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Transforming Carbon Markets

German Projects and Initiatives

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Setting the Scene

The year 2020 marks the start of a new era in international climate policy. The Paris Agreement, which goes into effect that year, sets out ambitious climate change mitigation targets that form the framework for climate action at international, national and subnational level. Under the Agreement, global warming is to be limited to well below 2 degrees Celsius compared with pre-industrialised levels and efforts must be pursued to limit warming to 1.5 degrees Celsius. This means that in the second half of this century, a balance must be struck between

anthropogenic emissions and their absorption by carbon sinks. This goal goes even further than the goal of decarbonising the global economy, because it takes in not just carbon but also other greenhouse gases. The message sent by Paris is clear: the age of coal, oil and gas is coming to an end.

To achieve this goal, the Paris Agreement saw Parties agree for the first time that all countries must take action and contribute to mitigating climate change.

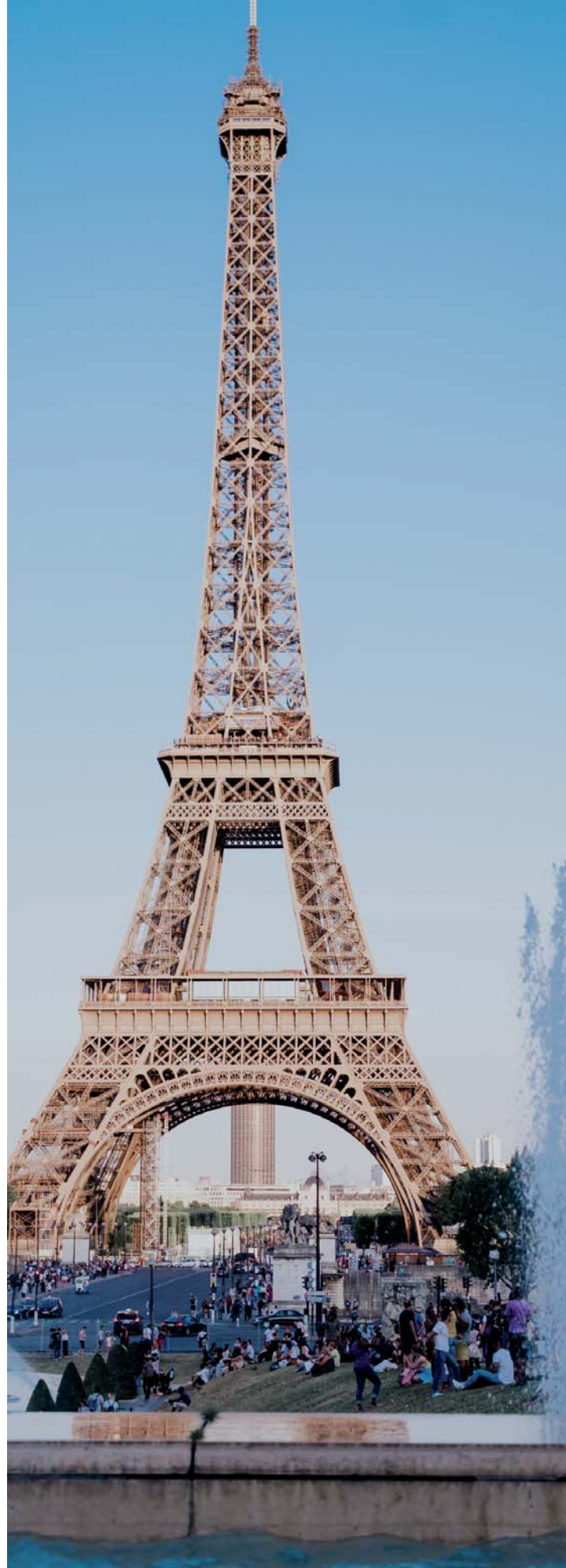
This did away with the static separation into industrialised and developing countries that had prevailed under the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC). Parties are now required to draw up and submit nationally determined contributions (NDCs) and implement measures to achieve the targets they contain. The Paris Agreement offers Parties the opportunity to cooperate with one another when implementing their NDCs, increasing their climate change ambition as a result. This opportunity was established in the Agreement's Article 6, where parties agreed on three approaches for voluntary cooperation.

First, Parties can cooperate directly with one another (Article 6.2) in a bilateral manner. This makes it possible for mitigation measures to be implemented in one country and the resulting emission reductions to be transferred to another and counted towards its NDC. This requires a transparent process and accurate accounting of the emission reductions achieved to avoid them being counted more than once.

A second option involves the use of the newly created mechanism to contribute to the mitigation of greenhouse gases and support sustainable development (Article 6.4). In contrast to direct bilateral cooperation, this mechanism will be supervised by a body designated by the Conference of the Parties. In addition, the Conference of the Parties will adopt rules, modalities and procedures, which must be observed when using the mechanism. As with the bilateral cooperative approaches provided for under Article 6.2, the emission reductions achieved using this mechanism can be transferred from the country in which they were achieved to another country and then counted towards its NDC.

As a third option, use of non-market-based approaches is provided for under Article 6.8. As the name suggests, market-based climate change mechanisms play no role at all.

The Paris Agreement thus provides a much-needed long-term perspective for the global carbon market. Nonetheless, some of the rules for using the new mechanisms have yet to be finalised and practical experience



in their application has still to be gained. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) is thus working to push these developments and to ensure that progress is made in the international climate negotiations. BMU also promotes the further development and design of the mechanisms by commissioning corresponding research and also invests in practical testing of innovative approaches in the form of pilot projects.

Although the rules on use of the market mechanisms have yet to be finalised at international level, use of price-based climate change instruments at national level is developing apace. An increasing number of initiatives have been introduced in recent years and the World Bank estimates that some 20 percent of global greenhouse gas emissions will be covered by carbon pricing initiatives in 2019.¹

At national level, carbon pricing of carbon dioxide and other greenhouse gases occurs either through the introduction of a carbon tax or the creation of an emissions trading system (ETS). A carbon tax sets the price per tonne of carbon dioxide equivalent (t CO₂e) emitted. In an emissions trading system, the total allowable quantity of greenhouse gas emissions is capped and a corresponding number of emission permits (allowances) issued. Emitters must then prove that they have the allowances they need to cover the greenhouse gas emissions they cause. The allowances are issued to businesses either free of charge or must be acquired from a central body, for example by auction. Allowances which go unused can be freely traded. While this also puts a price on emissions of greenhouse gas, trading is not regulated by policy, but is driven instead by carbon market supply and demand.

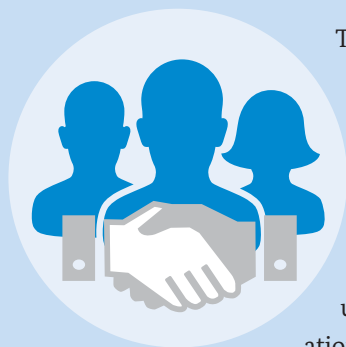
Carbon pricing can become a key component of effective climate strategy in that it can be flanked by additional climate change mitigation mechanisms. This makes it all the more important because it helps to reveal so-called “external costs” – the costs incurred in dealing with climate and other environmental damage, and which are not usually borne by the causers of climate change. The signal sent by introducing an appropriate carbon price helps businesses and consumers

take better account of that price in their production, investment and purchasing decisions. Carbon pricing also enables more efficient and effective implementation of climate change mitigation measures because a price signal ensures that emissions are avoided where it is most cost-effective to do so. This makes climate action an attractive option in economic terms. It is for this reason that BMU supports countries in implementing emission trading systems and carbon taxation schemes and takes policy-level action to further promote this trend to ensure that in the longer term global greenhouse gas emissions are covered by a carbon pricing scheme.

This brochure provides an overview of the carbon market-related projects funded by BMU and illustrates the many and diverse initiatives that the Federal Government is implementing together with its partners in this field. First, projects are outlined that deal with the further development and design of market-based mechanisms. These are followed by activities in which innovative approaches are tested and others which aim to build local-level capacities and promote instruments for the implementation of national-level carbon pricing schemes. Finally, initiatives to promote exchange and networking are presented.

Further development of market-based instruments





The adoption of the Paris Agreement and the cooperative approaches contained in its Article 6 provided a much-needed long-term perspective for the global carbon market. How these cooperative approaches are to work is still under negotiation and as the Agreement and its Article 6 are to go into effect from 2020 time is running out. Although in 2018 a detailed rule book for the Paris Agreement was negotiated and adopted at the Climate Change Summit in Katowice in Poland, Parties failed to agree on rules for use of the market-based mechanisms. In contrast to other areas of the negotiations, there is no consensus on how the mechanisms should work. There is thus an ongoing need for both design and practice-related research to support the negotiations. The Federal Environment Ministry (BMU) is hence promoting a range of projects and activities designed to examine issues that still need to be addressed and assist in developing solutions.

Exploring design options for the new global market mechanism

Embedded in the Agreement's Article 6.4, the mechanism is to raise climate action ambition, lead to an overall reduction in global emissions and support sustainable development. In implementing these and other requirements, a range of design-related issues need to be addressed in the negotiations. To support the German Federal Government and the German Environment Agency (UBA) in addressing these issues during the UNFCCC negotiations, UBA commissioned the research project **"Designing the New Global Market Mechanism"** coordinated by the Wuppertal Institute and implemented together with INFRAS and Fraunhofer ISI. The project evaluates the options available in implementing the new market mechanism and develops a set of recommendations for its design. By taking into account the peculiarities of the Paris Agreement, such as the bottom-up definition of national mitigation targets that results in a large diversity of NDCs with limited legal bindingness, the project explores a large variety of questions:

- What options are available for achieving a net reduction in global emissions

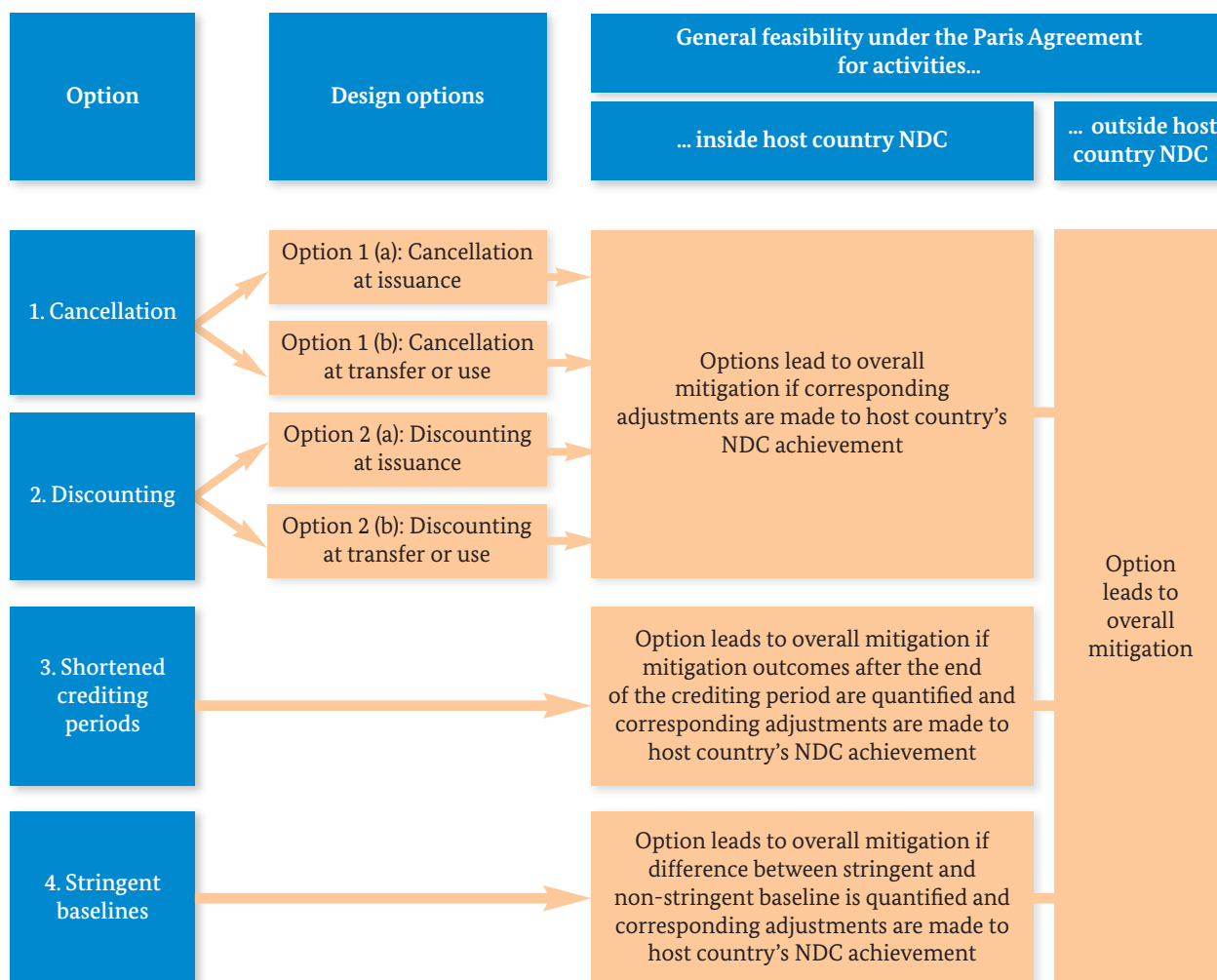
- To what extent can baselines be established on the basis of best available technology (BAT) values?
- What options are available for increasing the level of ambition of climate contributions?
- What role can the voluntary carbon market play?
- What incentives can be created for private companies to participate in Article 6?
- What role can Article 6 play on the way to a (net) zero emission world?

Research findings are published in dedicated discussion papers that examine key aspects of the Article 6.4 crediting mechanism in greater detail. The discussion papers, which are available at carbon-mechanisms.de², target the international community of experts and are intended to promote the debate on Article 6.4.

Research and dialogue on carbon mechanisms

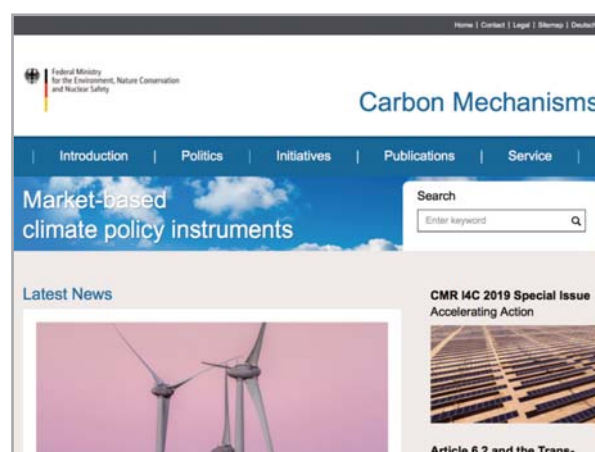
With the adoption of the Paris Agreement and the market mechanisms contained in its Article 6, the international community is confronted with a new set of challenges calling for the development of application-oriented solutions. Against this backdrop, the Federal Environment Ministry commissioned the Wuppertal Institute to provide support through scientific advice

Options for Article 6.4



Overview of design options and their general feasibility under the Paris Agreement: portfolio of options that could make the Article 6.4 mechanism contribute to overall mitigation in global emissions. Source: Wuppertal Institut.

and public relations work related to cooperative climate action. As part of the project **“Further Development of New Market Mechanisms”**, the researchers develop policy papers and reports on UNFCCC negotiations and meetings. In addition, the project team designs and organizes workshops to discuss selected topics with experts. The Wuppertal Institute also supports BMU in disseminating information and networking with the professional public. This includes the publication of the Carbon Mechanisms Review, a specialist journal focusing on cooperative





market-based climate action. The website www.carbon-mechanisms.de provides information on the German Federal Government's initiatives, presents the findings of other research projects supported by BMU, and provides information on current carbon mechanisms-related developments, (see image page 9).

Towards upscaled crediting under Article 6

In designing the new market mechanism, Parties are required to take past experience into account and build on successful models. One approach developed under the CDM and which has proven especially valuable are the so-called Programmes of Activities (PoAs). These allow many smaller projects to be bundled into one larger programme. Because it significantly reduces the administrative burden for each individual activity, the approach is particularly suitable for use with very small-scale projects.

The programmatic approach was successful under the CDM and will also be of great relevance to voluntary cooperation under Article 6 in line with its objective to raise mitigation ambition. Against this backdrop, BMU supports the **"Carbon Market Mechanisms Working Group"** (CMM-WG) launched in June 2019 at the Innovate4Climate in Singapore. The initiative's focus, which originally was on improving CDM PoA rules, has been expanded to assess the relevance of programmatic and sectoral approaches for results-based climate finance and Article 6 crediting. The working group, which is coordinated and headed by Perspectives GmbH, aims

to facilitate a continuous dialogue among key stakeholders with practical experience with up-scaled approaches. The CMM-WG provides a platform for dialogue, thus enabling exchange of experience and coordination of measures to support the role of programmatic and up-scaled activities. By fostering upscaled approaches, the initiative aims to contribute to a shift in entire sectors of the economy towards low-carbon, climate resilient development.

A mechanism to halt emissions growth from international aviation

The UNFCCC and the Paris Agreement follow the territorial principle and do not therefore cover emissions from international aviation and shipping. Emissions regulation is hence in the hands of the respective international organisations, the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO). While a first strategy to reduce maritime emissions was only adopted by the IMO in April 2018, the International Civil Aviation Organisation had already agreed in 2016 on the introduction of a global market-based mechanism: the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is an integral component of the ICAO package of measures to reduce the climate impact from international aviation.

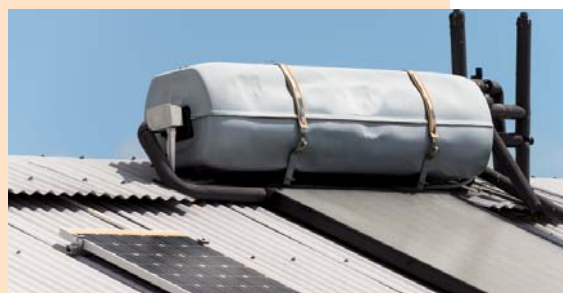
As part of the Federal Environmental Agency (UBA) research project **"Analysis and Evaluation of the CORSIA Offsetting Mechanism for use in International Aviation"** a consortium headed by Öko-Institut is analysing several important topics considered under CORSIA and the Paris Agreement: this includes an assessment of the offset credit supply potential from the largest carbon offsetting programs, an assessment of how the emissions unit criteria (EUCs) for offset credits could be improved in the future, and an analysis of how the use of offset credit under CORSIA could be accounted for under the Paris Agreement through the application of "adjustments". The findings of the research project will be used to inform negotiations on CORSIA's structure and design.

Offsetting the Climate Impact of German Federal Government Business Trips: South Africa Renewable Energy Programme

In 2015, the German Federal Government decided to offset the greenhouse gas emissions from business travel conducted by employees of ministries and subordinate national authorities. The programme “**Offsetting the Climate Impact of German Federal Government Business Trips**” started by offsetting the emissions from the legislation period 2014 to 2017, but is being extended on a yearly basis. The programme uses high-quality emission certificates that come with additional sustainable development benefits.

The measure is part of the government’s “Avoid-Reduce-Offset” strategy for its business travel, which includes reducing or avoiding emissions caused by travel and offsetting those which cannot be avoided by investing in emission reductions elsewhere. The scheme covers all car trips and air travel. Emissions from business trips by car are determined from the fuel consumption and fuel-specific emission factors, while for aviation a calculation method is used that includes the effects of the different pollutants caused by air travel according to the latest scientific knowledge, especially regarding their impact at high altitude.

The calculated GHG emissions produced through governmental business trips are offset by acquiring credits stemming from the Kyoto Protocol’s Clean Development Mechanism (CDM) projects. To offset the climate impact of business travel, one credit is acquired for every tonne of carbon dioxide equivalent emitted (t CO₂e). The credits are then transferred to an account at the German Emissions Trading Registry and cancelled immediately after their acquisition to make sure that any further use of the certificates is excluded.



When selecting CDM projects, care is taken that projects not only fulfil UN rules for the CDM, but that they show impact over and above the mere carbon dioxide (CO₂) reduction in that they also contribute to the sustainable development of the host countries. Further quality criteria include an additional Gold Standard certification if possible, an embedding into the climate change policies of the host country and the promotion of small programmatic projects if possible from the least developed countries. The South Africa Renewable Energy Programme (SA-REP) is one of the activities selected. A total of 73,030 credits have been acquired and cancelled for the purpose. SA-REP supports the development and implementation of small-scale renewable energy projects in South Africa by ensuring the financial viability of projects and facilitating access to capital. In addition to minimizing the climate impact of energy generation, the programme creates new jobs for the local population country-wide and improves regional and national energy supply while reducing dependency on fossil fuels. By assisting the breakthrough of renewable energy solutions, SA-REP makes a major contribution to South Africa’s energy transition.

For the years 2014 to 2017, Germany acquired and cancelled 874,948 CDM credits. The number of participating agencies rose from 74 to 110. German federal states are following the Federal Government’s example and have begun establishing their own compensation schemes.

Further information can be found at: <https://www.dehst.de/EN/carrying-out-climate-projects/business-trips-of-the-german-government/business-trips-of-the-german-government-node.html>

Piloting innovative approaches





January 1, 2020 marks the kick-off for implementation of the Paris Agreement.

Against this backdrop the global community is gradually turning its attention away from design-related issues and towards actual implementation. Pilot projects will play a central role. This must also be viewed in the light of the continuing uncertainty concerning the implementation requirements for the cooperative approaches under Article 6. While the rules for Article 6 are still being negotiated, pilot projects that are already underway can test and evaluate the approaches being discussed to determine how implementable they actually are.

The experience gained can then flow into and enrich subsequent discussions. Pilot projects also help prepare governments and private sector stakeholders for future international cooperation efforts – they assist their capacity-building, help them to better understand their emission profiles and highlight the measures they can best use to achieve their climate change mitigation goals. Given their diverse functions, pilot projects are a key component of a wide range of activities currently being promoted by the Federal Environment Ministry (BMU) in the field of market-based cooperation.

Linking market mechanisms and climate finance in Africa

In piloting market-based mechanisms, Africa is a special focus region. Its central importance in the design and use of new market-based approaches must be seen against the backdrop of how the continent fared under the Clean Development Mechanism (CDM). Africa was not able to benefit from the CDM to the same extent as other regions.

The framework and the infrastructure introduced with the CDM have fostered the emergence of numerous climate change mitigation project ideas in Africa. Some of these were not brought to the implementation stage, however, due to the difficulties involved in finding financial support in tight market conditions. Under these circumstances, climate finance represents an innovative way to make such projects viable, providing developing countries with the financial support they need to implement their climate actions. Results-based climate finance could also enable broader application and further development of many approaches and concepts that were developed in a carbon market context.

To assist countries in transitioning CDM-based activities and approaches to the emerging field of climate

finance, BMU is supporting the “**Climate Finance Innovators Project**” conducted by Perspectives Climate Group in cooperation with Climate Focus, Carbon Africa, Afrique Energie Environnement and South South North. With the aim of developing replicable and innovative climate financing models, the Climate Finance Innovators initiative cooperates with African governments and the private sector to link climate finance instruments with market-based mechanisms. The Climate Finance Innovators project supports Senegal, Ethiopia and Uganda in developing climate finance proposals with the goal of these being submitted to a climate finance institution such as the Green Climate Fund (GCF). These activities are complemented by capacity building support activities aimed at strengthening national capacities in the fields of market-based mechanisms, Article 6 readiness and climate finance.

Energy efficiency and climate action in Colombia's housing sector

The vast scope in the use of market-based approaches is fittingly illustrated by a UBA-funded project on social housing development in Colombia. As part of the project “**Achieving ambitious emission reductions through carbon pricing in developing countries**”,



measures are to be identified to provide incentives for ambitious emission reduction activities and spark a sectoral transformation in the country's building sector. This is to be achieved by giving investors a share of the emission reductions in the form of carbon credits or by providing results-based climate finance. The project sees NewClimate Institute and Öko-Institut working on a new design study in which the potential for market-based cooperation is used in a model for zero-energy homes.

Latin America has only few examples of zero-energy buildings and there are none at all in Colombia to date. Thus, the experience gained with this kind of pilot programme could help to achieve a comprehensive change of policy in the buildings sector. A pilot programme based on zero-energy buildings could reduce emissions and help achieve the Paris Agreement's long-term goal in the building sector. In a pilot programme of this kind, local capacities could be built, technology transfer promoted and numerous non-climate-related contributions to sustainable development achieved. It is

hoped that the results of the research project will show the conditions that need to be met in theory to enable the pilot's implementation and promote Colombia's transformative change. The results should also help other countries to position themselves as host countries under Article 6.

Using Article 6 to promote renewable energy and energy efficiency in Southern Africa

With the goal of fostering Article 6 pilots in the sub-Saharan region, BMU is supporting two innovative activities implemented by GFA Consulting Group together with international and local partners. The initiative **"A Southern African Power Pool (SAPP) Results-based Renewable Energy Financing Mechanism"** developed a proposal for the design of the first regional Article 6 pilot activity. The concept for the Clean Energy Fund for the Southern African Power Pool (CEF4SAPP) is to support renewable energy

deployment in the member countries of the Southern African Power Pool (SAPP). Using the long-term energy planning of member countries, the concept of a “forward looking baseline” was developed. This allows an assessment as to which renewable energy projects would be eligible to receive funding from the CEF4SAPP. This approach is essentially a proposal for the design of the first regional Article 6 pilot activity. The proposal was developed by GFA Consulting Group GmbH and the UNFCCC Secretariat together with the SAPP Coordination Centre (SAPP CC), the focal points of the member countries as well as their national ministries of energy and national electricity regulators.

A second activity supported by BMU aims at tapping the vast mitigation potential accruing from high technical energy losses in transmission and distribution networks in the region. While such losses could be reduced by the installation of reactive power compensation (RPC) equipment they continue to occur in nearly all developing countries. The project “**Reduction of Technical Losses in the Electricity Transmission and Distribution Networks**” assessed the regulatory framework and financing options for RPC installations in Uganda, Mozambique, Zambia and Zimbabwe. The activity implemented by GFA Consulting Group in collaboration with representatives of energy regulatory authorities, transmission and distribution companies, ministries of environment and energy from all four countries as well as the Development Bank of South Africa (DBSA) paved the way for the development of pilots under Article 6. It is now planned to implement Article 6 pilot programmes to deal with emission reductions by installing RPC technology in the four countries in the course of 2019. The programmes have a lifetime of six years.

Piloting transformative carbon finance

Staying within the temperature limits established by the Paris Agreement requires emission reductions to occur fast and at scale. This can only be achieved through close international cooperation, with market-based mechanisms playing a central role. The “**Transformative Carbon Asset Facility**” (TCAF)



launched in 2015 by the World Bank together with Germany, Norway, Sweden and Switzerland – and which both the United Kingdom and Canada have since joined – aims at contributing to this goal through activities at the national and the global level.

The TCAF will support developing countries in implementing market-based carbon pricing and sector-wide mitigation measures while also leveraging public finance to create favourable conditions for private sector investment. Emission reduction activities will be supported by piloting innovative broad-based programmes to achieve a transformative effect in partner countries to showcase how emission reductions can be achieved at scale and at low costs. The funded measures will be integrated into the respective national climate change strategies, supporting countries' mitigation ambition. TCAF activities will be closely linked to the UNFCCC process, informing the design of market-based mechanisms under the Paris regime. The TCAF became fully operational in 2017 and is currently pursuing five activities located in India, Colombia, Morocco, the Philippines and Vietnam.

Innovative auctioning approaches to ensure continuation of mitigation activities

Conditions on the global carbon market have been difficult for a number of years. After having reached its peak performance in 2012, the CDM experienced a turndown. Prices crashed when the EU decided not to increase the contingent of eligible certificates for the third trading period of the EU ETS starting in 2013, the ETS being the most important source of demand for CDM credits.

With the lack of demand for certificates putting current CDM projects at great risk of being discontinued, the **“Pilot Auction Facility for Methane and Climate Change Mitigation” (PAF)** was launched in 2015 by the World Bank. The BMU-supported 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. In doing so, the PAF uses a particularly innovative approach: it buys CERs from projects at guaranteed prices by offering put options at competitive auctions.





Having obtained a put, the successful bidder then has the right to sell certificates to the PAF at the price set by the auction. By auctioning the puts, it is possible to determine the amount of funding project developers need to continue their climate change mitigation activities, guaranteeing maximum climate benefit as a result. Since its inception, three successful auctions have been held confirming the efficacy of the approach. Building on the experience gained, the World Bank is currently exploring to what extent the approach can assist countries in achieving their NDCs under the Paris Agreement.

Driving the transformation of the nitric acid sector

The “**Nitric Acid Climate Action Group**” (NACAG) was launched by BMU in 2015 with the vision to equip all nitric acid plants worldwide with effective technology to abate nitrous oxide emissions as soon as possible and permanently. Nitric acid is a raw material used in nitrogen-based fertilisers. Nitrous oxide is a by-product which occurs in nitric acid production and is often emitted into the atmosphere untreated. It has a global

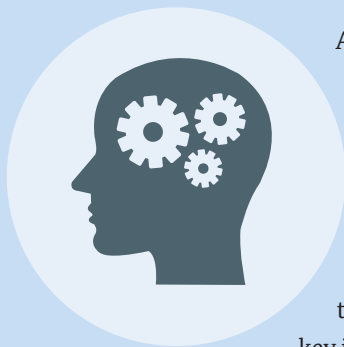
warming potential some 265 times higher than that of carbon dioxide.

To facilitate the climate-friendly transformation of the global nitric acid sector, NACAG, which is operated by GIZ, provides all governments and plant operators with guidance and information on technological and regulatory issues regarding nitrous oxide (N₂O) abatement. The initiative also provides financial support for partner countries willing to exploit this cost-effective reduction potential and take mitigation into their own hands from 2020 – for example in the context of their NDCs.

Tunisia, Jordan, Mexico, Argentina, Indonesia, Zimbabwe and the Federation of Bosnia and Herzegovina have joined the initiative by signing the NACAG Declaration. Initial exchange processes have also been initiated with other countries. Tunisia and Zimbabwe have also signed a binding agreement (Statement of Undertaking), committing themselves to permanently reduce nitrous oxide emissions from nitric acid production. Tunisia and Zimbabwe are thus the first countries that are eligible for financial support under the NACAG initiative.

Promoting carbon pricing through capacity development





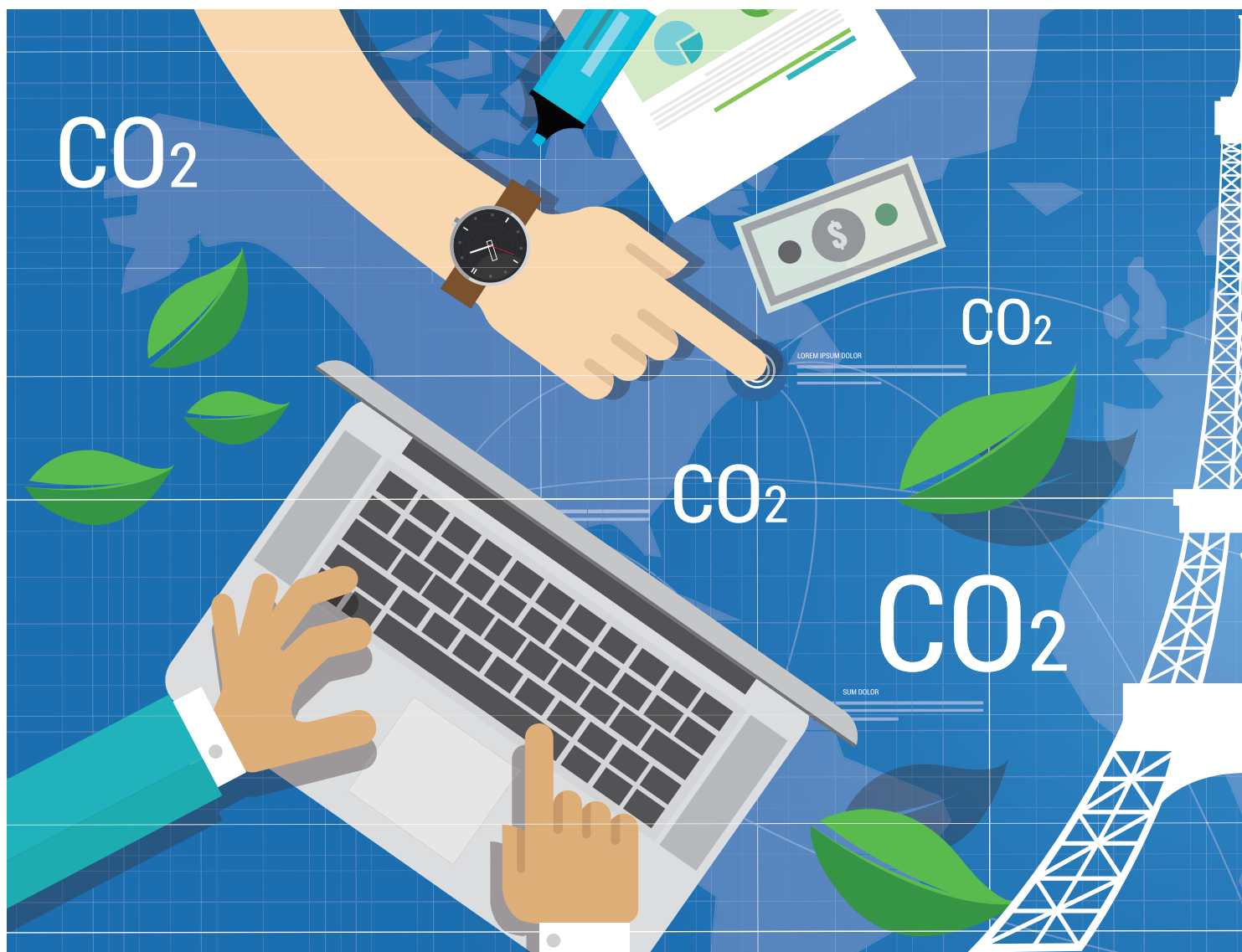
A total of 96 countries have signalled an interest in using market-based approaches in their NDCs³ and the number of countries in the throes of introducing emissions trading systems (ETS) has grown significantly in recent years. The first and so far biggest ETS, the EU Emissions Trading Scheme (EU ETS), 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 introduced in key industrial centres since 2016 are to transition into a national emissions trading scheme. Brazil, Canada, Chile, Colombia, Côte d'Ivoire, Japan, Mexico, Senegal, Thailand, Turkey and Ukraine are currently taking steps to set up their own trading schemes.⁴

Several schemes have also been introduced at sub-national level. These include the Regional Greenhouse Gas Initiative (RGGI) and the emissions trading schemes in California and Massachusetts in the US, Quebec's and New Scotia's cap and trade systems in Canada, and the Tokyo and Saitama Metropolitan Government cap and trade programmes in Japan.

Carbon taxation is also used by a large number of countries to put a price on greenhouse gas emissions. According to the World Bank, carbon taxes are in place in 29 countries worldwide, including in several EU member states as well as in, among others, Argentina, Colombia, Chile, Japan, Mexico, Switzerland and Ukraine. South Africa's carbon taxation scheme went into effect in June 2019. In Canada, all provinces and territories have been required since January 2019 to have a carbon pricing instrument in place which meets a national minimum standard. Some countries such as Colombia have opened their carbon taxation schemes to include the option of using carbon credits to cover a part or all of the tax liability.

As a result, an ever-growing share of global greenhouse gas emissions has been covered by a carbon pricing initiative in recent years. According to World Bank calculations, in 2019 some 20 percent of global emissions will be covered by a carbon pricing scheme, with prices varying significantly – from less than 1 US-Dollar per tonne CO₂e to as much as 127 US-Dollar per tonne CO₂e.⁵

The design and operation of emission trading systems and carbon taxation schemes requires strong institutional capacities to be in place. Governments must decide on the coverage of the carbon pricing system, align its design with their overarching mitigation strategies and establish rules and institutions for the instrument's operation. In many developing countries, in particular, the required capacities are, however, insufficient, requiring external support. In light of these support needs and with the ultimate long-term objective of having all greenhouse gases covered by a carbon pricing scheme, the German Federal Government assists several countries in implementing their national carbon pricing instruments and establishing the capacities required to use them.



Towards the emergence of a global carbon market

With the objective of fostering a global carbon market and the use of carbon pricing instruments worldwide, the German Environment Ministry has commissioned the “**Global Carbon Market**” project implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The Global Carbon Market project assists public decision-makers worldwide in defining and using market-based instruments for their national mitigation activities (NDCs, long-term strategies, climate change legislation). Through studies, capacity building and pilot activities, the project supports the strategic development

of new instruments for market-based cooperation provided for under Article 6 of the Paris Agreement. The project also promotes private sector participation in developing and implementing market-based solutions, and advises both government agencies and the private sector on the potential benefits of the carbon market. Additional components of the initiative include the provision of training courses to prepare partner government representatives for the UNFCCC negotiations as well as supporting regional carbon market-related collaboration. The partner countries involved in the project are Uganda and those in Eastern Africa, Chile, Tunisia and India.

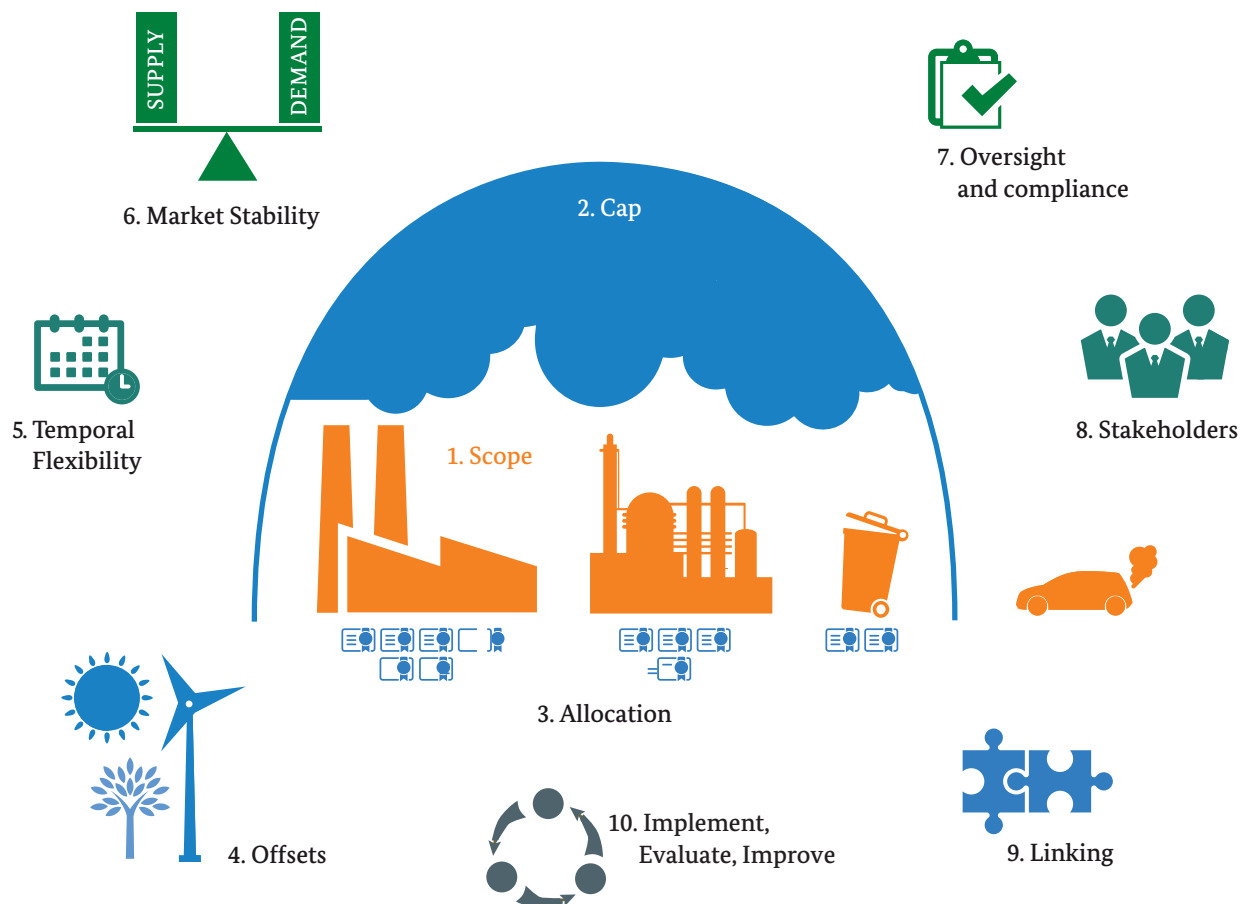


Exploring domestic carbon pricing options

By putting a price on carbon, emission trading systems and carbon taxation can shift the costs of climate change to the source of the pollution, encouraging emitters to reduce their emissions while fostering investments in low-carbon solutions. This makes carbon pricing a key component of an integrated national climate change mitigation strategy. In light of these potentials, a growing number of countries, among them numerous developing countries, are considering the introduction of carbon pricing instruments as an approach in

implementing their mitigation activities under the Paris Agreement. Many of these jurisdictions will require support in the design and implementation of carbon pricing instruments that suit their domestic circumstances. Against this background, the **“Collaborative Instruments for Ambitious Climate Action”** (CI-ACA) project was launched as a voluntary initiative to provide the support needed. The CI-ACA is implemented by the UNFCCC through its Regional Collaboration Centres (RCCs) and supported by voluntary contributions from a number of national governments, including the German Federal Government through BMU. It offers tailored support to jurisdictions in developing carbon pricing instruments, covering the entire process from

The design of an ETS in ten steps



Ten-step Emission Trading Scheme design. Source: excerpt from the PMR and ICAP Emissions Trading Handbook.

identification of possible policy options, drawing up of concrete proposals for use in instrument development and design, and through to instrument roll-out on the ground. Since its inception at COP22 in Marrakesh in 2016, the CI-ACA project team has engaged with a total of 18 jurisdictions on various activities for advancing carbon pricing for mitigation action.

Supporting carbon pricing implementation and fostering knowledge sharing

The “Partnership for Market Readiness” (PMR) is one of the major players when it comes to supporting

carbon pricing policy and action. Ever since its launch in 2010, the Partnership has been at the forefront of facilitation in the design and development of market-based mitigation instruments worldwide. So far, 16 PMR-supported countries have finalized road maps for planning, designing and piloting a carbon pricing instrument, and have moved on to implementation.

The PMR uses a two-phased approach: in the first phase, the participating countries (with PMR assistance) prepare market readiness proposals (MRPs), setting out specific measures for targeted preparation and implementation of price-based climate change mitigation instruments. In the second phase, those countries whose MRPs have been approved receive technical and

financial support in developing and implementing the measures they have planned.

In addition to these specific support measures, the PMR also promotes bilateral exchange of information between countries that already use such instruments and those still considering their introduction. The PMR takes a strong participative approach which allows its players to exchange technical experience independent of any political differences. The experience gained can also provide valuable input to assist the official UN process.

The PMR now comprises more than 30 countries, among them some of the world's largest emitters. Highlights achieved by the PMR include extensive support in designing and implementing key elements for China's national emissions trading system, which is currently in its implementation phase. The PMR also supported the introduction of the South African carbon tax and helped in setting up Chile's Mitigation Plan for the Energy Sector, which sets out recommended measures and actions for the energy sector to achieve Chile's NDC mitigation targets. All in all, the Partnership provided funding and technical guidance to 23 countries, allocated 71.5 million US-Dollar to support governments in their readiness activities and hosted more than 50 knowledge exchange events.

Bilateral cooperation to promote domestic carbon pricing

Fostering capacity building and knowledge sharing is also at the core of a number of BMU initiatives in bilateral cooperation. The initiatives all aim at disseminating emissions trading knowledge and best practice, and at supporting suitable countries in establishing national emissions trading schemes.

Under the **"International Climate Initiative"** (IKI) of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) bilateral cooperation projects have been agreed to support the establishment of emissions trading systems in China, Mexico and Ukraine. These projects are developed together with the



partner countries and provide tailor-made support on the road to establishing an ETS, such as studies for determining cap, scope and allocation rules, impact assessments, MRV systems (including IT-based data management systems), capacity building for governmental bodies and authorities, stakeholders and so on.

Furthermore, the BMU, together with the German Environment Agency (UBA) and leading German experts, set up and launched the **“Capacity Building Programme on Emissions Trading”**. This programme builds on Germany’s experience in implementing and enforcing the EU ETS and aims at supporting interested partner countries in preparing and establishing their own systems. In cooperation with a consortium of consultancies, think tanks and research institutions, study tours to Germany, technical workshops and expert training in Germany and abroad can be organised, as can expert consultations. Countries that have already decided to introduce an ETS can also receive tailored and specific advice.

Former and current cooperation partners include Brazil, China, Chile, Kazakhstan, Mexico, South Korea, Thailand, Turkey and Ukraine.

Fostering regional collaboration in Africa

Africa has not been able to fully benefit from the global carbon market in the past. At the same time, concepts such as Programmes of Activities and Standardized Bases have proven particularly successful in the region. There is strong interest from African countries to engage as players in a future carbon market, to develop domestic carbon pricing instruments and to better access results-based climate finance. With the goal of leveraging this potential in the region, BMU is supporting two sub-regional cooperation initiatives in Africa.

The **“West African Alliance on Carbon Markets and Climate Finance”** aims to enhance participation of West African countries in international carbon markets and improve their access to results-based climate finance. The Alliance integrates a variety of support

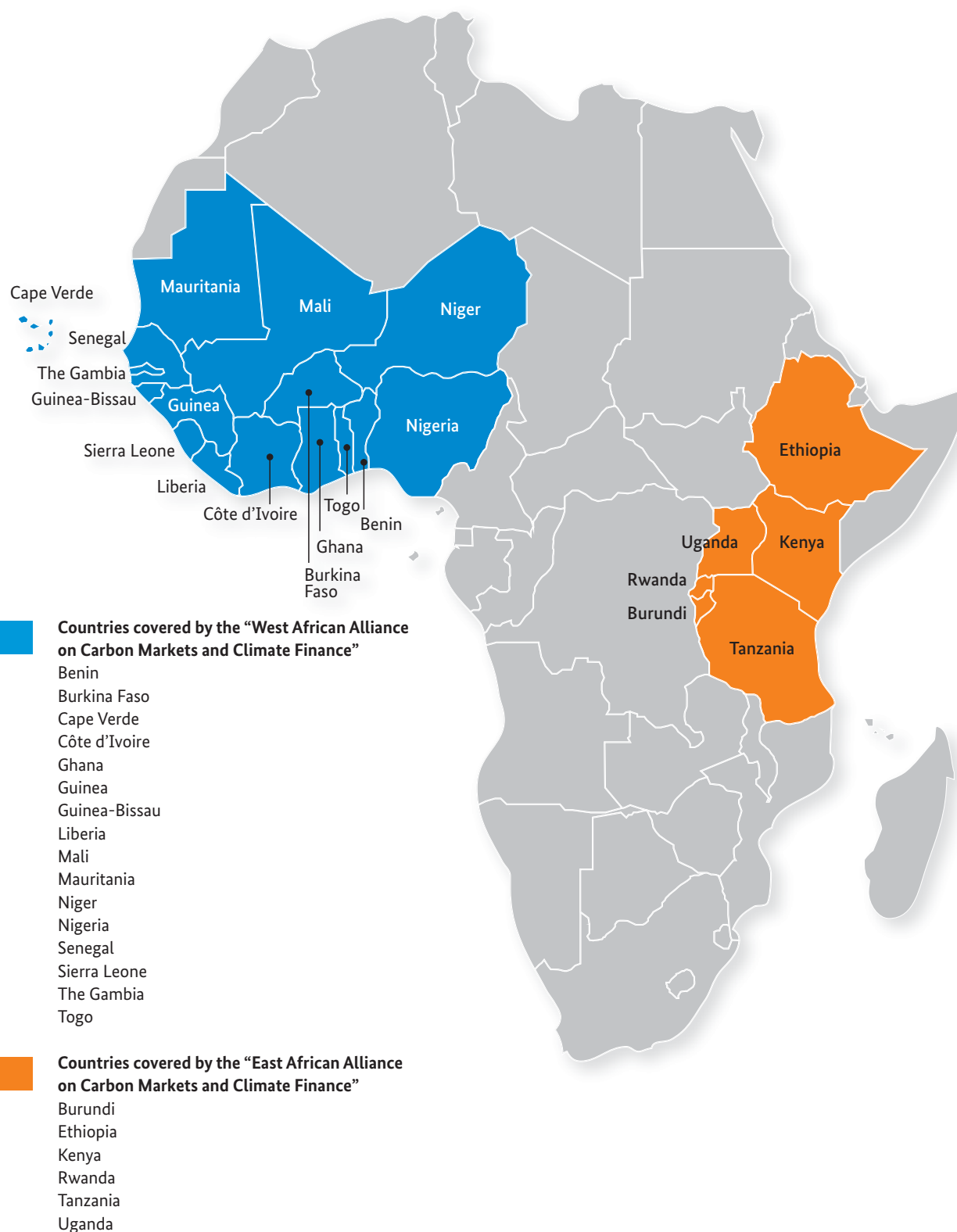
activities in the region and has established a permanent regional structure with a secretariat in Dakar. It further provides a platform for coordination in relation to the UNFCCC negotiations, enabling consistent participation in relevant negotiation streams by its members and providing targeted support for in-country readiness activities. In addition, the Alliance is meant to serve as a bridge between the UN climate change negotiations and the activities on the ground – the Alliance thus aims to bring in-country experiences to the negotiations and, in turn, support countries in preparing domestically for participation in Article 6.

The West African Alliance became fully operational in 2017. Following a call for applications for its Article 6 in-country readiness support programme in 2018, Togo and Nigeria were selected to be the first countries to receive tailored readiness support. The readiness support activities in Togo aim at enhancing the country’s MRV capacities and provide recommendations on institutional arrangements and transition pathways for its CDM portfolio. In Nigeria, the West African Alliance supports the government in preparing for the new Paris climate regime by exploring key issues, such as how carbon markets can support Nigerian NDC implementation, the institutional set-up needed to deal with the new conditions under the Paris Agreement and to participate in Article 6, and how the future might look for Nigerian projects under the CDM.

Operationalization and technical implementation of the Alliance is supported by the West African Development Bank (BOAD) in collaboration with the UNFCCC Regional Collaboration Center Lomé, Climate Focus and the Dakar-based NGO ENDA Energie. The Alliance comprises 16 member states: Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Nigeria, Liberia, Senegal, Sierra Leone and Togo.

Inspired by the success of the West African Alliance, the **“East African Alliance on Carbon Markets and Climate Finance”** was launched in June 2019. The Alliance aims at promoting a common vision for carbon markets and climate finance in the region to foster active, better coordinated participation of delegates from the region

Promoting carbon pricing in Western and Eastern Africa



Countries covered by the West and East African Alliance on Carbon Markets and Climate Finance. Source: Selbach Design.

in the UNFCCC negotiations and to support Article 6 readiness. The East African Alliance was established by Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda with the support of the GIZ Global Carbon Market project in East Africa which is being implemented on behalf of BMU and in cooperation with the UNFCCC Regional Collaboration Center Kampala.

To provide stability and continuity, the Alliance secretariat will be anchored in a local or regional institution within East Africa. During the transition period of identifying a suitable secretariat, UNFCCC RCC Kampala and GIZ Uganda are assuming this role in close coordination with member countries. Through its established network of Alliance National Focal Points, the Alliance has identified several activities aimed at supporting the member states. These include:

- Calculation of the standardized baseline for the Grid Emission Factor for the Republic of Kenya
- Planned training for East African negotiators on market mechanisms and Article 6 of the Paris Agreement, which aims at preparing delegates for the upcoming climate change negotiations at COP25 in Chile
- Regional private sector dialogue aimed at increasing the private-sector knowledge base on carbon markets in the transition from the CDM to Article 6 of the Paris Agreement

Several additional activities are currently in the pipeline and are being discussed with the member countries.

Future of the Carbon Market Foundation: Supporting the Global Safe Water Programme

The “**Future of the Carbon Market Foundation**” was initiated with the aim of providing upfront financing for innovative and programmatic carbon market mechanisms to strengthen existing and develop future carbon market approaches, thereby contributing to the development of low-carbon economies. One of the activities supported by the Foundation is the Global Safe Water Programme, a multi-country, small-scale CDM Programme of Activities (PoA) covering Rwanda, Uganda, Nigeria and Kenya. The design and implementation of the PoA is managed by Impact Water in cooperation with local and international suppliers. The programme distributes water treatment systems to schools, thereby increasing access to hygienically-safe drinking water for students and teaching staff. The water systems replace water boiling with wood and charcoal on what are mostly unimproved cook stoves, thus reducing related carbon emissions. The PoA outperforms on carbon emission reductions, with 64,000 credits already issued at the beginning of 2019 and another 270,000 credits expected to be cancelled on behalf of the Foundation by 2021.

Networking and exchange of information





The expansion of carbon pricing systems worldwide reflects the attractiveness of market-based instruments in mitigating climate change. This global dynamic is, however, both uncoordinated and fragmented, resulting in great diversity in mechanism design. This diversity could prove difficult for subsequent linking of the various instruments, limiting the opportunity to improve efficiency and secure the environmental integrity of the activities involved. There is still work to be done, therefore, to improve both design and implementation of emissions trading systems and carbon taxation

schemes in addition to encouraging wider use of carbon pricing. International coordination and information exchange can play a key role towards achieving these objectives. These exchange and networking activities are also key with regard to the future of the international carbon market. With the operational details of Article 6 still being fleshed out in the negotiations, exchange between governments but also other stakeholders such as private businesses and civil society is crucial in keeping up the global momentum for carbon markets.

Fostering political dialogue on carbon markets

The “**Carbon Market Platform**” was launched in 2015 under Germany’s G7 presidency with the aim of strengthening international cooperation on market-based climate policy. By facilitating open and informed policy dialogue, it serves strategic exchange on the further development of the global carbon market. This policy dialogue fosters a better understanding of the differing national and regional carbon pricing approaches involved and encourages exchange on related drivers, obstacles and experience gained to date.

The Platform’s main forum is the annual strategic dialogue that engages high-profile policymakers and is supported by ongoing work at the technical level. Since the first meeting held in June 2016, several high-level meetings have taken place, giving participants the possibility to exchange their views and experience on global carbon markets and domestic carbon pricing. Issues covered by these policy dialogues include how to design market-based instruments in order to raise mitigation ambition as well as different levels of

international cooperation – from coordinating standards and price corridors to linking.

Apart from promoting policy-based exchange via this strategic dialogue, the Platform also supports 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. By promoting this kind of exchange between interested countries, the Carbon Market Platform serves in driving new forms of cooperation and in developing common carbon market strategies.

Putting a price on carbon

The “**Carbon Pricing Leadership Coalition**” (CPLC) was called into being by the World Bank in 2015 with the goal of advancing the carbon pricing agenda worldwide. The coalition brings together leaders from national and sub-national governments, the private sector, civil society and academia to support implementation of existing



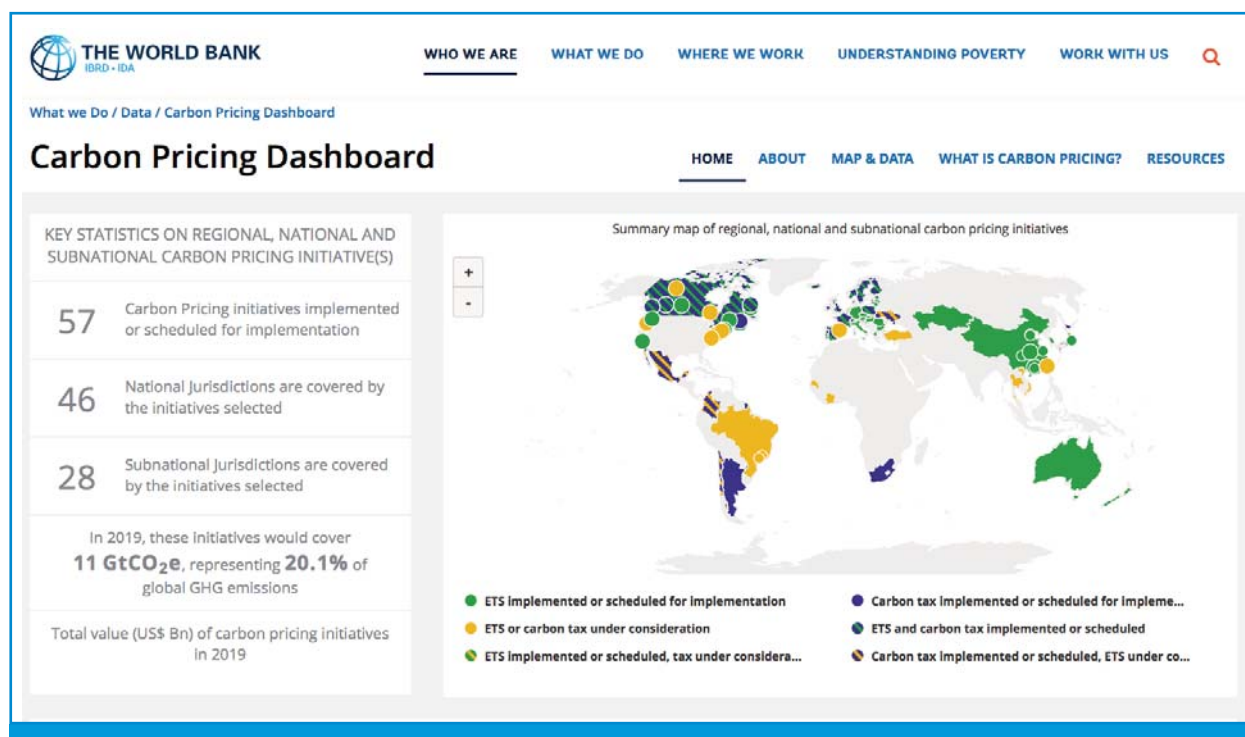
carbon pricing policies and drive the introduction of new policy measures. The Coalition implements actions by means of regional working groups and sector-specific task teams. Focusing on Latin America, Asia and Africa, the three regional working groups create opportunities for partners and interested stakeholders to discuss topics relating to carbon pricing and climate change mitigation. With the goal of strengthening private sector leadership, the CPLC has established four task teams with sectoral focus on the construction value chain, the banking sector, the maritime sector, and higher education. Each task team provides support and advice to decision makers within these sectors by investigating and implementing internal carbon pricing in their respective organizations.

These ongoing activities are complemented by the work of high-level commissions. With the aim of further improving the scientific basis on which to introduce carbon pricing, the CPLC created the High-Level Commission on Carbon Pricing to explore carbon pricing corridors which can be used to design carbon pricing and other policy instruments. The findings have been published in the Report of the High-Level Commission on Carbon Pricing. In April 2018, the

CPLC launched the High-Level Commission on Carbon Pricing and Competitiveness in light of the concerns expressed by industry and policymakers that putting a price on carbon could have an adverse effect on the competitiveness of a carbon-intensive company, sector or country. The Commission brings together private sector leaders and senior government officials to explore the evidence base, the concerns of business, and the lessons that can be learned from carbon pricing systems across the world. The Commission plans to publish a report at the margins of the Climate Action Summit in September 2019, providing guidance to governments on the nature of these issues and how they can be addressed.

Fostering technical dialogue and knowledge sharing on and capacity building for carbon markets

The “**International Carbon Action Partnership**” (ICAP), founded in 2007, is an international network of governments created to exchange knowledge and experiences on emissions trading.



Screenshot of the Carbon Pricing Dashboard, launched by the World Bank Group with help of Ecofys and supported by CPLC in May 2017. It is an interactive online platform that offers recent information on existing and emerging carbon pricing initiatives around the world. Source: The World Bank.

ICAP facilitates cooperation between countries, sub-national jurisdictions and supranational institutions that have established or are working to implement carbon markets through mandatory cap and trade systems. The partnership currently comprises 31 full members and five observer jurisdictions from four continents.

Over the years, ICAP has evolved to a unique forum in which to share best practices and discuss ETS design elements with a view to creating a well-functioning global carbon market through gradual alignment and linking of ETS. The work of ICAP focuses on three pillars:

- In the technical dialogue, ICAP members and observers discuss ETS design and implementation questions and the experience they have gained in a closed-door, safe environment.
- ICAP also implements international and in-country capacity-building activities on emissions trading, drawing on the practical expertise from across its jurisdictions.

- Finally, the ICAP website serves as a key knowledge hub, covering regular ETS news updates, an interactive map on the stage of implementation and design features of systems worldwide, an allowance price tracker, and the ETS library.

ICAP also publishes various technical papers. The ICAP-PMR Handbook on ETS design and implementation, the ICAP Guide to Linking and the annual ETS Status Reports are three key flagship publications.

The day-to-day implementation work is supported by the Berlin-based ICAP Secretariat under the guidance of the ICAP Co-Chairs and financed mainly by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Exchange and sharing of information at the regional and global level

Last but not least, BMU supports a number of networking and information exchange formats related to

carbon markets and raising mitigation ambition world-wide. This covers, for example, the “**Regional Climate Weeks**”, which are conducted annually in Africa, Latin America and the Caribbean, as well in the Asia-Pacific region. The Climate Weeks serve as a collaborative platform for both governments and various stakeholders to discuss climate change-relevant issues “under one roof,” including action to deliver on the Sustainable Development Goals (SDGs), implementation of Nationally Determined Contributions (NDCs) under the Paris Agreement, and global climate action in general.

Organised by the Nairobi Framework Partnership together with a large group of global partners, the Climate Weeks blend high-level ministerial events with technical discussions in fora such as the NDC dialogue or as dedicated discussion formats involving topics such as social and political drivers of climate change or energy and industry transition. Dedicated sessions are held at each Climate Week to promote carbon pricing, economic instruments and climate-aligned finance, and drive investment in climate action as a result. In 2019, the Regional Climate Weeks serve as critical stepping stones to the Climate Action Summit, convened by UN Secretary-General António Guterres in September.

A second important forum is the **Innovate4Climate (I4C)** event, which in 2019 took place for the third time. The Innovate4Climate 2019, a global summit and trade fair on climate finance, climate investment and carbon markets, was held in Singapore from 4 to 7 June. Attended by some 1,200 participants from 82 countries, it used over 50 special-focus workshops to discuss finance, technology, markets and resilience. These were complemented by a high-level summit covering the priority themes battery storage, sustainable cooling, and climate-smart cities, as well as a marketplace for exhibitors. Singapore also recently launched a carbon pricing initiative. Along with other countries, including South Africa and Argentina, as well as a number of Canadian provinces and territories, this brings the total number of carbon pricing initiatives to 57 globally, up from 51 in April 2018 according to the annual State and Trends of Carbon Pricing report launched at Innovate4Climate 2019.



Key information on BMU activities

Further development of market-based instruments

Designing the New Global Market Mechanism

Implementation:

Wuppertal Institute for Climate, Environment and Energy

Other organisations involved:

INFRAS, Fraunhofer Institute for Systems and

Innovation Research ISI

Lifecycle: 2017 to 2020

Contact:

Wolfgang Obergassel

wolfgang.obergassel@wupperinst.org

Further Development of New Market Mechanisms

Implementation:

Wuppertal Institute for Climate, Environment and Energy

Lifecycle: 2015 to 2018

Further information:

www.carbon-mechanisms.de/en

Contact:

Christof Arens

christof.arenis@wupperinst.org

Carbon Market Mechanisms Working Group (CMM-WG)

Implementation:

Perspectives GmbH

Lifecycle: Ongoing since 2019

Contact:

Stephan Hoch

hoch@perspectives.cc

Offsetting the Climate Impact of German Federal Government Business Trips

Implementation:

German Environment Agency

Other organisations involved:

German Federal Government

Lifecycle: Ongoing since 2014

Further information:

<https://www.dehst.de/EN/carrying-out-climate-projects/business-trips-of-the-german-government/business-trips-of-the-german-government-node.html>

Contact:

Frank Wolke

german.dna.dfp@uba.de

Piloting innovative approaches

Climate Finance Innovators – Linking Carbon Markets with Climate Finance in Africa

Implementation:

Perspectives Climate Group

Other organisations involved:

Climate Focus, Carbon Africa, Afrique Energie Environnement, South South North

Lifecycle: 2018 to 2021

Further information:

www.climatefinanceinnovators.com

Contact: Stephan Hoch

hoch@perspectives.cc

Achieving Ambitious Emission Reductions through Carbon Pricing in Developing Countries

Implementation:

NewClimate Institute, Öko-Institut

Lifecycle: 2015 to 2019

Contact: Aki Kachi

a.kachi@newclimate.org

A Southern African Power Pool (SAPP) Results-based Renewable Energy Financing Mechanism

Implementation:

GFA Consulting Group GmbH and United Nations

Climate Change Secretariat

Other organisations involved:

SAPP Coordination Centre (SAPP CC),

Focal points of the member countries,

National ministries of energy, national electricity regulators

Lifecycle: 2017 to 2018

Contact: Joachim Schnurr

joachim.schnurr@gfa-group.de

Reduction of Technical Losses in the Electricity Transmission and Distribution Networks

Implementation:

GFA Consulting Group GmbH

Other organisations involved:

Representatives of energy regulatory authorities, transmission and distribution companies, ministries of environment and energy from all four countries, Development Bank of South Africa

Lifecycle: 2017 to 2018

Contact: Joachim Schnurr

joachim.schnurr@gfa-group.de

Transformative Carbon Asset Facility (TCAF)

Implementation:

World Bank

Lifecycle: Ongoing since 2015

Contact: Thomas Forth

thomas.forth.extern@bmu.bund.de

Pilot Auction Facility for Methane and Climate Change Mitigation (PAF)

Implementation:

World Bank

Lifecycle: 2015 to 2020

Further information:

www.pilotauctionfacility.org

Contact: Thomas Forth

thomas.forth.extern@bmu.bund.de

Nitric Acid Climate Action Group (NACAG)

Implementation:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Other organisations involved:

Ministries and nitric acid plant operators in the partner countries

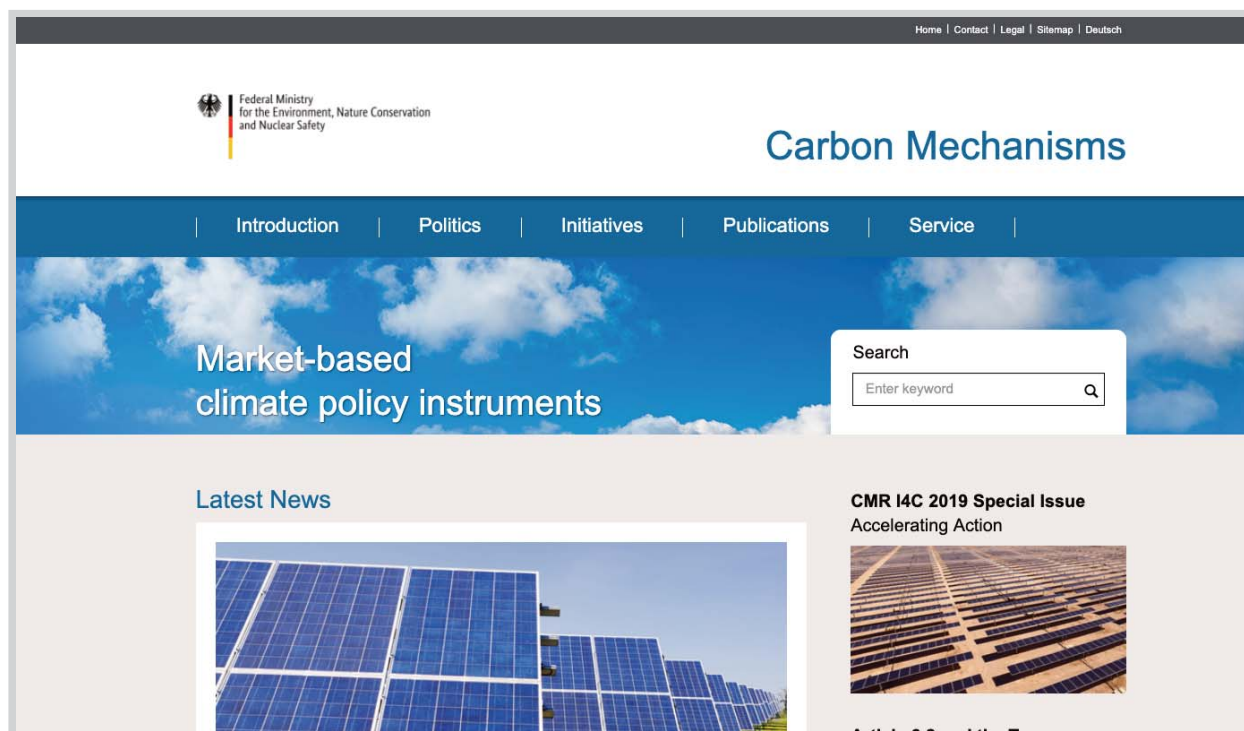
Lifecycle: 2016 to 2022

Further information:

www.nitricacidaction.org

Contact: Enrico Rubertus

enrico.rubertus@giz.de



Further information: All BMU-supported carbon pricing publications can be downloaded from www.carbon-mechanisms.de/en.
Source: Wuppertal Institut.

Promoting carbon pricing through capacity development

Global Carbon Market

Implementation:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Other organisations involved:

National Agency for Energy Conservation (ANME) and Ministry of Local Affairs and Environment, Climate Change Department of the Uganda Ministry of Water and Environment, Uganda Carbon Bureau
Lifecycle: 2018 to 2021

Further information:

www.carbon-mechanisms.de/en/GCM

Contact:

Enrico Rubertus

enrico.rubertus@giz.de

Collaborative Instruments for Ambitious Climate Action (CI-ACA)

Implementation:

UNFCCC Secretariat and Regional Collaboration Centres of Lomé and Kampala

Other organisations involved:

Perspectives Climate Research, Afrique Energy Environnement (AEE), Department of Environment and Classified Establishments (DECC) Senegal, National Committee on Climate Change (COMNAC), Global Carbon Market Uganda implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Lifecycle: Ongoing since 2017

Contact:

Monique Nardi

mnardi@unfccc.int

Partnership for Market Readiness

Implementation:

The World Bank Group

Lifecycle: Ongoing since 2010

Further information:

www.thepmr.org

Contact: Malin Ahlberg

malin.ahlberg@bmu.bund.de

Bilateral Cooperation to Promote Domestic Carbon Pricing

Implementation:

adelphi consult

Other organisations involved:

Ecologic, DIW Econ, Öko Institute, FutureCamp

Contact: Julia Rohe / Lina Li

rohe@adelphi.de, li@adelphi.de

West African Alliance on Carbon Market and Climate Finance

Implementation:

West African Alliance on Carbon Markets and Climate Finance

Other organisations involved:

West African Development Bank (BOAD), ENDA

Energie Dakar, UNFCCC Regional Collaboration Centre

Lomé, Climate Focus

Lifecycle: Ongoing since 2017

Further information:

www.westafricacclimatealliance.org

Contact: Alliance Secretariat

westafricacclimatealliance@gmail.com

East African Alliance on Carbon Markets and Climate Finance

Implementation:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Other organisations involved:

UNFCCC Regional Collaboration Center Kampala

Lifecycle: Ongoing since June 2019 (SB50)

Contact: Sven Egbers

sven.egbers@giz.de

UNFCCC Regional Collaboration Center Kampala

RCCKampala@unfccc.int

Future of the Carbon Market Foundation

Implementation:

Kreditanstalt für Wiederaufbau (KfW)

Other organisations involved:

C-Quest Capital, Impact Water, SEM Fund, SimGas

Lifecycle: 2011 to 2021

Further information:

www.carbonmarket-foundation.org

Contact: Martin Gauss

m.gauss@kommunalkredit.at

Networking and exchange of information

Carbon Market Platform

Implementation:

Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU)

Lifecycle: Ongoing since 2015

Contact: Malin Ahlberg

malin.ahlberg@bmu.bund.de

Carbon Pricing Leadership Coalition

Implementation:

World Bank

Lifecycle: Ongoing since 2015

Further information:

www.carbonpricingleadership.org

Contact: Lydia Ondraczek

lydia.ondraczek.extern@bmu.bund.de

International Carbon Action Partnership (ICAP)

Lifecycle: Ongoing since 2007

Further information:

<https://icapcarbonaction.com/en/>

Contact: Dr. Constanze Haug

info@icapcarbonaction.com

Regional Climate Weeks

Implementation:

Nairobi Framework Partnership

Lifecycle: Ongoing since 2018

Further information:

www.unfccc.int

Contact: Lydia Ondraczek

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Innovate4Climate (I4C)

Implementation:

World Bank

Lifecycle: Ongoing since 2019

Further information:

<http://innovate4climate.com>

Contact: Lydia Ondraczek

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Abbreviations

AEE	Afrique Energy Environnement
ANME	The National Agency for Energy Conservation (Tunisia)
BAT	Best Available Technology
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BOAD	West African Development Bank
CDM	Clean Development Mechanism
CEF4SAPP	Clean Energy Fund for the Southern African Power Pool
CI-ACA	Collaborative Instruments for Ambitious Climate Action
CMM-WG	Carbon Market Mechanisms Working Group
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COMNAC	National Committee on Climate Change in Senegal
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CPLC	Carbon Pricing Leadership Coalition
DBSA	Development Bank of South Africa
DECC	Department of Environment and Classified Establishments in Senegal
DNA	Designated National Authority
ETS	Emission Trading System
EU ETS	European Emissions Trading System
EU	European Union
EUC	Emissions Unit Criteria
GCF	Green Climate Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
I4C	Innovate4Climate
ICAO	International Civil Aviation Organisation
ICAP	International Carbon Action Partnership
IKI	International Climate Initiative
IMO	International Maritime Organisation
MRP	Market Readiness Proposal
N ₂ O	Nitrous oxide
NACAG	Nitric Acid Climate Action Group
NDC	Nationally Determined Contributions
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PAF	Pilot Auction Facility for Methane and Climate Change Mitigation
PMR	Partnership for Market Readiness
PoA	Programme of Activities
RCCs	Regional Collaboration Centres
RGGI	Regional Greenhouse Gas Initiative
RPC	Reactive Power Compensation
SAPP	Southern African Power Pool
SAPPCC	Southern African Power Pool Coordination Centre
SA-REP	South Africa Renewable Energy Programme
SDG	Sustainable Development Goal

TCAF	Transformative Carbon Asset Facility
UBA	German Environment Agency
UNFCCC	United Nations Framework Convention on Climate Change

Endnotes

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- 4 World Bank, Navigant, ICAP (2019): State and Trends of Carbon Pricing 2019; World Bank, Washington, DC. Doi: 10.1596/978-1-4648-1435-8. URL: <https://openknowledge.worldbank.org/handle/10986/31755>
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