

Promoting Carbon Pricing

German Projects and Initiatives



Imprint

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Introduction

The Paris Agreement hails a new era in global climate policy. With effect from 2020, this new international framework will replace the Kyoto Protocol, its predecessor. For the first time, all countries, including developing countries and emerging economies, are required to formulate and to the extent possible implement emission reduction targets – so-called nationally determined contributions (NDCs). This overcomes the existing division of states between industrialised countries with legally binding emission ceilings and developing countries with no such obligations, and enables further development of the principle of common but differentiated responsibilities in efforts to combat climate change.

International cooperation for effective climate action

To be successful, international climate change mitigation effort requires that countries cooperate

with one another when implementing their emission reduction targets. Many developing countries in particular lack both the technical expertise and the financial means to fully exploit their mitigation potential. The Paris Agreement enables cooperation between Parties. Its Article 6 opens up opportunities for countries to use international cooperation mechanisms on a voluntary basis to raise their climate ambition.

The Paris Agreement offers three approaches for such international cooperation. First, Parties can cooperate directly with one another (Article 6.2). This enables implementation of activities to reduce greenhouse gases in one country and the resulting emission reductions to be transferred to another country and counted towards its NDC. The prerequisite for this approach is the provision of a transparent process and accurate accounting of reductions achieved to prevent double-counting – for example towards the account of the country in which the reduction activities took place and that of the country to which the reductions were transferred.



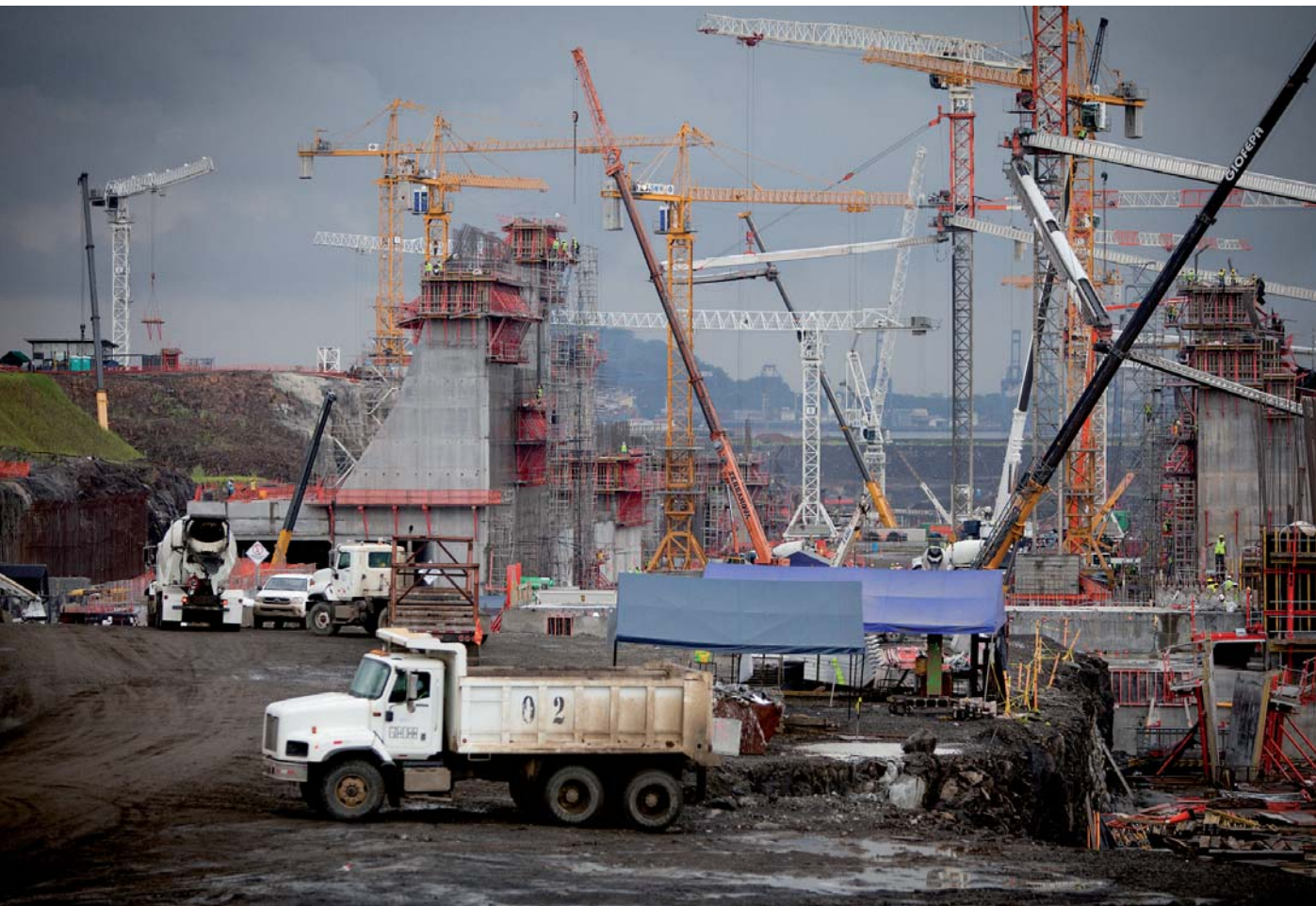
A second approach involves the use of the newly created “mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development” (Article 6.4). In contrast to direct bilateral cooperation, this new mechanism will be overseen by a body commissioned by the Conference of the Parties to the Climate Change Convention (UNFCCC). The rules and procedures for use of the mechanism will also be determined at international level. As with bilateral cooperation under Article 6.2, reductions achieved with the new mechanism by a given country can be transferred to another country and counted towards its NDC.

The third option involves the use of so-called non-market approaches (Article 6.8). As the name suggests, market-based climate change mitigation instruments play no role. How these particular approaches might work will be determined in the course of the next few years through the development of a “Framework for Non-Market Approaches”.

Detail still to be fleshed out

The biggest challenge faced in the coming years will be to fill these mechanisms with life. As the Paris Agreement merely sets out a rough guide on use of the various approaches, the task now at hand is to work out a detailed set of rules and procedures. Experience gained with use of the flexible mechanisms will provide a helpful basis, but this can in no way be seen as a blueprint to be used in designing the structure of the Paris Agreement. Rather, new rules must be developed which take account of the altered structure of the Paris Agreement.

The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) wants to provide constructive support during this development process. Thus, in cooperation with its partner countries in the EU, the BMUB fosters this process for example by funding the conceptual development with appropriate research projects. And in the future, it will also invest in practical testing of innovative approaches in the form of pilot



projects (see the section on “Assisting the international climate change negotiations”).

Carbon markets in rough terrain

With the Paris Agreement, the global carbon market has finally regained a long-term perspective. Prices had dropped dramatically in recent times due in part to the fact that the EU Emissions Trading Scheme – once the most important source of demand for emissions certificates generated with the flexible mechanisms of the Kyoto Protocol – had almost ceased to generate certificate demand. The market had also suffered due to the uncertainty regarding the future of registered projects and of the market as a whole. Despite the adoption of the Paris Agreement, this uncertainty has in no way been dispelled because on the one hand, the rules governing the mechanisms must still be fleshed out and on the other the mechanisms will not be fully available until 2020 at least. Uncertainty also abounds as to what will happen with the existing mechanisms and especially the Clean Development Mechanism (CDM). The CDM is part of the outgoing Kyoto Protocol and it is

thus unclear as to whether and to what extent it can be transferred to the Paris Agreement system, and about what will happen to existing CDM projects in the period beyond 2020.

To support the market during this difficult phase, the BMUB is funding a range of initiatives with the aim of promoting selected CDM projects and programmes in the shorter term. Also, some initiatives are being supported which are still developing highly promising approaches under the existing mechanisms. One focus here is on approaches which due to their design, and to the extent to which it can be assumed in advance, can be easily integrated into the new mechanisms under Article 6 (see the section From Kyoto to Paris: Transitional prospects for mitigation projects and also Continuity for future-ready concepts).

Dynamic development of national carbon pricing systems

The at times extremely difficult situation in the global carbon market has not resulted in carbon pricing instruments becoming less attractive at

national level. On the contrary, in recent years more and more carbon pricing instruments have been introduced: according to a World Bank report¹, about 13 percent of global greenhouse emissions are now covered by a price for CO₂.²

Carbon pricing is so important because it brings transparency to so-called external costs – the costs of climate and environmental damage which are not typically born by the causers of climate change, meaning the consumers of every tonne of coal, every barrel of crude oil and every cubic metre of natural gas. If a reasonable price were charged for every tonne of carbon dioxide (CO₂) emitted, it would give businesses and consumers a signal which would help them give better consideration to mitigating climate change in their production, investment and purchasing decisions. Carbon pricing also enables more efficient implementation of climate action, because a price signal would ensure that emissions are prevented in areas where it is most cost-effective to do so. The existence of a carbon market increases the economic attractiveness of engaging in climate change mitigation.

The BMUB thus assists countries in implementing their national carbon pricing instruments and is also active at policy-making level to further promote this trend, the aim being for all global greenhouse gases to be covered by carbon pricing in the longer term.

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. First, the brochure sets out projects which focus on providing transitional prospects for existing mitigation activities. It then looks at projects designed to assist the international climate negotiations and provide continuity through the transfer of future-ready concepts to the new climate change regime. Finally, projects are outlined whose aim is to secure short-term emission reductions. These are followed by policy initiatives to introduce carbon pricing along with capacity-building activities to promote market-based mitigation.

From Kyoto to Paris: Transitional prospects for mitigation projects

Conditions on the global carbon market have been difficult for a number of years. On the one hand, the CDM has shown how effective project-based mitigation mechanisms can be. After some initial problems with project registration, the capacities needed for efficient processing were built at all levels: at the UNFCCC Secretariat, in host country authorities and among project developers and auditors. The CDM reached peak performance in 2012, with more than 3,200 projects registered within the course of a single year.

That peak also marked a turning point. As the European Union had not increased the contingent for eligible certificates generated by the flexible mechanisms for the trading period beginning in 2013 in its Emissions Trading Scheme (to date the most important source of demand for those

certificates), the price for certificates effectively crashed.

And for a long time, it was unclear as to whether and to what extent market-based mitigation activities would continue under the international climate regime. With the adoption of the Paris Agreement, the path is now clear for further use of international market mechanisms. Uncertainty still abounds, however, regarding the role the existing mechanisms will play – especially the CDM and the registered projects in its pipeline.

Against this backdrop, the BMUB is funding two initiatives. In one project, “**Analysis of Current Developments in the Global Carbon Market**”, a consortium headed by the NewClimate Institute is studying both the current situation and trends

¹ World Bank, Ecofys and Vivid Economics (2016): State and Trends of Carbon Pricing 2016, World Bank, Washington, DC.

² Where in the following reference is made to a carbon market or carbon pricing, this also includes other greenhouse gases. In addition to carbon, these are notably methane (CH₄), nitrous oxide (N₂O) and diverse industrial gases (HFC, PFC and SF₆). The climate impact of these highly potent greenhouse gases is calculated in so-called CO₂-equivalents (CO₂e), so that they represent the sum of CO₂ emissions over a period of 100 years.



in the global carbon market. The main focus of the study is the marketability of existing projects during the transitional phase until such time as the new climate regime becomes fully operational. The researchers commissioned to conduct the analysis also look at unused project potential in areas where, given the difficult market situation,

Analysis of Current Developments in the Global Carbon Market

Implementation: *NewClimate Institute gGmbH*

Other organisations involved:
*Öko-Institut e.V.; Lambert Schneider
(Stockholm Environment Institute Associate)*

Lifecycle: *2015-2018*

Contact: *Thomas Day
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investors have withdrawn. The findings of the analysis will be used to make recommendations for the design of the new cooperative market-based mechanisms and also on using the existing infrastructure for short-term emission reduction activities even prior to 2020.

The BMUB places particular focus on the African carbon market which had experienced difficulties even during the peak phase of the CDM. In large parts of Africa, building the necessary administrative and technological capacities proved especially difficult and the uneven distribution of projects was repeatedly criticised in the early stages of the CDM. The mechanism focused on just a few emerging economies and in large regions of Africa was almost entirely unused. To counter this trend, the Federal German Government in cooperation with a number of partner countries initi-

ated a series of measures designed to promote use of the CDM in Africa. These include promoting programmatic CDM. With this option, a large number of small-scale projects are bundled into a programme of activities. This allows complex registration procedures to be dealt with at programme level, thus relieving small-scale projects of the formal registration burden. Programmatic CDM proved particularly successful for instance with projects to distribute efficient cooking stoves. Another approach involves the establishment of standardized baselines at sectoral level. This approach is also suited to reducing the transaction costs for individual projects. So as not to risk the demise of the carefully developed technological and administrative capacities in Africa given the current crisis, the BMUB supports an initiative launched by AREA Group, Perspectives and Climate Focus: the aim of the project on “**Strengthening the African CDM Pipeline**” is to identify and test ways to enable Africa’s CDM capacity to be used in the medium term and for it subsequently to

Strengthening the African CDM Pipeline

Implementation: *Climate Focus, B.V.*

Other organisations involved

Perspectives Climate Group GmbH; AERA Group

Lifecycle:

2015-2017

Contact: *Sandra Greiner*

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be integrated into the structure of the Paris Agreement. To address these issues, the project relies on international climate financing and attempts to link the CDM with international climate financing institutions, particularly the Green Climate Fund.

Assisting the international climate negotiations

After a lengthy period in which the international negotiations on the global carbon market appeared to have reached a stalemate, the adoption of the Paris Agreement has breathed new life into the negotiation process. Given that the Paris Agreement entered into force within a year of signing, pressure to move forward with the negotiations has further increased. At the climate summit in Marrakech in 2016, the first formal Conference of the Parties to the Paris Agreement, the Parties were able to agree that a detailed rulebook for the Agreement is to be negotiated in time for and adopted at the COP in 2018. Given the numerous rules and procedures to be agreed, this is an enormous task – as a comparison with the Kyoto Protocol shows. Similarly to the Paris Agreement, the Kyoto Protocol comprises 21 pages setting out only the key framework provisions. After the Protocol was adopted in 1997, rules and procedures covering some 245 pages were developed and adopted four years later at the COP in Marrakech. With its 27 pages, the Paris Agreement is only marginally less specific than the Kyoto Protocol and it must thus be assumed that its detailed rules and procedures will reach a similar

order of magnitude. The Paris Agreement negotiations must, however, be completed within the space of just two years.

One particular challenge in all of this involves the negotiations concerning the global carbon market because, as opposed to other areas, there is as yet no agreement on exactly how the mechanisms should work. Although a whole range of different concepts are on the table, as described above it remains unclear as to what role the existing mechanisms, especially the CDM, might play.

Concepts to assist the negotiations

The BMUB represents German interests at the negotiations and also promotes a range of projects and activities which are designed to support the negotiation process itself. For example, the BMUB has commissioned the Wuppertal Institute with a research and networking project on “Further Development of the CDM and New Market Mechanisms”. As part of this project, the Wuppertal



Further Development of the CDM and New Market Mechanisms

Implementation:
*Wuppertal Institut für Klima,
Umwelt, Energie gGmbH*
Lifecycle: 2015 – 2018
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Further information:
www.carbon-mechanisms.de

Institute is responsible for both the content and the technical operation of the online portal carbon-mechanisms.de and publishes a specialist magazine, “Carbon Mechanisms Review”. The Wuppertal Institute additionally conducts analyses on a range of research papers covering current issues and holds regular expert workshops at which negotiation leaders from the international climate regime meet with scientists and carbon market players.

Developing Concepts to Implement New or Transform Existing Market Mechanisms under a New UNFCCC Climate Change Agreement

Implementation: *Öko-Institut e.V.*

Other organisations involved:
Stockholm Environment Institut; INFRAS AG

Lifecycle: 2016-2018

Contact: *Jakob Graichen*
j.graichen@oeko.de

Two further initiatives take an in-depth look at issues concerning the transition from the world of the Kyoto mechanisms to the new international regime under the Paris Agreement. Placing the main focus on the legacy of the CDM, the first of these initiatives involves **“Developing Concepts to Implement New or Transform Existing Market Mechanisms under a New UNFCCC Climate Change Agreement”**. Conducted by a consortium comprising the Öko-Institut, the Stockholm Environment Institute and INFRAS, it looks in particular at the environmental integrity of future instruments. For example, how can emission reductions be correctly documented, accounted for and counted against the nationally determined contributions (NDCs) of the countries that import such emission reductions and want to use them to meet part of their emission reduction targets – in other words, how can these reductions be transferred to countries abroad? The task is to ensure that the emission reductions achieved are not double-counted to avoid weakening countries’ mitigation contributions.

The second project, **“CDM Transition Initiative”**, focuses on the project level and looks at how existing CDM activities can be transferred to the mechanisms of the Paris Agreement, especially the mechanism contained in Article 6.4. The project is conducted by Climate Focus and Koru Climate.

CDM Transition Initiative

Implementation: *Climate Focus, B.V.*

Other organisations involved:
Koru Climate LTD

Lifecycle: 2017

Contact: *Sandra Greiner*
s.greiner@climatefocus.com

Capacity-building to assist climate negotiations

In addition to these research activities, the BMUB also supports other countries and particularly developing countries who want to use carbon pricing instruments to meet part of their NDCs. The BMUB together with Norway and Switzerland provides funding to the UNFCCC Secretariat for this purpose.

Within the scope of the initiative **“Supporting the Adoption of Collaborative Instruments for Achieving Ambitious Climate Action”** the Secretariat provides advice for up to 15 developing countries, focusing for example on how synergies with other mechanisms such as international climate financing can be achieved. The project is also designed for use in building countries’ capacities in dealing with complex climate negotiation issues, including interactions between market-based mitigation mechanisms, international trading of emission reductions and counting them towards countries’ NDCs.

Supporting the Adoption of Collaborative Instruments for Achieving Ambitious Climate Action

Implementation: *UNFCCC Secretariat*

Lifecycle: 2016-2018

Contact: *Malin Ahlberg*
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Climate activities in international aviation

Even within the United Nations system, use of market-based mitigation mechanisms is also no longer limited to the negotiations supervised by the UNFCCC. The Paris Agreement and the nationally determined contributions (NDCs) follow the territorial principle and do not include emissions from international aviation and shipping. While in international shipping, no decisions on reducing greenhouse gases have been reached, in 2016 the International Civil Aviation Organisation (ICAO) agreed on the introduction of a global market-based mechanism – the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The scheme is designed to



enable growth in emissions from the aviation sector to be offset with effect from 2020.

Although the introduction of the CORSIA mechanism has already been decided, it remains unclear as to how and by what standards certified reductions are to be recognised, and what part they

will play in Paris Agreement NDCs. To support the upcoming design process led by the ICAO, the Federal German Government will fund a research project whose aim will be to analyse and evaluate the design options to enable offsetting in international aviation.

Offsetting emissions from Federal German Government business travel

Air travel leaves an especially heavy environmental footprint, not only due to the large quantities of CO₂ emitted, but also because the great altitudes at which aircraft fly result in far greater harm to the climate compared with the same quantity of emissions released on the ground. Also, air travel is often unavoidable in an increasingly globalised world. This also applies in respect of Federal German Government business travel.

The Federal German Government has thus decided to offset the greenhouse gas emissions from all business travel that employees of ministries and subordinate national authorities conduct by air or by car in the current legislative period (2014 – 2017).

For this purpose, the Federal German Government uses certificates generated under the CDM and also applies its own quality assurance criteria to support projects of especially high quality which, apart from their actual mitigation effect, have other positive sustainability effects such as protecting other environmental media – air, soil and water – or have a developmental impact by means of rural electrification, strengthening the local jobs markets, providing further education and training for the local workforce, supporting local utility suppliers and assisting health protection.

Up to now, certificates have been used from five projects: one each on household biogas in China and Nepal, one on electricity generation from harvest waste in India, a wind power project in Costa Rica and an electricity generation from landfill gas activity in Mexico. When implementing this measure, the Federal German Government will be assisted by the German Emissions Trading Authority (DEHSt). The DEHSt calculates journey-related emissions, chooses the offsetting projects and is also responsible for buying and cancelling the emission certificates required.

Further information: www.dehst.de/EN

Continuity for future-ready concepts

Two approaches developed under the CDM have proven especially valuable: the programmatic approach (Programmes of Activities (PoAs)) and the sectoral approach to enable use of standardized baselines. Over the years, the BMUB has conducted a large number of activities to promote further development of both approaches.

Programmatic CDM was promoted because it is suitable for use with small-scale projects which in many cases not only result in emission reductions, but are at the same time especially effective in assisting sustainable development. With this approach, many small-scale projects can be bundled into a larger PoA, significantly reducing the administrative effort for each individual activity.

The programmatic approach has been particularly effective with projects involving energy efficiency, such as PoAs to distribute clean and efficient cooking stoves, and to provide efficient lighting. It has also proved successful in establishing small-scale renewable energy facilities, especially those involving solar power.

Although the CDM and thus its programmatic approach have only limited prospects for the future, the concept is still of great interest because, in principle, it lends itself to use with other mitigation mechanisms, with international climate financing and perhaps also with international cooperation mechanisms under Article 6 of the Paris Agreement.

Programmatic approaches are future-ready

The BMUB thus continues its long-term engagement in support of PoAs, albeit with a slightly broader focus. A key function of this work is performed by the **“PoA Working Group”**, which is financed by the BMUB and coordinated and headed by Perspectives GmbH. The working group focuses on the scientific, regulative and policy-making aspects of the PoAs, originally as part of the CDM, but increasingly also with an eye to international climate financing and the new mechanisms to be developed under Article 6. It provides a platform for dialogue, thus enabling





PoA Working Group

Implementation: *Perspectives Climate Group GmbH*

Other organisations involved:

Weltbank; UNDP; Project Developer Forum; DNA-Forum; KfW; Deutsche Emissionshandelsstelle; International Institute for Global Environmental Studies; Designated Operational Entities Forum; Schwedische Energiebehörde; Belgium Technical Cooperation

Lifecycle: *Since 2011*

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Foundation “Future of the Carbon Market”

Implementation:

Kommunalkredit Public Consulting

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Further information:

www.carbonmarket-foundation.org

exchange of experience and the coordination of measures to support PoAs. The PoA Working Group comprises established experts from various bodies such as the BMUB, the World Bank, the United Nations Development Programme (UNDP), the CDM Project Developer Forum, the DNA Forum, the German Emissions Trading Authority (DEHSt) and others.

Promotion of programmatic approaches is also the main focus of activities conducted by the **Foundation “Future of the Carbon Market”**. The Foundation was called into being to provide an innovative solution to the lack of start-up capital for the development of mitigation programmes, a key issue in relation to PoAs. Because the payments for emission reductions generated under the CDM are only performed after successful

implementation of the respective activities, such programmes are often difficult to implement for many project developers. The Foundation thus provides the start-up capital they need, having been equipped with funds amounting to €10 million by the BMUB. Once the funded PoAs have been successfully implemented, the pre-payments are reimbursed from the sale of emission certificates and the Foundation’s capital is replenished. Given the soon to be non-existent market opportunities, the Foundation decided in spring 2017 to announce a moratorium on funding for CDM PoAs, making them no longer eligible to receive start-up funds. The Foundation does, however, continue to promote the PoA concept as such and funds conceptual and methodological work in this field.

From single project to sectoral approach

The second approach involves standardized baselines. At present, a business-as-usual scenario must be developed for every CDM project which illustrates what would happen should the project not be implemented. The scenario serves as a baseline for use in calculating the emission reductions achieved with the CDM activity. Use of the standardized baseline thus does away with the need for developing project-specific baseline scenarios. As soon as a standardized baseline has been submitted and confirmed for a given sector, it automatically applies as a baseline scenario for all new projects in the respective sector. This approach also allows the drafting of a positive list of technologies which are approved for use with the mechanism without them being subject to further assessment.

Both points are also of great relevance beyond the boundaries of the CDM. For activities involving international climate financing and probably also for use of the new cooperation mechanisms under Article 6, it will be necessary to determine emission reductions in an objective way and to give specific project types and technologies privileged and simplified access to funding.

The BMUB thus provides funding for the project on **“Updating the ‘Southern African Power Pool**

(SAPP)’ Standardized Baseline and Developing Proposals for a Regional Financing Mechanism for Emission Reductions”. The SAPP is an electricity grid in southern Africa for which a standardized baseline has been in place for several years. The baseline defines the grid emission factor (GEF), the basis for calculating emission reductions for all electricity-related projects – both renewable energy use and energy efficiency. The grid emission factor is being updated on the basis of newly available data. Once the update has been completed, a mechanism will be developed in close cooperation with the African Development Bank which allows funds from international climate financing to be used for renewable energy projects in southern Africa and utilises the newly-developed GEF. The project will be implemented by the GFA Consulting Group.

Updating the ‘Southern African Power Pool (SAPP)’ Standardized Baseline and Developing Proposals for a Regional Financing Mechanism for Emission Reductions

Implementation: *GFA Consulting Group*

Lifecycle: *2016–2018*

Contact: *Martin Burian*

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Securing emission reductions in the pre-2020 transitional phase

The adoption of the Paris Agreement has further tightened the long-term aim of the global climate regime: the 2 °C limit is now the absolute upper limit and Parties have even announced that they will pursue efforts to keep global warming below 1.5 °C. Model calculations by the Intergovernmental Panel on Climate Change (IPCC) show that the deciding factor is time. The later the turnaround in global greenhouse gas emissions is achieved, the less likely it will be that the 2 °C limit, not to mention the 1.5 °C target, can be maintained.

However, most of the nationally determined contributions declared under the Paris Agreement only cover the period from 2020 and beyond. At the same time, the existing climate action ambitions for the period up to 2020 go nowhere near

far enough. Also, the global carbon market, which up to now has been based on the flexible mechanisms contained in the Kyoto Protocol, has effectively crashed. This situation threatens current projects conducted under the CDM and prevents short-term implementation of new projects even though tremendous reduction potential is on hand.

Depending on the project type involved, projects are affected to different degrees by this threat. Some project types can also be continued even given these difficult market conditions because there are either no or only marginal running costs to be covered from the sale of emission certificates. These projects include programmes to expand renewable energy use which are funded from the

sale of the electricity they generate. Numerous energy efficiency activities are also connected with significant additional economic benefits such as reduced energy costs, thus making their continuation possible. It is, however, impossible to say whether over the course of their lifecycles these projects will be able to recover the cost of their initial investments.



Other project types, by way of contrast, are shaped by a cost structure in which the operation of technical components used to reduce greenhouse gas emissions generates running costs. This is the case, for example, with some industrial gas projects and with projects involving extraction or use of landfill gas. If revenue from the sale of certificates falls away, such projects face the serious threat of being stalled or are at risk of having their greenhouse gas-reducing technology being switched off.

Innovative auction processes in support of climate action

Given the threatened stagnation of market-based climate action in the affected sectors and the possible stalling of emission reduction projects, the Federal German Government together with its partners has introduced a wide range of initiatives to counter these trends.

In 2015, the World Bank launched the “**Pilot Auction Facility for Methane and Climate Change Mitigation (PAF)**”. The initiative targets projects which due to the low prices for emission certificates are at risk of being stalled, but need only marginal additional revenue to ensure their continuation. The aim of the PAF is to encourage investment in projects of this type by guaranteeing a minimum price for the emission certificates they generate. To ensure the price guarantee, the World Bank provides put options. After buying a put at an auction, the owner is entitled but not obliged to sell the certificates generated by their emission reduction projects back to the PAF at the guaranteed price. The PAF thus guarantees its buyers a minimum purchase price for their certified emission reductions.

Pilot Auction Facility for Methane and Climate Change Mitigation

Implementation: *World Bank*

Lifecycle: *2015–2020*

Contact: *Thomas Forth*
thomas.forth.extern@bmub.bund.de

Further information:
www.pilotauctionfacility.org

To achieve the maximum climate benefit, the bonds are auctioned. The auction reveals the amount that project proponents need in order to invest in emission reduction projects. The put options are secured with funding from the countries participating in the PAF: in addition to Germany, these are Sweden, Switzerland and the US. The third PAF auction was held in January 2017. With guaranties worth USD 13 million, emission reductions in the amount of up to 6.2 million tonnes CO₂e can be achieved. Following the first two auctions held in 2015 and 2016 respectively, both of which focused on methane emissions from landfills, the third auction targeted projects designed to reduce emissions of nitrous oxide (N₂O), which like methane is an extremely potent greenhouse gas. Its climate impact is 264 times that of CO₂.

Halting global emissions in nitric acid production

Reducing emissions of nitrous oxide is also the focus of yet another initiative. The “**Nitric Acid Climate Action Group (NACAG)**” has the ambitious

Nitric Acid Climate Action Group

Implementation: *Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ) GmbH; Norwegian Carbon Credit Procurement Program*

Lifecycle: *Since 2015*

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Further information:
www.nitricacidaction.org

goal of halting global nitrous oxide emissions in the production of nitric acid by 2020. Nitric acid is a nitrogen compound which is used worldwide in fertiliser production. Emission reduction technology for nitric acid plants is widely used and is relatively affordable. In the past, the CDM has been used to reduce a large share of these emissions. With the drop in prices, however, there is a risk that the reduction technology that has already been installed can no longer be operated and that the extremely low-cost reduction potential can no longer be exploited. To push sectoral transformation despite this situation, NACAG offers information and advice, and also makes funding available for partner countries that are willing to address this low-cost potential on their own account from 2020 onwards. In this way, threatened CDM projects will be assisted by the purchase of certificates and an incentive is created to foster initiation of new project activities.

Assisting sectoral transformation in developing countries is also the aim of a further World Bank initiative which Germany launched in cooperation with Norway, Sweden and Switzerland, and which the UK and Canada have since joined. The “**Transformative Carbon Asset Facility (TCAF)**” assists developing countries in establishing and implementing market-based mitigation instruments by providing results-based payments for proven emission reductions at sectoral level. By creating favourable conditions for private investment in mitigation technologies, public funding is used as a lever to achieve a sustainable contribution to transformational change in partner countries. The experienced gained with transformation should be transferrable to other regions and also contribute to the implementation of the Paris Agreement.

Transformative Carbon Asset Facility

Implementation: *World Bank*

Lifecycle: *Since 2015*

Contact: *Thomas Forth
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Policy initiatives to introduce and support carbon pricing

Although carbon pricing is seen as a key climate policy instrument, it has since become clear that putting a price on carbon is not the sole answer to combating climate change. Many experts nonetheless believe it is a key component of an effective mitigation strategy. Against this backdrop, the development of ambitious carbon pricing mechanisms at national level and their international linkage via the mechanisms of the Paris Agreement play an important role.

At national level, putting a price on carbon and other greenhouse gases can occur either through the introduction of taxation (a carbon tax) or through the creation of an emissions trading

scheme (ETS). A carbon tax determines the price per tonne of CO₂e emitted. In the case of an emissions trading scheme, the total quantity of greenhouse gas emissions is capped and a corresponding number of emission certificates issued. Emitters must prove that they possess certificates for the greenhouse gas emissions they cause. The certificates are either issued to companies free of charge or they must be acquired by auction from a centralised organisation. Unused certificates may be traded. This puts a price on greenhouse gas emissions. That price is not politically determined, however, but is instead generated by supply of and demand for certificates on the carbon market.



Strategic dialogue

In recent years, emissions trading schemes and carbon taxation, the two main carbon pricing instruments, have become established in countries around the world. This global trend is, however, both uncoordinated and fragmented. There are still many regions and industry sectors in which emitters of greenhouse gases are not required to cover the costs of the damage caused by their emissions. And even where greenhouse gases are subject to carbon pricing, this does not always lead to the desired relocation of investment towards climate-friendly, sustainable products and services. There is still work to be done, therefore, to encourage wider use of carbon pricing. And there is an urgent need to improve both design and implementation of emissions trading schemes and carbon taxation programmes.

In June 2015, the “**Carbon Market Platform**” was launched under Germany’s G7 presidency. The platform is designed to facilitate open and informed policy dialogue with the aim of intensifying use of market-based mitigation instruments

Carbon Market Platform

Lifecycle: *Since 2015*

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and to strengthen international cooperation on market-based climate policy. The dialogue platform will assist UNFCCC negotiations and identify new approaches for an internationally coordinated process. The main forum of the Platform is the annual strategic dialogue that will engage policymakers at the Director-General level, and be supported by ongoing work at the technical level.

In June 2016, at the first meeting comprising the G7 states along with Chile, Indonesia, South Korea, New Zealand, Senegal, Switzerland and Vietnam, participants exchanged their views and experience on the use of international carbon markets



and the establishment of national carbon pricing instruments.

Apart from promoting policy-based exchange via this strategic dialogue, the Platform is also designed to support technology-related initiatives and partnerships. Through cooperation with key technical partners like the World Bank, the Organisation for Economic Cooperation and Development (OECD) and the International Carbon Action Partnership (ICAP), the Platform consolidates technical expertise and provides access to policy discourse.

New Alliances: Coalition of state and non-state stakeholders

The Federal German Government is not only committed to further developing the global carbon market, but also works with other governments and sub-national partners to promote carbon pricing as a policy instrument. The “**Carbon Pricing Leadership Coalition (CPLC)**” is a voluntary group of national and sub-national governments and also private companies which work with the World

Bank and other key international institutions to push the introduction of carbon pricing policy instruments and assist implementation of existing policies. The CPLC thus serves as a platform for the exchange of information, allowing participants to share their experience with carbon pricing policies. Carbon pricing in private companies also plays a role. The CPLC consolidates a wealth of experience in the design and implementation of carbon pricing policies.

Carbon Pricing Leadership Coalition

Lifecycle: *Since 2015*

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www.carbonpricingleadership.org



Capacity-building and networking to promote market-based mitigation mechanisms

The Federal German Government has worked for many years to promote the use of carbon pricing with the ultimate aim of establishing a standardised, global price for greenhouse gas emissions. With the Paris Agreement, the international community now has an instrument at hand which it can use, step by step, to reach this goal. An iterative, gradual process is needed because the Paris Agreement does not provide for legally binding emission reduction targets for individual countries which can be used as a basis on which to trade emission certificates. The design of the emission reduction targets and their ambition is instead left to Parties themselves.

Many countries have signalled an interest in using market-based approaches in their NDCs and the number of countries in the throes of introducing emissions trading schemes has grown significantly in recent years. The first and so far biggest emissions trading scheme, the EU Emissions Trading Scheme (EU ETS), has been followed by numerous others. For example, New Zealand, Switzerland, Kazakhstan and South Korea have all introduced national-level emissions trading schemes. In China, a total of eight pilot schemes have been introduced in key industrial centres since 2016 and a national emissions trading scheme which

will regulate twice the quantities of emissions covered by the EU ETS is to be introduced in the course of 2017. Several schemes have also been introduced at sub-national level. These include the Regional Greenhouse Gas Initiative (RGGI) and California's Emissions Trading Scheme in the US, Quebec's Cap and Trade System in Canada, and the Tokyo Metropolitan Government Cap-and-Trade Programme in Japan.

Bilateral cooperation with partner countries

As part of its International Climate Initiative (IKI), the Federal German Government supports a number of partner countries by means of bilateral cooperation in administrative and technical implementation of their plans. China is one of the focus countries in this initiative. As part of a project on **“Supporting the Establishment of a National Emissions Trading Scheme in China”**, the responsible government institutions receive expert advice and training to assist their preparation for and implementation of the emissions trading scheme. A key feature of the project is the exchange of experience with German and EU institutions, and the strong involvement of the private sector.

Supporting the Establishment of a National Emissions Trading Scheme in China

Implementation: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

Other organisations involved:
National Development and Reform Commission (NDRC)

Lifecycle: 2012–2019

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Further information:
www.ets-china.org

Another focus country is Mexico, where the “**Mexican-German Climate Alliance**” helps to create the institutional conditions and technical capacities needed to establish an emissions trading scheme. The support provided involves analysis of and recommendations for the technical design of a future ETS, along with measures to integrate a range of stakeholders into the ETS process – ministries, private businesses as well as financial and trading institutions.

Mexican-German Climate Alliance

Implementation: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

Other organisations involved:
Ministry of Environment and Natural Resources (SEMARNAT), Mexico

Lifecycle: 2010–2017

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In Brazil, the “**Programme Support for Implementation PNMC (National Policy on Climate Change)**” assists the Brazilian government in implementing individual elements of the national climate policy.

Programme Support for Implementation PNMC (National Policy on Climate Change)

Implementation: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

Other organisations involved:
Ministry of the Environment, Brazil

Lifecycle: 2016–2021

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The programme also provides support for the finance ministry in respect of greenhouse gas reporting and the associated registry. The registry provides data for use in considering market-based instruments to reduce greenhouse gas emissions.

Monitoring, reporting and verification (MRV) is also the main focus of the project on “**Capacity Development for a Monitoring, Reporting and Verification System for Greenhouse Gas Emissions in Turkey**”. The project assists the Turkish Ministry of Environment and City Planning in establishing a national MRV system. Over time, this will create the conditions needed for the introduction of a national emissions trading scheme.

Capacity Development for a Monitoring, Reporting and Verification System for Greenhouse Gas Emissions in Turkey

Implementation: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

Other organisations involved:
Ministry of Environment and City Planning, Turkey

Lifecycle: 2013–2018

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The Federal German Government has also utilised the existing channels for technical cooperation for many years. For example, the BMUB commissioned Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to implement a comprehensive project on capacity-building in developing countries. The “**Global Carbon Market**” project promotes capacity development among public decision-makers to utilise the potential of market-based instruments in implementing national

Global Carbon Market

Implementation: *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*

Other organisations involved:
Regional Center for Renewable Energy and Energy Efficiency, Tunisia;

Ministry of Water and Environment (MWE) - Department of Climate Change, Uganda;
Ministry of Environment, Forest and Climate Change (MoEFCC), India;

Ministry of Energy, Chile

Lifecycle: 2008–2018

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emission reduction targets and to integrate private industry into the process. In addition, the project assists the development of new market mechanisms on a conceptual basis.

The project is conducted in cooperation with Chile, India, Tunisia and Uganda. These four countries each face a very different set of challenges: while activities in Tunisia focus on the cement sector, those in Chile involve the design of its carbon tax and the gradual transition to a national emissions trading scheme. In India, the project provides advice to the ministry of environment on market mechanisms, other forms of cooperation under the Paris Agreement and climate financing. In Uganda, by way of contrast, the project aims to improve conditions to allow use of project-based market mechanisms and ultimately to increase what has to date been Uganda's poor participation in the global carbon market.

The BMUB also implements bilateral measures as part of its project “**Capacity Building for Emissions Trading to Support Bilateral Cooperation**”. The aim is to disseminate emissions trading knowledge and best practice, and to support suitable countries in establishing national emissions trading schemes. In cooperation with partner countries, technical workshops and delegation trips are held and countries that have decided to introduce an ETS can also receive targeted advice. For example, several delegations of South Korean government and business representatives visited the German Emissions Trading Authority (DEHSt) and companies in Germany, and workshops and expert consultations were also held in Seoul. In 2015, South Korea introduced its national emissions trading scheme which is largely based on experience gained with the EU ETS and also in Germany. Among others, the list of partner countries to date includes Kazakhstan, Chile and Brazil.

Capacity Building for Emissions Trading to Support Bilateral Cooperation

Implementation: *adelphi consult GmbH; FutureCamp Holding GmbH; DIW econ GmbH; Öko-Institut e.V.*

Other organisations involved:
German Emissions Trading Authority (DEHSt); Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)

Lifecycle: 2013–2017

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Multilateral partnerships

In addition to bilateral cooperation with individual countries, the Federal German Government also participates in a number of multilateral initiatives to establish market-based policy instruments. These include the World Bank's “**Partnership for Market Readiness (PMR)**”. The PMR now boasts more than 30 countries, among them some of the world's largest emitters. The PMR was founded in 2010 during the climate change negotiations in Cancun with the aim of supporting countries interested in developing and implementing innovative carbon market mechanisms. It provides both funding and technology, and also serves as a forum for dialogue to foster exchange between countries and promote capacity-building through publications on technical issues concerning carbon pricing policy instruments.

Partnership for Market Readiness

Implementation: *World Bank*

Lifecycle: 2011–2021

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Further information:
www.thepmr.org

The PMR was opened to sub-national participants in 2014, thus further broadening its reach. As technical partners, three such sub-national jurisdictions – all of which have introduced carbon pricing instruments or are about to do so – are able to share their experience with other participants and, under certain circumstances, receive targeted technical support to improve their policy instruments.

The work performed by the PMR is based on a two-tier process. In the first phase, the participating countries prepare market readiness proposals (MRPs) in which they list specific deficits of and measures for targeted development and implementation of carbon pricing instruments. The MRPs are presented and approved at a plenary meeting of the PMR. In the second phase, the countries receive technical and financial support to enable them to develop and implement the planned instruments. The vast majority of countries involved are now at the implementation phase.

Information for the specialist public and exchange with practitioners

To enable informed dialogue with practitioners in the global carbon market and within the respective research and consulting businesses, the BMUB commissioned the Wuppertal Institute to operate the online portal “*carbon-mechanisms.de*” and publish the “*Carbon Mechanisms Review*”, a specialist magazine. Carbon Mechanisms Review appears quarterly in English, takes a critical look at carbon market trends and provides analyses, opinion articles and background information to contribute to the debate.

Apart from the further development of the existing mechanisms CDM and Joint Implementation (JI), Carbon Mechanisms Review focuses in particular on the design of the new market mechanisms under the Paris Agreement and also looks at developments concerning market-based approaches beyond the realms of the UNFCCC. These are covered with a blend of editorial articles and guest contributions from highly regarded authors in the respective fields. The *carbon-mechanisms.de* website takes the form of an information portal, supplying all the latest carbon market news. It provides information on Federal German Government initiatives and publishes the results of studies and research projects funded by the BMUB. The service is rounded off with a detailed introduction to carbon market basics and the role the carbon market plays under both the Paris Agreement and the Kyoto Protocol.



To enable intensive exchange with stakeholders and regional market players, the BMUB participates in a wide range of forums. Following on from its successful initiatives of recent years, in 2017 the BMUB will again host the German Pavilion at the Innovate4Climate trade fair, the re-branded Carbon Expo. Operated by think tank and consultancy adelphi, the German Pavilion will showcase a wide range of German projects, initiatives and businesses from the carbon market and climate financing sectors. A broad specialist public will engage in talks and presentations held at the pavilion to discuss the latest trends. The BMUB is also a regular participant in regional forums, including the African Carbon Forum. Participation at these events fosters exchange with regional market players and enables the Federal German Government to present and further develop its own climate change mitigation initiatives.

Further information: www.carbon-mechanisms.de/en

