Germany's international cooperation on carbon markets: Status and prospects in selected partner countries

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Content

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List of Abbreviations

AAU	Assigned Amount Unit
BAU	Business as Usual
BMUB	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BMZ	Federal Ministry for Development and Cooperation
BUR	Biennial Update Report
CPLC	Carbon Pricing Leadership Coalition
COP	Conference of the Parties
CDM	Clean Development Mechanism
DNA	CDM Designated National Authority
DEHSt	German Emissions Trading Authority
ETS	Emission Trading Schemes
FY	Financial Year
FCPF	Forest Carbon Partnership Facility
GCF	Green Climate Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GCF	Green Climate Fund
IKI	International Climate Initiative
ITMOs	Internationally Transferred Mitigation Outcomes
ICAT	Initiative for Climate Action Transparency
JCM	Japanese Joint Crediting Mechanism
JI	Joint Implementation
LDC	Least Developed Country
LDCF	Least Developed Countries Fund
MCC	Global Commons and Climate Change
MRP	Market Readiness Proposals (under the PMR)
MRV	Monitoring, reporting and verification
NatCom	National Communication
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contribution
NACAG	Nitric Acid Climate Change Action Group
PMR	Partnership for Market Readiness
PoA	Programmes of Activities
PIK	Potsdam Institute for Climate Impact Research
PNMC	Brazilian National Policy on Climate Change
SBSTA	Subsidiary Body for Scientific and Technological Advice
TCAF	Transformative Carbon Asset Facility
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute
UNOPS	United Nations Office for Project Services
UBA	German Environment Agency

1 Introduction

This report presents the results of the third work package of the research project "Analysis of interactions between new market mechanisms and emissions trading systems" tendered by the German Emissions Trading Authority (DEHSt) at the German Environment Agency (UBA) (FKZ 3714 41 506 0) and conducted by adelphi in cooperation with NewClimate Institute and Öko-Institut. The tasks reported in this report were concluded in early 2017. Two previous outputs (see Kachi et al. 2016 and Cames et al. 2016), produced under the first and second work package of the project, form the starting point of the analysis presented in this report.

Background

In December 2015, the international community adopted the Paris Agreement, which explicitly aims at limiting global warming to well below 2 °C. In order to achieve the implicit 1.5 °C goal, global emissions reductions must scale up to net zero emissions in the second half of the century.

There is little doubt that market instruments represent useful tools to achieve cost-effective mitigation action. Implemented correctly, they can increase flexibility and scale up mitigation ambition. Article 6 of the Paris Agreement provides a foundation for international cooperation through markets and inspires countries to assess options according to their own capacities. An important next step in advancing the Paris Agreement is the formulation of rules and regulations for the use of markets, and the design and support of respective mitigation action in line with Article 6.

Article 6 of the Paris Agreement includes several provisions allowing for the use of the international carbon market to support the implementation of Nationally Determined Contributions (NDCs) and enable ambition raising. These include ‚Cooperative Approaches'(Art. 6.2-3) and a ‚Mechanism for Sustainable Development and Mitigation' (Art. 6.4-7). Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of Internationally Transferred Mitigation Outcomes (ITMOs). While no further elaboration is provided in Article 6, we interpret ITMOs as mitigation outcomes realised through any Article 6 approach and transferred between countries, with the objective of NDC achievement of the acquiring country. Multiple instruments could generate ITMOs under Article 6.2, as long as their generation is consistent with the international guidance adopted by the COP. Further, Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation, which generates emission reduction credits and operates under the authority of the COP.[1] Together, these two provisions lay the foundation of post-Paris international carbon markets[2].

Parties to the UNFCCC that have an interest in participating in the international carbon market differ in terms of the carbon market development at a national level. Accordingly, different options exist for them to make use of the mechanisms implied in Art. 6.2 and 6.4. In order to explore these options, this report argues that countries can be classified into three categories that broadly reflect their carbon market development stage. It is furthermore assumed that, depending on whether a country finds itself at an advanced, medium or early stage of carbon market development, this has specific implications for the potential use of markets under the Paris Agreement.

Countries with a long-lasting experience in the field of carbon markets may have – not solely but particularly – an interest in using options provided under Art. 6.2. Depending on whether a country has already developed domestic market mechanisms, such as an emissions trading scheme or a sectoral market-based scheme, it may be interested in using Art. 6.2 to reflect the linking of its ETS with another ETS at the international level or the further development of bilateral mechanisms. A country that has only recently started to explore the possibilities that carbon markets offer, or that has gained some carbon market experience with the Clean Development Mechanism (CDM) and Joint Implementation (JI), may look into options to be offered under Art. 6.4. This may particularly be the case if a country has not yet developed carbon market readiness at the domestic level to a degree that easily allows for the establishment of emissions trading or a bilateral approach. This may also be the case if a country plans to build substantially upon the carbon market infrastructure that it has developed under the CDM in order to participate in future international market mechanisms. However, the categorisation developed in this report is not cast in stone.

1 We note that emission reduction credits generated under Article 6.4, which are internationally transferred and used by the acquiring country towards its NDC, could also potentially be regarded as ITMOs.

2 For a discussion of the general objectives of the international carbon market after Paris and main issues arising in the context of Article 6.2 and 6.4, as well as potential solutions, we refer to a previous output of this research project (see Cames et al. 2016).

Countries may as well look into options to use both Art. 6.2 and 6.4, or use either of the mechanisms in a different way than hypothesized here. As the detailed rules for Article 6 are under development, the potential use of markets under the Paris Agreement leaves much room for interpretation. The results of this report are based on specific assumptions and must be interpreted in light of these assumptions as well as in light of a specific country context and position.

Study objectives

Germany has been a key actor in promoting market-based instruments across countries and regions and reforming and further developing the global carbon markets. Traditionally, Germany's international cooperation action focused on both the supply side – i.e. reforming the CDM and introducing (new) market-based mechanisms – and the demand side – i.e. matching the further development of market instruments with raising ambition at the international level. Another central field of cooperation is the provision of support and guidance on ETS development and linking of trading schemes across jurisdictions. Germany's commitment is also reflected in its participation in and support of several international carbon market initiatives, such as the Partnership for Market Readiness (PMR), the Carbon Pricing Leadership Coalition (CPLC) or the Carbon Market Platform as a direct result of the G7 summit in 2015.

In the context of the paradigm shift induced through the Paris Agreement, the question arises in how far existing German cooperation in the field of carbon markets needs to be readjusted and further advanced in line with rules and regulations to be further developed under Article 6[3]; as well as incorporating the interests of Germany and its partners. The purpose of this research work is thus to take a closer look at international cooperation on carbon market development in a post-Paris world and the role of Germany therein.

To achieve this purpose, a focus has been placed on three exemplary cases from countries that have traditionally collaborated with Germany on carbon markets. The case studies build upon the rationale that different countries find themselves at different stages of carbon market development and that the development stages have specific implications for the potential use of Article 6. Moreover, each country's explicit interest in participating in international carbon market development in a post-Paris world and its capability to realise this interest is specifically considered. In the absence of concrete rules for Article 6, the assessment provides a first order estimate of the readiness of countries to engage in Article 6, and identifies pathways for Germany to continue supporting its partner countries in developing rule-based and well-functioning market instruments. A synthesis of the case study results provides input to support the Parties involved in international negotiations on Article 6 and to inform the broader international debate around the development and implementation of Article 6.

Study approach

The research follows a staged approach that is structured around three parts:

1. **German carbon market cooperation:** In the first part, a brief outline of current German engagement in carbon market cooperation, including in major initiatives and funds, sets the stage for the compilation of a comprehensive cooperation inventory.
2. **Country selection process:** In the second part, the cooperation inventory is taken as the basis for a country selection process. Three candidates are selected that represent a spectrum across different stages of carbon market development (from early to advanced).
3. **Case studies:** The third part comprises an in-depth analysis of the three case countries. The case studies provide a first order estimate of the countries' readiness and options to engage in Article 6 and identify opportunities for future German cooperation to support further development of rule-based and well-functioning market instruments.

For the mapping of Germany's carbon market cooperation activities, information was gathered from different public sources, in particular websites, brochures and factsheets published by the German government or other agencies and organisations. The data was complemented by informal expert statements. Data collection was conducted in the first half of 2016. All facts were collected on a country-by-country basis in a comprehensive excel file which is not part of this report.

3 It was agreed at COP 22 in Marrakech last year to complete the work programme under the Paris Agreement by COP 24 in December 2018. This includes the work being done under SBSTA on the development of a guidance on cooperative approaches referred to in Article 6.2 of the Paris Agreement and rules, modalities and procedures for the mechanism established by Article 6.4 of the Paris Agreement.

Regarding the country selection process, a four-step approach is taken using the cooperation inventory as the basis. The selection process is based on qualitative criteria and expert judgement. It involves the classification of countries into different categories of carbon market experience, resulting in one longlist per category, and a more detailed assessment of countries further leading to one shortlist per category. Results are presented in a table at the end of the selection process.

At the centre of the research are the three country case studies. These have been undertaken through in-depth desk research, combined with expert and stakeholder interviews in order to arrive at a meaningful analysis of the three case countries and derive concrete recommendations on a country level and beyond. The case studies also benefit from two international workshops that provide additional insights and feedback on the assessment. This integrative method ensures that the final conclusions and recommendations provided by the case studies are well grounded and would be relevant for both decision makers and practitioners in the field of international carbon market cooperation.

Structure

The report covers the German carbon market cooperation with a detailed cooperation inventory (1); and the country selection process (2) and is structured as follows: Chapter 2 presents the current German involvement in carbon market cooperation, including the engagement within major initiatives and funds. Chapter 3 presents the country selection process in which three candidates for case studies are selected based on a comprehensive cooperation inventory. Chapter 4 synthesises the rationale behind different carbon market development stages and their implications on the use of Article 6, laying the foundation for in-depth analysis of the three selected countries' readiness to engage in future markets. **It is recommended to read this report in conjunction with the three case studies (3), which have been published separately.**

2 German carbon market cooperation

In an international effort to limit the global temperature rise to 2 °C or well below, Germany plays a significant role in bringing together countries at different stages of development to jointly combat climate change. One major field of action is the development of an international carbon market. Since the early days of the flexible Kyoto mechanisms – in particular the CDM and Joint Implementation (JI) – Germany has been a key actor in promoting market-based instruments and in fostering an international carbon market. Despite shrinking demand for emissions reductions certificates during the second commitment period of the Kyoto Protocol and the negative impacts this had on the international carbon market, in particular on the activities under the CDM, Germany continued to cooperate with its partners on reforming and further developing carbon market activities globally. This engagement gained new impetus with the adoption of the Paris Agreement and the opportunities provided by Article 6 as well as through the increasing dynamic of bottom up market developments around the world. Traditionally, German support focused on both the supply side – reforming the CDM and introducing (new) market-based mechanisms under a future agreement – and the demand side – matching the further development of market instruments with raising ambition at the international level. Another central field of cooperation is the provision of support and guidance on ETS development and linking of trading schemes across jurisdictions. The concretisation of Article 6 under the Paris Agreement may lead to a rearrangement of support priorities and to an inclusion of new topics into German carbon market cooperation post-2020.

German action in the field of carbon markets has been included in the Coalition Agreements of several recent federal governments. The Coalition Agreement for the 17th parliamentary term (2009-2013) stresses emissions trading as one primary climate protection instrument that could be developed within a global carbon market (Bundesregierung 2009). The current Coalition Agreement for the 18th parliamentary term (2013-2017) does not include a reference to carbon market development in general but stresses the importance of promoting a new, ambitious climate regime as well as effective emissions trading at the European level (Bundesregierung 2013).

This political anchoring of carbon market development is also reflected in the federal budget, in particular in the budgetary plans of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and the Federal Ministry for Development and Cooperation (BMZ).

The BMUB budget for Financial Year 2016 includes chapter 1602 on climate protection. It contains two budget items[4] that are potentially relevant for the development of the carbon market: budget item 896 05 for "investments for climate and biodiversity protection abroad" (encompassing the International Climate Initiative – IKI) and budget item 532 05 for "international cooperation". The latter is further specified into 1) measures for the further development of existing project-based mechanisms (CDM and JI) and new market-based mechanisms, with a budget of 3.5 million EUR, and 2) measures for the advancement of emissions trading as a priority instrument for climate protection, with a budget of 2 million EUR. Together, the two budget items have a total budget of 343.7 million EUR (of which 338.2 million EUR go into the IKI) (Bundestag 2016a). The figures are summarised in Table 1.

Table 1: BMUB budget chapter 1602 on climate protection, FY 2016

Budget item	Support area	Target initiative	Budget (in million €)
896 05	Investments for the protection of the climate and biodiversity abroad	International Climate Initiative (IKI)	338,228
532 05 - 1	Measures for the further development of existing project-based mechanisms and new market-based mechanisms	CDM/JI Initiative	3,5
532 05 - 2	Measures for the advancement of emissions trading as a priority instrument for climate protection	ICAP	2,0

Source: (Bundestag 2016a)

The BMZ budget for 2016, in chapter 2303 on "European development cooperation, contributions to the United Nations and other international institutions", has a stronger focus on multilateral climate funds. Budget item 896 09 lists "developmentally relevant multilateral aid for global environmental protection, for the preservation of biodiversity, and for climate protection" with a total budget of 293 million EUR. This comprises, in particular, German contributions to the Global Environment Facility (GEF), the Montreal Protocol Fund (MP), the Forest Carbon Partnership Facility (FCPF), the Least Developed Countries Fund (LDCF), the Green Climate Fund (GCF) as well as multilateral contributions in the framework of the German G7-Initiative (especially climate risk insurance) (Bundestag 2016b). The figures are summarised in Table 2.

Table 2: BMZ budget chapter 2303 on development cooperation, FY 2016

Budget item	Target fund	Budget (in million €)
896 09 - 1	GEF, 6th replenishment	28,0
896 09 - 2	GEF, 5th replenishment	41,64
896 09 - 3	Montreal Protocol Fund, 9th replenishment	6,318
896 09 - 4	Montreal Protocol Fund, 8th replenishment	4,584
896 09 - 5	Forest Carbon Partnership Facility	51,8
896 09 - 6	Least Developed Countries Fund	25,0
896 09 - 7	Green Climate Fund	70,76
896 09 - 8	G7 Climate Risk Insurance	65,0

Source: (Bundestag 2016a)

4 A budget item normally describes the lowest level in the budget structure.

Most recently, Germany has shown increasing commitment to the evolution of the global carbon market. The country assumed a prominent role in the launch of the Carbon Pricing Leadership Coalition (CPLC) at COP21 in Paris and in initiating the G7 Carbon Market Platform arising from Germany's G7 Presidency in June 2015. In addition to that, Germany has been very active as a contributing participant in the Partnership for Market Readiness (PMR) from the beginning.

Looking at German cooperation in the field of carbon markets, currently three priority areas can be identified (BMUB 2015):

1. Overarching/cross-cutting support for the development of carbon markets in key regions;
2. Support and further development of CDM activities and Programmes of Activities (PoAs), in particular in Least Developed Countries (LDCs);
3. Support of market readiness for new market-based mechanisms and development of ETS and their linking.

Cooperation activities in these three priority areas are covered by several multinational and bilateral initiatives, most of which have been launched and are being financed through BMUB (see 2.1).

BMZ, on the contrary, is currently less active in the field of carbon markets. Until around 2011, BMZ funded several activities in the context of the CDM, mainly focussing on the establishment and support of Designated National Authorities (DNAs) in developing countries. However, no direct bilateral or multilateral support is currently taking place on that regard. Nevertheless, BMZ remains interested in the evolvement of carbon pricing approaches and has recently commissioned the Mercator Research Institute on Global Commons and Climate Change (MCC) and Potsdam Institute for Climate Impact Research (PIK) – via GIZ – to conduct a study on the potentials of carbon taxes in developing countries, depicting, amongst others, the impact of carbon taxes on revenue distribution.

With a view to German representation in climate related multilateral banks and funds, BMZ delegates the German Executive Director who represents Germany in the Executive Boards of the World Bank Group (Ms. Ursula Müller, since September 2014). BMZ assumes the lead role with regard to the World Bank's overall activities, while BMUB takes the lead in the field of carbon market activities. Finally, both BMZ and BMUB also appoint delegates to the GCF Board and coordinate Germany's involvement in the GCF.

Thus, official German cooperation on carbon market development is largely navigated by two ministries with different competencies. While BMZ has by nature a stronger focus on general development, including environment and climate issues, BMUB leads the specific support of partner countries on the design and implementation of market instruments through bi- or multilateral projects.

2.1 German initiatives and funds

In the following, an overview of carbon market cooperation initiatives and funds established, financed and implemented through the German government, mainly BMUB, is presented. A focus is placed on the objectives of the initiatives as well as their current implementation statuses.

(1) International Climate Initiative (IKI)

Initiated in 2008 by BMUB, the IKI finances climate and biodiversity related projects in developing and newly industrialised countries. IKI is one of the largest initiatives of the German government in terms of scope and finance. Since 2008, IKI funding amounted to a total of 1.6 billion EUR (BMUB 2014).

IKI supports and funds several bilateral and multilateral carbon market projects that fall mainly under two thematic areas of the IKI portfolio: 1) carbon markets/ emissions trading, and 2) monitoring, reporting and verification (MRV). IKI funds benefit both multilateral initiatives with German participation as well as multilateral and bilateral projects led by Germany in different countries. This section (2.1) focuses on those projects that have been initiated and are being administered by the German government at the national level. Multilateral initiatives with German participation under IKI, such as the PMR and the Initiative for Climate Action Transparency (ICAT), will be discussed in the next section (2.2).

a) Multilateral projects led by Germany in different countries under IKI

- Established in 2011, the **Foundation for the Future of the Carbon Market** received 10 million EUR in grant funding through IKI (BMUB 2016b). Administered by KfW Development Bank, the foundation supports the promotion and implementation of market based programmatic climate protection initiatives. In this regard, it particularly aims to support PoAs within the CDM and with a focus on LDCs, but also considers funding of programmatic approaches beyond the CDM. As of October 2016, the foundation has provided direct support to two PoAs, one each in Zambia and Senegal.
- **Information matters: Ambitious reporting and international learning** is a project implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). It aims to strengthen the governmental capacity in developing and emerging countries to prepare and provide high-quality reports on their mitigation activities, mainly National Communications (NatComs) and Biennial Update Reports (BURs). The project supports eight countries in two project phases, running from March 2013 to November 2017 (phase 1: Chile, Dominican Republic, Ghana, Philippines; phase 2: Egypt, Georgia, Colombia and Vietnam). The IKI grant that funds this project amounts to 5.6 million EUR for both project phases (BMUB 2016b).
- In cooperation with Costa Rica, Colombia and Mexico as partner countries, the **Accounting rules for the achievement of the mitigation goals of non-Annex I countries** project develops practical guidelines for the timely and transparent accounting of mitigation goals in non-Annex I countries. Implemented by GIZ, the project runs from July 2014 to July 2017 and received 2.9 million EUR in grant funding through IKI (BMUB 2016b).
- In cooperation with the five partner countries Ethiopia, India, Colombia, South Africa and Thailand, the **Measurement and Performance Tracking of Climate Change Mitigation Action** project focuses on the assessment of current monitoring systems, GHG inventories and MRV capacities. It also supports the development of MRV systems for Nationally Appropriate Mitigation Actions (NAMAs) and other sectoral level activities, mainly through capacity building. The project is implemented by the World Resources Institute (WRI). It runs from February 2011 to December 2016 and received IKI grant funding of 5.9 million EUR (BMUB 2016b).

b) Bilateral projects under IKI

In addition to the multilateral projects outlined above, IKI supports a number of bilateral activities in several partner countries that have an explicit or implicit carbon market element. In cooperation with the Chinese, the Ukrainian and the Mexican government, IKI funds programmes that prepare the implementation of national emissions trading schemes. In Turkey and Tunisia, IKI finances activities on institutional capacity building for MRV systems and GHG inventories. Furthermore, bilateral support is provided for the implementation of the Brazilian National Policy on Climate Change (PNMC), which includes preparatory activities in the area of data collection and MRV systems. The here mentioned bilateral projects are implemented by GIZ.

(2) CDM/JI Initiative

The **CDM/JI Initiative** is funded through the BMUB budget for "measures to support international carbon markets" (chapter 1602, budget item 532 05-1) which is endowed with 3.5 million EUR (Bundeshaushaltsplan 2016a). It fosters inter-state cooperation to promote business-sector activities and capacity development in developing countries. At its core, the initiative aims to develop a broad GHG mitigation project portfolio, continuously working project pipelines and targeted project matching. In addition, the initiative supports institutional capacity development in developing countries in order to access new mitigation potential through the CDM and JI. Principal projects and programmes supported by the CDM/JI Initiative include the following (BMUB 2015):

- Initiated in 2008, the **Country Manager Project** aims at establishing carbon market units in developing countries in order to provide public and private decision makers with a platform that informs on and coordinates existing and new carbon market instruments. These carbon market units furthermore facilitate market access for German businesses, technology providers and project developers. In the currently implemented fourth phase of the project (2015-2018), carbon market units are hosted by GIZ in India, Uganda, and Tunisia. A carbon market unit had also been established in Brazil during the second and third project phase (2010-2015); however, activities in Brazil are not continued under the fourth phase of this project.

- The **Joint Implementation Coordination Unit (JIKO)** as part of the CDM/JI Initiative provides scientific guidance and support to German carbon market activities by assisting the BMUB through scientific advice and public relations work. Policy analysis under the JIKO project ranges from the evaluation of technologies and project types in the CDM to the future development of flexible mechanisms in an international climate regime post-2020. One regular output related to this project is the Carbon Mechanisms Review, a magazine that investigates developments on carbon markets and contributes to the debate with analysis and opinion articles. BMUB has contracted Wuppertal Institute to support JIKO for the period between November 2012 and October 2018.
- Established in 2011 and implemented by a consortium led by Perspectives, the **PoA Working Group** focuses on further development of rules for PoAs within the CDM, use of respective experiences for climate finance institutions, and development of new rules for future mechanisms under the Paris Agreement.
- The research initiative **Strengthening the African CDM Pipeline** explores different options to support CDM activities on the African continent. An emphasis is placed on options to link GCF and CDM activities to scale-up mitigation action under a new climate framework.
- Between 2008 and 2015, the KfW Development Bank implemented the **PoA Support Centre Germany** in the scope of the CDM/JI Initiative. During this period, the Support Centre promoted PoA implementation in 28 countries.

(3) Capacity Building for Emissions Trading to Support Bilateral Cooperation

The **Capacity Building for Emissions Trading to Support Bilateral Cooperation** project is funded through the BMUB budget for "measures to support international carbon markets" (chapter 1602, budget item 532 05-2) which is endowed with 2 million EUR (Bundeshaushaltsplan 2016a). The main objective of this project is to foster the development of national ETSs and to support interested countries with capacity building and knowledge sharing on the EU ETS and its implementation in Germany. In this context, the project mainly offers demand-driven support to countries that are in the process of implementing or planning to implement an ETS (BMUB 2015). Up to now, there have been two project phases (2011-2013 and 2013–2017) in which countries have been supported in three different formats: 1) technical visits and training sessions (China, Kazakhstan); 2) workshop on-site in interested countries (South Korea, Kazakhstan, Chile); and 3) in-depth consultation on specific issues (South Korea). In 2016, further activities were undertaken in Vietnam. For 2017, activities are envisaged to involve Thailand, Kazakhstan and Taiwan. Activities under the capacity building initiative often complement projects that receive IKI funding for ETS preparation and implementation (for example in China).

(4) Nitric Acid Climate Action Group (NACAG)

At COP21 in Paris, Germany launched the **Nitric Acid Climate Change Action Group (NACAG)** with the objective to equip facilities used for manufacturing nitric acid with nitrous oxide abatement technology by 2020. Partner countries that benefit from this new abatement technology commit themselves to continue the emission reduction activities initiated through NACAG under national policy after 2020. Certified emission reductions acquired through NACAG cannot be used for offsetting but must be cancelled by transferring them to a special UNFCCC account. The NACAG initiative hence follows a results-based finance approach rather than a "traditional" climate finance approach, and in that differs substantially from existing emission reduction purchase programmes. In order to reach the overall objective to cover the global nitric acid sector by 2020, Germany invites both potential donor countries and developing countries to join the initiative and submit financial support and emission reduction pledges. To date, in particular the Norwegian Carbon Credit Procurement Programme is open to cooperation on nitric acid projects within the NACAG. A NACAG secretariat is currently being established by GIZ. It will serve as a focal point and provide technical consulting services for facility operators and partner governments (BMUB 2016c).

(5) NDC Partnership

During the Petersberg Climate Dialogue, BMUB and BMZ, on behalf of the German government, announced a new **NDC Partnership**, which has officially been launched in November 2016 during COP22 in Marrakesh. The initiative aims to assist developing countries in transforming their NDC targets into concrete strategies and policy measures. Both ministries are equally involved in the Partnership's initial phase and financing of the set-up of its secretariat in Washington D.C. and Bonn. In the future, BMUB and BMZ intent to further align their climate projects, both between the two ministries and also according to the needs articulated in developing countries' NDCs under the Paris Agreement (BMUB 2016a).

Since a number of countries mention the further development of domestic and international carbon markets in their NDCs, the NDC Partnership may also tap the potential of supporting carbon market readiness in partner countries. However, if and to what extent carbon market development will be taken up under the NDC partnership remains to be seen.

2.2 International initiatives and funds with German participation

In addition to those initiatives and funds that have been initiated and are being administered by the German government at the national level, Germany actively participates in several international initiatives and funds that aim to foster the development of carbon markets and to enhance capacity building in an international approach. The most relevant among these, from a German funding perspective, include the following:

- The **Partnership for Market Readiness (PMR)** is supported in the framework of IKI with a grant of 10 million EUR for the period of 2011 up to 2021 (BMUB 2016b). Funded by 13 contributing countries, the PMR supports governments in developing, emerging and transitioning countries to introduce carbon pricing instruments for cost-efficient greenhouse gas mitigation under three programmes: a country work programme (including country-specific readiness activities and the elaboration of Market Readiness Proposals - MRPs); a technical work programme (including the development of general technical guidelines and the promotion of best practices) and a policy work programme (encompassing upfront, in-depth support to model, analyse and integrate policy options). As of October 2016, a total of 18 countries received assistance from the PMR with 15 of them having already submitted their MRPs (PMR 2016b).
- In November 2015, Germany – together with Norway, Sweden, and Switzerland – launched the **Transformative Carbon Asset Facility (TCAF)** which is administered by the World Bank. TCAF aims to give new incentives for major cuts in greenhouse gas emissions in developing countries to combat climate change. For this purpose, the facility plans to remunerate verified emissions reductions achieved through large scale programmes (e.g. phase-out of fossil fuel subsidies or the simplification of renewable energy regulations) in areas like renewable energy, transport, energy efficiency, solid waste management, and low carbon cities. Together, the four founding countries pledged 250 million USD in initial contributions. The facility remains open for additional funding until the target of 500 million USD is reached (UNFCCC 2015; World Bank 2015). TCAF plans to start funding operation in 2017 (Carbon Pulse 2016).
- In 2015, the World Bank established the **Pilot Auction Facility for Methane and Climate Change Mitigation (PAF)**. In its first phase until 2020, PAF aims to stimulate results-based investments in projects that reduce methane emissions at landfills, animal waste, and wastewater sites facing low carbon prices. For this purpose, the facility has organized two auctions for putting options on methane emissions reductions supported by donor funding (July 2015 and May 2016) with a third auction planned. PAF is backed by several donors and has a capitalisation target of 100 million USD, of which Germany is a contributor (World Bank 2014, BMUB 2016b).
- The **International Carbon Action Partnership (ICAP)** is an international forum for governments and public authorities that either have implemented emissions trading systems or are currently in the planning stage to do so. Founded by 15 governments in 2007, ICAP currently counts 31 full members and 4 observers. Through the established platform, governments and public authorities can engage in discussions and share their experiences with regard to ETS preparation and implementation and potential future linking (ICAP 2016). German contributions to ICAP stem from the BMUB budget for "measures to support international carbon markets" (Chapter 1602, Title 532 05-2) (Bundeshaushaltsplan 2016a).
- The **Carbon Pricing Leadership Coalition (CPLC)** was officially launched at COP21 in Paris with the objective to provide a voluntary partnership for national and sub-national governments, businesses, and civil society organizations to advance the international carbon pricing agenda and expand the use of effective carbon pricing policies (CPLC 2016). Germany has been a founding member of the coalition and has an active role in the Carbon Pricing Panel, whose members aim to demonstrate leadership in putting a price on carbon. As of October 2016, 24 countries and regions as well as more than 100 companies take part in the initiative.
- During the G7 summit in Elmau in 2015, Germany actively promoted the **Carbon Market Platform** which was launched as a direct mandate of the final G7 communique. The platform aims to establish a strategic dialogue on possibilities for developing the global carbon market as a key instrument in decarbonising the global economy.

The platform's policy dialogue mainly focuses on issues such as market mechanisms, linking emissions trading schemes, energy and carbon taxes and the withdrawal of fossil fuel subsidies to encourage carbon pricing (BMUB 2016d). Besides the G7 member countries, the platform is open to countries outside the G7. In June 2016, the first strategic dialogue was held under the presidency of Japan[5]. The second strategic workshop is planned for 2017 under the presidency of Italy.

- The **Initiative for Climate Action Transparency (ICAT)** is a multi-donor initiative to provide MRV-related tools and methodologies for policy makers in developing countries. Administered by the United Nations Office for Project Services (UNOPS), ICAT assists countries in establishing and enhancing their national MRV systems through domestic capacity development. In the current project phase (December 2015 to November 2019), IKI supports this project through the MRV Trust Fund with a grant of 6.7 million EUR (BMUB, 2016a).
- Germany also contributes to the **Green Climate Fund (GCF)** through a BMZ budget title. The GCF supports projects, programmes, policies and other activities in developing countries in the field of mitigation and adaptation. Even though the establishment and enhancement of carbon markets in developing countries is not an explicit topic area in the GCF portfolio, discussions on potential interactions between the GCF and international mechanisms, such as the CDM, remain ongoing (Mikolajczyk et al. 2016). At the time of writing, total funding raised by the GCF amounts to 10.3 billion USD pledged by 47 governments, of which Germany pledged around 1.0 billion USD (GCF 2016).[6]

The above presented overview of carbon market related initiatives and funds at both the national and international levels show that Germany has a long and strong track record in carbon market cooperation. Through collaboration, Germany aspires to enhance individual countries' efforts to design and implement market instruments and to accelerate the dynamics that guide reform and transformation of the global carbon market. In view of the new paradigm established by the Paris Agreement, many of the here outlined projects and programmes represent a good starting point for the further development of cooperation action in line with Article 6.

3 Country selection process

The brief outline of German carbon market cooperation, highlighting principal actors behind government-led activities as well as relevant initiatives and funds in which Germany plays a central role, sets the stage for the compilation of a comprehensive carbon market inventory. The inventory includes all carbon market related cooperation activities that have been initiated and/ or implemented under German participation and within a specific period of time (from 2010 onward). On this basis, selective in-depth analyses of a limited number of countries provides valuable insights on how cooperation activity can contribute to the further development of carbon markets and market-based instruments in a post-Paris world.

For the purpose of this research, a stepwise selection process serves the identification of the three partner countries for further assessment. A particular focus is placed on ongoing and planned, Germany-led cooperation activities in the three case countries and their alignment with the provisions of Article 6. Results from the case studies will inform the German negotiating position as well as the international debate on carbon market development; and rules, modalities and procedures for any mechanism emerging under Art. 6.2 or 6.4, respectively.

5 For more information on the Strategic Dialogue held in Japan see: http://www.meti.go.jp/english/press/2016/0531_03.html (accessed: 02.12.2016).
6 Status as of September 2016.

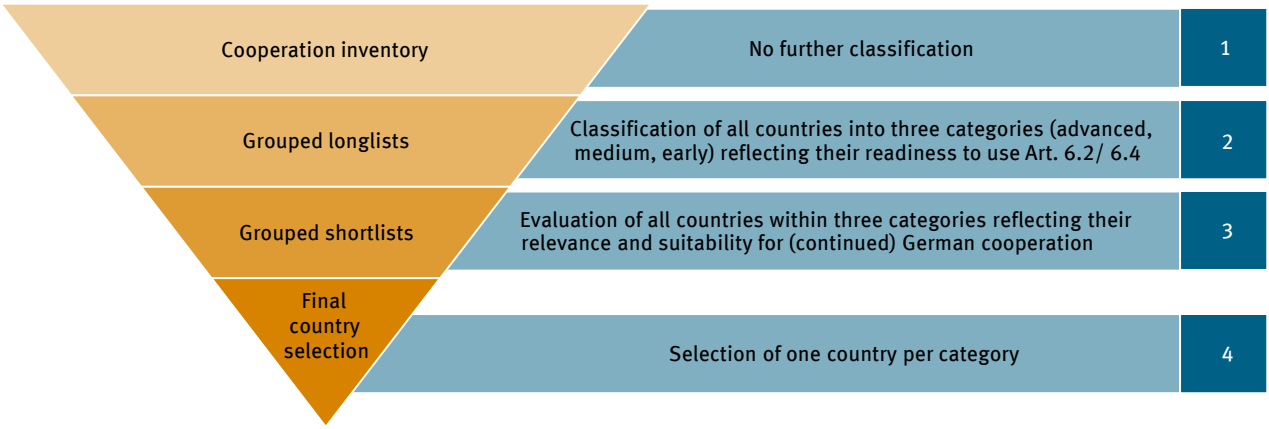


Figure 1: Four step approach for country selection

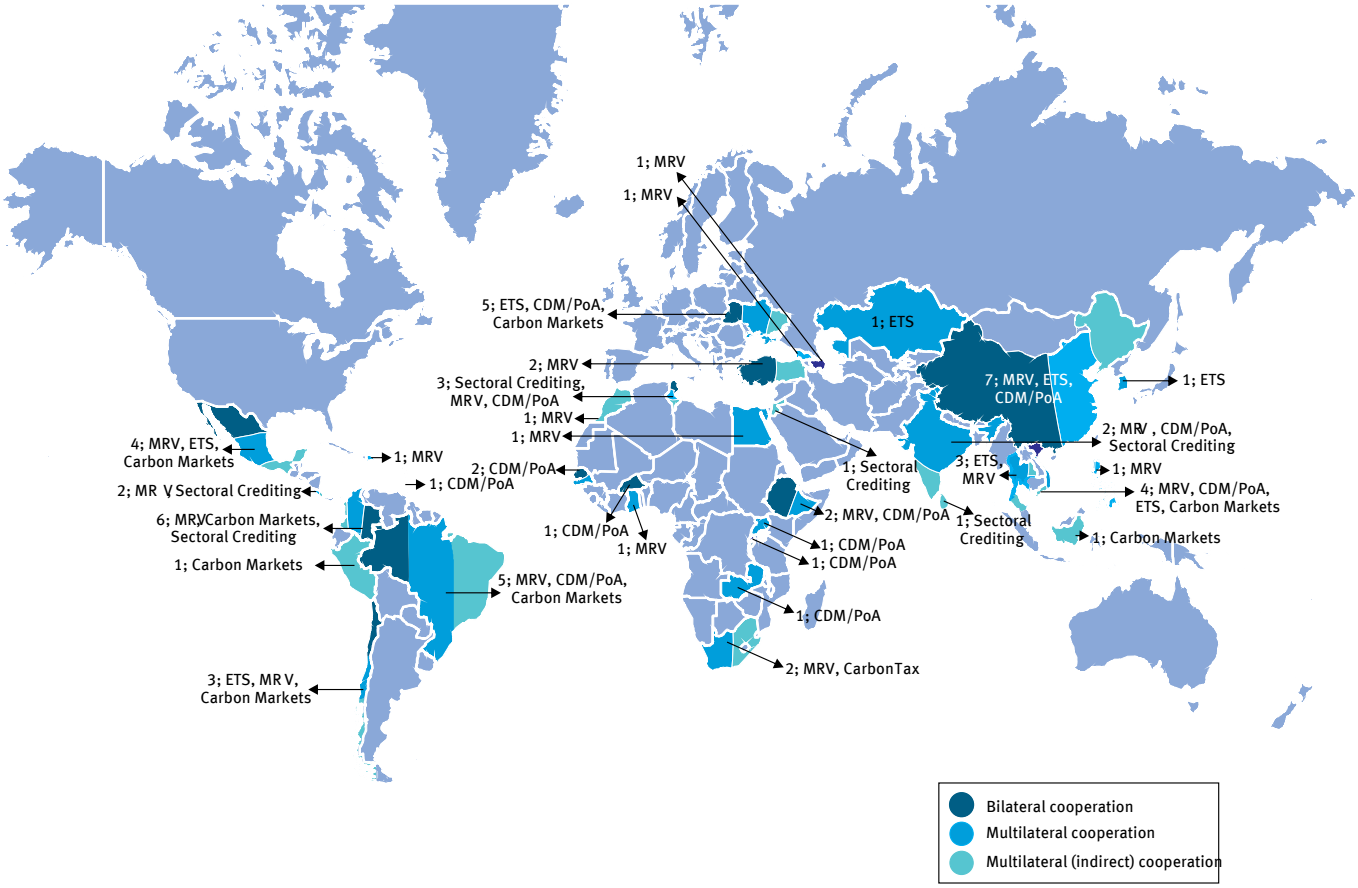
The objective of the selection approach is to arrive – based on a set of qualitative criteria and expert judgement – at a long- and a short-list, each covering a spectrum of countries that are currently at different stages in the development and implementation of carbon markets, and offer different perspectives for the analysis. Figure 1 describes four steps that lead to the final selection of the three case study countries:

- Step 1: Compilation of Germany-led carbon market related international cooperation activities in a cooperation inventory. Presentation of information by country and initiative, including key facts and relevant links.
- Step 2: Classification of countries of the inventory along a set of qualitative criteria. Country allocation to different categories (advanced, medium, early), according to different stages of carbon market development, and presentation of three grouped longlists.
- Step 3: Detailed assessment of countries within grouped longlists based on additional qualitative information and expert judgement, reflecting the relevance and suitability of ongoing or planned activities for (continued) German cooperation, and presentation of three grouped shortlists.
- Step 4: Final selection of three case study countries (one from each shortlist) for the purpose of this research.

The activities undertaken and the criteria applied for these steps are described in more detail in the following sections.

3.1 Cooperation inventory (Step 1)

The starting point for the selection of countries for the case studies is a comprehensive inventory of German carbon market cooperation ("Kooperationslandkarte"). The inventory includes 34 countries and a total of 80 projects and initiatives on a bilateral and multilateral basis. All 34 countries listed are non-Annex I countries, except for Turkey and Ukraine. Figure 2 visualises German carbon market activity around the world, highlighting the type of cooperation, number of projects, and focus of the activities.



Source: Own compilation, based on carbon market inventory.

Figure 2: World map on German carbon market cooperation

Criteria for projects and initiatives to appear in the detailed inventory database include the following:

- **Direct or indirect involvement of Germany in the cooperation activity:** (1) bilateral scope: Germany leads a project in one partner country, (2) multilateral scope: Germany leads a project that is being implemented in a limited number of partner countries, (3) indirect multilateral scope: Germany participates in an international initiative that is being implemented in several partner countries.
- **Focus of the cooperation activity lies on carbon markets or related issues:** (1) Cross-cutting carbon market development, (2) further development of CDM/PoA, (3) support of market readiness for new market-based mechanisms and ETS, (4) support of ETS development and implementation.
- **Cooperation activity has taken place within the past five years:** (1) Project has been completed (no later than five years ago), (2) project is being implemented, (3) project is planned to start in the course of the current year.
- **Cooperation activity is captured and listed in publicly accessible sources:** considered sources/ documents include: (1) BMUB website "Carbon Mechanisms", (2) BMUB brochure "Advancing Carbon Markets", (3) IKI website, (4) individual project websites, (5) PMR website. Where publicly available information is unclear or insufficient, experts involved in the cooperation activity are contacted.

The detailed data collected in this step is included in a separate document that is not part of this report. The information provides the foundation for the carbon market inventory which is the basis for the following classification of countries into different categories.

3.2 Classification and longlist (Step 2)

At the international level, carbon market and carbon pricing policies are being discussed controversially. Most countries agree that market mechanisms and carbon pricing instruments in general present useful tools to achieve national climate goals efficiently. Yet, a wide variety of opinions exist on how exactly carbon markets should work and be accounted for in the future, and what role they should be given under the Paris Agreement (Cames et al. 2016). In line with the different views and positions, and in reflection of other (development) priorities, countries currently utilise and further develop carbon market and carbon pricing approaches at their national and sub-national levels to different extents and with different emphases. Accordingly, countries can be classified into broader categories that mirror this spectrum of activities and reflect the readiness of each country for the use of market-based mechanisms with a particular view to those mechanisms provided for by Article 6.

Definition of classification criteria

In order to describe the carbon market related readiness of countries included in the cooperation inventory, several qualitative criteria can be applied. The following six criteria mainly served as an orientation for the subsequent classification of countries according to their (expected) carbon market readiness. Some of these broader criteria are taken up again at the end of the selection process for a more specific analysis of a limited number of countries.

- **Carbon pricing experience:** Many different options to set a price on carbon exist, including emissions trading schemes, carbon taxes, offset mechanisms and results-based climate finance. The reasons for pricing carbon are equally diverse as the options that exist. Depending on the broader policy context of a country, decision makers may balance revenue certainty (as e.g. in a carbon tax) against emissions reductions certainty (as e.g. in an ETS) and choose the instrument that reflects national policy objectives in the best possible way. Whatever the choice, each instrument requires a minimum of legal and institutional arrangements at the national level to ensure regular and robust MRV and accounting of the carbon market activity. Yet, these arrangements are not the same for all carbon pricing instruments: ETSs usually involve higher levels of complexity with regard to the necessary legal and institutional framework than, for example, carbon taxes that may be integrated in the wider tax scheme of a country. Consequently, countries that only start to develop carbon market readiness may opt for a less complex and potentially more straightforward carbon pricing instrument, such as a tax. Once a legal and institutional framework has been established, this can serve as a stepping stone for setting up a more complex instrument. Countries that have already explored one or more options to price carbon and have gained some experience with the operation of such a system can be considered to be at a medium or advanced stage of carbon market development. Countries in an early stage may have voiced an interest in carbon pricing but may lack resources and capacities to pursue this interest owing to alternative priorities.
- **ETS experience:** As explained, an ETS is widely recognised as a progressive carbon market instrument that sometimes builds upon other already existing carbon market instruments or activities. Generally, activities towards the implementation of domestic ETSs are seen as positive from a climate policy perspective since this confirms the ambition level of countries through setting a cap for emissions. Those countries that have already implemented a pilot for domestic emissions trading or are very close to the launch of an ETS can be considered to be at a relatively advanced stage of carbon market development. Other countries may consider mid-term options to build an ETS and have started respective preparatory activities, but are still in an early planning phase.
  Consequently, they may focus on less complex instruments while increasing general carbon market readiness. Countries that have only just begun to assess options for participating in carbon markets beyond the CDM are also not likely to start with a full-fledged ETS, but rather concentrate on establishing the institutional and political frameworks that allow for regular and robust MRV and accounting needed for all kinds of market activity.

- **Experience with international market mechanisms:** Participation in international market mechanisms, in particular CDM or JI, can be considered one element in the carbon market readiness of individual countries. The existence of registered CDM or JI projects shows that relevant institutions have been built at a national level (e.g. Designated National Authorities) and first experience with carbon market mechanisms has been gained. Favourable conditions in terms of policies and regulations that support engagement in carbon market activities may have evolved, even though in a more rudimentary form than would be necessary for the establishment of an ETS or any other domestic carbon pricing instrument.
- **MRV capacity:** The ability to accurately monitor, report and verify emissions and emissions reductions is the cornerstone of every effective mitigation policy and a common feature of all carbon pricing and carbon market instruments. There is a need to adopt methods and procedures to quantify emissions occurring at different levels (national, sub-national, sectoral) to measure the impact of carbon market related activities. The MRV readiness of a country can be reflected in its GHG inventory or in structures and institutions that allow for the development of MRV capacity over time. Potential indicators for the existence of such MRV capacity can be found in NatComs submitted to the UNFCCC and/ or in BURs.[7] On the one hand, the number of NatComs and BURs submitted and the years covered may offer an initial indication on a country's capacity to measure and report on emissions reductions. Also, indicative is whether NatComs or BURs have been prepared in-country (with relevant ministries/ departments as lead contributors) or outsourced and supported by external agencies (in particular UNDP). The more domestic institutional structures for developing these documents have been established in a country, the more advanced this country can be expected to be with regard to MRV capacity. Yet, these facts reveal little about the actual quality of the inventories; the assessment of which requires additional expert judgement.
- **Participation in carbon market related international initiatives**: A country's membership in an international initiative may be an indicator for its general interest in carbon markets and its motivation to spend time and resources to engage in the broader international debate. One of the most prominent initiatives is the PMR that provides support in the form of finance and capacity building to participating countries to explore different carbon market related approaches, in particular domestic emissions trading, carbon taxes and crediting mechanisms. Countries that undertake activities under the PMR or a similar initiative generally display a more proactive behaviour and can be expected to be further advanced in their carbon market development than those countries that are not participating in these international forums. Again, activity needs to be measured not only in quantitative but also in qualitative terms. It is therefore important to take a closer look at countries' commitments and objectives under these initiatives.
- **Negotiation position on carbon markets:** In international climate negotiations, countries traditionally take different positions on the use of market-based mechanisms, reflecting divergent national interests. While the Paris Agreement has accommodated some of these positions[8], controversy on the exact formulation and extent to which market-based mechanisms should be overseen and accounted for under a new climate change regime remains (Kachi et al. 2016). As a general rule, it can be expected that those countries that have a clear and positive position vis-à-vis the use of markets can more easily create the necessary readiness to endorse them than those countries that are sceptical or even hostile about carbon markets. Detailed negotiation positions can be retrieved from countries' submissions and statements to the Subsidiary Body for Scientific and Technological Advice (SBSTA), in response to calls on matters related to Article 6 of the Paris Agreement.[9]

Definition of classification categories

Along the lines of the above-mentioned criteria, three broader categories can be defined that reflect the spectrum of carbon market related expertise across countries. Each category entails a set of attributes consistent with the carbon market experience and practice each country unveils. It must be noted that the sets of attributes are indicative and not always exhaustive.

7 Reporting for developing countries under the UNFCCC (non-Annex I Parties) is implemented through National Communications and Biennial Update Reports. Developing countries are required to submit their first National Communication within three years of entering the Convention, and every four years thereafter. The first BUR should be submitted by December 2014 and every two years thereafter. LDCs and SIDS may submit BURs at their own discretion (UNFCCC 2014).

8 In the run up to Paris, major positions on carbon markets included supporters of a) a mechanism with strict rules to be developed under the auspices of the UNFCCC (claimed by EU, EIG, Norway, amongst others), now accommodated under Art. 6.4; b) the option to reflect several mechanisms with the UNFCCC taking a more advisory/ coordinating role (claimed by the Umbrella Group, amongst others), reflected in Art. 6.2; c) a largely open and neutral approach to the use of market mechanisms (e.g. AOSIS), and d) a focus on non-market mechanisms (claimed by ALBA and others) reflected in Art. 6.8 of the Paris Agreement (Kachi et al. 2016).

9 For current submissions on Article 6 see UNFCCC submissions portal at: http://www4.unfccc.int/submissions/SitePages/sessions.aspx?showOnlyCurrentCalls=1&populateData=1&expectedsubmissionfrom=Parties&focalBodies=SBSTA (accessed: 19.12.2016).

- **Advanced stage:** A country that has a clear and positive position on the use of market mechanisms; advocates the use of market mechanisms at the national and international level; participates in one or more international carbon market initiatives (e.g. PMR); has considerable experience in the use of (international) market mechanisms (in particular CDM/PoA, JI or voluntary standards); is creating or has created a legal framework for the use of market mechanisms; is establishing or has established an efficient MRV system; has a recent and high quality inventory (NatCom and BUR); has adopted one or more market-based instrument(s) at the national or sectoral level; is exploring the interplay of different instruments at the national and international level; is exploring options to link national instruments to international instruments and thereby support the development of a global carbon market.
- **Medium stage:** A country that is generally open to the use of market mechanisms; participates in one or more international carbon market initiatives (e.g. PMR); has good experience in the use of (international) market mechanisms (in particular CDM/PoA, JI or voluntary standards); plans to establish or is establishing an efficient MRV system; has an inventory (NatCom and BUR); plans to adopt or has adopted a market-based or carbon pricing instrument at the national or sectoral level; that is, however, still in a stage of evaluating and preparing the interplay of different instruments at the national and international level and their linking.
- **Early stage**: A country that is generally open to the use of market mechanisms; has some experience with the use of international market mechanisms (in particular CDM/PoA, JI or voluntary standards), but not yet explored market-based or carbon pricing instruments at the national level; has a basic inventory (NatCom) but needs to develop regular and efficient MRV on emissions and emissions reductions; has other development priorities and therefore lacks institutional, financial and human resources to actively promote carbon market activities.

Taking the above outlined criteria as an orientation, and calling on additional expert judgement from all involved project partners for further verification, the countries included in the cooperation inventory are assessed with regard to their carbon market development stage and assigned to one of the three categories. The exercise leads to three grouped longlists (one per category) that reflect the set of assumptions presented in this chapter. The results of this step are presented together with the results of the next step in a condensed form in Table 3.

3.3 Further assessment and shortlist (Step 3)

In an effort to come from a long- to a short-list of countries per category, a focus is placed on activities that are supported by Germany, either in bilateral or multilateral cooperation. Of particular interest is the extent to which respective cooperation activities offer opportunities to directly or indirectly influence the carbon market development process in a country, and therefore provide a good starting point for further broadening and deepening the cooperation in line with Article 6. The following aspects served as an orientation for narrowing down the number of countries in each category:

1. **Current German cooperation activity:** Given the central objective to further develop market instruments that have been induced by German cooperation (in line with potential new rules under the Paris Agreement) it seems appropriate to concentrate on those countries where cooperation is ongoing or planned to start in the course of the current year. The current level of cooperation activities may indicate current (and future) cooperation priorities for both Germany and the host country. Furthermore, if cooperation is ongoing, this may provide a good starting point, assuming that it is easier to adjust ongoing activity than to start off new, and it ensures that activities are embedded in the continuation of cooperation. On the contrary, those countries in which a project or initiative has been completed (within the last five years) may not be as suitable for potential adjustment of activities in the scope of this project.
2. **History of cooperation with Germany:** Details on the history of German cooperation activity can provide further insights on the suitability/ qualification of a country regarding the development of existing cooperation action.
   As such, a high number of Germany-led projects or programmes in a country may indicate, amongst others, a general openness of this country vis-à-vis German development cooperation and the existence of relatively stable political relations with that country. It may furthermore imply the existence of structures and processes (e.g. close contacts to decision makers in politics, in-country offices of development agencies, etc.) that enable and foster such cooperation and that provide an adequate starting point for future activities.

3. **Focus and type of ongoing German cooperation activity:** The further development of market cooperation that is pursued under this project aims at providing a first order estimate of the readiness of countries to engage in Article 6, and identifies pathways for Germany to continue supporting its partner countries in developing rule-based and well-functioning market instruments. In that sense, it is of relevance to the case selection which carbon market elements are intended to be strengthened by a certain cooperation activity. Some projects very specifically focus on the establishment of emissions trading. This might provide a good starting point for continuing cooperation activity with a view to Art. 6.2. On the other end of the spectrum, projects that target the support and further development of CDM, JI or voluntary standard related activities may offer points of reference for exploring options under Art. 6.4. In between these two are several projects that support cross-cutting issues that may not only but also affect a country's carbon market readiness. This includes, in particular, the establishment and gradual improvement of MRV systems at a national and sub-national level. These projects may provide a basis as much for the use of marked-based approaches under Art. 6.2 as for a mechanism created under Art. 6.4, depending on additional aspects of carbon market readiness of a country and the willingness to drive carbon markets forward. Another important aspect is the type of cooperation induced through Germany. While in some cases, cooperation involves long-term support for the development of comprehensive policies and institutions, other activities comprise punctual, short-term support of single carbon market related components, often in the framework of a broader initiative targeted at different countries. Although both types offer potential starting points for the further development of cooperation, long-term activity may imply stronger commitment and ownership on both sides with regard to the continuation of cooperation.
4. **Enabling environment in the partner country:** Another relevant aspect in the assessment of the suitability of a cooperation activity for further development in light of the Paris Agreement is the general political situation in a country as well as its position on carbon markets. This includes an evaluation of central advocates and opponents of markets, the level of prioritisation of carbon market issues on a country's political agenda, the degree of controversy in the political debate, and, consequently, the swiftness and success in the promotion and implementation of market related instruments or approaches on the ground. As such, different features of a country's institutional and legal framework can provide for either relatively stable conditions or higher levels of unpredictability as to its carbon market development.

Careful analysis of the countries taking into account the different criteria and aspects mentioned in this chapter, complemented by expert discussions among project partners and with the client, resulted in the selection of three to four countries per category for the shortlist.

The findings of this and the previous step are summarised in Table 3: countries in black are those from the longlist that were selected to the shortlist, while countries in grey colour are those that were not selected, for different reasons outlined below. Both black and grey countries are listed in alphabetical order.

Table 3: Shortlists per category

Advanced	Medium	Early
China	Chile	Costa Rica
Mexico	Tunisia	Ethiopia
Ukraine	Turkey	Senegal
Kazakhstan[a)]	Vietnam	Azerbaijan[h)]
South Korea[a)]	Brazil[b)]	Burkina Faso[h)]
	Colombia[c)]	Dominican Republic[g)]
	India[d)]	Egypt[g)]
	South Africa[b)]	Georgia[g)]
	Thailand[e)]	Ghana[g)]
		Indonesia[f)]
		Jordan[f)]

Advanced	Medium	Early
		Morocco[f)]
		Peru[f)]
		Philippines[g)]
		Rwanda[h)]
		Saint Vincent and the Grenadines[h)]
		Sri Lanka[f)]
		Uganda[h)]

[a)] Cooperation with ***Kazakhstan*** and ***South Korea*** happened in the framework of the initiative Capacity Building for ETS to Support Bilateral Cooperation and is already completed; it involved rather selective support on certain issues, no long-term cooperation. Moreover, the implementation of the Kazakh emissions trading scheme is temporarily suspended until 2018.

[b)] ***South Africa*** and ***Brazil*** have been taken out due to high unpredictability with regard to the implementation of carbon market instruments. In both countries, the use of market based instruments is contested in domestic political debates and is currently not prioritised on the political agenda. South Africa has planned to introduce a carbon tax for the last 10 years, while regularly postponing its starting date. In Brazil, a mandatory ETS has been planned for the states of Rio de Janeiro (planned to start in 2013) and Sao Paulo (announced in 2012). The starting dates of both have been delayed until further notice.

[c)] While both ***Colombia*** and ***Chile*** head in a similar direction regarding carbon pricing policies, exploring options for carbon taxes as well as for domestic emissions trading, Chile appears to be a step ahead. The country passed the first carbon tax law in South America in 2014, setting its starting date for 2017, and is looking into options for an eventual transition of the tax into an ETS, once the national MRV system has been improved. In Colombia, plans are taking shape for the establishment of a carbon tax, a carbon fee and an ETS. However, no law has been passed as of now and processes can be expected to take more time until reaching the next stage.

[d)] While ***India*** ranks second (after China) with regard to the number of registered CDM projects, it has not yet established a domestic carbon market or carbon pricing policy. It does have in place a Perform, Achieve and Trade (PAT) scheme which resembles an ETS. However, the PAT does not entail an absolute cap for CO_2 emissions but is based on energy targets that are intensity based. Moreover, the Indian government has mandated the implementation of pilot ETS in three states which will, however, focus on the abatement of particulates, not CO_2 emissions. In light of these developments, India seems to follow a unique pathway with regard to market-based instruments and it is questionable when and to what extent the country will be open to engage more deeply in carbon markets, for example through making use of cooperative approaches under Art. 6.2. With regard to German market cooperation with India, activities have only very recently shifted away from supporting the CDM to exploring options for the use of (new) market mechanisms. Given the broader context, it might be too early to take these as a starting point for the further development of cooperation.

[e)] Given the similarity of cases when looking at ***Thailand*** and ***Vietnam*** and targeting regional balance across countries, only one is added to the shortlist. While Thailand seems to be at a comparable stage with Vietnam regarding carbon market development, slightly more activity can be recorded for the letter when looking at the country's CDM history as well as current German cooperation activity.

[f)] ***Peru, Jordan, Morocco, Indonesia*** and ***Sri Lanka*** have been excluded due to the fact that current cooperation activities with German participation is limited to the Partnership for Market Readiness (PMR). Thus, these countries offer limited starting points for the elaboration of exemplary concepts for the further development of German-led carbon market cooperation activity.

[g)] ***Dominican Republic, Georgia, Egypt*** and ***Ghana*** have been taken out as these have limited cooperation history with Germany and only one multilateral project is currently ongoing in each country. As above, these countries offer limited starting points for the elaboration of exemplary concepts for the further development of German-led carbon market cooperation activity.

[h)] ***Saint Vincent and the Grenadines, Azerbaijan, Burkina Faso, Rwanda, Uganda*** and the ***Philippines*** have been taken out due to the fact that there is currently no ongoing cooperation activity; all projects have been completed. Once again, these countries offer limited starting points for the elaboration of exemplary concepts for the further development of German-led carbon market cooperation activity.

3.4 Selection of case study candidates (Step 4)

The ten countries in the shortlists are taken as the basis for further discussions with project partners and the client on the final selection of three candidates for in-depth case studies. Issues considered in these discussions include, but are not limited to, the framing of carbon markets in countries' national contributions (NDCs), their concrete institutional readiness for carbon markets in terms of MRV and inventory quality, and their specific qualification for market participation based on long-term targets and ambition.

- **Carbon markets in NDCs:** A central – although not always sufficiently informative and indicative – document to assess each country's vision on climate change, including on carbon markets, are the NDCs. According to IETA, roughly 91 "market friendly" NDCs have been submitted, including 67 countries that plan the use of markets, 17 countries that consider the use of markets, and 7 countries that do not specify markets in their NDC but plan to use them in the longer term. In contrast, a total of 98 NDCs (70+EU) are "not market friendly", with 53 countries not specifying markets at all, and 45 countries (17+EU) stating not to use markets towards their climate targets (IETA 2015b). While NDCs offer a first indication of a country's carbon market vision, more specific information, such as type of market instrument planned, geographical scope, sectoral coverage, accounting principles, etc., is very limited.
- **GHG Inventory quality:** The institutional readiness of a country to take market instruments forward can be, to some degree, depicted by the quality of existing GHG inventories. The inventory quality relies on the integrity of the methodologies used, the completeness of reporting, and the procedures applied for data compilation. Together, these aspects give a good indication of potentials and gaps in the institutional landscape of a country with a view to future carbon market development.
- **Climate targets and ambition:** In addition to these elements, the qualification of a country to participate in market mechanisms under Article 6 is also influenced by the level of ambition within its national contribution. A sufficiently ambitious NDC is crucial to ensure environmental integrity and additionality of market activities. As a general rule, a target in the NDC below business as usual (BAU) projection may reflect some degree of ambition, while a target above BAU represents serious risk of "hot air" and undermining of environmental integrity (Cames et al. 2016).

These and other issues were taken into account in the discussions that led to the final selection of one country for each category. It is important to note that the assignment of countries to the three categories of carbon market development is the result of assessing these countries along the above outlined qualitative criteria. The country specific assessments within the country case studies may call for a revision of this categorisation due to new and additional data. The same holds true for the implication of the categorisation for the potential use of Article 6.

- **Advanced group: Ukraine** – Ukraine has developing country status but is listed in Annex I of the UNFCCC/ Annex B of the Kyoto Protocol. With assistance from the PMR, the country is currently developing a comprehensive MRV system and preparing an EU ETS-compatible scheme at the national level. German cooperation with Ukraine is geared towards capacity building for ETS design and implementation, with the intention to implement a bilateral project starting in 2017. Compared to other countries in the "advanced group", however, German cooperation with Ukraine has been less intense in the past and offers more room for developing future activities along the lines of Article 6. A case study on Ukraine is expected to be a particular value-add to the project, looking into options to reflect emissions trading and potential linking under Art. 6.2.
- **Medium group: Vietnam** – Vietnam is a developing country and Non-Annex I Party to the Convention. Vietnam is very active in the PMR and currently explores the introduction of NAMAs in the steel and waste sectors that could potentially generate credits, as well as the launch of an emissions trading scheme for the steel sector after 2020. German cooperation with Vietnam focuses on targeted support to the establishment of an MRV system within a multilateral project. The German Government sees large potential in the deepening and broadening of cooperation activities with Vietnam, supporting the country in the design and implementation of market-based mechanisms that can potentially be reflected under Art. 6.2.
- **Early group: Ethiopia** – Ethiopia is an LDC and Non-Annex I Party to the Convention with the aspiration to achieve middle income status by 2025. Ethiopia is not a member of the PMR but shows increasing interest in carbon markets which is reflected, amongst others, in a strong commitment to international climate negotiations on that topic.

German cooperation with the country is currently focused on punctual support to the establishment of an MRV system within a multilateral project. Ethiopia is representative for a number of African states that had difficulties in participating in the flexible Kyoto mechanisms and is therefore well suited to analyse specific in-country conditions that allow for the use of market-based mechanisms without artificial barriers. Against this background, the German Government sees specific potential in the continued and deepened cooperation with Ethiopia with regard to the design and implementation of market-based mechanisms that may be reflected, in particular, under Art. 6.4.

4 Conclusions

Germany is very active in international cooperation to support market mechanism conceptualization, implementation and capacity building in various developing and emerging countries, and is also aiming to achieve international links between global markets and instruments such as trading and crediting approaches. The comprehensive cooperation inventory developed as part of this project (Section 1) highlights the historically strong political anchoring of carbon market development in Germany's international cooperation, and the intent to continue to be a proactive player.

With Article 6 of the Paris Agreement, a new framework for international cooperation, market links and transfers of mitigation outcomes was created. While rules for Article 6.2 and modalities and procedures for Article 6.4 are being negotiated, countries and experts are reflecting on how to best integrate previous experience with market based domestic and international policies. Depending on a country's carbon market development stage, it may have different options to make use of the carbon market related mechanisms implied in Art. 6.2 and 6.4.

The case studies that emanate from the here presented analysis offer an in-depth analysis in three partner countries identified through the selection process in Section 2. Each country's explicit interest in participating in carbon market development in a post-Paris world and its capability to realise this interest have been specifically considered, so as to assess the readiness of countries to engage in Article 6. The case countries present a spectrum - from early to advanced - of carbon market development and can be expected to engage in different options for using markets under the Paris Agreement. In general, it is assumed that variation in carbon market experience may have the following implications for the use of Article 6:[10]

A country that is at an advanced stage of the development of carbon markets and carbon pricing instruments may have a particular interest in using options provided through "cooperative approaches" under Art. 6.2, for example with the objective to link a domestic ETS internationally. Any use of Art. 6.2 is likely to require, in general, the capacity to carry out robust accounting "consistent with guidance adopted by the Conference of the Parties" (PA, Art. 6.2). Since inaccurate accounting is a key environmental integrity risk associated with the implementation of market-based mechanisms, and also a key principle referred to under Art. 6.2, countries must be encouraged to take respective measures upfront. Safeguarding robust accounting requires, amongst others, the definition of clear mitigation targets at a country level, the establishment of institutions and procedures to track progress towards these targets, and the creation of systems that transparently quantify and track mitigation outcomes (Schneider et al. 2016). A first step toward robust accounting is the formulation of an ambitious and transparent NDC. The existence of an economy-wide, robust and updated GHG inventory is also critical for the purpose. Parties interested in international transfers of mitigation outcomes, for example through linking domestic ETSs, must dispose of necessary institutional arrangements. Hence, countries that are currently undertaking concrete preparations for the implementation of an ETS and/ or considering ETS linking can be expected to explore options under Art. 6.2 that reflect these efforts. In addition, **advanced countries will also have access to Article 6.4 mechanism**, which is open to all Parties, and may be interesting owing to their own prior experience with the Kyoto Protocol mechanisms. **Ukraine is studied in further detail for the advanced group.**

A country that is at a medium stage in the development of market-based instruments may only be starting to explore options for domestic emissions trading and may not (yet) consider using Art. 6.2 for linking an ETS internationally. It may, instead, **look into options to reflect a bilateral approach under the UNFCCC.** The JCM is a case in point.

10 As long as no further rules and regulations for either of the Articles have been adopted, any statement on the use of markets must be interpreted in light of report-specific assumptions and in light of specific country contexts and positions.

Bilateral crediting approaches take a departure from international mechanisms such as the CDM, but rely on domestic institutions that assume a central role in the coordination of national activities in line with basic international guidelines and principles. Art. 6.2 may also reflect other types of government-to-government transfers of mitigation outcomes, which may or may not involve a market mechanism (Schneider et al. 2016). The principle of robust accounting also applies to bilateral options under Art. 6.2, and key requirements outlined above are equally valid. Yet, a transfer of mitigation outcomes in a bilateral approach can be expected to be less complex than in a system of linked ETSs, as it involves fewer participants and a lower level of institutionalisation. Countries that have experience with transferring mitigation outcomes under other market mechanisms, for example the CDM, can build on this expertise and use respective methodologies and procedures as a stepping stone to the creation of new institutional and legal arrangements in line with Art. 6.2. In addition, **medium countries will also have access to Article 6.4 mechanism** which is open to all Parties and may be interesting owing to their own prior experience with the Kyoto Protocol mechanisms. **Vietnam is studied in further detail for the medium group.**

Finally, there are a number of **countries that find themselves at a relatively early stage of carbon market development.** This could mean that they have gained some experience with the CDM in the past, but have not (yet) looked into options to use domestic (e.g. sectoral) mechanisms or carbon pricing instruments for domestic mitigation effort. It could also mean that countries have only recently started to explore the possibilities that carbon markets offer to engage in mitigation action, without having an elaborate CDM history. These countries often lack the necessary institutional and legal readiness to ensure robust accounting and integrity of emissions reductions at the domestic level. For them, **a mechanism under Art. 6.4 may be the only feasible way to make use of markets under the Paris Agreement**, since it "shall be supervised by a body designated by the Conference of the Parties" (PA, Art. 6.4). Such a centralised governance approach may support countries with limited domestic capacity to tap the expertise available multilaterally and allow them to participate in international markets similar to the CDM. In addition, Art. 6.4 may be more attractive than "cooperative approaches", in particular for those countries that have hosted (or are still hosting) CDM projects or PoAs. This is based on the assumption that a "mitigation and sustainable development mechanism" would be designed along the lines of the CDM and inherit some of its features. In this case, countries may prefer to use and/or adapt existing CDM structures to fit with modalities and procedures defined for the mechanism under Art. 6.4. **Ethiopia is studied in further detail for the early group.**

The categorisation of developmental stages used in this research supports a 'club-based' approach to carbon market development. With Article 6.2 fostering a range of bilateral and multilateral cooperative approaches, which will be loosely guided by the UNFCCC but governed nationally, such clubs can build consensus despite limited movements in negotiations and provide more material evidence to support Article 6 design. A carbon club can support the establishment of common standards for robust accounting, environmental integrity and transparency, and facilitate the mutual recognition of its members' mitigation outcomes. It can furthermore enhance cooperation in building necessary institutional, technical and legal capacities at domestic levels and facilitate shared ideas of environmental integrity. The concept has been well discussed for linking of ETSs (Keohane et al. 2015; Brewer et al. 2016). Carbon clubs can also be developed in other bilateral approaches (e.g. crediting), for instance, in the form of a cohort of countries not looking into emissions trading yet or as clubs that form themselves around implementation of bilateral mechanisms as a main objective. Building on the country assessments carried out in this research, exemplary designs of clubs for countries in similar carbon market development stages and progression pathways from low-advanced developmental stage can be conceptualised in future research.

The three countries have been discussed in detail in the stand-alone case studies and contain recommendations to inform Germany's position on supporting the development of a rule-based and well-functioning carbon market in the post-Paris world and informing ongoing negotiations.

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