrier. This would be the most contentious and politically sensitive barrier to address. At the same time, it is considered straightforward from a technical/financial perspective – another sign of a purely political/institutional bar-

rier. The red barrier comprising the overarching barrier B0 is the largest circle in Figure 3, making reference to the universal nature of this barrier beyond the UNFCCC process, and also encompassing the entire development fora.

The lower right quadrant represents the barriers considered predominantly technically/financially ambitious with rather weak political or institutional aspects. It also contains the blue coloured barrier B9 "Lack of experience and capacity for MRV of SD-benefits", which is considered a strong technical and financial barrier, less challenging from a political perspective and only slightly relevant from an institutional perspective. The position of this barrier on the x-axis is based on the assumption that significant financial resources would be needed as upfront investments for building the necessary capacity for sustainable development assessments at the host country level. Last but not least, the circle size indicates that this barrier and its respective solution have significant relevance beyond the UNFCCC, potentially benefiting other ecosystems.

Conclusions

As the barriers presented are strongly connected with the various motives of stakeholder groups, overcoming them is linked to influencing or changing the stakeholders' motivations and convincing them to support the inclusion of SD-benefits. This requires discussions at the UNFCCC level in order to bridge diverging views and reach a political solution. General awareness raising and facilitation of dialogue among stakeholders under the UNFCCC and the development community about the synergies of climate change mitigation and SD-benefits would also be helpful. The adoption of the Sustainable Development Goals provides a unique opportunity to further streamline and align efforts under the Paris Agreement with other international agreements and initiatives that promote sustainable development.

Further information

The final report is available for download under the following link:
https://www.umweltbundesamt.de/publikationen/sd-benefits-in-future-market-mechanisms-under-the

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Disclaimer

The opinion expressed here is not necessarily that of the German Environment Agency or the German Emissions Trading Authority (DEHSt) at the German Environment Agency.

JIKO Analysis of Article 6 submissions

A new JIKO Policy Paper summarises the views submitted by Parties in March 2017 on Article 6 implementation. Download at **www.carbon-mechanisms.de/en/submissions2**

Options for the voluntary markets

This JIKO policy briefs outlines challenges for the voluntary carbon markets after the adoption of the Paris agreement and derives options on how to address them. Available at **www.carbon-mechanisms.de/en/voluntary_market**

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/**