

CARBON MECHANISMS REVIEW

ISSUE 3 | 2017
SEPTEMBER - OCTOBER

Writing the Paris Rulebook

Principles and guardrails to keep
things in check



Content

SEPTEMBER – OCTOBER



4 Guardrails for the Paris mechanisms

Operationalizing Article 6 and generating carbon market credibility

10 “A New Way of Financing Technologies for Africa”

Gareth Philips, the initiator of the “Adaptation Benefit Mechanism” on the demand for adaptation units, the CDM’s failures, and how to demonstrate certifiable adaptation project results

15 A Ton is a Ton that is Compatible with the Paris Agreement

Environmental integrity on the way from Kyoto to Paris

20 On the Rise?

What will be the future demand for offsets from the aviation sector and how will aviation emissions be treated under the EU ETS in the future?

26 Stumbling Blocks on the Way to Application

The relevance of baseline setting, Monitoring and Homogenous NDC Formulation for Cooperative Approaches under the Paris Agreement

editorial

Dear Reader!

The Paris rulebook is beginning to take shape. However, in the case of Article 6, negotiations are still at an early stage and revolve around questions of principle. Thus, in this issue of the Carbon Mechanisms Review, we look at what should be the central ingredients of the Article 6 section of the Paris rulebook, the aim being to identify what needs to be negotiated now and what can be put aside for a later date. See our cover feature in the adjacent article for more.

We also look at how the Paris Agreement poses new challenges for environmental integrity and analyse possible stumbling blocks on the way to implementing cooperative actions under Article 6 given the different nature of NDCs.

In addition, we present a potential case for non-market approaches: the adaptation benefit mechanism (ABM) – an initiative of the African Development Bank that uses a mix of non-market and market components. In an interview, Gareth Phillips – the mastermind behind the ABM – says where he sees demand for adaptation units, points to the failures of the CDM and explains how to demonstrate certifiable adaptation project results. The issue is rounded off by an analysis on the future demand for offsets from the aviation sector and how the EU will treat aviation emissions in its ETS.

On behalf of the editorial team, I wish you an interesting and informative read.

Christof Arens



**Wuppertal
Institut**

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

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

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

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

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

Layout:
www.SelbachDesign.de

English Language Support
Stocks & Stocks, Bonn/Düsseldorf (except "On the Rise?" and "A new way...")
www.words-worth.eu

Photos:
Title page: Flickr / UNFCCC / CC BY 2.0
Back page: fotolia.com © pedrosala

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

ISSN 2198-0705

Guardrails for the Paris mechanisms

Operationalizing Article 6 and generating carbon market credibility

by Axel Michaelowa and Stephan Hoch, Perspectives Climate Group

The negotiation clock is ticking away at rapid speed. Only 14 months remain in which the rulebook for operationalizing the market mechanisms under Article 6 is to be developed and approved. Its foundations have been laid by the Paris Agreement and universally acclaimed UNFCCC principles. Nevertheless, old cleavages between countries have so far prevented any substantial progress in agreeing on the details. The negotiation meetings in May 2017 did not advance beyond “informal informal” lists of hundreds of topics to be covered in the future. Thus, it is crucial that COP 23 in Bonn delivers substantive progress on a number of critical issues. Otherwise, the hope that market mechanisms could become a cornerstone of the Paris regime may wither away. So what are the critical issues to be resolved in the negotiations on the Article 6 rulebook?

Many of the crucial elements for Article 6 are familiar to those who have worked on the Kyoto mechanisms in the past. They include defining roles for a governing body, host countries, auditors, and other stakeholders; ensuring additionality of mitigation action that generates emission credits, limiting transaction costs while ensuring transparency, and providing sustainable development (co-)benefits. But a number of them are new: How can we deal with crediting of policy instruments? How do we manage market mechanisms in a world in which the bifurcation of the Kyoto Protocol has been overcome, and all devel-

oping countries have defined their own Nationally Determined Contributions (NDC), even though these may have many different “shades”? How do we ensure that carbon markets (Article 6.2) with little or with no international oversight function well and ensure that these mechanisms enhance rather than undermine mitigation ambition? Given the history of NGO and media attacks against market mechanisms, the need to uphold high environmental integrity is paramount.

Preventing “hot air” from a hundred countries

A brief period in 2012 gave an impressive lesson on the danger of “hot air” for the credibility of market mechanisms. The Kyoto Mechanism Joint Implementation (JI) had previously been seen as inherently solid and credible due to the fact that both seller and buyer country have an emissions budget and emission reduction units (ERUs) would be deducted from the seller’s budget. Thus, the seller country would have to mobilize a volume of mitigation in its economy equal to the volume of units sold. Unfortunately, this reasoning does not hold if the seller has an emissions target that is not binding, i.e. where the business as usual emissions path is below the target. This means there is a surplus of emissions units – colloquially called “hot air” – that can be sold without the

need to mitigate elsewhere. Under the Kyoto Protocol, countries in economic transitions like Russia and Ukraine had generated huge amounts of hot air. When in late 2012 the Doha Conference of the Parties decided that such hot air could no longer be acquired under international emissions trading, Russia and Ukraine used JI “Track 1” that was devoid of international oversight to generate hundreds of millions of ERUs in just a few weeks. A large chunk of those ERUs was then sold to Western buyers. After heavy criticism from NGOs, JI was generally seen as a failed mechanism, despite the fact that “Track 2” issued no ERUs tainted by “hot air” suspicions thanks to the international oversight of the multilateral JI Supervisory Committee, which operates under the authority of the CMP.

Under the Paris Agreement, the situation is much more challenging than under the Kyoto Protocol (see also the discussion by Spalding-Fecher et al. 2017). Many NDCs have baselines that are way above any credible business-as-usual path. Some NDCs have no baseline at all. Under the Paris Agreement, there is no process in which an international body can scrutinize the methodological underpinnings and conservatism of the baselines used. It is thus highly likely that a significant number of NDCs would generate “hot air” if NDC baselines were to be used as a basis for crediting emission reductions or allocating emission allowances. The experience gained with JI leads to a clear recommendation for the Paris mechanisms – international oversight is crucial to prevent transfers of “hot air”.

One critical aspect of baseline setting is the question whether baselines should be “frozen” until the revision of the NDC or whether they should be dynamic, i.e. determined on the basis of a set of parameters such as economic growth, population development, share of different economic sectors or fuel prices. The actual values of these parameters should be used “ex post” to calculate baseline levels.

Coverage of NDCs: Sectors and conditionality

Some countries do not cover their entire economy in their NDCs. In principle, mitigation activities not covered by an NDC are akin to mitigation in countries without commitments under the Kyoto Protocol and should thus be subject to a Clean Development Mechanism (CDM)-type rulebook. Their additionality needs to be checked carefully.

Moreover, almost all developing countries have components of NDCs which they define as conditional on international financing, including through market mechanisms. As long as the additionality of such activities is ensured and the baseline of the conditional part of the NDC is derived in a conservative manner, conditionality should not be an issue in generating units under Article 6. When revenues from market mechanisms are blended with climate finance under a conditional part of an NDC, allocation of the mitigation to the different finance streams becomes an issue in order to prevent double claiming (Spalding-Fecher et al. 2017).

Ensuring additionality of policy instrument credits

Under the CDM, national policy instruments could not generate certified emission reductions (CERs). With the advent of upscaled crediting under the Paris mechanisms, it is important to understand when a policy instrument is additional.

Mitigation policies can generally be differentiated into regulation and carbon pricing instruments. The former includes efficiency standards for appliances or vehicles, the latter emissions trading schemes and carbon taxes. Generally, regulation addresses mitigation which in principle would be profitable but is not undertaken in the business-as-usual situation due to incentive problems – like the famous tenant-owner dilemma preventing efficiency improvements in buildings. Carbon pricing aims at mobilizing mitiga-



Ensuring additionality: falling prices for low-carbon technologies have made wind and solar power plants increasingly attractive in many regions. Their additionality must thus be thoroughly assessed.

tion that has costs and thus would not be undertaken. As far as a country benefits from the removal of incentive-related barriers, such regulatory instruments should not be deemed additional unless real barriers are demonstrated, e.g. access to finance in a particular foreign currency. In cases of regulation that mandates a certain efficiency of a technology, a pragmatic approach would assess the payback period that would lead to investment into that technology. Academic literature and industry practice agree that 4 to 5 years would be a typical threshold.

But not all carbon pricing instruments should automatically qualify as additional. Given that a government theoretically should introduce a policy as soon as its benefits exceed its costs, a policy should principally only be seen as additional as long as its costs are higher than its benefits. The challenge here is

that often policymakers do not really believe in the accrual of the benefits, as can be seen in the context of many nationally appropriate mitigation actions (NAMAs) that are easily justified by their non-GHG benefits, but still not implemented. Moreover, specifying the discount rate to be applied to costs and benefits accruing at different dates is highly challenging. A simplified approach to additionality assessment of carbon pricing would be the definition of a carbon price threshold from which a policy would be seen as additional, which could in turn be differentiated according to the development level of a country. Furthermore, the political economy of an instrument should also be considered.

For project and programme-type activities, the erosion of environmental integrity through positive lists and automatic additionality seen with the CDM in

recent years should be scrutinized. Rapid increases in attractiveness of low-carbon technologies, as seen for photovoltaic and wind power plants, need to be captured by additionality tests. While real economy barriers such as limited availability of foreign currency may remain prohibitive for renewables in some low-income countries, their additionality cannot be convincingly explained in more mature emerging economies. A thorough investment test with standardization of input parameters should be mandatory for all activities except the very smallest ones.

Minimum requirements for a transparent approach

The CDM has set a benchmark for transparency of publicly accessible documentation of mitigation achieved by a market mechanism. And in a number of countries like China and India, information on CDM projects gave an insight into the performance of technologies such as wind or hydropower, for which project-specific data had previously been lacking. A key for such transparency was international oversight and comprehensive publication of documents by the UNFCCC Secretariat on its website. This means that the Secretariat should also publish all relevant documents for the Paris mechanisms and other climate financing instruments.

Transparency is not a one-way street. Like with the CDM, stakeholders need the opportunity to comment on documentation submitted to the Secretariat, and those comments need to be publicly available.

Crunching the numbers while preventing double counting: Accounting for emissions units and their transfer

Double counting or claiming of emission reductions is the key new challenge that the Paris Agreement

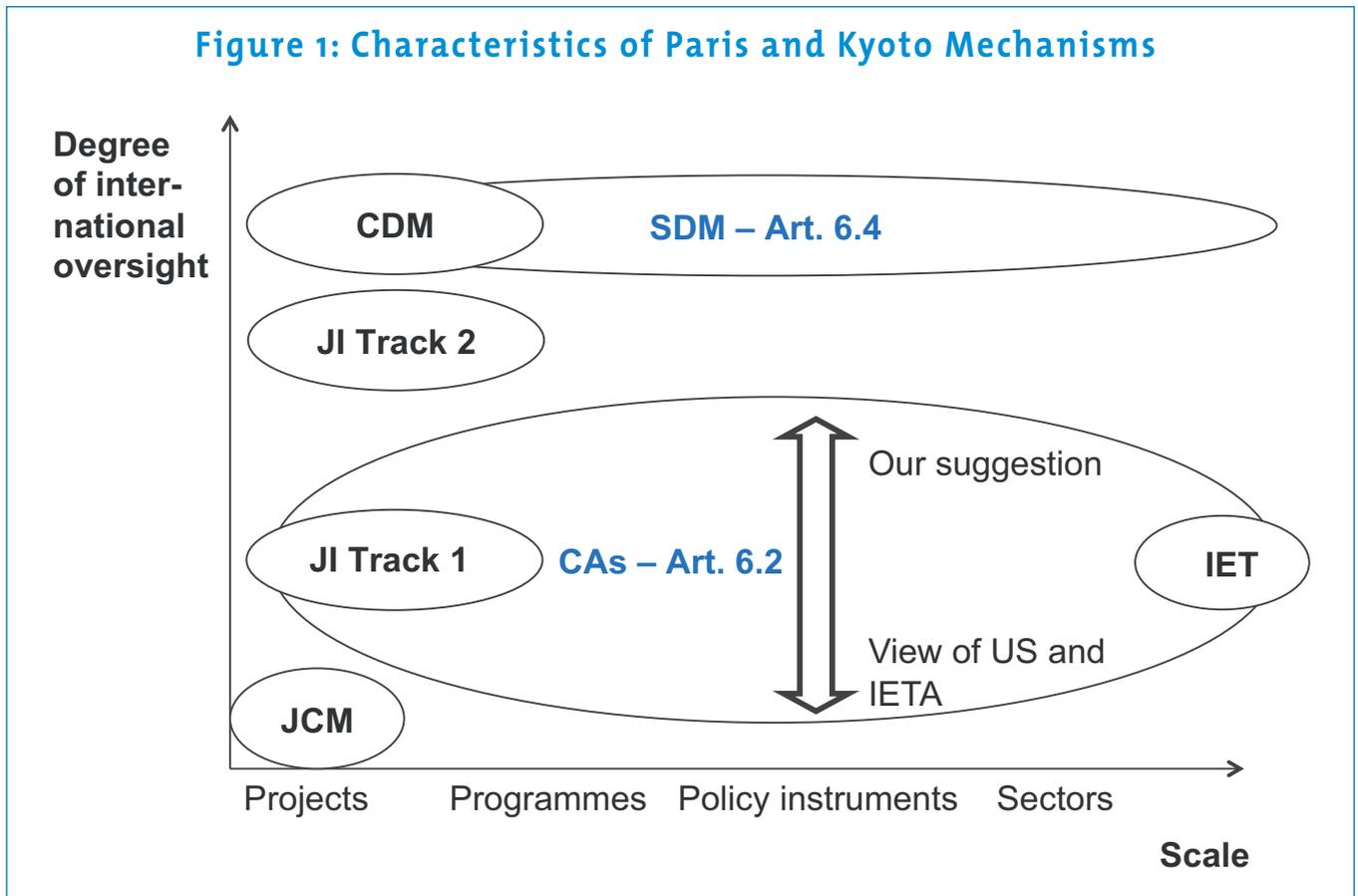
wants to prevent (see Schneider et al. 2015 for key definitions of double counting). A critical precondition for such prevention is that all mitigation units are clearly denominated in t CO₂eq. Attempts to create different units (Marcu 2017) – some for GHG and others for renewable energy – and apply artificial exchange rates should be resisted at all costs. The argument that this would be necessary due to the variety of NDC parameters is fallacious – a unit can only be a mitigation outcome if denominated in terms that are 100% linked to mitigation, and thus to GHGs. As Kreibich and Obergassel (2016) stress, the difference between single- and multi-year NDC targets is a highly relevant issue, and single year target countries should not be allowed to transfer units unless those units are converted into a multi-year logic.

One very important aspect of accounting is the setup of registries and transaction logs. The experience gained with the CDM registry has been very positive as it allowed private actors to keep CERs away from potentially greedy national governments. Given that under the Paris regime governments could be tempted to want to expropriate units in order to show compliance with their NDC, a system of national registries would be problematic.

Building trust within the private sector: Honouring CDM investments and defining a process for transition

Many policymakers, especially in the EU, seem to think that the CDM should be discarded in its entirety. Others, like Brazil and African nations, argue that the existing CDM pipeline should be fully integrated into Article 6. From an economic perspective, a compromise between these approaches is preferable, one which takes into account new interpretations of additionality as discussed. However, a more balanced approach would acknowledge successful CDM reforms, existing high quality projects and secure

Figure 1: Characteristics of Paris and Kyoto Mechanisms



Notes: IET = International Emissions Trading (Art. 17 Kyoto Protocol), JCM = Joint Crediting Mechanism (Japan); Source: the authors

investor confidence, given that the private sector invested heavily in the CDM due to its long-term nature. The post-2012 market crisis resulting from the politically motivated reduction in demand for CERs shook the trust of the private sector that politically framed market mechanisms and dried up investments. Destroying all CDM investments with the stroke of a pen, independently of their merits, would shatter private sector trust completely and make it very difficult to attract new private sector investments in the coming decades. Defining the eligibility of CDM activities for transitioning from the Kyoto to the Paris mechanisms depends on the progress made with the Paris mechanism rulebook. For a way forward on the transition of the CDM pipeline see Michaelowa and Hoch (2016).

Key role of international oversight to prevent the opening of loopholes

While many lobbyists and government representatives fight for a complete absence of international oversight for the cooperative approaches under Article 6.2, lessons from the past as well as the need to create a level playing field between the mechanisms call for international oversight for Article 6.2 activities as well. Given that the design of emissions trading systems around the world has been prone to over-allocation owing to intense lobbying efforts by affected industries, close scrutiny of such systems is required before they can generate transferable units.

Without such scrutiny, a “race to the bottom” could quickly ensue.

Approaches to unfreeze the market mechanism negotiations

Given that in Paris a group of market mechanism proponents was instrumental in getting Article 6 into the Agreement, a similar kind of activism is required during the next two COPs. Moreover, learning by doing based on practical experience can inspire progress in multilateral rule-making. In order to unlock progress, concrete investments into pilot activities to test innovative carbon market approaches could be very helpful. We call on progressive governments and international organizations to accelerate their activities, and spread their results widely. Also, a strong involvement of private sector actors could help to restore the level of trust that existed in the early days of the CDM. Last but not least, NGO support needs to be harnessed, for example by means of sustainable development safeguards (Spalding-Fecher and Schneider 2017; Hoch et al 2015).

Key guardrails for the Paris mechanisms

Summarizing our recommendations for the Paris mechanisms rule-setting, we stress the following:

- International oversight is required for both Article 6.2 and Article 6.4, particularly with regard to prevention of “hot air” contaminating the entire Paris system
- The difference between conditional and non-conditional parts of NDCs is not relevant for the Paris mechanisms if additionality testing on all levels of aggregation (including policy instruments) – is robust and conservative
- Additionality testing of policy instruments is crucial for the robustness of Article 6. Regulatory policy instruments need to be checked with regard to the payback period of the technologies required by the regulation. Carbon pricing instruments should undergo a cost-benefit analysis, taking into account political economy barriers. This could be operationalized in the form of minimum price thresholds required for carbon pricing to qualify as additional.
- Additionality of projects and programmes should be assessed by an investment test that uses standardized input parameters.
- All relevant activity documentation needs to be made publicly available.
- Accounting should be done through a centralized registry system.
- In order to safeguard private sector trust, all CDM activities fulfilling the principles described above should be transitioned into Article 6.4

References

- S. Hoch, B. Horstmann, A. Michaelowa, J. Hein, Jonas (2015): New climate investments must strengthen sustainable development and minimize trade-offs, Briefing Paper 22/2015. German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn.
- N. Kreibich, W. Obergassel (2016): Carbon Markets After Paris – How to Account for the Transfer of Mitigation Results?, JIKO Policy Paper 1/2016, Wuppertal
- A. Marcu (2017): Issues for Discussion to Operationalise Article 6 of the Paris Agreement, ICTSD, Geneva
- A. Michaelowa, S. Hoch (2016): Built on experience: How to transition from the CDM to the Sustainable Development Mechanism under the Paris Agreement, in: Carbon Mechanisms Review 1/2016, p. 28-31
- L. Schneider, A. Kollmuss, M. Lazarus (2015): Addressing the Risk of Double Counting Emission Reductions under the UNFCCC, in: Climatic Change, 131, p. 473-486
- R. Spalding-Fecher, L. Schneider (2017): First, do not harm, in: Carbon Mechanisms Review 1/2017, p. 14-17
- R. Spalding-Fecher, F. Sammut, D. Broekhoff, J. Füssler (2017): Environmental integrity and additionality in the new context of the Paris Agreement crediting mechanisms, Carbon Limits, Oslo

“A New Way of Financing Technologies for Africa”

Gareth Philips, the initiator of the “Adaptation Benefit Mechanism” on the demand for adaptation units, the CDM’s failures, and how to demonstrate certifiable adaptation project results



Photo courtesy of IISD.org

Gareth Philips is Chief Climate Change and Green Growth Officer at the African Development Bank.

CMR: Gareth, you played the leading role in developing the ABM concept. Could you please explain the idea behind the scheme in brief and sketch the AfDB’s motivation as a development institution for introducing such a mechanism?

Gareth Philips: The idea behind the scheme came from trying to think of another use for the CDM, given that the Paris Agreement is weak on markets but strong on adaptation. My idea was to use the CDM modalities and procedures (which are actually

very good) to deliver credible and transparent adaptation benefits with mitigation co-benefits. On further analysis, I came to better understand how the commoditisation of emission units and emission reductions under the Kyoto Protocol had a number of negative impacts on the CDM, ultimately turning it into an (in my opinion) a practically unworkable instrument. But removing the aspect of commoditisation suddenly overcame these barriers.

I have also become increasingly concerned about the emphasis placed on mitigation instruments under the Paris Agreement. Whilst I was an enthusiastic supporter of carbon markets and international trade under the Kyoto Protocol, the Paris Agreement stops a long way short of creating the infrastructure to transfer emission rights. I believe there will be some government-to-government transfers of ITMOs at a political level, but I do not foresee a time when Governments or domestic emission trading schemes open their doors to project based emission reductions.

The ABM, on the other hand, can finance exactly the same kinds of projects using much of the existing infrastructure by simply working with different units. All we lose is the commoditization aspects – fungibility, a benchmark price and speculation – but in the end these were things which distorted the CDM, led to the uneven playing field and generated profits for secondary traders.

AfDB's core mandate is to address poverty in Africa. Climate change threatens decades of development work and risks plunging millions of Africans into poverty. Historically, mitigation markets and mitigation projects did little to directly address the livelihoods of African people; the CDM did not make a big impression in Africa. However, many of these technologies can have a marked impact upon a household's ability to withstand a climate induced economic shock – i.e. their ability to adapt to climate change. The ABM is highly relevant to the African Development Bank because, in the absence of growing supplies of mitigation finance coming to Africa, the ABM could provide a new way of financing technologies that make African people more resilient to climate change.

CMR: All major players in the corporate world have established Corporate Social Responsibility (CSR) programmes, and some of them sponsor adaptation projects. Who is your target group?

Why would an investor favour the ABM over, say, the Private Sector Initiative under the Nairobi Work Programme?

Our target group is anyone who will pay for an adaptation benefit, but that can be broken down into a number of sub-groups. The main question is why would these sub-groups buy ABUs?

Donors – they have an obligation under the Paris Agreement to provide finance for adaptation, in theory at the same level as mitigation. However, adaptation projects are currently rare and hard to finance because there is no obvious mechanism. A results-based finance mechanism drawing on the features of the CDM brings credibility and transparency to an adaptation project. The ABM is a way in which Donors could disburse funds for adaptation in just the same way as they disbursed for mitigation. Although the deliverables from different ABM projects cannot be added up and compared (something that western cultures and particularly economists struggle with), the lack of fungibility of units means buyers buy the story behind the unit and hence lean towards the most compelling adaptation needs. This

The ABM as non-market mechanism

The Adaptation Benefit Mechanism (ABM) is an initiative by the African Development Bank to create a global mechanism to monetize adaptation benefits in climate and development projects. Projects are to result in adaptation benefit units (ABUs) to be sold to donors, CSR buyers, and other investors. The mechanism is meant to build on features of the CDM, such as methodologies, third-party audits, host country approval. The ABM is explicitly labelled “non-market”, but has also market elements. More information can be found at <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/adaptation-benefit-mechanism-abm/>

compares favourably with the CDM, where fungibility and the commoditization of carbon lead to investment in the cheapest sources of emission reductions – starting with industrial gas credits and ending with renewable energy in China and India.

Impact investment funds could use the ABM to provide credible third party verification to their investors that projects are having adaptation benefits. Or such funds could sell ABUs to provide a return to investors for technologies that have long to very long term benefits (for taking old diesel cars off the road now to improve public health in future decades).

Climate Funds such as the GCF, with a pledge to invest 50/50 in adaptation / mitigation or the Adaptation Fund. The ABM could provide a credible means to disburse funds.

CSR buyers are an interesting case. Some already buy emission reductions to offset their activities but they operate in increasingly regulated environments where emission from energy, materials and now even air travel are being addressed at source. The accounting provisions of the Paris Agreement increase the

chances that emission reductions may be double counted and under the Paris Agreement where all Parties have commitments, the concept of offsetting no longer works. Moving to a unit which is not the primary accounting unit of the Paris Agreement would enable CSR buyers to present a new and perhaps more attractive story – “Company XYZ has invested USD1 million in helping 10,000 African households adapt to changes in climate by supporting their transition to climate smart agriculture”.

Critics of the ABM say that there is no market for adaptation and the lack of a fungible unit makes a mockery of a quantification process. I understand those points; however, in today’s emission reduction markets there are no sales of units for compliance obligations – buyers are making voluntary purchases to meet voluntary commitments and in many cases they are buying technology or geography-specific units at negotiated prices. This is not a market either.

“The CDM ultimately turned into a practically unworkable instrument.”

Gareth Philips

The quantification, verification and issuance process for CERs (and by extension, VERs) was developed to produce highly qualified units which were acceptable under an international environmental treaty (the Kyoto Protocol) and supra-national legislation (the EU ETS). These units are now massively over-specified and represent a significant waste of transaction costs. ABUs, the units delivered from an ABM project, serve as a means of triggering payment for results and also facilitate the financing of a project but to be clear, we expect the transaction costs of verifying and issuing ABUs to be a fraction of the cost of the CDM verification and issuance process.

The only target that we have for adaptation is a financing target of USD50 Bn per year by 2020. Funds spent on buying ABUs from a certified ABM project

can be recognized as direct public and private climate adaptation finance. Those funds will leverage further public and private debt and equity. The ABM offers buyers a credible, transparent and cost efficient means of demonstrating progress towards the target which the Paris Agreement has set.

CMR: The ABM could use a number of well-established CDM components, such as support structure, modalities and procedures, accredited auditors, to name just a few. However, the CDM is focused on climate mitigation exclusively. What is your approach to solve the methodological challenges in demonstrating certifiable adaptation project results? How do you distinguish them from conventional development projects?

Firstly – demonstrating certifiable adaptation project results: As in the CDM, there would be an approved methodology which effectively defines the adaptation benefit that will be delivered. It is possible that there could be hundreds of different types of adaptation benefits but through a process of “learning by doing” we would expect to see a gradual consolidation of methodologies perhaps linked to particularly popular technologies, or perhaps linked to the contribution to the SDGs. The only difference is that instead of getting just one type of unit delivered, and being able to compare these with one another, we will get lots of different types of units.

As I said above, that desire to compare and maximise economic efficiency is a particularly western attribute. It may help to think of adaptation units as an aisle in an EU supermarket where different things are for sale, but you know that whatever you buy has passed some tests. And, don’t forget, no one is saying you have to buy any of these units; it’s a voluntary action and you buy the ones you like, for whatever reason.

Secondly - how do you distinguish them from conventional development projects? This is more challenging and really relates to the fact that we cannot continue to consider climate and development finance separately for very much longer. It’s like the



Photo: Kapuscinski / World Bank / CC BY-NC-ND 2.0

Clean cookstoves as an example for ABM projects. The ABM certifies supplementary adaptation benefits of projects that make communities and households more resilient to climate change. Adaptation Benefit Units (ABUs) are issued as a result.

E+/E- rules in the CDM where the EB ignored host country policies in setting the baseline. Our proposed response is a) an additionality test that screens out projects that were going to happen in the next, say, 5 years anyway (e.g. unconditional actions in the NDC, donor funded and government funded projects) – five years is arbitrary but a mechanism which can accelerate the adoption of technologies buys the international community time and helps to address the problem of climate change; and b) guidance on double counting of climate finance to ensure that ABM funds are not counted as ODA funds. But we need a grown-up discussion on the overlap between development and adaptation.

CMR: Setting up an infrastructure and a registry for ABM projects will create expectations by project developers that projects are going ahead. However, if there is not enough private sector demand – would this not induce calls for public investments, creating further pressure on the already scarce existing public adaptation finance?

On the contrary. Creating a mechanism that enables project developers to generate revenue from adaptation technologies will stimulate private finance. In 2000, no-one would have paid you anything for a project that reduced GHG emissions but by 2008, as serious momentum was building in the CDM, investors were queuing up to place equity into emission reduction projects in far-away countries. The CDM generated a USD500 Bn pipeline (add up the

figures for project investment in the UNEP DTU database) on the possible delivery of a USD10 per CER. Unfortunately, the pipeline burst when the EU ETS became over-supplied and demand fell (for various reasons). Granted, the ABM does not have the secondary market and speculative element that the CDM benefitted from, so it's not going to attract the hedge funds and city brokers, but on the other hand, there is potentially uncapped demand for ABUs which can provide a reasonable return to investors of technology, debt, equity and sweat. What the ABM will do is to leverage scarce public sector resources. For example, if a donor agrees to pay me USD 50 for every household I connect to the grid or mini grid in Senegal (because connecting a household to a reliable source of electricity is probably the single biggest adaptation benefit we can ever deliver to a household), then maybe I'll be able to raise equity from a pension fund that thinks Senegalese consumers will be paying back in 20 years' time and combine that with debt from a local bank to finance the project.

"The ABM offers buyers a credible, transparent and cost efficient means of demonstrating progress towards a target"

Gareth Philips

Agreed, there is no well-defined signal of demand at present, but I believe it will come. For the CDM, demand was created by the Kyoto Protocol targets and the EU ETS. Once Parties start to implement the Paris Agreement and we get a better (broader) understanding what is encompassed in the term "adaptation" – see your question about the overlap between adaptation and development –, then Donors will see the ABM as a mechanism which they can use to disburse adaptation finance. The GCF has a commitment to channel USD50 Bn into adaptation; the ABM is a credible route. And I think CSR buyers will come

to realise that buying offsets is not a long term solution to the problem and increasingly, I think CSR buyers may see ABUs as a better and more efficient way of fulfilling their corporate responsibilities.

CMR: The 'Paris Rulebook' will be – all things going well – adopted at COP 24 in Poland next year. Have you gained further support for the initiative? What are the next steps for the ABM on its way as a non-market approach?

We are making very good progress. A number of African countries have indicated their support for the ABM and Uganda and Malawi have done so formally. Members of the AOSIS and SIDS have expressed serious interest and we have talked with a number of European Governments about supporting the initiative.

Some uncertainties exist around the definition of units and predictably, some Governments are not yet able to accept the ideal of lots of different varieties of apples and pears, but we think that with time, this will be less problematic.

We continue to develop a number of pilot projects and seeking funding to work with Parties in the run up to CoP 23.

Probably the biggest single boost would be for an entity to sign an ABU offtake agreement which, in the same way as an Emission Reduction Purchase Agreement worked under the CDM, would help to raise finance to implement a pilot project. There are a number of funds which the Bank works with that are able to cover costs of documentation, validation etc. and I think if we could take a real example to CoP23, it would demonstrate how powerful the mechanism would be. I remain optimistic and I think that adaptation's time is coming.

A Ton is a Ton that is Compatible with the Paris Agreement

Environmental integrity on the way from Kyoto to Paris

by Konrad Raeschke-Kessler

Environmental integrity is one of the central elements of all activities under Article 6 of the Paris Agreement. But what exactly is environmental integrity in the context of Article 6? Avoiding “net harm” to environmentally relevant goods was implemented, in the days of the Kyoto Protocol, by condensing environmental integrity to a very short formula that said it all: “a ton is a ton”. Can this formula be recycled for the Paris Agreement? Where does it require modifications? And is there more to environmental integrity under the Paris Agreement than these aspects?

Environmental integrity is to be promoted under voluntary cooperation for the implementation of NDCs under Article 6.1 of the Paris agreement (PA) and to be ensured where such cooperative approaches involve the transfer of internationally transferred mitigation outcomes (ITMOs) under Article 6.2.

Article 6.4 of the Paris Agreement and paragraph 37 of the Paris Decision do not mention environmental integrity separately but aim for an overall contribution to global mitigation (Article 6.4 d). However, as the most plausible interpretation of Article 6.1 is that it constitutes a chapeau to be applied by all approaches mentioned in Article 6, the promotion of environmental integrity is an integral part of

Article 6.4 and needs to be taken into consideration in its design.

Implementation of environmental integrity in the traditional sense includes the requirements that outcomes have to be real, permanent, measurable, verifiable and additional. It is hard to conceive – although not impossible – that the implementation of permanence, quantifiability and verifiability under the mechanisms of the Paris Agreement will change significantly compared to the Kyoto mechanisms.

However, implementing additionality requires new approaches, as Article 6.4 of the Paris Agreement also enables activities on a sectoral level. The implementation of nationally determined contributions (NDCs) through policies will also influence additionality assessments: with regard to mechanism activities, the implementation of NDCs – at least of their unconditional and domestic elements – represents “business as usual” and means that a mechanism cannot have caused these reductions.

Conservativeness is another element required to ensure that “a ton is a ton”. In order to safeguard the contribution of mitigation outcomes, these outcomes should not be overestimated. This principle will continue to apply for the elements needed to generate the emission reductions, in particular for



Source: Montoya / Sandia Labs / CC BY-NC-ND 2.0

Real, permanent, measurable, verifiable and additional: under the Paris Agreement, the crucial principles of environmental integrity must be augmented and enhanced.

establishing reference levels (baselines or caps) and for the later quantification of reductions, including the measurement, reporting and verification of the remaining activity emissions.

Next, a ton is only a ton if the CO₂ reduction is only counted, issued or claimed once and not twice or more. Reductions counted twice or more would give misleading signals for tracking progress towards achieving NDCs or other objectives which are pursued through purchase of emission reductions. These other objectives can include full or at least partial use of the reduction for neutralizing the climate effects of products, events, subnational entities or Parties. As some parties have explicitly linked further mitigation targets with financial flows, accounting arrangements are also necessary if the mechanisms are to be used to quantify climate finance outcomes through result-based finance. Avoiding double or multiple counting/issuance/claiming requires proper coordination between the different counting and accounting provisions.

With regard to units from standards from the voluntary market, securing their mitigation effects and therefore the environmental integrity of the products using them for effects such as climate neutrality will be a challenge and would at least require some form of coordination between the accounting for NDCs and privately run mitigation activities. Under the Kyoto Protocol, the Joint Implementation mechanism provided arrangements to avoid double counting while otherwise being quite similar to the Clean Development Mechanism – except in Track 1, where an exception from international oversight was granted. Joint Implementation did, however, rely on quantified targets. The Paris Agreement does not provide for such carbon budgets. Rather, it stipulates the design of transparent accounting provisions which ensure that mitigation outcomes can be used to track progress in achieving NDCs. The idea of quantified budgets is addressed in more detail below.

A ton is a ton that is compatible with the long-term goals of the Paris Agreement

Under the Kyoto Protocol, the integrity of its carbon budgets, meaning quantified emission limitation or reduction commitments (QELRCs), represented the core objective, the integrity of which needed to be safeguarded. This was the rationale for the formula that “a ton is a ton”. The Paris Agreement is different: its NDCs are not its only core objective. While the Kyoto Protocol did not contain an explicit feedback loop quantifying how far “off” it was from a path towards the ultimate objective of the framework convention, the Paris Agreement contains the built-in feedback loop described by Articles 2, 3 and 4 – iterative rounds of progressively more ambitious NDCs informed by the global stocktake. The starting point for the Paris Agreement was the recognition that INDCs and the first round of NDCs – although hopefully improved upon at least by some Parties after the facilitative dialogue of 2018 – are on a pathway to approximately 3 °C of warming and will have to be improved upon. Paragraph 17 of decision 1/CP.21¹ paraphrases this recognition by all Parties. From this recognition, the collective journey of Parties towards higher ambition begins.

What does this mean for environmental integrity in the context of Article 6? Environmental integrity in the sense of Article 6 of the Paris Agreement includes the integrity of the path towards higher ambition in order to reach the long-term objectives of the Agreement. The articles of the Paris Agreement should be viewed as consistent, mutually reinforcing their respective implementation. Therefore, the environmental integrity of the mechanisms described in Article 6 includes the integrity of the overall goal of the Paris Agreement, i.e. to enable or at least not hinder the required “much greater emission reduction efforts (...) than those associated with the intended nationally determined contributions”, in the wording of paragraph 17 of decision 1/CP.21. Looked at this way, the environmental integrity of Article 6 resides in how it is designed as a stepping stone towards a 2 °C or 1.5 °C pathway.

It follows from this that Article 6 cannot enshrine the current level of NDCs for longer periods as the Kyoto Protocol has actually done with its fully bankable Assigned Amounts Units, as it would then become a roadblock on such a pathway. It must be compatible and consistent with future iterations of NDCs. Therefore, the old mantra “a ton is a ton” needs a modification: A ton is only a ton in Article 6 of the Paris Agreement if that ton does not block the pathway laid out in Articles 2, 3 and 4.

Avoiding roadblocks and disincentives on the way to well below 2 °C warming

The potential efficiency of markets can pave the way to 2 °C or 1.5 °C by significantly reducing costs. However, this great opportunity is accompanied by the risk that markets could reduce the level of ambition of subsequent NDCs, hinder the expansion of the sectoral scope of NDCs or that they could enshrine current insufficient levels of ambition over a longer term. These effects would block progress by providing misleading signals in terms of available quantities of emission permits and, in terms of inadequate carbon pricing, by hindering instead of enabling a timely and consistent internalization of external costs.

A Paris-friendly interpretation of environmental integrity rather implies that cooperative approaches must be designed in a way that they do not provide any disincentives to ratchet up ambition. It is therefore of prime importance to design Article 6 in a way which avoids the quantification of any kind of emission rights that could block the way towards pathways well below 2 °C. Paragraph 17 of decision 1/CP.21 underlines this necessity. Until now, it has been a general experience in quantity-based mitigation instruments, including the Kyoto Protocol, that their targets were achieved faster and at lower costs than anticipated, but that those targets were not necessarily sufficient. The Paris Agreement embodies at least some lessons from these situations. Any kind of lock-in into pathways leading only towards the generalized ambition

¹ Notes with concern that the estimated aggregate greenhouse gas emission levels in 2025 and 2030 resulting from the intended nationally determined contributions do not fall within least-cost 2 °C scenarios but rather lead to a projected level of 55 gigatonnes in 2030, and also notes that much greater emission reduction efforts will be required than those associated with the intended nationally determined contributions in order to hold the increase in the global average temperature to below 2 °C above pre-industrial levels by reducing emissions to 40 gigatonnes or to 1.5 °C above pre-industrial levels by reducing to a level to be identified in the special report referred to in paragraph 21 below

embodied by current NDCs would pose a significant risk for the instruments of Article 6 and their reputation. If a total of NDCs is not in line with the long-term goals and if it is converted into enforceable bankable rights under Article 6, the use of such rights would also weaken the mitigation contribution of the buying Parties and in the end undermine the overall ambition raising process mentioned above. In a worst case scenario, complementary policies would be discouraged due to false reliance on Article 6 instruments with their low-cost (in such a scenario) units.

In other words, Article 6 mechanisms should become neither a barrier to policymaking, nor a cause for lock-in into suboptimal mitigation pathways. They should be designed to be able to stimulate investment in the longer-term technologies needed to address climate change. They should at least provide certainty that such price levels will occur in the future given foreseeable scarcity, e.g. inducing such scarcity or directly internalizing external costs through pre-defined parameters. Environmental integrity in this instance also includes the need to appropriately mirror the course-correcting measures described in Articles 2, 3 and 4 of the Paris Agreement in Article 6 mechanisms. Such course-correcting measures could avoid the ambition gap postulated in paragraph 17 of decision 1/CP.21 being projected further into the future.

Which elements are crucial for ensuring environmental integrity?

A new formula for environmental integrity in the context of international transfers under Article 6 has been proposed in research literature: the international transfer of mitigation outcomes should not result in higher global emissions than if the NDCs had been achieved only through domestic action, without international transfers². However, this approach is itself only compatible with the Paris Agreement if it can be safely assumed that the implied domestic counterfactual without use of Article 6 instruments would be in line with an adequate long-term pathway. As it is possible that such a pathway is only reachable using the efficiencies of Article 6 mechanisms, the counterfactual of "only domestic mitigation"

or "emissions without the use of Article 6" could itself imply insufficient levels of mitigation, which would not be an adequate comparative basis for environmental integrity. The condition of sufficient domestic mitigation can therefore be reduced to the condition of adequate mitigation pathways as such.

It has also been posited that the environmental integrity of Article 6 depends on at least four elements: the ambition of the NDCs, incentives for future mitigation action, the integrity of mitigation outcomes and robust accounting. While I fully agree with the last three of these elements, from the perspective outlined before, the ambition of NDCs does not appear as a suitable criterion, as their current ambition is undoubtedly insufficient. As outlined above, this insufficiency is the starting point for the Paris Agreement, expressed in Paragraph 17 of decision 1/CP.21. Therefore, Article 6 mechanisms would be useless if they were only usable in conditions of perfect NDCs. Their usefulness and environmental integrity rather resides in their ability to contribute to the formulation of better NDCs and to raise their ambition progressively over time.

It might also be proposed that a mere reliance on buyer beware principles without strong international oversight to achieve environmental integrity could be enough. However, in the view of this author, this underestimates the strength of the prisoner's dilemma of carbon markets and overestimates the ability of buyers to resist the temptation of low prices or to react very quickly in case of need. Effective reactions by the buyer to possible cases of abuse by the seller can require a change of regulations within days or weeks or even ex post on the buyer side, thereby overburdening Parties' decision making processes. It would merit further research, but it appears doubtful, whether a shift of such risks towards the private sector would constitute a potential way forward, as the realization of such risks would still need to be triggered by governmental measures. I would therefore strongly prefer robust, transparent institutional design and international oversight to ensure environmental integrity.

Another element of environmental integrity could be to limit the transfer of ITMOs. However, the setting of any such limit must consider that it should not hinder efforts of climate

² Schneider, L., Kollmuss, A. & La Hoz Theuer, S. (2016b). *Ensuring the environmental integrity of market mechanisms under the Paris Agreement*. Stockholm Environment Institute Policy Brief



Source: © P. Troerlyk / Flickr / CC BY-NC-SA 4.0

A ton is a ton – but will that still be the case under the Paris Agreement?

neutrality, which will imply the reduction of all remaining domestic emissions abroad (e.g. domestic reductions of 85% and a further reduction of the remaining 15% of emissions using Article 6 instruments). The percentage of action abroad will necessarily increase once limits of internal feasibility have been reached, e.g. once essential agricultural emissions remain and once the economic carbon cycles have been closed or replaced by alternatives to the extent possible. Therefore, a limitation of transfers in relation to remaining domestic emission levels would hinder carbon neutrality. However, an import limit of, for example, 15% or 20% of base year emissions could be an approach which could ensure sufficient room for climate neutrality efforts while also ensuring sufficient domestic mitigation ambition.

To sum up, the main focus of implementing environmental integrity in the design of the Article 6 mechanisms should be on enabling Paris-compatible pathways through those mechanisms. Parties need to work on criteria which enable to adjust over time the current mitigation pathways incorporated in the mechanisms so that the mechanisms can be integrated into the learning curves foreseen by Articles 2, 3 and 4 of the Paris Agreement.

This implies that established approaches to ensure that “a ton is a ton” will remain relevant, but that some modifications are required to make sure that these tons are also compatible with the overall context of the Paris Agreement. How exactly Article 6 mechanisms can become a stepping stone towards pathways well below 2 °C needs to be further explored in research. At this point in time, the setting of reference levels such as baselines (in the case of the mechanism under Article 6.4) and timelines (e.g. crediting periods) and their interaction can be identified as crucial elements for environmental integrity. Other approaches that could not be discussed in detail above but which could be relevant for promoting environmental integrity include: the mitigation value or discounting of mitigation outcomes; possible limits for the carry-over of mitigation outcomes; the restriction of transfers to absolute emission reductions; tying a Party’s eligibility to participate in Article 6 in future periods to a positive assessment of whether its use of Article 6 in previous periods has contributed to raising ambition. Research to further develop these options and to establish preferences would be useful.

On the Rise?

What will be the future demand for offsets from the aviation sector and how will aviation emissions be treated under the EU ETS in the future?

by Andrew Murphy, Transport & Environment

The future demand for credits from the aviation sector is linked to that sector's rapid growth, with its emissions having grown 86% between 1990 and 2014 (UNFCCC 2016). One estimate suggests that with current trends, the sector is likely to consume one-quarter of the remaining carbon budget under a 1.5 °C scenario by 2050 (Carbon Brief 2016).

This can be partly attributed to the high cost of mitigation in the sector, and there are at present no major technological breakthroughs for the sector such as have transformed or are transforming the energy and road transport sector. Instead there have been steady efficiency gains in aircraft design, which have been more than overtaken by growth in passenger demand.

Regulatory regime

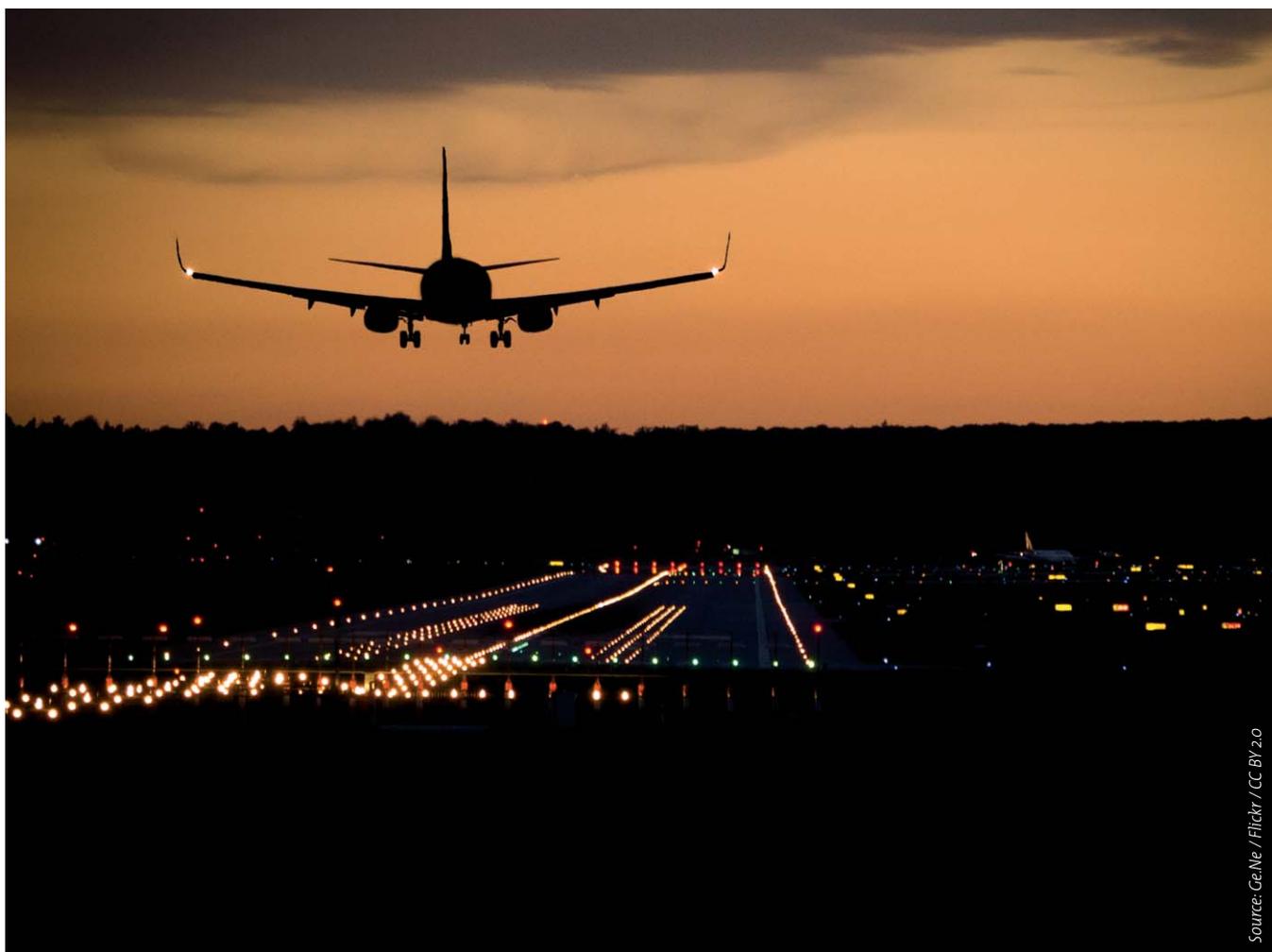
An important distinction is the difference between the regulation of domestic and international aviation emissions. Domestic emissions are roughly one-third of aviation emissions (IEA, 2014) and are not directly regulated by the UN's International Civil Aviation Organisation (ICAO). International emissions, the remaining one-third, are more directly regulated by ICAO and are subject to the Kyoto Protocol requirement for parties to work through ICAO. Under the Paris Agreement, it's considered that domestic aviation emissions are included under nationally determined contributions (NDCs) but the status of international emissions is less certain. This distinction is expanded on further below.

Particularly regarding international emissions, the climate regulatory regime faced by the aviation sector could be described as quite lenient. One of the more obvious examples of this is the sector's exemption from kerosene taxation for international flights which is contained in the hundreds of bilateral air service agreements (ASAs) negotiated between states which permit aircraft operators access to foreign markets. This prevents the introduction of fuel taxation, on a global or bilateral basis.

The second regulatory benefit enjoyed by the aviation sector is its treatment under the 1997 Kyoto Protocol, which instead of allocating international aviation emissions to parties, requested developed states to work through ICAO to limit and reduce aviation emissions.

There is much uncertainty in the treatment of international aviation emissions under the Paris Agreement. While the Agreement requires Parties to reduce all anthropogenic emissions, and requires steps to address all economy-wide emissions, it is unclear how emissions from international aviation are to be addressed. Earlier drafts of the agreement included a reference to ICAO taking the lead role on this, as per the Kyoto Protocol. However this language was dropped during the Paris COP and as a result the Agreement is silent on this.

The Agreement's main vehicle for pursuing emission reductions is the national determined contributions (NDC), where each party outlines the steps that it will take to reduce its emissions. However it is unclear as to whether international aviation



Source: Ge.Ne / Flickr / CC BY 2.0

Rapid growth: Since 1990, GHG emissions from aviation have grown 86%.

emissions can be included in these NDCs. While the rules governing what can and cannot go in them are not well defined, it is understood that they do include domestic aviation. However because of the language in the Kyoto Protocol requesting parties to work through ICAO, and rules under UNFCCC reporting requiring states to report fuel used for international transport (shipping and aviation) separately, there is a view that international aviation emissions are not required to be in NDCs.

Such uncertainty could be resolved by a subsequent COP Decision clarifying how international transport emissions are to be addressed. Until then, Parties

would seem to have the freedom to determine for themselves whether they are included in their NDCs. The EU, in its NDC, has stated that its emission reductions are “economy-wide” and include transport. However to the extent that this results in international emissions being covered by its NDC, this will be determined by the scope of aviation’s inclusion in its Emissions Trading System (EU ETS), an issue discussed further below.

The regulatory regime for domestic aviation is somewhat stricter. The US has a very limited kerosene tax (1c a litre), while India has a substantially higher kerosene tax imposed on its domestic aviation sector.

Canada has announced that it will, through carbon pricing, end the kerosene tax exemption for its domestic sector with a carbon price of CAD\$50 (g33) from 2022. China has announced that domestic aviation will be included in its soon to be launched emissions trading scheme, while there is no evidence to date that flights within Europe will be excluded from its EU ETS. Kerosene for domestic aviation is included in New Zealand's ETS.

This distinction between domestic and international emissions is important in determining future demand for credits. Domestic programmes are moving away from certain types of credits such as international offsets. For example the Canada federal carbon pricing excludes their use, the EU has excluded them from its EU ETS from 2021 onwards and New Zealand has suggested that it will not permit those following future reforms. However for international emissions, such a clear move away from international offsets is made more difficult due to the prohibition on fuel taxation, which blocks the introduction of more simple and perhaps more effective policies such as a carbon levy. Instead, they are likely to be covered by ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

CORSIA

To briefly summarise CORSIA: starting from 2020, airlines flying routes between participating states will be required to purchase a certain number of credits in order to achieve carbon neutral growth on those routes. Participation by states is voluntary. The criteria for credits is yet to be determined, and the mechanisms for enforcement remain unknown.

Given the voluntary nature of the scheme, and that it will only offset emissions above 2020 levels, it is expected that airlines will be required to offset 20% of their emissions over the period 2021-2035. And while the criteria for what credits will be allowed is unknown, we know that ICAO will aim for the broadest possible supply. While this may make the scheme more attractive for states to join, it will likely depress

the price of credits in the scheme and therefore undermine incentives to cut in-sector emissions.

The total emission reductions predicted over this period have been estimated to be as high as 2.5 billion tons of CO₂ in the first 15 years. However this should be seen as a 'best case scenario' and is dependent on two unknowns: the quality of credits, touched on briefly above, and the level of enforcement. The issue of credits quality is well known, with one recent study suggesting that as many 85% of CDM credits used for compliance with EU climate targets could not be guaranteed to deliver emission reductions (Cames et al, 2016). If the maximum emission reductions are to be achieved, ICAO will have its work cut out in ensuring only the best quality credits are used.

However perhaps the more serious problem is the enforceability of the scheme. While the measure is voluntary, there is an expectation that once a state agrees to join, they will fully comply with the scheme's requirements. However it would seem overly optimistic to claim that there will be full compliance with this scheme from the start. ICAO decisions are implemented through standards and recommended practices (SARPs) which are adopted by ICAO's 36 member Council and applicable to all ICAO states. However not only is it possible for states to dissent from such SARPs, by 'filing a difference', but there are weak procedures in place to ensure compliance with these SARPs.

The effectiveness, or not, of CORSIA will be instrumental in determining its interaction with, or ability to replace, other measures in place to address aviation emissions.

Interaction with EU ETS

A major question is how CORSIA and EU ETS will interact in the future. Flights to and from European airports were due to be included in EU ETS from 2012, a decision made by the EU following the failure of ICAO to adopt measures to regulate aviation's climate impact. The decision to include all flights to



Source: Fujii / Flickr / CC BY-NC 2.0

Future interaction linkage unclear: will EU aviation emissions be covered by the bloc's EU ETS or just only be offset under the CORSIA scheme?

and from Europe was heavily criticised by third countries, notably the US and China, who considered it an infringement on their sovereignty. Such an argument was rejected by the EU's European Court of Justice in a December 2011 ruling. However facing considerable diplomatic and industry pressure, including a threat of a trade war with China and legislation passed by the US prohibiting compliance by its carriers with EU ETS, the EU backed down and agreed to suspend flights to and from Europe from the scheme until January 1st 2017. This left the scheme covering only flights within Europe - equal to roughly one-quarter of EU aviation emissions.

In response, ICAO agreed at its 2013 triennial assembly to begin work on a global market based measures, which became the CORSIA discussed above and adopted at its October 2016 assembly.

In response to this developed, the European Commission proposed in February 2017 to indefinitely suspend flights to and from Europe from EU ETS. That proposal is currently going through the EU's legislative process, requiring approval by the European Parliament and member states. While this proposal is expected to be adopted by the end of this year, a difference has emerged between the Parliament and member states over the duration of the exemption. Parliament has suggested a time limited exemption, to 2020, so that we know more about CORSIA before deciding the future of EU ETS. Member states have agreed with the Commission's proposal to make this exemption indefinite. Negotiations between the sides, known in EU parlance as trilogue, will take place over the coming months.

A more general disagreement, not necessarily between member states and Parliament, is what future will exist for EU ETS post-2020. Sections of the aviation industry have demanded that aviation be removed fully from EU ETS, with a preference for routes between member states to be covered by CORSIA. The argument put forward, with the support of some states and MEPs, is that under ICAO's definition, these are international flights and should therefore be covered by CORSIA.

However here we have a clash between competing legal obligations. While under the definition of international flights contained in the assembly resolution establishing CORSIA a Warsaw-Lisbon flight would be international, removing such a flight from EU ETS would present several difficulties. The first is that it would undermine the EU's 2030 climate target, which include flights within and departing from the EU in its calculation. The EU's 2030 climate target is the basis for its NDC, so removing flights from EU ETS would undermine the EU's NDC.

It's also clear that placing these flights in CORSIA instead of EU ETS would substantially reduce the aviation sector's climate ambition. With a stricter cap, the obligation to purchase allowances under EU ETS is four times the obligation to purchase credits under CORSIA. And as the EU will exclude offsetting from its EU ETS post-2020, the cost of compliance with CORSIA is likely to be substantially lower than complying with EU ETS. This raises the prospects of distortion within Europe's single market, with one transport mode (aviation) provided with a substantially more favourable regulatory regime than its potential competitors (rail).

More generally, it's unclear why there is a need to remove flights within Europe from EU ETS. The strongest objection to EU ETS was against including flights to and from Europe: third country carriers operate only a limited number of flights within Europe, and are in almost full compliance with EU ETS. And developing countries may welcome the greater ambition that would be achieved by retaining intra-EU flights under a more effective scheme.

The current legislative proposal does not deal with the long-term role of EU ETS, instead suggesting this will be dealt with in a future proposal once more details on CORSIA are known.

Conclusion

The difference between regulatory domestic and international aviation emissions is likely to be influential in determining the demand for credits from



Photo: Hartmann / Deutsche Bank / Flickr / CC BY-NC-ND 2.0

First avoid, then offset: the solar impulse is a long-range experimental solar-powered aircraft. In July 2016, it completed the first circumnavigation of the Earth by a piloted fixed-wing aircraft using only solar power.

these sectors. Domestic aviation emissions may increasingly be covered by carbon levies, or at least exclude the use of international credits. ICAO's CORSIA is likely to provide a major source of demand for credits, though which type of credits is dependent on rules to be adopted by ICAO. And the future interaction between EU ETS and CORSIA is unknown, though industry pressure and competing legal requirements will play a role in shaping this.

References

Cames, M. et al. (2016): How additional is the Clean Development Mechanism? Analysis of the application of current tool and proposed alternatives. www.infras.ch/media/filer_public/11/of/110fae5f-d1ff-4e8f-9f97-f83a34c86dd1/clean_dev_mechanism_en.pdf

Carbon Brief (2016): Analysis: Aviation could consume a quarter of 1.5C carbon budget by 2050. www.carbonbrief.org/aviation-consume-quarter-carbon-budget

IEA (2014): CO₂ Emissions from Fuel Combustion 2014, IEA, Paris. http://dx.doi.org/10.1787/co2_fuel-2014-en

Transport and Environment (2016): A comparison between ICAO's CO₂ offsetting scheme and the EU ETS for aviation. www.transportenvironment.org/sites/te/files/publications/2016_12_CE_Delft_ETS_CORSIA_final.pdf

UNFCCC (2016): National greenhouse gas inventory data for the period 1990–2014. Report by the secretariat. Document FCCC/SBI/2016/19. <http://unfccc.int/resource/docs/2016/sbi/eng/19.pdf>

Stumbling Blocks on the Way to Application

The relevance of baseline setting, Monitoring and Homogenous NDC Formulation for Cooperative Approaches under the Paris Agreement

by Martin Burian and Joachim Schnurr, GFA Consulting Group

Article 6 of the Paris Agreement, specifically “Cooperative Action” (Article 6.2) offers Parties the opportunity to jointly engage in mitigation efforts, under which one country reduces its emissions below a pre-determined threshold and generates emission reductions, so-called Internationally Transferable Mitigation Outcomes (ITMOs). The other Party purchases the ITMOs and can use them towards their NDC target achievement.

This provides a range of benefits:

- It allows for moving from the piece-meal approach of project specific activities to more comprehensive approaches such as one national GHG benchmark for a specific GHG emitting sector and one uniform baseline and monitoring system on national scale (instead of many project specific monitoring reporting and verification (MRV) schemes);
- It allows for harnessing policies for climate change mitigation such as the development of minimum energy performance standards (MEPS), which enforce energy efficiency for key electricity consuming devices such as air conditioning, fridges, fans and lighting. If designed wisely, policies may have excellent private sector leverage while featuring negative or low marginal abatement costs. Parties engaging in cooperative actions will have to design a baseline and monitoring system that covers the

emissions of the whole sector and hence equally account for the effects of such policies.

- Finally, in analogy to the flexible mechanisms of the Kyoto Protocol, it will allow for achieving emission reduction potentials where marginal abatement costs are lowest, ensuring a cost-effective overall achievement of NDC targets of Parties involved.

Cooperative action allows for internationally transferred mitigation outcomes (ITMOs) but requires the selling party to subtract the ITMOs sold and not count them towards achieving its nationally determined contribution (NDC). Hence, cooperative action not only requires a comprehensive sectoral baseline and monitoring system, but also equally places some requirements on the GHG monitoring system of all sectors included in the NDC.

Parties are currently preparing initial pilot activities and donor countries are creating funds such as the Transformative Carbon Asset Facility, aiming at supporting Parties in achieving transformational change by developing, preparing and implementing mitigation programs including those achieved through policy actions. In such cases the NDC of the host country is of great importance.

It is important to note that the Paris Agreement allows for flexibility in designing NDC approaches,

which may also apply to the baselines for cooperative approaches:

- Reporting of NDC targets in absolute or in relative/indexed terms
- The targets often specified on national level and not broken down to sub-sectors
- Specifically with respect to the conditional NDC targets, countries often specify the abatement costs (e.g. the costs of a hydropower plant) instead of the marginal abatement costs (margin between hydropower plant and least cost alternative)

Appropriate financial data may be required for the following reasons:

- Cooperative actions may generate ITMOs for those mitigation activities that manage to reduce emissions beyond the unconditional NDC target.
- The conditional contribution is bound to external funding. External funding should relate to marginal abatement costs and not the total abatement costs (i.e. the cost of emission reduction/difference between least cost and mitigation action, not the total cost of electricity generation).
- Absence of such marginal abatement cost data does not allow assessing whether the financial means provided through the sales of ITMOs are appropriate to facilitate the mitigation efforts.

In many cases, the NDCs are based on the countries' GHG inventories developed as part of their national communication using the IPCC guidance. Working experience has shown that in many countries, the GHG inventories are not reliable, up to date data sources. For example, under the Forest Carbon

Partnership Facility (FCPF) many countries prepare their forest reference level (FRL) and submit it to UNFCCC for review. In-depth analysis supported by the FCPF proves that for some countries forests act as sources, while their national communications claim that forests serve as GHG sinks.

NDCs may be constructed in a number of different ways and contain different GHG targets: (a) a business-as-usual (BAU) scenario, (b) an unconditional NDC target (NDC-C) and (c) a conditional NDC target (NDCC). The achievement of the conditional NDC target may be bound to external financial (and technical) support that typically corresponds to the abatement costs (e.g. the total costs of a hydropower plant) of mitigation measures. Cooperative actions may evolve as one of the instruments for structuring external financial support.

In developing these targets (and pathways/scenarios towards those targets), a wide range of approaches were applied. The target is either constant (in absolute or relative terms), was created considering a trend (based on extrapolation from reference data over a historic reference period) or is indexed (e.g. to population, GDP or to a specific output). In order to properly account for cooperative approaches, Parties will have to consider these scenarios in order to subtract ITMOs, which in practice may create some complications.

An ideal case

If the baseline and monitoring system of the sub-sector chosen for the cooperative approach is well integrated into a credible BAU scenario for the overarching IPCC sector, cooperative approaches may generate credible emission reductions¹:

- Country A and Country B agree on jointly engaging in cooperative approaches for, say, the

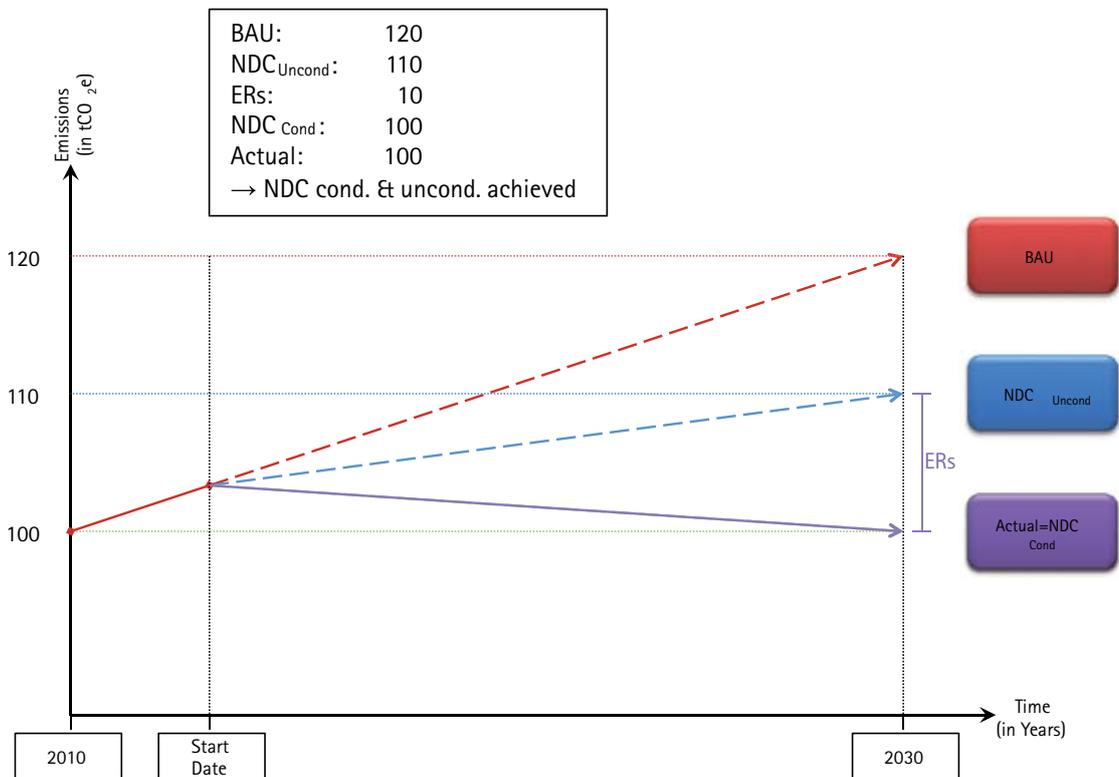
¹ The subsequent examples implicitly assume that under cooperative approaches, ITMOs cannot only be sold at the date for which the target is formulated (e.g. 2030), but also in intermediate steps considering the performance against a pathway towards the target. This could, for example, be every two years following the timing of national communications and biennale update reports. This would allow to produce payments against performance – not only at the end, but also during implementation, partially addressing Parties' financing needs. However, it is important to note that such details have not yet been decided in the international negotiation process.

electricity sector (being a sub-sector of the IPCC 'Energy' sector). Country B will pay Country A for ITMOs, if Country A manages to reduce the GHG emissions of its electricity sector below the unconditional NDC target.

- Country A chose 2010 as reference year and 2030 as target year. The sector's emissions amount to 100 units in 2010 and are projected to increase to 120 units by 2030 under the BAU scenario. Its unconditional NDC target amounts to 110 and Country A aims to achieve an emission level of 100 GHG units with external support (conditional NDC target).

- Now let's assume Country A conducts a range of policy reforms (granting preferential grid access for independent power producers using renewable energy technologies/feedstocks, and reducing fossil fuel subsidies for electricity generation) and offers a feed-in-premium for RE technologies marginalized so far (e.g. PV and biomass). The mixture of policies and financial incentives leads to achieving an emission level of 100 GHG units until 2030. Country A's actual GHG pathway corresponds to its conditional NDC target. Country A may hence sell 10 ITMOs to Country B, and Article 6.2 and the cooperative actions work for both sides involved.

Figure 1: Ideal case scenario



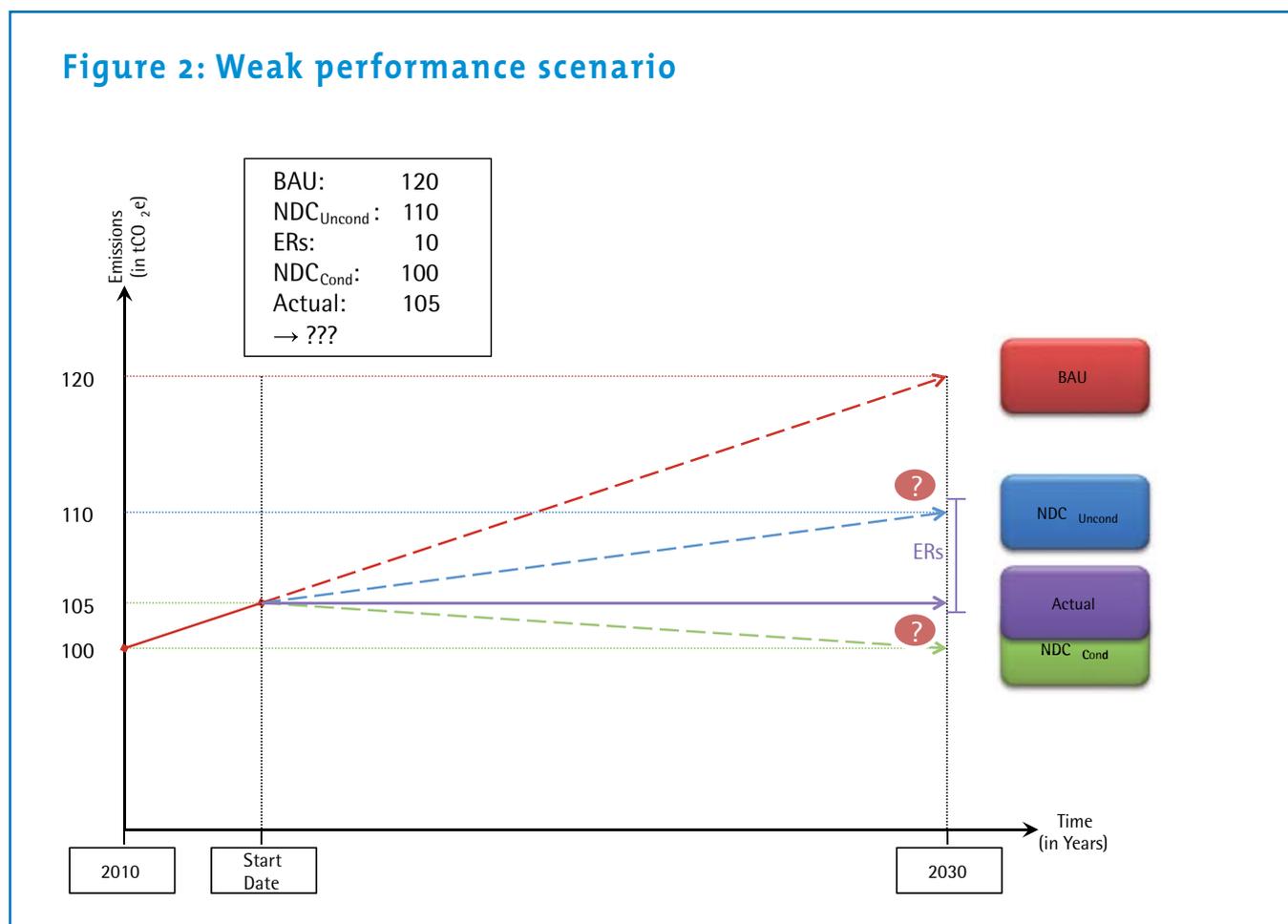
Weak data used for NDC development may lead to inconsistencies for cooperative actions

However, if the baseline and monitoring framework of cooperative actions is weak, this may lead to excess issuance of emission reduction certificates. Returning to above-cited example for the electricity sector:

- The monitoring framework of the cooperative action for the electricity sector in Country A claims that it produces 10 units of emission reductions.

- At the same time, monitoring of the energy sector (including the electricity sector) shows that no emissions were reduced and hence the conditional and unconditional NDC targets were missed.
- Consequently, in such a case it may be unclear whether the unconditional NDC, the conditional NDC (including underlying financial data) and/or the BAU scenario were set incorrectly.
- Also, the accurate baseline and monitoring of the electricity sector's emissions may be embedded into a less accurate GHG emission estimate for the energy sector, which may lead to scenarios where countries sell ITMOs and at the same time miss their NDC targets.

This is illustrated by the graph below:



Recommendations for engaging in cooperative actions

The Paris Agreement allows for differing approaches for NDC formulation. This results in heterogeneous NDC targets and for some countries, the contributions are specified on sectoral level. Testing cooperative approaches will require addressing such versatility. Against that background, it is recommended to Parties engaging in cooperative actions that they negotiate clear reporting requirements and establish a strong accounting framework. That framework may comprise:

- A quantitative BAU scenario for the sub-sector of cooperative approaches (e.g. the electricity sector). Such a scenario may be built using Tier 2 and Tier 3 data and methods. The BAU scenario may be built following the UNFCCC's 'Standardized Baselines' guidelines, which allow to develop a national GHG benchmark using CDM methodologies and subject to external validation and QA/QC procedures by the UNFCCC Secretariat. This allows not only to address some design needs of cooperative approaches but also, in this specific point, to build a bridge between the Kyoto Protocol and the Paris Agreement.
- A quantitative BAU scenario for the sector incorporating cooperative approaches to ensure that the sub-sector (e.g. the electricity sector) is well embedded in a quantitative manner into the bigger sector (e.g. the energy sector).
- Quantitative NDC targets (and pathways towards those targets over time), both for unconditional and for conditional contribution. Typically, targets for sub-sectors are not specified in NDCs, however they may apply the target setting of the sector or overall, the country.

- Having quantitative pathways would allow for selling ITMOs not only at the point in time for which the target is formulated (e.g. 2030), but also along the way – for example, following the reporting periods of biennale update reports and national communications.

If the negotiation process allows for the issuance of ITMOs along a pathway, it would not only enable those countries to participate which have the means to finance mitigation activities up-front, but also countries that depend on external financial support.

- Specification of marginal abatement costs (e.g. the costs difference between one unit of electricity generated by a renewable energy technology compared to the least cost alternative (e.g. coal)), and not abatement costs (e.g. the total costs of a hydropower plant).

Following these principles may help to avoid possible inconsistencies between the volume of ITMOs credited and the NDC sector's overall performance.

CARBON MECHANISMS REVIEW



Promoting Carbon Pricing: New Brochure

This brochure provides an overview of carbon market projects funded by the BMUB and showcases the diverse carbon market-related activities initiated by the Federal German Government in collaboration with various partners. Download at

www.carbon-mechanisms.de/en/2017/new-brochure-on-promoting-carbon-pricing/

Opportunities for India to use Carbon Markets

A high-level workshop has discussed how India can effectively use market mechanisms to achieve its climate mitigation objectives. The documentation of the workshop is now available. Find out more at

www.carbon-mechanisms.de/en/2017/opportunities-for-india-to-utilise-market-based-climate-policy-instruments/

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/