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Analysing the interactions between new market mechanisms and emissions trading schemes: Opportunities and prospects for countries to use Article 6 of the Paris Agreement

Final report

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Analysing the interactions between new market mechanisms and emissions trading schemes: Opportunities and prospects for countries to use Article 6 of the Paris Agreement

Final Report

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Abstract

The final report summarises the findings of the project "Analysing the interactions between new market mechanisms and emissions trading schemes" (FKZ 3714 41 506 0). The project had a twofold objective. First, it aimed to conduct a detailed analysis of the provisions related to market mechanisms of the Paris Agreement (Article 6), and to identify issues that should be taken into account when elaborating the rulebook for the Paris Agreement. Second, it switched the perspective from a global discussion towards country-specific research with an aim to answer the question whether different countries are ready for engaging with market mechanisms under the Paris Agreement.

The report is divided into four main sections. The first section reveals the findings of the initial part of the project, discussing the main objectives of the international carbon market under the Paris Agreement, identifying central issues related to Article 6.2 and 6.4 and analysing synergies and conflicts between the provisions. It also summarises potential options for the countries to participate in market mechanisms beyond 2020. The following two sections analyse the readiness of various countries to implement those options domestically, and discuss the potential of international support activities to assist the countries in this process. These sections also deal with the question in how far the existing international cooperation of Germany in the field of carbon markets needs to be readjusted and further developed in the context of Article 6 of the Paris Agreement. To answer this question, the focus was placed on three exemplary cases from countries that have traditionally collaborated with Germany on carbon markets – Ukraine, Vietnam and Ethiopia. The case studies build upon the rationale that different countries find themselves at various stages of carbon market development and that the development stages have specific implications for the potential use of Article 6. The case studies identify the most viable options for these countries to engage with Article 6 given the current level of domestic capacities. In the absence of concrete rules for Article 6 at the time of the study preparation, the assessment provides a first order estimate of the readiness of countries, and identifies entry-points for Germany to continue supporting them in developing rule-based and well-functioning market instruments. The final section of this report contains the aggregated recommendations derived from the project work.

Kurzbeschreibung

Der Abschlussbericht fasst die Ergebnisse des Projekts "Analyse der Wechselwirkungen zwischen neuen Marktmechanismen und Emissionshandelssystemen" (FKZ 3714 41 506 0) zusammen. Das Projekt hatte zwei Ziele. Zu Beginn sollte sowohl eine eingehende Analyse der Bestimmungen zu den Marktmechanismen des Paris Abkommens (Artikel 6) vorgenommen werden als auch die Bestimmung der Probleme, die bei der Ausarbeitung des Regelwerks für das Paris Abkommen berücksichtigt werden sollten. Zweitens wechselte das Projekt die Perspektive von einer globalen Diskussion zu der länderspezifischen Forschung mit dem Ziel, die Frage zu beantworten, ob verschiedene Länder bereit sind, an den Marktmechanismen des Paris Abkommens teilzunehmen.

Der Bericht ist in vier Abschnitte unterteilt. Das erste Kapitel zeigt die Ergebnisse des ersten Projektteils auf und erörtert die wichtigsten Ziele des internationalen Kohlenstoffmarktes im Rahmen des Paris Abkommens. Es werden zentrale Fragen im Zusammenhang mit Artikel 6.2. und 6.4 analysiert und sowohl Synergien als auch Konflikte zwischen den Bestimmungen identifiziert. Außerdem fasst das Kapitel potenzielle Optionen für die Teilnahme der Länder an Marktmechanismen nach 2020 zusammen. Die darauf folgenden zwei Kapitel analysieren die Bereitschaft verschiedener Länder, diese Optionen auf nationaler Ebene umzusetzen und diskutieren das Potenzial internationaler Maßnahmen zur Unterstützung dieser Länder. In den Kapiteln geht es auch um die Frage, inwieweit die bestehende internationale Kooperation Deutschlands, im Bereich der Kohlenstoffmärkte, im Rahmen von Artikel 6 des Paris Abkommens angepasst und weiterentwickelt werden muss. Um dies zu untersuchen, wurde der Fokus auf drei exemplarische Fallstudien aus Ländern gelegt, die traditionell mit Deutschland im

Bereich der Kohlenstoffmärkte zusammengearbeitet haben – Ukraine, Vietnam und Äthiopien. Die Fallstudien bauen darauf auf, dass sich die Länder in unterschiedlichen Stadien der Kohlenstoffmarktentwicklung befinden und dass die Entwicklungsphasen spezifische Implikationen für die mögliche Verwendung von Artikel 6 haben. Die Fallstudien identifizieren die tragfähigsten Optionen für diese Länder unter Artikel 6 angesichts der derzeitigen inländischen Kapazitäten. Aufgrund des zum Zeitpunkt der Studien bestehenden Mangels an konkreten Regeln für Artikel 6, liefert die Bewertung eine erste Einschätzung der Bereitschaft der Länder. Sie zeigen darüber hinaus Ansatzpunkte für Deutschland auf, diese Länder weiterhin bei der Entwicklung von regelbasierten und gut funktionierenden Marktinstrumenten zu unterstützen. Der letzte Abschnitt dieses Berichts enthält die aggregierten Empfehlungen, die aus der Projektarbeit abgeleitet wurden.

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List of Abbreviations

BAU	Business as usual
CA	Cooperative approaches
CDM	Clean Development Mechanism
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme in International Aviation
ETS	Emissions trading system
EU	European Union
GHG	Greenhouse gas
GIZ	Deutsche Gesellschaft für die Internationale Zusammenarbeit
ICAO	International Civil Aviation Organisation
ICAP	International Carbon Action Partnership
ITMOs	Internationally transferred mitigation outcomes
JCM	Joint Crediting Mechanism
JI	Joint Implementation
KP	Kyoto Protocol
LULUCF	Land use, land use change and forestry
MSDM	Mitigation and Sustainable Development Mechanism
MRV	Monitoring, reporting and verification
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally determined contribution
PA	Paris Agreement
PMR	Partnership for Market Readiness of the World Bank
PoA	Programme of Activities
SBSTA	Subsidiary Body for Scientific and Technological Advice
UNFCCC	United Nations Framework Convention on Climate Change

Summary

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 this century. Market mechanisms 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 lays the foundation for post-Paris international carbon markets. It includes several provisions allowing for the use of markets 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).

While about a half of the countries that submitted NDCs under the Paris Agreement intend to take part in or consider participating in the international carbon market (Cames et al. 2016), they substantially differ in terms of the carbon market development at the national level. While some countries have established or are going to introduce emissions trading systems at the national or subnational level and have gathered extensive experience with market instruments under the Kyoto Protocol, others (e.g. Least Developed Countries) are struggling to build up the basic infrastructure to track greenhouse gas emissions. It is therefore important to assist these countries in enhancing their readiness to make use of carbon markets under the Paris Agreement.

Against this background, the German Emissions Trading Authority (DEHSt) at the German Environment Agency (UBA) tendered the research project "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ 3714 41 506 0), which was conducted by adelphi in cooperation with NewClimate Institute and Öko-Institut. The project lasted from the adoption of the Paris Agreement in 2015 until COP23 in Bonn late 2017. As a result, the research conducted accompanied the dynamic process to establish and further develop Article 6 and addressed some of the major issues that came up from a country perspective on how to make use of market mechanisms when implementing the overall objectives of the Paris Agreement.

As a starting point, the project team tracked various country positions in the international climate negotiations on the way to Paris and analysed how these positions were finally reflected in the text of the Paris Agreement. In the second phase of the project, the focus shifted to a detailed analysis of Article 6 provisions taking into consideration their potential synergies and conflicts, as well as the overall objectives of the carbon markets within a new political framework and identifying issues that should be taken into account when elaborating the rulebook for the Paris Agreement. The third stage of the project took a different perspective: Moving away from the negotiation positions and outcomes, it concentrated on country-specific research with an aim to answer the question whether different countries are ready for participating in market mechanisms provided for by the Paris Agreement. To select particular countries for closer analysis, an inventory of Germany's international cooperation on carbon markets was created. Finally, case studies for Ukraine, Vietnam and Ethiopia were conducted outlining the most viable options for these countries to engage with Article 6. Throughout the project, the partners organized five dialogue events[1] to share interim results with experts and climate negotiators, and integrated the respective feedback accordingly.

Country Positions leading to the Paris Outcome

The Paris Agreement is hailed as a diplomatic success and a major step forward for global climate policy both in general and specifically with respect to the development of carbon market mechanisms under Article 6. However, such a strong anchor for market mechanisms in the multilateral agreement

[1] See all workshop documentations in the Annex.

was not a foregone conclusion, as previous negotiations on the Framework for Various Approaches (FVA), the New Market Mechanism (NMM) as well as in the Durban Platform for Enhanced Action (ADP) had made little progress on the multilateral level since the Parties asked the SBSTA to elaborate modalities and procedures for the new market mechanism in Doha. At the same time, various countries and notably the World Bank made considerable efforts to foster carbon markets initiatives (Partnership for Market Readiness, Carbon Pricing Leadership Coalition, etc.), promoting further work on market development from the bottom up. The project team tracked the main elements of the debate on market mechanisms to form a basis to understand, analyse, and foster a discussion on the Paris compromise of Article 6 in a research paper (Kachi et al. 2016).

One of the main findings of the paper was that the integration of the provisions on markets in the text of the Paris Agreement was primarily possible owing to several major developments in the negotiation process, notably the joint Brazilian-EU proposal released well into the COP 21, which became the basis for further negotiations and compromise. The compromise bridged the various positions on the centralised coordinating role of the COP/CMA (Conference of the Parties serving as the Meeting of the Parties to the Agreement), a move beyond pure offsetting, conditions for sustainable development, the voluntary nature of trading subject to mutual agreement of Parties, forestry, sustainable development, a provision of the proceeds on trading, and as well as a number of others negotiated in bilateral and informal settings.

International Market Mechanisms after Paris[2]

The use of the international carbon market under the Paris Agreement is anchored in the provisions of Article 6. In particular, Cooperative Approaches (Article 6.2-3) and the Mechanism for Sustainable Development and Mitigation (Article 6.4-7) constitute the basis of the international carbon market post 2020. In the discussion paper (Cames et al. 2016), which was the main outcome of work package two of the project, the project team identified the main objectives of markets in the context of the Paris Agreement, discussed the main issues resulting from Article 6 provisions and analysed potential synergies and conflicts between the mechanisms under Article 6.2 and 6.4.

The analysis suggested that the purpose of the international carbon markets changed with the adoption of the Paris Agreement. While increasing economic efficiency was more prominent during the first development phase of international carbon markets, raising mitigation ambition is to become more important in the phase to come. Demand for carbon market units for compliance purposes under the Paris Agreement is likely to be smaller than under the Kyoto Protocol since many of the potential buyers are expected to refrain from using carbon market units for the compliance purpose in the future (at least based on the NDCs that have been submitted). Nevertheless, the demand from other sources, such as the International Civil Aviation Organisation (ICAO), or for other purposes, such as results based carbon finance, may create considerable demand to revitalise the international carbon market.

The paper also suggested that some countries with relatively weak NDCs could potentially, similar to the Kyoto Protocol, make use of international carbon markets and sell excess and ambitionless carbon market units ('hot air') through Article 6 mechanisms. However, it is not yet clear whether these abundant amounts could and would actually be converted into units and offered under Article 6. If so, building ambitious "carbon clubs" was suggested as one potential tool to prevent the global mitigation ambition from being undermined by such units.

The design of the market mechanisms under Article 6.2 and 6.4 is still being negotiated. Many fundamental technical questions need to be clarified. Some of these questions are overarching and similar for both mechanisms, e.g. the relationship to NDCs or procedures to ensure robust accounting. Others, such as the nature of the ITMOs or governance are specific for each of the mechanisms. One of the key

[2] See Cames et al. 2016; Healy 2017 in the Annex.

questions to be answered is whether and if yes, how a level playing field can be ensured between both mechanisms. The difference in the language of the Paris Agreement with regard to Article 6.2 and 6.4 suggests that Article 6.2 could be less stringent both in terms of ensuring ambition and in terms of strictness of the procedures: Article 6.2 does not explicitly refer to raising ambition but only implicitly through the chapeau of Article 6 (6.1) while Article 6.4 requires the delivery of an overall mitigation in global emissions; Article 6.2 mandates the elaboration of the guidance whereas 6.4 envisages the elaboration of the rules, modalities and procedures; and finally, sustainable development should be promoted under Article 6.2 while Article 6.4 requests that the mechanism should contribute to sustainable development.

Article 6.2 may thus be more attractive for many Parties since it may be easier to harmonise its requirements with domestic carbon market policies and instruments. However, for Parties with, so far, less developed domestic GHG mitigation policies, Art. 6.4 may be an attractive option to facilitate and promote the development of domestic carbon markets. Overall, three types of countries can be distinguished according to the analysis:

- Parties with well-developed domestic carbon markets, which are mainly interested in linking their domestic emissions trading schemes to the international carbon market with the view to enhancing liquidity and efficiency of their carbon market;
- Parties, which are at the beginning of the development of domestic carbon policies and which do not have NDCs and/or comprehensive emissions inventories that could be used for corresponding adjustments;
- Parties in-between the two previous categories, which would focus on the development of sectoral approaches under Article 6.2 such as the Joint Crediting Mechanism (JCM).

As concluded in the paper, potential options for the involvement of various country groups in the international carbon markets under Article 6 can be further scrutinised through in-depth case studies for all three country categories. This was realised in the course of the third work package of the project.

Inventory of the German International Cooperation on Carbon Markets[3]

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 has been the provision of support and guidance on ETS development and potential linking of trading schemes across jurisdictions.

In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further advanced in line with the guidance, rules and regulations to be finalised under Article 6[4]. To answer this question, an inventory of the existing cooperation with German participation was compiled which also helped to generate insights on countries' carbon market development stages and the different options to make use of the carbon market related mechanisms implied in Article 6.2 and 6.4. The project team defined qualitative criteria and categories that reflected the spectrum of carbon market related expe-

[3] See Warnecke et al. 2017 in the Annex.

[4] It was agreed at COP 22 in Marrakech 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.

rience and expertise across countries and helped to better estimate the different development stages of the countries. The criteria included country experience with international and domestic market mechanisms, the existence of a legal and institutional framework for market mechanisms, the MRV system, etc.

As a result of applying these criteria, countries could be assigned to three categories that broadly reflect their carbon market development stage: advanced, medium and early. While the "advanced" group applies to countries that actively participated in international market mechanisms in the past and already have the institutional and MRV arrangements established at least to a certain extent at the national level, the "medium" group comprises the countries that are in the process of establishing national infrastructure for markets. In comparison to these groups, the "early" group encompasses countries that have only had limited experience with market mechanisms so far but are willing to engage in carbon markets in the near future. Ukraine (advanced group), Vietnam (medium group) and Ethiopia (early group) were selected for conducting case studies representing the three country groups.

Case Studies[5]: Ukraine, Vietnam and Ethiopia

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 was specifically considered. In the absence of concrete rules for Article 6, the assessment provided a first order estimate of the readiness and the capacities of the countries to engage in Article 6, and identified possible pathways for Germany to continue supporting its partner countries in developing rule-based and well-functioning market instruments. To discuss the readiness to engage in Article 6, three indicators were analysed: a) enabling conditions in the country to participate in the market, b) feasibility of maintaining robust accounting and MRV and c) compatibility of the country's NDC to maintain the environmental integrity of Article 6. Through in-depth desk research, combined with expert and stakeholder interviews concrete recommendations were developed at country level and beyond.

The case study for **Ukraine** demonstrates that both cooperative approaches under Article 6.2 and the mechanism based on baseline and crediting instruments under Article 6.4 could be feasible options for Ukraine to participate in the post 2020 international carbon market. The case study underlined the need for detailed and demand-driven, tailor-made technical exchange on the design and linking of ETSs, which would support Ukraine's potential participation in Article 6.2. Germany can support MRV capacity building to ensure its sufficiency and compatibility with Article 6 requirements (as soon as the Paris rulebook is finalised). In addition, it can provide political, technical and financial support for the creation of a specialised body responsible for climate policy issues. Finally it can enhance dialogue with broader group of stakeholders within the country and conduct further studies on mitigation potential in various sectors.

The **Vietnam** case study argues that at the current level of capacity, crediting instruments seem to be most feasible in the short term. In the medium to longer term, the linking of the proposed small scale ETS for the iron and steel sector may be a future option for Vietnam. Entry-points to further support Vietnam to participate in Article 6 are the furthering in-country MRV capacities for market mechanisms, the provision of focussed technical support on common PA elements and the linkages between Article 6 and NDC implementation and finally the sharing of own experiences and lessons learnt for instrument design and implementation.

The case study for **Ethiopia** argues that instruments that build on baseline and crediting approaches appear to be the most immediate carbon market entry-points for Ethiopia, considering its experience,

[5] See Healy et al. 2017; Melnikova et al. 2017; Tewari et al. 2017 in the Annex.

capacities and interests. Such instruments may develop under Article 6.4 and/or come under the purview of cooperative approaches under Article 6.2. Entry-points for future support are furthering in-country MRV capacity for market mechanisms, the provision of focussed technical support on common elements/linkages between Article 6 and NDC implementation as well as sharing experiences and lessons learnt for instrument design and implementation. The case study further highlights the need for creating more interlinkages between markets and other relevant agenda items in the ongoing negotiations, especially with Article 13 on transparency issues and Article 9 on climate finance. Addressing these interlinked elements in a collective manner is critical for the effective implementation of the Paris Agreement.

Conclusion of the project

The key results of the project were presented at different occasions during the project duration, most prominently during the Intersessionals in Bonn in May 2017 and at COP23 in Bonn in November 2017.

These discussions revealed once more that the international climate community enters into a regime without a strict definition of buyers and sellers. Since all countries have to take adequate effort towards global mitigation, the approach on markets also needs to be modified:

1. Differing readiness may present countries with different entry-points for participation in Article 6 options.
2. Countries interested in Article 6 need to realise what role market mechanisms are going to play in their NDC achievement.
3. Readiness for using markets is closely linked to the readiness for implementing the NDCs.
4. Unpacking high-level targets will be important to facilitate environmental integrity objectives of Article 6 (hot air, double counting).
5. Operationalising environmental integrity principles under Article 6 would benefit from a discussion across agenda items (Art. 13.7(b), 13.10 and 9).

The project results clearly showed that the readiness of the countries for Article 6 varies a lot because the countries' circumstances and infrastructure are very different. However, it is obvious that many countries face challenges related to enabling factors; feasibility (which implies technical capacities such as MRV and accounting); and the compatibility of NDCs. Consequently, there could be various entry-points for supporting countries and enhancing their readiness for Article 6.

1. First, it is necessary to reduce key uncertainties: Many countries do not have substantial understanding why Article 6 could be valuable for them.
2. Second, technical support plays a key role. Establishing robust in-country systems based on data and scientific information that can guarantee robust accounting, while sharing technical expertise on the ground would enable the countries to use all kinds of market mechanisms in the future.
3. Third, focusing the efforts on further developing NDCs is crucial: While they were initially developed politically and do not always have a sound scientific basis, it is highly important to identify the real mitigation potential to understand how to utilise it with the help of market mechanisms or results-based finance. Market mechanisms should support the countries in activities that they are not capable of implementing on their own. Therefore, it is crucial to have clarity regarding the question where exactly the mitigation potential lies.

Zusammenfassung

Im Dezember 2015 hat die internationale Gemeinschaft das Pariser Abkommen beschlossen, das darauf abzielt, die globale Erderwärmung auf unter zwei Grad Celsius zu beschränken. Um das implizite 1,5 Grad Ziel zu erreichen, müssen sich die globalen Emissionsreduktionen in der zweiten Hälfte dieses Jahrhunderts zu einem Null-Emissionen-Szenario wandeln. Marktmechanismen können hilfreiche Instrumente zur Erreichung kosteneffektiver Minderungsmaßnahmen darstellen. Eingebettet in zielgerichtete Umsetzungsprozesse kann die Flexibilität gesteigert und Minderungsambitionen vergrößert werden.

Artikel 6 des Pariser Abkommens legt den Grundstein für zukünftige internationale Kohlenstoffmärkte. Darin sind zahlreiche Bestimmungen enthalten, die es mithilfe der Märkte ermöglichen, die Implementierung von nationalen Klimabeiträgen (NDCs) zu unterstützen und eine Steigerung der Ambitionen zu bewirken. Beispielhaft stehen dafür die „kooperativen Ansätze“ (Art. 6.2-3) sowie der „Mechanismus zur Minderung der Emissionen von Treibhausgasen und zur Unterstützung der nachhaltigen Entwicklung“ (Art. 6.4-7).

Obgleich etwa die Hälfte aller Länder, die im Rahmen des Pariser Abkommens NDCs eingereicht haben, eine Teilnahme am internationalen Kohlenstoffmarkt planen oder in Betracht ziehen (Cames et al. 2016), unterscheiden sie sich wesentlich in der Entwicklung von Kohlenstoffmärkten auf nationaler Ebene. Während einige Länder bereits Emissionshandelsmechanismen auf nationaler oder subnationaler Ebene eingeführt haben oder im Begriff sind, diese einzuführen, und weitreichende Erfahrung mit Marktinstrumenten unter dem Kyoto Protokoll gesammelt haben, stellt der Aufbau grundlegender Infrastrukturen zum Monitoring von Treibhausgasemissionen für andere Länder (z.B. am wenigsten entwickelte Länder) eine große Herausforderung dar. Daher ist es wichtig, die Länder in dieser Fähigkeit in einer Weise zu stärken, dass sie grundsätzlich Zugang zu Kohlenstoffmärkten im Rahmen des Pariser Abkommens haben.

Vor diesem Hintergrund hat die Deutsche Emissionshandelsstelle im Umweltbundesamt das Forschungsprojekt „Analyse der Wechselwirkungen zwischen neuen Marktmechanismen und Emissionshandelssystemen“ (FKZ 3714 41 506 0) ausgeschrieben, welches von adelphi in Zusammenarbeit mit dem NewClimate Institute und dem Öko-Institut umgesetzt wurde. Die Projektlaufzeit umfasste den Zeitraum von der Verabschiedung des Pariser Abkommens im Jahr 2015 bis zur COP23 in Bonn Ende 2017. Die Analyse begleitete somit den dynamischen Prozess der Einführung und Weiterentwicklung des Artikels 6 und widmete sich wesentlichen Fragen, die sich aus Sicht der Staaten bei der Nutzung von Marktmechanismen zur Implementierung der Ziele des Pariser Abkommens stellten und stellen.

Zunächst erörterte das Projektteam die Positionen verschiedener Staaten und Staatengruppen im Vorfeld der internationalen Klimaverhandlungen von Paris und analysierte, wie sich diese Positionen schließlich im Text des Pariser Abkommens widerspiegeln. In der zweiten Projektphase verlagerte sich der Forschungsschwerpunkt auf eine detaillierte Analyse der Bestimmungen des Artikels 6 unter besonderer Berücksichtigung der Synergie- und Konfliktpotenziale, der allgemeinen Ziele von Kohlenstoffmärkten im neuen politischen Rahmen sowie weiterer Fragestellungen, die bei der Entwicklung und Ausarbeitung des Regelwerks für das Pariser Abkommen Beachtung finden sollen. In der dritten Projektphase wurde die Analyse über die Verhandlungspositionen und -ergebnisse hinaus durch eine länderspezifische Analyse erweitert. Dies ermöglichte, den Blick auf die Fähigkeiten und Kapazitäten einzelner Länder zur Teilnahme an den im Pariser Abkommen vorgesehenen Marktmechanismen zu richten. Auf der Grundlage eines Inventars der internationalen deutschen Zusammenarbeit im Bereich der Kohlenstoffmärkte wurden drei Länder für eine detailliertere Untersuchung ausgewählt. Hieraus resultierten Fallstudien zur Ukraine, Vietnam und Äthiopien mit einem Fokus auf praktikablen Möglichkeiten für eine Beteiligung an den unter Artikel 6 vorgesehenen Mechanismen. Im Projektverlauf

organisierten die Projektpartner fünf Dialogveranstaltungen[6], um Zwischenergebnisse mit Expertinnen und Experten und Klimaverhandlerinnen und -verhandlern zu diskutieren und deren Rückmeldungen in die Untersuchungsergebnisse einfließen zu lassen.

Verhandlungspositionen auf dem Weg zum Pariser Abkommen

Das Pariser Abkommen gilt als großer diplomatischer Erfolg und wichtiger Schritt in der globalen Klimapolitik – auch in Hinblick auf die Entwicklung von Kohlenstoffmarktmechanismen unter Artikel 6. Eine starke Verankerung der Marktmechanismen in diesem multilateralen Abkommen stellte dabei keine Selbstverständlichkeit dar. Vorangegangene Verhandlungen zum „Framework for Various Approaches" (FVA), dem „Neuen Marktmechanismus" (NMM) und der „Durban Plattform für verstärktes Handeln" (ADP) hatten – seitdem das UNFCCC-Nebenorgan für wissenschaftliche, technische und technologische Beratung (SBSTA) in Doha mit der Ausarbeitung von Modalitäten und Verfahren für neue Marktmechanismen beauftragt worden war – kaum Fortschritte auf multilateraler Ebene erzielt. Gleichzeitig bemühten sich zahlreiche Staaten und insbesondere die Weltbank um eine Förderung von Kohlenstoffmarktinitiativen („Partnership for Market Readiness", „Carbon Pricing Leadership Coalition", etc.), um weitere Arbeiten zur Marktentwicklung durch einen Bottom-up-Ansatz zu unterstützen. Die Kernpunkte der Debatte über Marktmechanismen im Vorfeld von Paris wurden in einer Veröffentlichung zusammengeführt, um eine Grundlage für weitere Analysen und Diskussionen über den in Paris erzielten Kompromiss zu Artikel 6 zu schaffen (Kachi et al. 2016).

Ein wichtiges Ergebnis dieser Untersuchung war die Feststellung, dass die Bestimmungen zu Marktmechanismen im Pariser Abkommen maßgeblich durch einzelne Initiativen im Verhandlungsprozess möglich wurden, insbesondere durch den im Rahmen der COP21 gemeinsam eingebrachten Vorschlag von Brasilien und der EU, der zur Grundlage weiterer Verhandlungen wurde. Der schließlich erzielte Kompromiss vereinte mehrere Positionen zur zentralen Koordinierungsrolle der COP/CMA („Conference of the Parties serving as the Meeting of the Parties to the Agreement"), zur Rolle nachhaltiger Entwicklung, Forstwirtschaft, Bestimmungen zu Handelserlösen sowie weiteren Themen, die in bilateralen und informellen Kreisen verhandelt worden waren.

Internationale Marktmechanismen nach Paris[7]

Die Nutzung des internationalen Kohlenstoffmarktes für nationale Minderungsbemühungen ist durch Bestimmungen in Artikel 6 im Pariser Abkommen verankert. Insbesondere die „kooperativen Ansätze" (Artikel 6.2-3) und der „Mechanismus zur Minderung der Emissionen von Treibhausgasen und zur Unterstützung der nachhaltigen Entwicklung" (Artikel 6.4-7) bilden die Grundlage für den internationalen Kohlenstoffmarkt nach 2020. Im Rahmen des Projektes wurden in einer weiteren Analyse Kernziele der Märkte im Kontext des Pariser Abkommens identifiziert und Synergie- und Konfliktpotenziale der in Artikel 6.2 und 6.4 vorgesehenen Mechanismen diskutiert (Carmes et al 2017).

Die Analyse zeigt, dass sich die Zielsetzung internationaler Kohlenstoffmärkte mit der Annahme des Pariser Abkommens verändert hat. Während die wirtschaftliche Effizienz von Minderungsmaßnahmen in der ersten Phase der Entwicklung internationaler Kohlenstoffmärkte eine wesentlich prominentere Rolle einnahm, ist davon auszugehen, dass die Steigerung von Minderungsambitionen in Zukunft die Hauptrolle spielen wird. Die Nachfrage nach Zertifikaten des Kohlenstoffmarkts zur Einhaltung von Minderungszielen im Rahmen des Pariser Abkommens dürfte mit hoher Wahrscheinlichkeit geringer ausfallen als im Rahmen des Kyoto Protokolls, zumindest wenn man die eingereichten NDCs zugrunde legt. Ungeachtet dessen eröffnet die Nachfrage aus anderen Quellen, wie beispielsweise der Internati-

[6] Siehe alle Workshop-Dokumentationen im Anhang.

[7] Siehe Cames et al. 2016; Healy 2017 im Anhang.

onalen Zivilluftfahrt-Organisation (ICAO) oder einer ergebnisbasierten Klimafinanzierung, Perspektiven für eine Wiederbelebung des internationalen Kohlenstoffmarktes.

Die Untersuchung verdeutlicht ferner, dass einige Staaten mit vergleichsweise schwachen NDCs – ähnlich der Umsetzung des Kyoto Protokolls – die internationalen Kohlenstoffmärkte nutzen könnten, um überschüssige Zertifikate aus ambitionslosen Minderungsmaßnahmen („Hot Air") im Rahmen der Anwendung von Artikel 6 zu verkaufen. Hierbei bleibt indes abzuwarten, ob große Mengen tatsächlich in handelbare Zertifikate umgewandelt und in Übereinstimmung mit Artikel 6 angeboten werden können. Um die Unterwanderung der globalen Minderungsambitionen durch solche Einheiten zu verhindern, wird die Gründung ambitionierter „Carbon Clubs" als mögliche Gegenmaßnahme skizziert.

Da sich die Ausgestaltung der Marktmechanismen unter den Artikeln 6.2 und 6.4 noch in Verhandlung befindet, müssen zahlreiche technische Fragen noch abschließend geklärt werden. Einige dieser Fragen sind allumfassend und im Falle beider Mechanismen ähnlich, zum Beispiel die Beziehung zu den NDCs oder Verfahren zur Sicherstellung einer robusten Bilanzierung. Andere Fragen, wie die Eigenschaften der sogenannten International Transferierten Minderungsergebnissen (ITMOs) oder die übergeordnete Steuerung und Aufsicht sind spezifisch für jeden der Mechanismen zu klären. Eine der noch zu beantwortenden Kernfragen lautet, ob ein gemeinsamer Handlungsraum zwischen beiden Mechanismen etabliert werden kann und, wenn ja, wie diese auszugestalten ist. Unterschiedliche Formulierungen im Abkommen in Bezug auf die Artikel 6.2 und 6.4 lassen die Annahme zu, dass Artikel 6.2 sowohl beim Ambitionsschutz als auch in der Strenge der Verfahren weniger stringent ist: so findet sich keine explizite Erwähnung der Ambitionssteigerung, sondern lediglich ein impliziter Hinweis im Einleitungstext zu Artikel 6 (6.1), wohingegen Artikel 6.4 eine generelle Minderung der globalen Emissionen verlangt. Artikel 6.2 sieht die Ausarbeitung von Leitlinien vor, während Artikel 6.4 die Erarbeitung von Regeln, Modalitäten und Verfahren bestimmt. Artikel 6.2 beinhaltet die Förderung nachhaltiger Entwicklung, wohingegen Artikel 6.4 erfordert, dass der Mechanismus einen Beitrag zu nachhaltiger Entwicklung leistet.

Artikel 6.2 könnte daher von vielen Vertragsparteien als attraktiver wahrgenommen werden, da die mit ihm verbundenen Anforderungen leichter mit nationalen Kohlenstoffmarktpolitiken und -instrumenten in Einklang gebracht werden können. Trotzdem kann Artikel 6.4 für Länder mit bisher weniger stark entwickelten Treibhausgasminderungspolitiken eine attraktive Option zur Förderung von nationalen Kohlenstoffmärkten darstellen. Insgesamt können daher drei Ländertypen unterschieden werden:

- Vertragsparteien mit gut entwickelten nationalen Kohlenstoffmärkten, die hauptsächlich daran interessiert sind, ihre nationalen Emissionshandelssysteme mit den internationalen Kohlenstoffmärkten zu verbinden, um die Liquidität und Effizienz ihrer Kohlenstoffmärkte zu verbessern;
- Vertragsparteien, die sich im Anfangsstadium der Entwicklung nationaler Kohlenstoffpolitiken befinden und über keine NDCs oder umfassenden Emissionsinventare verfügen, die für entsprechende Anpassungen genutzt werden könnten;
- Vertragsparteien, die zwischen diesen beiden Kategorien zu verorten sind und sich auf die Entwicklung sektoraler Ansätze unter Artikel 6.2 – wie dem „Joint Crediting Mechanism" (JCM) – konzentrieren.

Vor dem Hintergrund dieser Einordnung sind Optionen für die weitere Einbindung verschiedener Ländergruppen in den internationalen Kohlenstoffmarkt unter Artikel 6 anhand von detaillierten Fallstudien zu prüfen. Als Ausgangspunkt hierfür sind bestehende Arrangements deutscher Unterstützung vertieft zu betrachten.

Inventar deutscher internationaler Zusammenarbeit zu Kohlenstoffmärkten[8]

Deutschland ist ein Schlüsselakteur in der internationalen Förderung marktbasierter Instrumente und der Reform und Weiterentwicklung der globalen Kohlenstoffmärkte. Traditionell hat sich Deutschlands internationale Zusammenarbeit sowohl auf die Angebotsseite – d.h. Reform des CDM und Einführung neuer marktbasierter Mechanismen – als auch auf die Nachfrageseite – d.h. Weiterentwicklung der Marktinstrumente bei gleichzeitiger Ambitionssteigerung auf internationaler Ebene – konzentriert. Die Unterstützung und Anleitung bei der Entwicklung von Emissionshandelssystemen und die Verknüpfung von grenzübergreifenden Handelssystemen stellt ein weiteres zentrales Feld der Zusammenarbeit dar.

Im Kontext des durch das Pariser Abkommen eingeleiteten Paradigmenwechsels hin zum Primat einer Ambitionssteigerung stellt sich die Frage, inwiefern die existierende deutsche Zusammenarbeit im Bereich Kohlenstoffmärkte angepasst und unter Berücksichtigung der noch zu finalisierenden Leitlinien, Regeln und Bestimmungen unter Artikel 6[9] vorangebracht werden muss. Zur Beantwortung dieser Frage dient ein Inventar der existierenden Zusammenarbeit mit deutscher Beteiligung, das auch Einblicke in den Entwicklungsfortschritt der Kohlenstoffmärkte sowie in die verschiedenen Optionen zur Nutzung der in den Artikeln 6.2 und 6.4 vorgesehenen Marktmechanismen in den jeweiligen Ländern erlaubt. Hierfür wurden qualitative Kriterien und Kategorien definiert, die das Spektrum der kohlen-stoffmarktrelevanten Expertise in den Ländern abbilden und so eine Einordung der Länder ermöglichen. Die angelegten Kriterien umfassen u.a. die Erfahrung mit internationalen und nationalen Marktmechanismen, die Existenz eines legalen und institutionellen Rahmens für Marktmechanismen, die Qualität des MRV-Systems und andere.

Im Abgleich mit diesen Kriterien können Länder drei Kategorien zugeteilt werden, die jeweils das Entwicklungsstadium hinsichtlich der Einführung eines Marktmechanismus widerspiegeln: Diese Kategorien reichen von einem „frühem“ über ein „intermediäres“ bis hin zu einem „fortgeschrittenen“ Stadium. Während sich die „fortgeschrittene“ Gruppe auf Länder bezieht, die in der Vergangenheit aktiv an internationalen Marktmechanismen teilgenommen und die institutionellen und MRV-Maßnahmen mindestens in einem gewissen Umfang auf nationaler Ebene aufgebaut haben, handelt es sich bei der „intermediären“ Gruppe um Länder, die sich in einer Aufbauphase nationaler Marktinfrastruktur befinden. Im Vergleich zu diesen Gruppen verfügt die Ländergruppe im „anfänglichen“ Stadium bisher lediglich über eingeschränkte Erfahrungen mit Marktmechanismen. Gleichzeitig besteht jedoch die Bereitschaft, sich in Zukunft an Kohlenstoffmärkten zu beteiligen. Die Ukraine (Gruppe in fortgeschrittenem Stadium), Vietnam (Gruppe in intermediärem Stadium) und Äthiopien (Gruppe in anfänglichem Stadium) wurden repräsentativ für die drei Kategorien und die Durchführung der Fallstudien ausgewählt.

Fallstudien[10]: Ukraine, Vietnam und Äthiopien

Die durchgeführten Fallstudien basieren auf der Annahme, dass unterschiedliche Länder sich in unterschiedlichen Stadien ihrer Kohlenstoffmarktentwicklung befinden und diese Entwicklungsstadien spezifische Auswirkungen auf die potenzielle Inanspruchnahme von Artikel 6 haben werden. Außerdem wurde das Interesse der jeweiligen Länder, an der Entwicklung eines internationalen Kohlenstoffmarktes im Zuge der Umsetzung des Pariser Abkommens teilzunehmen, sowie die Kapazitäten zur Umsetzung dieses Interesses besonders berücksichtigt. Durch den gegenwärtig noch bestehenden

[8] Siehe Warnecke et al. 2017 im Anhang.

[9] Auf der COP 22 in Marrakesch wurde vereinbart, das Arbeitsprogramm im Rahmen des Paris Abkommens auf der COP 24 im Dezember 2018 zu vervollständigen. Dazu gehört auch die Arbeit der SBSTA zur Ausarbeitung einer Anleitung zu kooperativen Ansätzen gemäß Artikel 6.2 des Paris Abkommens und der Regeln, Modalitäten und Verfahren für den in Artikel 6.4 des Paris Abkommens festgelegten Mechanismus.

[10] Siehe Healy et al. 2017; Melnikova et al. 2017; Tewari et al. 2017 im Anhang.

Mangel an konkreten Regeln für Artikel 6 lieferte die Untersuchung daher eine erste Einschätzung zur Bereitschaft und zu den Möglichkeiten der Länder, sich mit Artikel 6 auseinander zu setzen. Zudem wurden mögliche Optionen für Deutschland identifiziert, um Partnerländer bei der Entwicklung regelbasierter und gut funktionierender Marktinstrumente zu unterstützen. Um die Bereitschaft für die Nutzung des Artikel 6 zu bestimmen, wurden drei Indikatoren analysiert: a) förderliche Rahmenbedingungen in den Ländern, um am Markt teilzunehmen, b) Realisierbarkeit der Etablierung stabiler Bilanzierungsregeln und MRV-Strukturen und c) Vereinbarkeit mit dem NDC zur Wahrung der umweltbezogenen Integrität von Artikel 6. Anhand von umfassenden Länderrecherchen sowie Stakeholder- und Experteninterviews konnten konkrete Empfehlungen auf nationaler Ebene und darüber hinaus formuliert werden.

Die Fallstudie für die **Ukraine** zeigt, dass sowohl kooperative Ansätze unter Artikel 6.2 als auch die Nutzung von Baseline- und Crediting-Instrumenten unter Artikel 6.4 realisierbare Szenarien für die Teilnahme der Ukraine an einem Kohlenstoffmarkt post-2020 darstellen. Die Fallstudie verdeutlicht die Notwendigkeit eines detaillierten und nachfragegetriebenen, individuell zugeschnittenen technischen Austauschs über die mögliche Gestaltung und Verknüpfung von ETS, der die potenzielle Teilnahme der Ukraine an Artikel 6.2 unterstützen würde. Ein Ansatzpunkt kann dabei zum Beispiel die Unterstützung der MRV-Kapazitätsbildung sein, um sicherzustellen, dass dieser Prozess ausreichend und in Einklang mit den Erfordernissen von Artikel 6 erfolgt - sobald das Pariser Regelbuch finalisiert ist. Zusätzlich kann politische, technische und finanzielle Unterstützung für den Aufbau eines spezialisierten Gremiums in der Ukraine geleistet werden, das für Themen und Fragestellungen der Klimapolitik zuständig ist. Schließlich kann auch ein Dialog mit einer breiteren Gruppe von Stakeholdern innerhalb des Landes gefördert und weitere Studien zum Minderungspotenzial in den verschiedenen Sektoren durchführt werden.

Die Untersuchung zu **Vietnam** kommt zu dem Ergebnis, dass bei derzeitigem Stand der Kapazitäten der kurzfristige Aufbau von Instrumenten für einen Crediting-Mechanismus realisierbar ist. Mittel- und langfristig könnte die internationale Verknüpfung des avisierten nationalen ETS für den Eisen- und Stahlsektor eine zukünftige Option für Vietnam darstellen. Ansatzpunkte für weitere Unterstützung Vietnams bei der Teilnahme an Artikel 6 bieten die Weiterentwicklung nationaler MRV-Kapazitäten für Marktmechanismen, die Bereitstellung spezialisierter technischer Unterstützung bei der Umsetzung einzelner Elemente des Pariser Abkommens sowie die Verknüpfung von Artikel 6 und der NDC Implementierung. Schließlich kann auch der Austausch über eigene Rückschlüsse und Erfahrungen zur Ausgestaltung der Instrumente und deren Implementierung von Bedeutung sein.

Die Fallstudie zu **Äthiopien** kommt zu dem Ergebnis, dass aufgrund der Erfahrungen, Kapazitäten und Interessenlage des Landes solche Instrumente, die auf Baseline- und Crediting-Ansätzen beruhen, die besten Ansatzpunkte für Äthiopiens Teilnahme an Kohlenstoffmärkten darstellen. Solche Instrumente können unter Artikel 6.4 und / oder den Geltungsbereich der kooperativen Ansätze unter Artikel 6.2 fallen. Ansatzpunkte für zukünftige Unterstützung bieten die Förderung nationaler MRV-Kapazitäten für Marktmechanismen, die Bereitstellung spezifischer technischer Hilfe in allgemeinen Fragen der Verknüpfung von Artikel 6 und der NDC Implementierung sowie der Erfahrungsaustausch über die Ausgestaltung der Instrumente und deren Implementierung. Die Fallstudie betont ebenfalls die Bedeutung verbesserter Verknüpfung zwischen Märkten und anderen Elementen der Umsetzungsagenda in den gegenwärtigen Verhandlungen, besonders in Hinblick auf Artikel 13 zu Transparenzfragen und Artikel 9 zu Klimafinanzierungsfragen. Die Thematisierung dieser miteinander zusammenhängenden Elemente ist für die effektive Umsetzung des Abkommens entscheidend.

Fazit des Projekts

Die Fortschritte des Projekts wurden zu unterschiedlichen Anlässen während des Projektzeitraums präsentiert. Hervorzuheben sind besonders die Vorstellungen im Rahmen der Intersessionals in Bonn im Mai 2017 sowie während der COP23 im November 2017 in Bonn. Diese Diskussionen verdeutlich-

ten, dass sich die internationale Klimagemeinschaft auf dem Weg in ein Regime ohne eine strenge Abgrenzung von Käufer- und Verkäufer-Staaten befindet. Da alle Staaten angemessene Anstrengungen für globale Minderungsmaßnahmen unternehmen müssen, gilt es, den Marktansatz ebenfalls zu modifizieren. Folgende Punkte gilt es dabei zu berücksichtigen:

1. Unterschiedliche Fähigkeiten und Kapazitäten eröffnen den Staaten auch unterschiedliche Ansatzpunkte für die Teilnahme an den möglichen Optionen unter Artikel 6.
2. Staaten mit einem Interesse an der Nutzung von Artikel 6 müssen sich bewusst werden, welche Rolle Marktmechanismen bei der Erreichung ihrer NDCs spielen sollen.
3. Die Fähigkeit zur Nutzung der Märkte ist eng mit der Fähigkeit zur NDC-Umsetzung verknüpft.
4. Die Konkretisierung ambitionierter Ziele ist entscheidend, um die umweltbezogenen Integritätsziele von Artikel 6 zu erleichtern – und Hot Air oder Doppelzählungen zu vermeiden.
5. Die Operationalisierung der umweltbezogenen Integritätsprinzipien unter Artikel 6 würde von einer themenübergreifenden Diskussion profitieren (Art. 13.7(b), 13.10 und 9).

Die Projektergebnisse unterstreichen, dass die Fähigkeiten einzelner Staaten für die Nutzung von Artikel 6 sehr unterschiedlich ausgeprägt sind. Auch wird deutlich, dass sich viele Länder insbesondere mit Herausforderungen konfrontiert sehen, die sich unter drei Gruppen subsumieren lassen: ein förderliches Umfeld, Machbarkeit/Realisierbarkeit (im Sinne von technischen Kapazitäten für MRV und Bilanzierungen) sowie Vereinbarkeit mit den NDCs. Daraus ergeben sich zahlreiche Ansatzpunkte, um andere Staaten in ihren Fähigkeiten zur Nutzung von Artikel 6 zu unterstützen.

1. Es ist notwendig, zentrale Unklarheiten hinsichtlich der Artikel 6 Nutzung auszuräumen: viele Staaten haben gegenwärtig keine hinreichende Vorstellung davon, warum Artikel 6 für sie von Bedeutung sein könnte.
2. Die technische Unterstützung spielt eine Schlüsselrolle. Der Aufbau stabiler, auf Daten und wissenschaftlichen Informationen beruhender, nationaler Systeme, die stabile Bilanzierungen garantieren, ist genauso notwendig wie der Erfahrungsaustausch verknüpft mit dem Aufbau technischer Expertise in den Ländern. Dies würde die Staaten in die Lage versetzen, in Zukunft unterschiedliche Arten von Marktinstrumenten zu nutzen.
3. Schließlich ist es entscheidend, auch in Zukunft die Bemühungen auf die Weiterentwicklung der NDCs zu konzentrieren. Da ihre Entwicklung vielfach politisch geprägt war und oft die solide wissenschaftliche Grundlage fehlt, ist es sehr wichtig, das wahre Minderungspotenzial zu identifizieren, um das tatsächliche Potential von Marktmechanismen oder ergebnisbasierter Finanzierung nutzen zu können. Am Ende sind internationale Marktmechanismen kein Selbstzweck, sondern sollen Staaten bei Aktivitäten, die sie nicht selbstständig umsetzen können, unterstützen.

1 Introduction

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. Market mechanisms 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 lays the foundation for post-Paris international carbon markets. It includes several provisions allowing for the use of markets 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). Multiple instruments could generate ITMOs under Article 6.2, as long as their generation is consistent with the international guidance, which will be adopted by the COP. Further, Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation, which should generate emission reduction credits and operate under the authority of the COP.

In the next step, provisions of Article 6 shall be made operational with the help of the guidance for Article 6.2 as well as rules, modalities and procedures for Article 6.4, with the rulebook for the use of market mechanisms to be completed at the COP 24.

While about a half of the countries that submitted (I)NDCs under the Paris Agreement intend to take part in or consider participating in the international carbon market, they substantially differ in terms of the carbon market development at the national level. While some countries have established or are going to introduce emissions trading systems at the national or subnational level and have gathered extensive experience with market instruments under the Kyoto Protocol, other countries (e.g. Least Developed Countries) are struggling to build up the basis infrastructure to track greenhouse gas emissions. It is therefore important to assist these countries in enhancing their readiness to make use of carbon markets under the Paris Agreement.

1.1 Project Objectives

Against this background, the German Emissions Trading Authority (DEHSt) at the German Environment Agency (UBA) tendered the research project "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ 3714 41 506 0), which was conducted by adelphi in cooperation with NewClimate Institute and Öko-Institut. The project started in the year 2015 shortly before the adoption of the Paris Agreement and followed several objectives that slightly evolved over the course of the project to encompass the dynamic developments resulting from the adoption of the Paris Agreement.

In the first phase of the project, the project team tracked various country positions in the international climate negotiations on the way to Paris and analysed how these positions were finally reflected in the text of the Paris Agreement. In the second phase of the project, the focus shifted to a detailed analysis of Article 6 provisions taking into consideration their potential synergies and conflicts, as well as the overall objectives of the carbon market within a new political framework, and identifying issues that should be taken into account when elaborating the rulebook for the Paris Agreement. The third stage of the project took a different perspective: Moving away from the negotiation positions and outcomes, it concentrated on country-specific research with an aim to answer the question whether different countries are ready for participating in market mechanisms provided for by the Paris Agreement. To select particular countries for closer analysis, an inventory of Germany's international cooperation on carbon markets was created. Finally, case studies for Ukraine, Vietnam and Ethiopia were conducted outlining the most viable options for these countries to engage with Article 6.

2 Article 6 of the Paris Agreement: The role of international market mechanisms in carbon market negotiations[11]

The use of the international carbon market under the Paris Agreement is anchored in the provisions of Article 6. In particular, Cooperative Approaches (Article 6.2-3) and the Mechanism for Sustainable Development and Mitigation (Article 6.4-7) constitute the basis of the international carbon market post 2020. In the discussion paper (Cames et al. 2016), which was the main outcome of work package two of the project, the project team identified the main objectives of markets in the context of the Paris Agreement, discussed the main issues resulting from Article 6 provisions and analysed potential synergies and conflicts between mechanisms under Article 6.2 and 6.4.

The analysis suggested that the purpose of the international carbon markets changed with the adoption of the Paris Agreement. While increasing economic efficiency was more prominent during the first development phase of international carbon markets, raising mitigation ambition is to become more important in the phase to come. Demand for carbon market units for compliance purposes under the Paris Agreement is likely to be smaller than under the Kyoto Protocol since many of the potential buyers are expected to refrain from using carbon market units for compliance purpose in the future (at least based on the (I)NDCs that have been submitted). Nevertheless, the demand from other sources, such as the International Civil Aviation Organisation (ICAO), or for other purposes, such as results based carbon finance, may create considerable demand to revitalise the international carbon market.

The paper also suggested that some countries with relatively weak NDCs could potentially, similar to the Kyoto Protocol, make use of the international carbon markets and sell excess and ambitionless carbon market units ("hot air") through Article 6 mechanisms. A great diversity of NDCs (e.g. various types of NDC targets, diverging timeframes) exacerbate this problem. However, it is not yet clear whether these abundant amounts could and would actually be converted into units and offered under Article 6. If so, building ambitious "carbon clubs" was suggested as one potential tool to prevent the global mitigation ambition from being undermined by such units.

The design of the market mechanisms under Article 6.2 and 6.4 is still being negotiated. Many fundamental technical questions need to be clarified. Some of these questions are overarching and similar for both mechanisms, e.g. the relationship to NDCs or the procedures to ensure robust accounting. Others, such as the nature of the ITMOs or governance issues are specific for each of the mechanisms. One of the key questions to be answered is whether and if yes, how exactly a level playing field can be ensured between both mechanisms.

The difference in the language of the Paris Agreement with regard to Article 6.2 and 6.4 suggests that Article 6.2 could be less stringent both in terms of ensuring ambition and in terms of strictness of the procedures: Article 6.2 does not explicitly refer to raising ambition but only implicitly through the chapeau of Article 6 (6.1) while Article 6.4 requires the delivery of an overall mitigation in global emissions; Article 6.2 mandates the development of the guidance whereas 6.4 envisages the elaboration of the rules, modalities and procedures; and finally, sustainable development should be "promoted" under Article 6.2 while Article 6.4 explicitly requests that the mechanism should contribute to sustainable development.

Article 6.2 may thus be more attractive for many Parties since it may be easier to harmonise its requirements with domestic carbon market policies and instruments. However, for smaller Parties or Parties with, so far, less developed domestic GHG mitigation policies, Article 6.4 may be an attractive option to facilitate and promote the development of domestic carbon markets. Overall, three types of countries could be distinguished according to the analysis conducted by the project team:

[11] See Cames et al. 2016 in the Annex.

- Parties with developed domestic carbon markets, which are mainly interested in linking their domestic emissions trading schemes to the international carbon market with the view to enhancing liquidity and efficiency of their carbon market;
- Parties, which are at the beginning of the development of domestic carbon policies and which do not have NDCs and comprehensive emissions inventories that could be used for corresponding adjustments;
- Parties in-between the two previous categories, which would focus on the development of sectoral approaches under Article 6.2 such as the Joint Crediting Mechanism (JCM).

As concluded in the paper, the potential options for the involvement of various country groups in the international carbon markets under Article 6 can be further scrutinised through in-depth case studies for all three country categories. This was realised in the course of the third work package of the project.

2.1 Provisions of Article 6 of the Paris Agreement[12]

Article 6 of the Paris Agreement introduces several provisions for using international market mechanisms. Article 6.1 outlines four main purposes:

1. Implementation of nationally determined contributions (NDCs);
2. Allowing for higher ambition in mitigation and adaptation actions;
3. Promoting sustainable development; and
4. Promoting environmental integrity.

Both the cooperative approaches (CAs) under Article 6.2 and 6.3 and the mitigation and sustainable development mechanism (MSDM) under Article 6.4 allow countries to use internationally transferred mitigation outcomes (ITMOs) to fulfil their NDCs. However, the extent to which ITMOs will be used under these market mechanism approaches is subject to continued negotiation to ensure that all of the objectives outlined in Article 6.1 of the Paris Agreement are fulfilled. International guidance on implementing Article 6.2 is therefore currently being negotiated under the Subsidiary Body for Science and Technology Advice (SBSTA). Similarly rules, modalities and procedures for implementing Article 6.4 are simultaneously being developed also under SBSTA. According to the co-facilitator's informal work plan, recommendations for both market mechanism approaches are expected to be completed by the 49th SBSTA session in 2018.

Cooperative approaches (CAs)

CAs are commonly understood to allow Parties to use ITMOs to contribute to the achievement of their NDCs. CAs between Parties may involve the linking of their emission trading schemes, the use of international crediting mechanisms or direct bilateral transfers. To avoid the risk of double counting of emission reductions, Parties engaging in CAs are expected under Article 6.2 to apply 'robust accounting'. Parties are expected to make 'corresponding adjustments' to either their GHG inventory or NDC target (yet to be determined) in order to account for the flow of ITMOs between Parties. The ability to adjust the NDC target upwards to account for the purchase of ITMOs also provides an opportunity to encourage higher levels of mitigation ambition amongst the Parties.

Mitigation and Sustainable Development (MSDM) Mechanism

The MSDM is widely understood to be a new market mechanism under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA). The design elements of the MSDM strongly resembles those of the Clean Development Mechanism (CDM):

[12] See Healy 2017 in the Annex.

"the mechanism has a dual objective of supporting mitigation action as well as sustainable development, is under authority and guidance of the CMA and supervised by a UNFCCC body, involves public as well as private entities, and requires mitigation action to be additional, real, measurable, long term, as well as to be verified by designated operational entities" (Schneider et al. 2016).

Although there are many similarities between MSDM and the market mechanisms under the Kyoto Protocol (KP), there are a number of important differences. Cames et al. (2016) refer to the following key differences:

1. While the CDM distinguishes between Annex I Parties (acquire certified emissions reductions (CERs)) and non-Annex I Parties (host mitigation projects), this distinction has been dropped from the MSDM;
2. The CDM is project-based (later redefined by the Executive Board (EB) as programmes, which can include a number of similar projects), whereas the MSDM does not specify the scope of the mitigation activities but requests that the eligible scope be further specified;
3. The CDM is an offset mechanism, which, from a global perspective, does not directly contribute to reducing global GHG emissions. By contrast, the MSDM is subject to a provision stating that it shall aim to mitigate global emissions overall.

Differences between the market mechanisms under Article 6

The table below provides an overview of the differences between the cooperative approaches (i.e. Article 6.2-3) and the mechanism under Article 6.4. The provisions for Article 6.4 are significantly more stringent and perhaps more burdensome than those for the cooperative approaches (Cames et al. 2016). Parties may potentially prefer Article 6.2 over 6.4. However, this will ultimately depend on the stringency of the guidance currently under development for cooperative approaches, which will need to balance the demands from "those wishing to retain full flexibility and those advocating command and elaborated guidance and/or strong international governance" (Wuppertal Institute 2017).

Table 1: Differences between market mechanisms under Article 6

	Article 6.2	Article 6.4
Raising of ambition	Neither explicitly mentioned in Art. 6.2-3 nor in the respective decision paragraph (36 of 1/CP.21)	Art. 6.4(d) requires that the market mechanism shall "deliver an overall mitigation in global emissions"
Bindingness: guidance versus rules, modalities and procedures	Parties are mandated to develop guidance for the implementation of the market mechanism	Parties are mandated to elaborate more comprehensive and binding rules, modalities and procedures for under Art. 6.7
Promotion of contribution to sustainable development	Just speaks of promotion of sustainable development	Speaks more strongly of a contribution to sustainable development
Governance	Requires transparency to be included in governance. However, no further specification of governance	A body to supervise the implementation of mechanism is established
Share of Proceeds (SoP)	No such provision	Activities under the mechanism shall provide a share of proceeds to cover administrative expenses and support adaptation

Source: Healy 2017

2.2 Status of Article 6 negotiations after COP23 in Bonn

Currently, the Subsidiary Body for Scientific and Technological Advice (SBSTA) is working on Article 6 provisions at the technical level under agenda item 11. The negotiations are structured in three sub-areas (a-c):

- On Article 6.2: SBSTA 11 (a): Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement;
- On Article 6.4: SBSTA 11 (b): Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement;
- On Article 6.8: SBSTA 11 (c): Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement.

Country submissions before COP23

In the run-up to the COP 23, states were invited to submit their proposals and views on the design of various aspects of Article 6.2 / 6.4 / 6.8 or to comment on them (Party Submissions). 21 submissions were received on Article 6.2, and 18 on Article 6.4. Many of the submissions are a continued expression of or supplement to previous statements from 2016 and the first half of 2017 (in preparation for SBSTA 46 in the summer of 2017).

Roundtables at the COP (Co-Facilitators)

At the beginning of the COP, the format of the so-called roundtable was practiced for the second time (SBSTA 46 and COP 23). This format once again proved to be very useful for the mutual understanding of the negotiating partners and complemented Party Submissions in a meaningful way. The discussions in the roundtables were conducted along the abovementioned SBSTA agenda items. Prior to the roundtable, the states were able to introduce the accompanying presentations. For each sub-item (11 a-c), supporting guiding questions were formulated. The state of discussion for the respective roundtables was summarized on 6 November 2017 by the co-facilitators in three informal documents.

Design elements approved by SBSTA (Co-Chairs)

Real consolidated results on Article 6 of the Paris Agreement were initially left out. The negotiations were more discursive than oriented towards law-making. Due to the sometimes very divergent positions of the negotiating groups, concrete progress could only be achieved to a limited extent. In three iterations, draft decisions were discussed. The final versions of 12 November 2017 are available to the Conference of the Parties as "informal notes" by the co-chairs containing the draft elements on Article 6.2 / 6.4 / 6.8 developed by the SBSTA.

All in all, Parties succeeded in the formulation of consistent headings for the desired Paris rulebook. This should enable them to fully focus on designing concrete text fragments in the next step.

Decisions (Chair)

In the decisions of 14 November 2017, SBSTA was mandated by the Chair to continue the development of the draft elements. Until SBSTA 48 in the spring of 2018, the Chair was asked to elaborate the draft elements in an informal document on the basis of the draft decisions and the previous submissions. No new country submissions are planned so far. The draft elements for Article 6.2, 6.4 and 6.8 were published in three informal documents on 16 March 2018. They include draft provisions regarding the scope of the mechanisms, governance and reporting arrangements, participation requirements for and responsibilities of Parties and other aspects under negotiation. The informal document for Article 6.4 also includes draft provisions for the transition from the Kyoto Protocol to Article 6.4. It should, how-

ever, be noted that at the current stage, the draft elements for all mechanisms provide numerous design options for Parties to select from and agree upon.

2.3 Options for countries to use Article 6

While the detailed guidance and rules for Article 6 provisions are under negotiation, countries as well as experts are reflecting on how to best integrate experiences from previous and existing market-based instruments in the future mechanisms. Based on existing market experiences, a set of options for transferring mitigation outcomes was identified by the project team for the countries in the post-Paris world (see Table 2 below). These options were intentionally formulated in a broad way and are non-exhaustive.

Table 2: Potential non-exhaustive options for ITMO transfers under Article 6

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	x
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Tewari et al. 2017

Participation options under Article 6.2

Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of ITMOs. Multiple instruments could generate ITMOs under Article 6.2 as long as their generation is consistent with the international guidance that is to be adopted by the COP. Based on currently operational domestic, as well as international, carbon pricing instruments and the outlined interpretation of ITMOs, a few broad participation options emerge:

1. ITMO transfers as a result of linked domestic Emission Trading Schemes (ETSs): Emission permits or corresponding ITMOs are transferred as a result of trades between established ETSs from respective jurisdictions through linking their markets.
2. Direct government-to-government ITMO transfers: This could take different forms. For instance, emission permits similar to assigned amount units (AAU) in the Kyoto Protocol's International Emission Trading are transferred as ITMOs.
3. ITMO transfers as result of (bilateral) baseline and crediting instruments: These include crediting of emission reductions in non-ETS sectors for the countries with ETSs, or a general crediting approach, or the Joint Crediting Mechanism (JCM) type bilateral crediting approach. Such instruments may operate on project-by-project or sectoral level.

Participation options under Article 6.4

Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation which generates emission reduction credits and operates under the authority of the COP. Based on engagement in operational international mechanisms and existing structures (e.g. CDM), participation in the mechanism can involve, first and foremost, the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETSs) towards meeting the acquiring country's NDC. We assume that emission reduction credits generated under Article 6.4, which are internationally transferred and used by the acquiring country towards its NDC, may potentially also be regarded as ITMOs.

1. Design options that exist under Article 6.4 are yet to be agreed and could include a project or programme based mechanism similar to the CDM/JI approaches; or a sectoral international crediting mechanism in which fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved. Alternatively, credits could be also generated by adopting, quantifying and carrying out MRV for GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

The identification of potential options for the countries to participate in market mechanisms beyond 2020 goes hand in hand with the question whether the countries are ready to implement those options domestically, and if not, whether and how they can be supported internationally. The questions of country readiness and international support were addressed in the next two steps of the project.

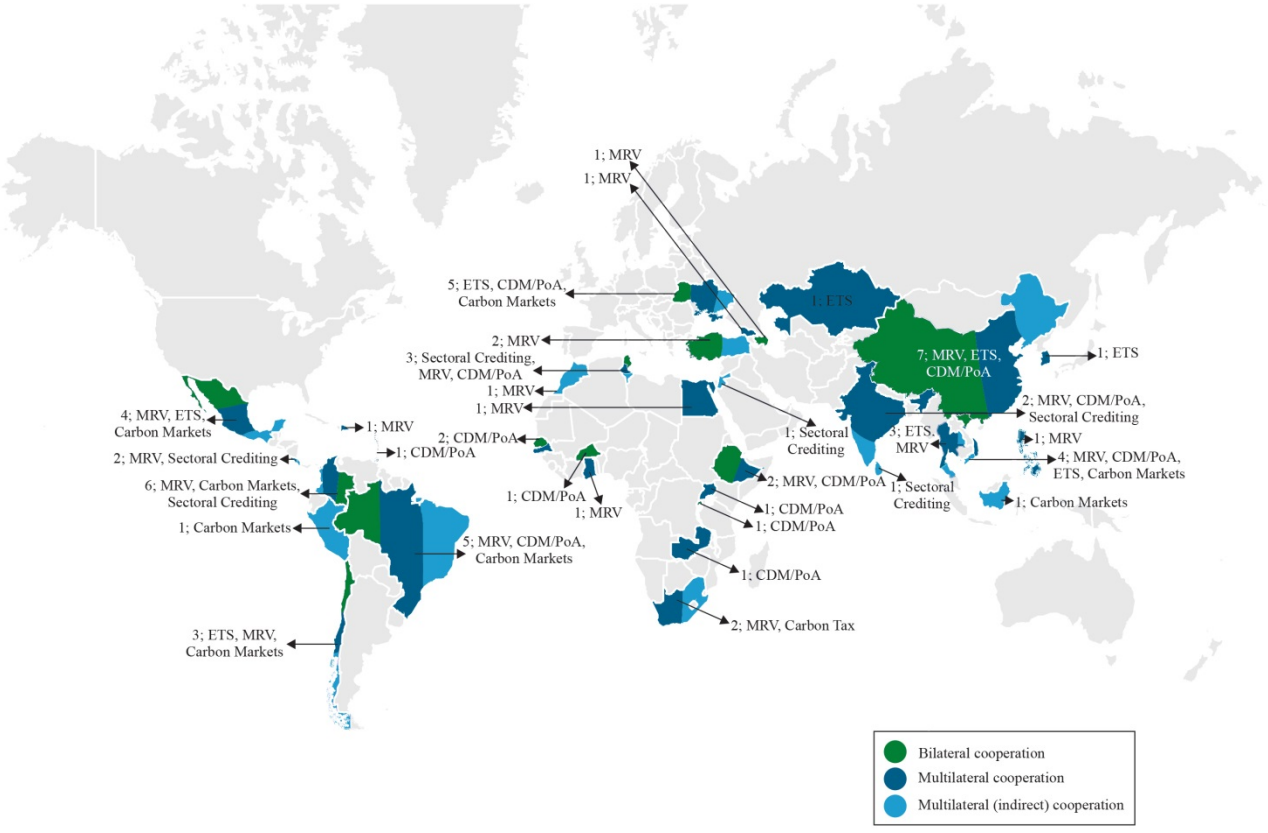
3 Inventory of the German International Cooperation on Carbon Markets[13]

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 has been the provision of support and guidance on ETS development and potential 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), the International Carbon Action Partnership (ICAP) or the Carbon Market Platform established as a result of the G7 summit in 2015.

In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further advanced in line with the guidance, rules and regulations to be finalised under Article 6. To answer this question, an inventory of the existing/recent German cooperation was compiled by the project team, which also helped to generate insights on the carbon market development stages of various partner countries of Germany and the different potential options to make use of Article 6.2 and 6.4. The project team also visualised the results of the German carbon market cooperation inventory on a world map.

Figure 1: World Map of German international cooperation on carbon markets



Source: Warnecke et al. 2017

[13] See Warnecke et al. 2017 in the Annex.

Within the cooperation inventory, the project team defined qualitative criteria and categories that reflected the spectrum of carbon market related expertise across countries and helped to classify the countries. The criteria included country experience with international and domestic market/carbon pricing mechanisms and emissions trading, the existence of a legal and institutional framework for market mechanisms, the stage of development of the MRV system, the participation in carbon market related international initiatives, and the negotiation position on carbon markets.

As a result of applying the defined criteria, countries could be classified into three categories that broadly reflect their carbon market development stage: advanced, medium and early. While the "advanced" group applies to countries that actively participated in international market mechanisms in the past and already have the institutional and MRV arrangement established at least to a certain extent at the national level, the "medium" group comprises the countries that are in the process of establishing the national infrastructure for markets. In comparison to these groups, the "early" group encompasses countries that have only had limited experience with market mechanisms but are willing to engage in carbon markets in the near future.

In the next step, in close consultation with the client and under consideration of additional criteria, Ukraine (advanced group), Vietnam (medium group) and Ethiopia (early group) were selected for conducting case studies representing the three country groups:

- **Advanced group: Ukraine** – Ukraine has a 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 emissions trading system at the national level. German cooperation with Ukraine is geared towards capacity building for ETS design and implementation. A bilateral cooperation project started 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.
- **Medium group: Vietnam** – Vietnam is a developing country and Non-Annex I Party to the UNFCCC. 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.

3.1 Case study process

The aim of the case studies was to analyse and discuss, which of the potential options for engaging with Article 6 of the Paris Agreement (presented in the Chapter 2.3 of this report) would be most suitable for each of these countries against the background of the respective current country capacities, and why. In the absence of firm rules on the nature and form of market mechanisms under Article 6, an assessment of country readiness could not be based on precise benchmarks. However, a readiness assessment could still take stock of the broad preconditions to engage with Article 6, identify support needs and provide important insights for ongoing negotiations and the further development of modalities for Article 6.

During the analysis, three major indicators were identified that influenced the assessment of 'engagement readiness' of countries to the greatest extent. These are the enabling conditions for the uptake of Article 6 market instruments (enabling conditions) and the factors that ensure that the mitigation outcomes used as ITMOs follow the principles of environmental integrity desirable under Article 6 (feasibility of maintaining robust accounting and MRV; and compatibility of the NDC):

1. **Enabling conditions** – Prior experience and availability of instruments such as emission trading systems, crediting instruments and bilateral transfers can play a facilitative role in Article 6 uptake. Furthermore, the Paris Agreement has redefined the paradigm for international climate policy as unlike the KP, all Parties have taken up some form of contributions towards global mitigation efforts. As all Parties are free to buy or sell ITMOs, market instruments can have an impact on (and be impacted by) domestic mitigation efforts. Hence, the political will of Parties to pursue domestic or international instruments, facilitate their uptake by stakeholders, and ensure quality of ITMOs will be critical in the post-Paris world.
2. **Feasibility of maintaining robust accounting and MRV** – Article 6 instruments would require strong domestic systems to supplement and strengthen internationally agreed guidance and rules to measure, monitor, report and verify the ITMOs for Article 6.2 and Article 6.4 respectively, assuming the two have comparable stringency. This includes experiences of a country, first, with economy wide emission accounting, e.g. in the form of national emissions inventories and MRV systems and prior registry experience. Second, experiences with accounting approaches for specific sectors and mitigation activities (similar to project-based crediting instruments). Additionally, the presence of appropriate institutions, e.g. a coordinating body, would be critical to maintain robust accounting and MRV. Further, interest and implementation capacity of stakeholders (e.g. businesses, NGOs, and state agencies) is important to maintain robustness of accounting and MRV provisions included in the Paris Agreement.
3. **Compatibility of the NDC** – Finally, the relationship of ITMOs with NDCs will be critical for maintaining the environmental integrity of Article 6 instruments and strengthening the mitigation ambition of the Paris Agreement. Considering the broad range of NDCs that have been submitted to the UNFCCC, among others, aspects such as the nature (conditional or unconditional) and scope (sectoral, actions only, economy wide) of the NDC, elements of quantifiability such as clear emission trajectories and clarity of underlying actions are important. Moreover, the extent of ambition of the NDC could influence the generation of genuine emission reduction credits ('hot air').

Table 3: Indicators and factors used in readiness assessment

Indicators	Factors considered in the assessment
Enabling conditions	Availability of instruments
	Political will
Feasibility of maintaining robust accounting and MRV	Accounting capacity
	Implementation capacities
	MRV systems
	Registry experience
Compatibility of the NDC	Scope of the NDC and type of target
	Clarity of the NDC
	Nature of the NDC
	NDC ambition
	Coverage of GHGs

Source: Tewari et al. 2017

4 Insights from country case studies[14]

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 was specifically considered. In the absence of concrete rules for Article 6, the assessment provided a first order estimate of the readiness of the countries to engage in Article 6, and identified possible pathways for Germany to continue supporting its partner countries in developing rule-based and well-functioning market instruments. To discuss the readiness to engage in Article 6, three abovementioned indicators were analysed: 1) enabling conditions in the country to participate in the market; 2) feasibility of maintaining robust accounting and MRV; and 3) compatibility of the country's NDC to maintain the environmental integrity of Article 6. Through in-depth desk research, combined with expert and stakeholder interviews, concrete recommendations were developed at the country level and beyond.

4.1 Case Studies: Ukraine, Vietnam and Ethiopia

4.1.1 Ukraine

Ukraine is at a relatively advanced stage considering the infrastructure it has created being a Kyoto Protocol Annex B Party (with quite substantive experience with MRV procedures, accounting and the national registry), and is laying the groundwork for the start of a domestic ETS with support from international donors. However, main barriers include insufficient implementation capacities at the installation level, the lack of private sector support as well as limited institutional capacities.

Summary of case study outcomes

In general, the whole range of preliminary options identified in the course of the case study work could be used by Ukraine in the future. Table 4 below summarises Ukraine's potential readiness to engage in various market options under Article 6. Still, given the current level of experience and capacity, crediting instruments as well as direct government-to-government ITMO transfers seem to be most feasible in the short term. In the long term, engagement through an ETS could also be viable, provided that the underlying MRV system is operating flawlessly and the ETS is up and running. Allocating more personnel resources to the development of market mechanisms as well as to the UNFCCC reporting could enhance the country's readiness to engage in Article 6 options. Apart from that, raising the level of ambition of the NDC is of importance to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any). Finally, stronger domestic high-level political support and broader stakeholder engagement are factors that could further foster participation of the country in the new mechanisms.

Recommendations

The assessment carried out in the case study points towards certain gaps and needs where Germany's cooperation can support Ukraine in getting ready for Article 6. Some of these are related to the implementation of all Article 6 options, while others are more option-specific.

Recommendations related to all Article 6 options

[14] See Healy et al. 2017; Melnikova et al. 2017; Tewari et al. 2017 in the Annex.

Create a specific checklist on a sufficient, Art. 6 compatible MRV system: To begin with, the major prerequisite for the smooth functioning of an ETS and any other market mechanisms is a robust MRV system, which requires both administrative capacity of the government and implementation capacity of the private sector. According to the representatives of the Ukrainian government and NGOs, international support for MRV that is currently being provided (primarily by the PMR) is addressing the existing capacity gaps well (i.e. assistance in drafting MRV legislation, piloting MRV measures, providing trainings for operators, establishing MRV-related infrastructure). At the same time, once the international rules and guidance for Article 6 are established, new support activities could focus on creating a specific checklist to make sure that the MRV system is sufficient and compatible with Article 6 requirements, based on which further gaps and support needs may be identified.

Enhance the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms and the perspectives of Article 6: Secondly, the analysis illustrated that more emphasis could be put on ensuring greater involvement of broader public and private sector actors and stakeholders (e.g. the Parliament, the Ministry of Energy and Coal Mining or the Ministry of Economic Development and Trade and the private sector) in the discussions around policy making and implementation of MRV and market mechanisms. Future bilateral and international cooperation activities could foster the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms in general and the perspectives of Article 6 in particular.

Provide support for the creation of a body specialising in climate policy issues: At the same time, the study demonstrated that strengthening the resources of the Ministry of Ecology and Natural Resources by creating a specialised climate policy institution (which could be a governmental structure, public-private partnership or regional institution for Ukraine and neighbouring/partner countries) could help better coordinate donor activities and cross-ministerial interaction. Political, technical and financial support for the creation of such a specialised body as well as the provision of targeted activities to enhance its capacity once the institution is established would increase Ukraine's readiness to implement future market instruments.

Conduct studies on the opportunities for raising NDC ambition: Another overarching factor that could substantially foster the use of all Article 6 options in Ukraine is raising its NDC ambition. To this end, detailed studies assessing the current mitigation potential of multiple sectors and the economy as a whole as well as studies on how to most effectively realise the mitigation potential to increase the level of ambition are recommended. Updating the understanding of sector-specific mitigation potential, measures, and cost may also be required.

Dedicate more resources to accounting and strengthen high-level political support: Domestically, dedicating more resources to deliver compliance with the UNFCCC reporting requirements could help ensure continuous robust accounting. Finally, building strong high-level political support for market mechanisms could help Ukraine further pave the way for using various Article 6 options.

Option-specific recommendations

Organise a technical exchange between Ukraine and partners on the design of an ETS: If Ukraine were to choose the path of engaging in Article 6.2 with a future domestic ETS, the key need would be technical and financial support for the design, introduction and operation of the ETS. One possible way is to organise detailed and demand-driven, tailor-made technical exchange with countries and subnational jurisdictions where ETSs are already operational. The issue of linking ETSs would require additional technical support and political coordination. Direct international support for the establishment of an ETS in Ukraine is planned and partly being provided, but it requires time to assess the effectiveness of this support.

Conduct studies focusing on the potential and challenges for using international crediting mechanisms and sectoral crediting in particular: What is more, to foster Ukraine's possible participation in interna-

tional crediting mechanisms, studies specifically focusing on the potential and challenges for using these mechanisms would be required. Special focus could be on analysing the prospects for sectoral crediting, which would be a new focal area for Ukraine. Last but not least, Ukraine could strengthen its own experience with market instruments by engaging in technical knowledge exchange with countries that have had experience of using mechanisms of other kinds (e.g. Joint Crediting Mechanism, JCM).

4.1.2 Vietnam

Although the MRV and accounting capacities of Vietnam are rather limited, they are being developed in a few priority sectors covered by the NDC with the support from international donors. Kyoto Protocol activities (CDM projects), Nationally Appropriate Mitigation Actions (NAMAs) and JCM activities have been the major catalysers of these developments. Main barriers are the financial, technical and institutional resource constraints that limit the capacity to independently develop the full scale MRV system.

Summary of case study outcomes

In general, the range of preliminary options identified in the course of the case study work (see Table 4 below) could all be used by Vietnam in the future. Still, given the current level of experience and capacity, crediting instruments seem to be the most feasible in the short term. In the medium to longer term, the linking of the proposed small scale ETS for the iron and steel sector may be a future option for Vietnam. Allocating more personnel resources to the development of market mechanisms as well as to the UNFCCC reporting could support the country's engagement with Article 6 options. Apart from that, raising the level of NDC ambition is crucial to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any). Finally, stronger domestic high-level political support and broader stakeholder engagement are factors that could additionally foster participation of the country in the new mechanisms.

Recommendations

Three broad areas of potential cooperation were identified:

Furthering in-country MRV capacities for market mechanisms: Vietnam's MRV systems at the national and sectoral levels are in a development phase and there is currently a lack of effective coordination between ministries, economic sectors, localities, public and private sectors. Furthermore, technical and financial resources within the country to develop MRV systems are limited. It is therefore crucial to involve the private sector and that incentives are needed to engage private stakeholders from the start, because the state budget cannot cover all necessary resources. Hence, an entry point for international cooperation to build readiness towards future markets could be by supporting enhanced technical readiness of sectoral actors. To a certain extent, efforts are already ongoing with support from the PMR to focus on building up MRV capacities in several sectors with large mitigation potential. However, further technical and financial support remains necessary.

Urgent needs also exist for developing in-country capacities in national emissions accounting. According to a policy maker from the Ministry of Natural Resources and Environment (MONRE), progress towards a national GHG inventory in Vietnam has so far been very challenging. This is primarily due to issues with the collection of data from different ministries and sectors that are so far reluctant to cooperate. An additional challenge is that those responsible for implementing MRV on the ground have different levels of education and knowledge. Therefore international support to develop tools for streamlined, common emissions reporting and training for actors (at different levels of governance) reporting and administering these systems would be beneficial.

Focussed technical support on linkages between Article 6 and NDC implementation: If Vietnam's current participation in the JCM is to evolve into a cooperative approach with Japan, further work would be necessary to ensure that ITMOs generated under the crediting mechanism would meet the environ-

mental standards that will eventually be set out in the guidance to Article 6.2. It would also be necessary to agree upon how ITMOs generated under the cooperative approach would be distributed amongst the two countries.

Alternatively, if the country participates in Article 6.2 via the linking of a future domestic ETS, the key need would be technical and financial support for the design, successful launch and operation of the ETS. One possible way is to organise detailed and demand-driven, tailor-made technical exchange with countries and subnational jurisdictions where an ETS is already operational. The issue of linking an ETS would also require additional technical support and political coordination.

Vietnam may also be supported to develop experience with registry systems for documenting and tracking mitigation outcomes and associated support. Such support could either take the form of in-country work supported by the German government or could happen through Viet Nam's participation in programmes supported by Germany such as the PMR.

Sharing experiences and lessons learnt: A third significant need identified was to learn from experiences of other jurisdictions on administrative and technical issues. Specifically, learning from experiences of developed countries was highlighted to be an extremely useful resource for countries beginning to develop domestic systems by Vietnamese representatives in the current project's workshop. International technical guidelines as well as case studies from developed countries on how to establish market mechanisms could be extremely helpful for Vietnam to learn from this experience.

4.1.3 Ethiopia

The MRV and accounting capacities of Ethiopia are even more limited than those of Vietnam, although international donors have also helped to develop capacities in a few priority sectors. Kyoto Protocol activities (CDM projects, though very limited in number) and Nationally Appropriate Mitigation Actions (NAMAs) have been fostering these developments. Main barriers are the financial, technical and institutional resource constraints as well as a limited discussion on how single-standing sectoral MRV structures fit in the overall policy and institutional framework required for the NDC.

Summary of case study outcomes

Ethiopia has gained some prior experience with, and is working towards, improving the enabling conditions for future carbon markets. Current experiences include baseline and crediting approaches. Such instruments could be developed under the new international market mechanism to be agreed under Article 6.4 as well as under Article 6.2's Cooperative Approaches. Domestic carbon pricing instruments are still not under consideration, limiting ITMO transfers resulting from such instruments (e.g. through ETS linking) as a market entry-point in the immediate future.

Further, systems for economy wide emissions tracking are yet to be established, limiting Ethiopia's ability to participate in direct government-to government transfers that require robust inventory reports in the near future. Therefore, from the participation options discussed in the case study (see Table 4 below) Article 6.4 mechanism or Article 6.2 approaches based on baseline and crediting instruments developed at programmatic scales appear to present the most immediate carbon market entry-points for Ethiopia. However, Ethiopia will need to work on making the link between its carbon market uptake and NDC achievement clearer. It must be stressed here that the assessment is a first order one given the uncertainty of Article 6 negotiations and the fact that it will still take at least until 2018 (COP24) to negotiate the exact design details of the new mechanisms.

Recommendations

Building on the assessment, three broad areas of potential German cooperation with Ethiopia on carbon markets were identified:

Furthering in-country MRV capacity for market mechanisms: Ethiopia's domestic MRV framework has a sectoral focus. Hence, an entry point for international cooperation to build readiness towards future markets can be by supporting enhanced technical readiness of sectoral actors, both public and private. Such pools of specific sectoral capacities can be used by state actors as needed and may circumvent the constraints Ethiopia faces in staffing dedicated technical professionals in state institutions such as sectoral Climate Resilient Green Economy Strategy units and other administrative agencies. Further, there is an urgent need to develop in-country experience in national emissions accounting. This includes developing tools for streamlined, common emissions reporting and training for actors reporting and administering these systems. A third element is to provide technical training on methods and assessment approaches for both intervention specific and economy-wide emissions accounting. Currently, technical knowhow is limited and spread amongst a few high-level champions and non-state experts. Support would also be useful in raising awareness among targeted stakeholders, e.g. local agencies, private sector and local communities either implementing the interventions or potentially affected by them.

Focussed technical support on linkages between Article 6 and NDC implementation: German cooperation to Ethiopia has been largely indirect in the past. An avenue of expanding German cooperation in the future can be to provide more long-term focussed support on the linkages between Article 6 and NDC implementation. Technical support for developing a multi-level MRV system is one such area. Multi-level MRV systems can administer mitigation activities at the national, sectoral and intervention levels and are being discussed in some countries under the PMR. Such systems can include the infrastructure needed for MRV (e.g. IT infrastructure), regulatory frameworks, and standards etc. for undertaking MRV at different levels. Ethiopia supports such an approach in principle in its submissions to SBSTA. Further, Ethiopia could be supported to develop its experience with registry systems for documenting and tracking mitigation outcomes and associated activities. Such support could either take the form of in-country work supported by the German government or could be facilitated through Ethiopia's participation in programmes supported by the German government, such as the PMR.

Sharing experiences and lessons learnt: A third significant need identified in this research was to learn from experiences of other jurisdictions on administrative and technical issues. Specifically, Ethiopian representatives highlighted that learning from the experiences of developed countries was an extremely useful resource for countries in the early stages of developing domestic systems.

Table 4: Potential Article 6 options for Ukraine, Vietnam and Ethiopia

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)			
	Ukraine (advanced)	Vietnam (medium)	Ethiopia (early)
ITMO transfers as a result of linked Emission Trading Schemes	x	x	
Direct transfers of ITMOs between countries	x		
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x	x	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx	xx	xx

Source: Tewari et al. 2017

5 Conclusions and Recommendations[15]

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 "cooperative approaches" under Article 6.2, for example with the objective to link a domestic ETSs internationally. Any use of Article 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" (Paris Agreement, Article 6.2). Since inaccurate accounting is a key environmental integrity risk associated with the implementation of market-based mechanisms, 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. A first step toward robust accounting is the formulation of an ambitious and transparent NDC. The existence of an economy-wide, robust and updated greenhouse gas (GHG) inventory is also critical for the purpose.

Therefore, Parties interested in the 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 Article 6.2 that reflect these efforts. In addition, advanced countries will also have access to the Article 6.4 mechanism, which is open to all Parties, and may be interesting for these countries owing to their own prior experience with the Kyoto Protocol mechanisms.

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 Article 6.2 for linking an ETS internationally. It may, instead, look into options to reflect a bilateral approach under the UNFCCC. The JCM is one of the potential options. 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. Article 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 Article 6.2, and key requirements outlined for the "advanced" group are equally valid here. 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 Article 6.2. In addition, "medium" countries will also have access to the Article 6.4 mechanism, which is open to all Parties and offers an opportunity to build on prior experience with the Kyoto Protocol mechanisms.

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 national 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 Article 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" (Paris

[15] See Warnecke et al. 2017 in the Annex.

Agreement, Article 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, Article 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, however, based on the assumption that a "mitigation and sustainable development mechanism" would inherit some of the design features of the CDM. 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 Article 6.4.

At the same time, it should be noted that the categorisation of countries developed by the project team is not cast in stone. Countries may as well look into options to use both Article 6.2 and 6.4, or use either of the mechanisms in a different way than assumed in the project. As the detailed rules for Article 6 are under development, the potential use of markets under the Paris Agreement leaves much room for interpretation.

Insights from experts' discussion[16]

The key results of the project were presented on different occasions during the project duration, most prominently during the Intersessionals in Bonn in May 2017 and COP23 in Bonn in November.

These discussions revealed once more that the international climate community enters into a regime without a strict definition of buyers and sellers. Since all countries have to take adequate effort towards global mitigation, the approach on markets also needs to be modified.

Key takeaways on enhancing readiness for Article 6

1. Differing readiness may present countries with different entry-points for participation in Article 6 options.
2. Countries interested in Article 6 need to realise what role market mechanisms are going to play in their NDC achievement.
3. Readiness for using markets is closely linked to the readiness for implementing the NDC.
4. Unpacking high-level targets will be important to facilitate environmental integrity objectives of Article 6 (avoiding hot air by defining target trajectories instead of single year targets; robust accounting for conditional targets to avoid double counting).
5. Operationalising environmental integrity principles under Article 6 would benefit from a discussion across agenda items (e.g. Art. 13.7(b), 13.10 and 9 of the Paris Agreement).

Immediate support for NDC implementation readiness would benefit the readiness of respective countries for engaging in market mechanisms. Raising awareness and mobilising the engagement of the private sector and subnational actors as well as providing support for strengthening institutional capacities are of great importance. Moreover, supporting or developing platforms for learning and sharing experience, and piloting market instruments could also be beneficial. Progress can also be achieved by simply enhancing the understanding of what future markets would look like and what capacities are required to participate in them. It is necessary to distinguish between country-specific and overarching support needs.

The project results clearly showed that the readiness of the countries for Article 6 varies a lot because the countries' circumstances and infrastructure are very different. However, it is obvious that many countries face especially three groups of challenges, which the project team classified as enabling factors; feasibility, which implies technical capacities such as MRV and accounting; and the compatibility of NDCs. Consequently, there could be various entry-points for supporting countries and enhancing their readiness for Article 6:

[16] See Groß and Tänzler 2017 in the Annex.

- **First, it is necessary to reduce key uncertainties:** Many countries do not have substantial understanding why Article 6 could be valuable for them. To understand why and how ITMOs should be used, it is very important to consider this question in the context of an NDC implementation strategy and in an even longer-term perspective, because every NDC should be embedded in a long-term climate strategy. It is therefore crucial to provide support for the development of long-term low-emission development strategies and define the role of domestic carbon pricing instruments therein. Providing support for policy reforms (e.g. MRV) alone is not sufficient unless the country has a clear goal and vision (e.g. ETS establishment), which is, in turn, embedded in a broader political and economic context.
- **Second, technical support plays a key role:** Establishing robust in-country systems based on data and scientific information that can guarantee robust accounting, while sharing technical expertise on the ground would enable the countries to use all kinds of market mechanisms in the future.
- **Third, focusing the efforts on further developing NDCs is crucial:** While the NDCs were initially developed politically and do not always have a sound scientific basis, it is highly important to identify the real mitigation potential to understand how to utilise it with the help of market mechanisms or results-based finance. Market mechanisms should support the countries in activities that they are not capable of implementing on their own. Therefore, it is crucial to have clarity regarding the question where exactly the mitigation potential lies. One way of dealing with the issue of hot air is supporting the development of the sound data basis that all NDCs should be based on.

6 List of Annexes

Annex I: Project Publications

- Cames, Martin; Sean Healy, Dennis Tänzler, Lina Li, Julia Melnikova, Carsten Warnecke and Marie Kurdziel (2016): International market mechanisms after Paris. Discussion Paper. Berlin: German Emissions Trading Authority (DEHSt).
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- Kachi, Aki; Dennis Tänzler, Julia Melnikova, Lina Li, Martin Cames, Ralph Harthan, Carsten Warnecke, Marie Kurdziel (2016): Market Mechanism Positions on the Way to Paris: Elements of the debate on market mechanisms and their influence on the Paris Agreement. Input paper based on the first work package of the Research Project "Analyse der Wechselwirkungen zwischen Neuen Marktmechanismen und Emissionshandelssystemen". Berlin: adelphi.
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8 Annex I: Project Publications

Environmental Research of the
Federal Ministry for the
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Project number: 3714 41 506 0

Discussion Paper: International market mechanisms after Paris

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This paper was written for the German Federal Environment Agency (UBA) as part of the project titled "Analyse der Wechselwirkungen zwischen Neuen Marktmechanismen und Emissionshandelssystemen" (FKZ 3714 41 506 0). This project is being carried out by adelphi (coordination) in cooperation with NewClimate Institute and Öko-Institut.

Abstract

The Paris Agreement includes Article 6 with several provisions, which allow for the use of the international carbon market. In this paper, Cooperative Approaches (CA, Art. 6.2-3) and the Mechanism for Sustainable Development and Mitigation (MSDM, Art. 6.4-7) will be considered as the market mechanisms, which constitute the basis of the international carbon market under the United Nations Framework Convention on Climate Change (UNFCCC). The purpose of this paper is to identify the main goals and aims of the international carbon market, take into account the general context and environment for carbon markets under the Paris Agreement, identify and discuss the main issues of the relevant paragraphs and analyse issues of the interaction and relationship of the provisions including synergies and conflicts. The paper aims at facilitating the discussion among UNFCCC parties while, given the dynamic nature of the topic, it can obviously only be a snapshot of the current status of the discussions.

Our analysis suggests that the purpose of international carbon markets has changed. While increasing economic efficiency was more prominent during the first development phase of international carbon markets, raising mitigation ambition may become more important in the phase to come. In terms of the design of the two market mechanisms pursuant to Art. 6.2 and 6.4, negotiations have just started. Many fundamental or more technical questions still have to be negotiated and it is not yet clear which positions individual parties will take. Some of these questions are overarching and are similar for both mechanisms, e.g. the relationship to Nationally Determined Contribution (NDCs) or procedures to ensure robust accounting. Others, such as the nature of the Internationally Transferred Mitigation Outcomes (ITMOs) or governance issues are quite different and very specific for each of the mechanisms.

Kurzbeschreibung

Das Pariser Abkommen enthält Artikel 6 mit mehreren Bestimmungen, die die Nutzung des internationalen Kohlenstoffmarktes ermöglichen. In diesem Papier werden Kooperationsansätze (Art. 6.2-3) und der Mechanismus für Nachhaltige Entwicklung und Minderung (Art. 6.4-7) als Marktmechanismen betrachtet, die die Basis für den internationalen Kohlenstoffmarkt unter der Klimarahmenkonvention (UNFCCC) bilden. Ziel dieses Papiers ist es, die wichtigsten Zwecke und Ziele des internationalen Kohlenstoffmarktes zu identifizieren, den allgemeinen Rahmen und das Umfeld für die Kohlenstoffmärkte im Rahmen des Pariser Übereinkommens zu berücksichtigen, die wichtigsten Themen der einschlägigen Paragraphen sowie Interaktion und Beziehung der Regelungen einschließlich ihrer Synergien und Konflikte zu erörtern und zu diskutieren. Das Papier zielt auf die Erleichterung der Diskussion zwischen UNFCCC-Mitgliedsstaaten, während angesichts der Dynamik des Themas, es natürlich nur eine Momentaufnahme des Status der aktuellen Diskussionen kann.

Unsere Analyse deutet darauf hin, dass sich der Zweck der internationalen Kohlenstoffmärkte geändert hat. Während die Steigerung der wirtschaftlichen Effizienz in der ersten Entwicklungsphase der internationalen Kohlenstoffmärkte im Vordergrund stand, könnte in der kommenden Phase die Förderung der Ambitionssteigerung von Emissionsminderung an Bedeutung gewinnen. Bei der Ausgestaltung der beiden Marktmechanismen gemäß Art. 6.2 und 6.4 haben die Verhandlungen erst begonnen. Viele grundlegende oder mehr technische Fragen müssen noch verhandelt werden und es ist noch nicht klar, welche Positionen einzelne Staaten ergreifen werden. Einige dieser Fragen sind übergreifend und für beide Mechanismen ähnlich, z.B. Beziehung zu national festgelegten Minderungsbeiträgen (NDCs) oder Prozeduren, um eine robuste Anrechnung zu gewährleisten. Andere, wie die Natur von International Transferierten Minderungsergebnissen (ITMOs) oder Fragen zur Governance sind für jeden der Mechanismen unterschiedlich und sehr spezifisch.

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Abbreviations

BAU	Business-As-Usual
CA	Cooperative Approaches
CDM	Clean Development Mechanism
CER	Certified Emissions Reductions
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CO2	Carbon Dioxide
CO2e	CO2 equivalents
CPR	Commitment Period Reserve
CU	Certified Units
DCS	Data Collection System
EB	Executive Board
GMBM	Global Market-Based Measure/Mechanism
ICAO	International Civil Aviation Organisation
IMO	International Maritime Organisation
INDC	Independently Nationally Determined Contribution
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
JI	Joint Implementation
MSDM	Mitigation and Sustainable development Mechanism
NDC	Nationally Determine Contribution
NGO	Non-Governmental Organisation
NMA	Non-Market Approaches
SoP	Share of Proceeds
UNFCCC	United Framework Convention on Climate Change

1 Introduction

The Paris Agreement includes an Article with several provisions, which allow for the use of the international carbon market, even though the term 'market' is not at all mentioned in these provisions. Article 6 of the Paris Agreement, plus the respective paragraphs in Decision 1/CP.21 (36-40), provide

- for **Cooperative Approaches** (CA) among United Nations Framework Convention on Climate Change (UNFCCC) Parties to be used towards achieving their Nationally Determined Contribution (NDC) through the transfer of mitigation outcomes (Art. 6.2-3),
- for a **Mitigation and Sustainable Development Mechanism** (MSDM) with some similarities but not identical to Clean Development Mechanism (CDM) and Joint Implementation (JI, Art. 6.4-7) and
- for a framework for **Non-Market Approaches** (NMA, Art. 6.8-9), which will not be the subject of this discussion paper.

In this paper CA and MSDM will be considered as the market mechanisms which constitute the basis of the international carbon market under the UNFCCC.

While it was expected that some provision on the transfer and use of international carbon market units are to be included in the Paris Agreement, both the level of detail and the relative clear reference to environmental integrity, avoidance of double counting and the promotion of sustainable development were somewhat unexpected. However, less than two pages of text cannot sufficiently regulate such a complex issue like the international carbon market. For example, the modalities and procedures of the CDM, the so-called Marrakesh Accords, include 30 pages and they are further specified by thousands of pages of regulation text issued by the CDM Executive Board (EB).

Quite obviously, the Paris Agreement is not the end of the negotiation to establish an international carbon market for the post-2020 period but rather it is the beginning. The Paris Agreement provides a new mandate and general directions for these negotiations but also postponed many issues, which were controversially discussed in the previous years.

The purpose of this paper is to identify the main goals and aims of the international carbon market, to take into account the general context and environment for carbon markets under the Paris Agreement (Section 2), to identify and discuss the main issues of the relevant paragraphs (Sections 3 and 4) and to analyse issues of the interaction and relationship of these provisions including synergies and conflicts (Section 5). Finally, we will draw conclusions and provide recommendations for the negotiations on establishing and implementing a global carbon market under the UNFCCC (Section 6). The paper aims at facilitating the discussion among UNFCCC parties while, given the dynamic nature of the topic, it can obviously only be a snapshot of the current status of the discussions.

2 General issues

Before identifying and scrutinizing specific issues related to both of the markets mechanisms it is worthwhile to look at the purpose of the international carbon market and to which extent the Paris Agreement provides for changes in this regard. Based on these considerations we also look into the context for the mechanisms, particularly into the issue of supply of and demand for units from the international carbon market and other factors influencing the potential structure and shape of the international carbon market post-2020.

2.1 Purpose of the international carbon market

Until today, the international carbon market served many purposes:

1. Provide for flexibility in achieving targets;
2. Increase economic efficiency, i.e. harvest cheapest mitigation first;
3. Enable ambition raising (due to higher flexibility/efficiency);
4. Involvement of developing countries in mitigation activities;
5. Facilitated the participation of private entities (contribution/opportunities);
6. Promote sustainable development, technology transfer, capacity building;
7. Awareness raising for climate change and GHG mitigation;
8. Transition towards a global carbon market which caps global GHG emissions;
9. Tool for results based climate funding with a view to foster transformative change.

This list is not a complete list and it can certainly be extended by further purposes. And even though there is no official order of the purposes since many actors involved in the international carbon market will prioritise different purposes, the order provided above may to some extent represent an order of how these purposes emerged historically. An international carbon market was initially promoted by environmental economists, which highlighted the advantages in terms of flexibility and thus economic efficiency. Some also envisaged establishing global emissions caps through the gradual extension of the international carbon market with the view that it should finally include all countries. The purpose of awareness-raising was most likely not in the minds of those who promoted the establishment of an international carbon market initially but was identified only much later as an important side-effect ('distributing money is one of the most effective public relations tools'). The same applies to using experiences and methodologies from the international carbon market as a tool for results-based climate funding since climate finance was not such a prominent issue in the early years of the UNFCCC negotiations as it is today.

The Paris Agreement establishes a new paradigm in international climate policy. While the Kyoto Protocol was essentially based on the so-called 'targets & timetables' the Paris Agreement is based on the so-called 'pledge & review' paradigm. The Kyoto Protocol was therefore based on commonly agreed targets for certain Parties (Annex I) and stringent provisions for emissions accounting and compliance control under the UNFCCC, including enforcement provisions (Art. 18). The Paris Agreement is somewhat weaker in this regard. Instead of 'targets' it speaks of 'nationally determined contributions' (NDC) and even though it includes an Article on compliance (Art. 15), it does not refer to enforcement but highlights that this process shall be "facilitative in nature and function in a manner that is transparent, non-adversarial and non-punitive".

This paradigm shift may also have influenced the nature and purpose of the international carbon market established by Article 6 of the Paris Agreement. And indeed, comparing markets provision in the Kyoto Protocol and the Paris Agreement in this regard provides interesting insights. While the Paris Agreement clearly highlights that article 6 allows for "higher ambition in their mitigation and adaptation actions" none of the respective Kyoto Protocol articles (6, 12 & 17) mention ambition raising but state meeting commitments as the main purpose of the international carbon market.

Another difference between the Kyoto Protocol and the Paris Agreement is that the first was designed for an initial reduction of global GHG emissions – quasi as a kick-start of this process – over a limited commitment period. However, it is clear now that this is by far not enough. Despite the adoption and coming into force of the Kyoto Protocol, global GHG emissions continued to grow and it is clear now that severe impacts of global climate change cannot be avoided if net GHG emissions are not reduced to zero in the second half of this century. This understanding is reflected in the Paris Agreement, particularly in Articles 2.1 and 4.1, which both describe the long-term goal of the Paris Agreement. In addition, in 1/CP.21, para 17 Parties state that current NDCs do not provide for a below 2°C pathway and "much greater emissions reduction efforts will be required".

On this background it becomes obvious that ambition raising is a key concern of the Paris Agreement and that Article 6 can and should contribute to this goal. The transition towards a global cap on GHG emissions, through the involvement of developing countries in carbon markets, is no longer such an important issue because the NDC process essentially involves all countries and establishes something similar to a global cap - albeit less stringent. Moreover, flexibility and economic efficiency are neither that prominent as an aim today and are replaced by increasing mitigation and adaptation ambition. Despite the fact that the language in Article 6.1 is somewhat weak because it does not establish a requirement but speaks of "allow[ing] for higher ambition", ambition raising is now the most prominent purpose of the international carbon market. However, ambition raising can be implemented in several ways:

- Purchasing international carbon market units in addition to an NDC, which is intended to be achieved by domestic policies only;
- Increasing the level of the NDC compared to earlier versions while committing that the increase will be achieved through the purchase of international carbon market units;
- Using international carbon market units or methods from the international carbon market in the context of results-based carbon funding;
- Ambition raising in the host country, for example, by using carbon markets until the end of the crediting, while the activity continues operating hereafter and its mitigation contributions are integrated in the next NDC cycle.

There are certainly more ways and in practice, it may be difficult to clearly identify or distinguish these ways. While the new importance of ambition raising seems to be obvious and clear at the general conceptual level, it is less clear how that can be operationalised in rules, modalities and procedures for Article 6. However, this will be discussed in more detail in the context of the individual Articles 6.2 (Chapter 3) and 6.4 (Chapter 4) and in the context of their interaction (Chapter 5).

2.2 Supply and demand

In addition to the changes in the key purpose, the Paris Agreement has also changed the context in terms of supply of and demand for international carbon market units. While the Art. 6 and 17 of the Kyoto Protocol established an international carbon market for trading of units among Annex I Parties and Art. 12 of the Kyoto Protocol established an option to offset parts of Annex I mitigation commitments through the purchase of Certified Emissions Reductions (CER) from non-Annex I countries, Article 6 of the Paris Agreement does not at all distinguish between developed and developing countries in terms of their roles as suppliers or buyers of international carbon market units. Both developed and developing countries can thus offer or purchase international carbon market units. This may considerably change the structure of the international carbon market.

Table 1: Intention to Use International Carbon Markets Indicated in INDCs

Intended use of carbon market	Annex I, EU or OECD	Developing country	Total
No	32	12	44
Not specified	2	52	54
Not in INDC, but in the long term		7	7
Use will be considered	2	15	17
Yes	10	57	67
Total	**46**	**143**	**189**

Sources: IETA 2016; Obergassel & Gornik 2015; Rocamora 2016; WRI 2016, authors' own compilation

To get an idea how the international carbon market may look like, it is worthwhile to look into the INDCs, where many countries have indicated their envisaged involvement in the international carbon market despite the fact that at the point when the INDCs were developed, it was neither clear whether the Parties could agree on establishing an international carbon market post-2020 nor how it would look like.

Table 1 provides an overview of what countries stated in their INDCs in terms of using the international carbon market. The overview provides several insights and provides for some expectations:

- Roughly only half of the countries intend to use or consider the use of the international carbon market;
- Most of those intending to use or considering the use of carbon markets are developing countries and it is not clear whether they intend to purchase or sell international carbon market units;
- Some of the developing countries which indicated their intention to use the international carbon market have conditional INDCs, which would be increased provided that appropriate support is provided to implement their additional mitigation actions; it can be expected that as least some of them also envisage the international carbon market as one route to mobilise the required financial support;
- There are only a few developed countries which indicated that they want to use the international carbon market, including Canada, Mexico, Japan, New Zealand, South Korea and Switzerland;
- Almost a quarter of countries stated that they do not intend to use the international carbon market towards fulfilling their NDCs, among them a number of developed and developing countries with significant shares in global GHG emissions including the European Union, Malaysia, Norway, Russian Federation, Serbia, United States, Venezuela plus a number of small island states (Jamaica, Madagascar, Marshall Islands, Palau, Seychelles, Tuvalu).

Even though it is impossible to draw clear conclusions from this overview and these observations, some hypotheses can be derived. There are only a few countries with relevant demand for international carbon market units, while it is likely that many countries intend offering international carbon market units. Even though these intentions may not materialise in all cases, it can still be assumed that the potential supply may be larger than the demand. The total size of the market is likely to be smaller than under the Kyoto Protocol because many large players have clearly stated that they do not intend to participate in the international carbon market in order to fulfil their NDCs.

Despite these hypotheses further aspects have to be taken into account for drawing a somewhat more complete picture of the international carbon market outlook post 2020.

On the 6th of October in 2016, Parties to the International Civil Aviation Organisation (ICAO) adopted a global market-based measure (GMBM) to address CO_2 emissions from international aviation, which comes into force from 2021 onwards.[17] The GMBM is called the Carbon Offset and Reduction Scheme for International Aviation (CORSIA) and requires that all CO_2 emissions of international aviation above the emission level of 2020 shall be offset by units from other sectors (carbon neutral growth). For the first period from 2021 to 2035 the accumulated demand could amount to approx. 3.3 Gt provided that all routes would be included in the CORSIA. However, the amount may be somewhat smaller since several routes are exempted: from 2021 to 2026, countries are encouraged to join voluntarily while offsetting is mandatory for all airlines on routes included in the CORSIA. From 2027, all countries need to join the CORSIA unless they are least developed, small island or landlocked developing states or if their share of the international aviation market is not included in the group of countries for which their shares add up to 90% of the international aviation market. From 2021 to 2026 many routes are exempted from offset requirements. As of the 7th of October, 66 States joined the CORSIA[18] and it is expected that further States may declare their participation before the end of 2016. First estimates suggest that the demand for offsets may amount to approx. 80 % to 85 % of the full demand without any exemptions.

This figure compares with an accumulated amount of Certified Emissions Reductions (CER) of 1.7 Gt issued by the CDM EB as of the 30th of June, 2016.

[17] ICAO: Report of the Executive Committee.

[18] ICAO: CORSIA.

At the International Maritime Organisation (IMO) Parties are currently focussing their discussion on a data collection system (DCS) for CO_2 emissions from international shipping. Once this system is implemented and its results are assessed, Parties may decide on further policies to mitigate GHG emissions from international shipping. Indeed, some Parties have already requested to start the discussion on a potential GHG mitigation target for international shipping and policies for achieving this target, including through offsetting or other ways of using the international carbon market. It can therefore not be ruled out that further demand for international carbon market units may emerge from international shipping, though certainly at a later stage.

In other words, the demand for international carbon market units from international aviation and shipping may be remarkable and thus may be an important driver for the development of the international carbon market post-2020. However, to ensure consistency of the international carbon market it is important that units used for offsetting international aviation and shipping emissions are not also used towards achieving the NDC of any country. Otherwise these units would be claimed more than once (double counting) and undermine global GHG mitigation efforts (Cames & Schneider 2016).

Even though many uncertainties remain with regard to the shape and volume of the post-2020 international carbon market, it does not seem to be too bold to conclude that there will be significant demand and supply for a liquid carbon market and that it is therefore important to elaborate consistent rules, modalities and procedures in due course, certainly well ahead of 2021. Even though many of the big players in the UNFCCC carbon market negotiations, such as the EU or the USA, do currently not envisage using the international carbon market towards their NDCs, they should still have an interest and a more than valid justification to continue actively being involved in the UNFCCC negotiations on the development of pragmatic and sound rules, modalities and procedures for the future international carbon market.

2.3 Maintaining ambition

The shape and volume of the post-2020 international carbon market and particularly its contribution to global mitigation efforts may also be influenced by the potential existence and volume of so-called 'hot air'. Under the Kyoto Protocol hot air "refers to the concern that some governments will be able to meet their targets … with minimal effort and could then flood the market with emissions credits, reducing the incentive for other countries to cut their own domestic emissions" (UNFCCC 2016a).

Under the Paris Agreement, hot air can emerge if a country's emission target notified in its NDC is significantly higher than its business-as-usual (BAU) GHG emission projection. The issue of hot air may be less relevant than under the Kyoto Protocol because the global mitigation effort – despite the remaining gap to stay well below 2°C – are in aggregate considerably below global BAU emissions (UNEP 2015), mainly because most countries have submitted INDCs below their BAU projections. It is therefore unlikely that some countries with potential hot air may fully undermine these efforts. On that background hot air – if made use of – could be considered an implicit financial transfer, which perhaps may be acceptable if limited in volume and if the 'recipient' is e.g. a least developing country. However, one can also argue that making use of hot air results in globally higher GHG emissions compared to the situation where it is not used because it substitutes emission reduction in countries with ambitious mitigation targets by cheap hot air units. In addition to reducing the global carbon price level, hot air also undermines the reputation of carbon markets as valuable tools for global GHG mitigation. For these reasons, the use of potential hot air should be avoided if not entirely to the extent possible.

The amount of hot air can be determined by deducting the respective BAU projection from the NDC. If the figure is positive, the result can be considered as potential hot air. However, the BAU projection may be inflated by unrealistic or inappropriate assumptions so that the figure appears to be negative

even if it were to be positive.[19] These considerations illustrate that it is not easy to identify and determine hot air. Identification and estimation require judgements which may deviate depending on who is judging.

With the INDC process, Parties essentially agreed to determine contributions independently and to avoid an assessment of the ambition and effort involved in the INDCs under the UNFCCC. The only data that can be used under the UNFCCC is the respective INDC and it can under the UNFCCC not be classified as 'unambitious' or be rejected. It could therefore be argued that in the context of the Paris Agreement hot air formally cannot exist.

However, comparative assessment of independent research institutions clearly identified that the ambition of INDCs deviates considerably among countries and that some INDCs may even include remarkable amount of hot air (Australian-German Climate and Energy College 2016; Climate Analytics et al. 2016; Meinshausen 2016). Countries which intend to make use of the international carbon market and which are serious in their commitment to contribute to global mitigation efforts should not ignore such information even if it has no formal status under the UNFCCC. If they would purchase such questionable units, they would effectively undermine their own ambition and should thus refrain from doing so.

As long as a country with hot air does or cannot not sell parts of its potential hot air through the international carbon market, there is hardly a problem. Ironically, hot air would virtually contribute to increase global mitigation efforts. Provided that all other countries would achieve their NDC, the respective country would virtually 'over-achieve' its NDC and thus contribute to increasing the global mitigation ambition compared to the aggregated ambition of all the NDCs. However, if the hot air is sold to other countries and used towards their NDCs, the global emission mitigation may not achieve the level established by the aggregation of all the NDCs. In a way it can thus be concluded that only the existence of an international carbon market enables the use of potential hot air. Assuming that there is hot air and that it is used by other parties, global GHG emissions would be higher if an international carbon market is established compared to the situation without an international carbon market.

Since Article 6 establishes options to make use of potential hot air, Parties which intend to use the international carbon market or which are generally interested in ensuring environmental integrity of the Paris Agreement face a specific responsibility to establish measures which prevent that significant amounts of hot air are being used. However, since the hot air can hardly be determined formally under the UNFCCC, limitations established in the Kyoto Protocol such as the commitment period reserve[20] or the so-called Art. 3.7ter[21] can most likely be ruled out as a feasible option.

Potential solutions may thus be formal or informal agreements among Parties interested in the environmental integrity of the Paris Agreement, to transfer units only among Parties with sufficiently ambitious NDCs. In such a 'carbon club' (Victor 2011; Weischer et al. 2012) they need to ensure that the ambition of its members remains sufficiently high and that none of the members are involved in transfers to Parties that do not meet the stringent ambition requirements of the club because such trades would indirectly undermine the ambition of the entire club and of all its members. However, perhaps it is not even necessary to establish a formal or informal carbon club. If countries with potential hot air can clearly be identified and if the number of those countries is small, it may be even sufficient if re-

[19] Under the UNFCCC, no guidance on developing GHG projections has been provided so far. For EU Member States guidance on the development of GHG projects are available (TNO et al. 2012). This guidance could basically be used by other countries as well.

[20] In order to address the concern that Parties could 'oversell' units, and subsequently be unable to meet their own emissions targets, each Party is required to maintain a reserve of units in its national registry. This reserve should not drop below 90 % of the Party's assigned amount or 100 % of five times its most recently reviewed inventory, whichever is lowest (UNFCCC 2013).

[21] A 'shaving mechanism', which allows emission growth in the second commitment period of the Kyoto Protocol only if the growth is backed by surplus assigned amount units from the first commitment period (Seppänen et al. 2013).

search institutes and environmental non-governmental organisations (NGOs) clearly enumerate those countries so that governments of other countries would be hesitant to allow purchasing Internationally Transferred Mitigation Outcomes (ITMOs) of these countries (naming & blaming).

So far it can certainly be concluded that hot air remains a potential issue under the Paris Agreement which should be further scrutinised. Questions which need to be addressed more thoroughly in this context are:

- How can hot air be identified and estimated?
- Which countries are potential candidates for hot air?
- How large is its potential volume?
- How likely will it be used?
- Which options exist to avoid its use?

Since the ambition of the INDCs submitted is not enough to achieve the long-term temperature goal, any issue which may undermine this ambition requires careful attention until it is clearly proven that its impact is marginal compared to other existing uncertainties.

3 Cooperative Approaches (Art. 6.2-3)

Cooperative Approaches (CA) enable Parties to use ITMOs towards their NDCs and requests Parties to apply robust accounting, which avoids double counting. This way it will, inter alia, be possible to link domestic emissions trading systems internationally and to reflect bilateral approaches such as the Joint Crediting Mechanism (JCM) appropriately under the UNFCCC. The mechanism should promote sustainable development and ensure environmental integrity and transparency consistent with guidance to be adopted by the APA. The robust accounting should be ensured through corresponding adjustments (Section 3.3.1) by the Parties involved in the respective transfer.

This approach seems in principle to be quite lean and simple. However, discussions among Parties at the session of the UNFCCC's subsidiary bodies in May 2016 in Bonn revealed that a number of issues have to be addressed and solved before CA can effectively be implemented. In the following sections we identify the main issues, consider potential options of how these issues can be addressed and assess, where required and possible, the advantages and disadvantages of the options.

3.1 Scope of the guidance

Art. 6.2 essentially includes three general concepts: the application of robust accounting, the promotion of sustainable development and the ensuring of environmental integrity.[22] In addition it establishes ITMOs to be used towards NDCs and mentions guidance to be adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA). Parties diverge in their views on whether this guidance should include the application of robust accounting only or whether the promotion of sustainable development and ensuring of environmental integrity should be subject of this guidance as well.

While it seems to be obvious that not only the application of robust accounting but also the promotion of sustainable development and ensuring of environmental integrity are quite broad concepts, which are not self-explaining and whose operationalization in the context of the CA certainly requires more detailed rules, the dispute may mainly refer to the legal status and the bindingness of the relevant guidance. To avoid a deadlock in this issue, discussions should be focussed on potential options for the operationalization of the three main concepts. Since there is no disagreement that the guidance should include the application of robust accounting, discussion could initially focus on this concept while discussions on the other concepts are postponed to a later point in time.

3.2 Nature of ITMOs

Art. 6.2 establishes "Internationally Transferred Mitigation Outcomes" (ITMOs), which may be used towards NDCs. This raises a number of questions on the specific nature of this term or concept:

- It is probably common sense that international transfers of mitigation outcomes require a **measuring unit** since the necessary adjustments can only be made if there is a common understanding about the quantities of the adjustments. Given the experience already gained with metric tonnes of GHG equivalents (tCO_2e), it is likely that these adjustments may be measured in tCO_2e. However, a number of NDCs refer to quantities of renewable energy capacities or quantities of generation from these capacities. Would it also be possible to transfer x additional MW of wind capacities or y GWh of electricity generated from new hydro plants or would such mitigation outcomes need to be converted into CO_2e before they could be transferred internationally? Such a multitude of measuring units would certainly not enhance the transparency in terms of global GHG mitigation efforts

[22] Ensuring environmental Integrity in the context of market mechanisms means generally that the use of the mechanism should not result in higher GHG emissions compared to the situation without the use of market mechanisms. This includes issues such as ensuring that a ton used as an offset represents at least a ton GHG mitigation (conservativeness), comprehensive monitoring and reporting of emissions and removals (completeness, accuracy, etc.), prevention of any form of double counting and avoiding the use of hot air.

and would without doubt complicate the accounting considerably. They can, nevertheless, not be fully ruled out from the outset.

- It is probably also not questionable that for conducting a corresponding adjustment an **accounting unit** is required. The same number of units, which are added in one country need to be deducted in another country or vice versa. The transfers need to be recorded somehow so that they can be checked and be backtracked. However, would that unit also be issued as a (virtual) **certificate** which can be issued, cancelled and surrendered and may also be transferred several times between different Parties or would it be a pure accounting unit which only exists in the GHG 'accounts' of the involved parties?
- If ITMOs are certificates, which could be traded on the secondary market, should they then include a unique serial number and information on its origin (mitigation activity, vintage, country, etc.)? And should it also be considered whether all units are equivalent and thus fully fungible or whether different types of ITMOs should be established, e.g. some with unlimited validity while others are only temporary?
- What exactly is meant by "mitigation outcome"? Does that require that each transfer is mirrored by or linked to a specific mitigation activity? Would more implicit mitigation outcomes such as cancelled allowances of a domestic emissions trading scheme also be considered as a mitigation outcome? Or would it be fully up to the involved parties to decide whether and how ITMOs are directly or indirectly lined to certain emission reductions or removals so that it only depends on the acquiring Party whether it accepts the ITMOs offered by the host country.

Given the nature of the Paris Agreement, it may be more likely that ITMOs will not constitute a certificate but rather a measuring and accounting unit notified in tCO_2e. However, theses UNFCCC accounting units may be backed by domestic carbon market certificates, which may also be traded internationally if countries bilaterally or as a 'club' of countries agree to mutually accepting those certificates while mirroring the net international transfer through corresponding adjustments under the UNFCCC.

3.3 Robust accounting

Pursuant to Art. 6.2, Parties shall 'apply robust accounting'. For establishing robust accounting procedures, a number of questions need to be addressed, including what should be adjusted, how, by whom and when.

3.3.1 What should be adjusted?

While para 36 of 1/CP.21 introduces the concept of 'corresponding adjustments' if ITMOs are actually transferred between two parties, it remains unclear what exactly should be adjusted. Basically two options are conceivable:

- **NDC-based adjustments:** Para 36 further elaborates that the adjustments should be made for GHG emissions and removals covered by their NDC. This may suggest that the NDC should be adjusted. Parties with a net purchase of ITMOs could add this amount to their NDC while sellers of ITMOs would need to subtract them from their NDC.
- **Inventory-based adjustment:** Para 36 refers to emissions and removals and these are compiled and reported in national GHG inventories, which therefore could be another basis for adjustments. Parties with a net purchase of ITMOs could subtract this amount from their inventory while sellers of ITMOs would need to add them to their inventory.

Essentially corresponding adjustments are relevant for determining whether a country achieved its NCD or not (compliance control pursuant to Art. 15 of the Paris Agreements). For a country with an economy-wide mitigation target notified in GHG emissions and without the use of ITMOs this task is basically straightforward. The country's net emissions and removals reported in its inventory need to

be compared with its NDC.[23] If the emissions are smaller than their NDC, the country has achieved its contribution while it would have failed doing so if the emissions are larger than their NDC. With the use of ITMOs a third figure needs to be taken into account: the net purchase or sale of ITMOs.

The term 'adjustment' may be somewhat misleading in this context as it suggests that either the target stated in the NDC or the amount of emission reported in the inventory may disappear or be replaced by different values. However, both values will remain unchanged by the adjustment but the equation will be enhanced by an additional parameter, the number of ITMOs.

Quite obviously either of both figures could basically be adjusted to reflect the impact of ITMOs.[24] However, NDCs are much less harmonised than inventories, for which already detailed guidelines exist (IPCC 2006) and up to 20 years of experience in many countries. NDCs are therefore to a lesser extent internationally comparable than inventories. Moreover, pursuant to Art. 4.3 and 14.3 of the Paris Agreement, NDCs will be updated in the course of time.

This suggests that inventory-based adjustments may provide greater reliability because determining aggregated national emissions through GHG inventories is a well-established process under the UNFCCC. However, if ITMOs are used, compliance control needs to take into account all three figures, the inventory, net transfers and the NDC for determining whether a country achieved its target or not. The uncertainty, which may be embedded in the NDC, will thus not be eliminated if inventory-based adjustment is applied. It may therefore be of lesser importance, which approach is finally applied. It may even conceivably be that Parties decide individually, which of both approaches they prefer. However, for transparency reasons it is certainly preferable if all Parties could agree on one common approach.

3.3.2 How should it be adjusted?

This question essentially refers to the understanding of what is exactly meant by 'corresponding'. In the first place it refers to the fact that if an amount of ITMOs is added to one country, the same amount has to be deducted at another country or vice versa. One country may have transfers of ITMOs with several countries and some of them may result in additions, while others would involve deduction. However, each of those transactions can be described by a country pair where a certain amount of ITMOs is added at one country and deducted from the other.

Beyond the basic mathematics of 1:1 adjustments, it also needs to be discussed and agreed whether all ITMOs are equivalent and fully fungible or whether differences in their quality such as vintage, origin or type of ITMO may need to be taken into account:

- **Vintage:** To avoid an overestimation of emission reductions in the case of single year targets (Section 3.4) it could be considered to require that only ITMOs generated and/or issued in the same year as the buyer's target year may be accepted. If banking or borrowing between NDC periods will be allowed or disallowed it would be necessary to determine the vintage of the ITMO and distinguish between different vintages or periods.[25]
- **Origin:** To allow acquiring countries assessing the quality of the ITMO, it may be useful if the country, the kind of mitigation activities or the technology used to generate the mitigation outcome are stated.
- **Type:** While emission reductions are usually permanent, removals are often non-permanent so that GHG may be released to the atmosphere again. To reflect such differences ITMOs backtraced to

[23] For countries, whose targets are not expressed in GHG emissions or whose target does not cover the entire economy, this task will certainly be more complex.

[24] To conduct this comparison, all three figures need to be available in the same dimension. If the NDC is notified e.g. in percentage terms relative to a base year, it could be converted into an absolute figure. If the NDC is notified e.g. as an increase in the share of electricity generation from renewable sources, either the ITMO needs to have the same dimensions or one or both figures need to be converted into dimensions that enable a comparison.

[25] If banking or borrowing were applied, continuous monitoring over the entire affected NDC periods would be required in addition the vintage of the ITMOs used.

removals may be qualified as temporary so that they have to be replaced or renewed after a certain period of time.[26]

These aspects are to large extent familiar from the Kyoto Protocol so that use of the knowledge gained there can be made. However, the Paris Agreement is in many aspects quite different to the Kyoto Protocol so that concepts and procedures certainly need to be adapted to the new paradigm. For example, was the quality of emission allowance or reduction credits under the Kyoto Protocol ensured through standards and procedures under the UNFCCC. Under the Paris Agreement, this will be to a much lesser extent the case. In contrast, Parties will need to decide individually with which other Parties they engage in transfers of ITMOs. To facilitate such decisions and to ensure the transparency requested by Art. 6.2 it will be important that the ITMOs contain detailed information on the vintage, origin and type of the ITMO.

3.3.3 When should it be adjusted?

Since Art. 6.2 does not specify when transfers of ITMOs may be conducted, it can be assumed that transfers may be made at any time. However, adjusting after each transfer would only be possible if NDC-based adjustments were agreed (Section 3.3.1). Inventories will be available only with a time lag of two years after the end of the respective year so that adjustments could only be made once the inventories are available.

Ultimately, adjustments need to be made available to the implementation and compliance committee established by Art. 15 of the Paris Agreement. This committee, in turn, relies also on the information Parties are requested to provide in the context of the transparency framework of the Paris Agreement (Art. 13), particularly on the inventories, which most of the Parties are requested to submit on a biennial basis (Para 90, 1/CP.21). On this background, it could be considered to conduct the adjustments also on a biennial basis and align the rhythm with the cycle of the compliance committee.

Another option would be to conduct the adjustments in the context of the global stocktake pursuant to Art. 14 of the Paris Agreement. The first global stocktake is due in 2023 and will be repeated every five years thereafter, so that the net transfers of ITMOs could also be adjusted over those five-year periods. The majority of countries aim to achieve their targets by 2025 or 2030. The global stock take in 2028 would thus be an opportunity to consolidate corresponding adjustments for the period 2020 to 2025.

However, as both inventories and NDCs refer to individual years, transfers of ITMOs should be accounted towards the year in which they are made before they are aggregated over the two- or five-year period.

3.3.4 By whom should it be adjusted?

This question essentially refers to the governance of transfers and adjustments. Art. 6.2 requests Parties to apply robust accounting. On that background, a range of options for the potential governance can be envisaged.

At one end of that range, Parties may just report about their transfers of ITMOs to or from other countries and make, the corresponding adjustments in the context of their reporting required under the transparency framework of the Paris Agreement (Art. 13). Under this option, there would be hardly any coordinated governance under the UNFCCC. The guidance referred to in Art. 6.2 may ensure that all parties report their transfers and adjustments in a similar or even the same format.

At the other end of the range Parties may agree, although not mandated in the Paris Agreement, to establish a tracking facility under the UNFCCC which administers all transfers of ITMOs and their use towards NDCs with a view to ensuring overall consistency of using ITMOs.

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[26] There are other approaches to reflect non-permanence risks of emission reductions (see e.g. Estrada et al. 2014). However, it is not in the scope of the paper to elaborate on this issue in more detail.

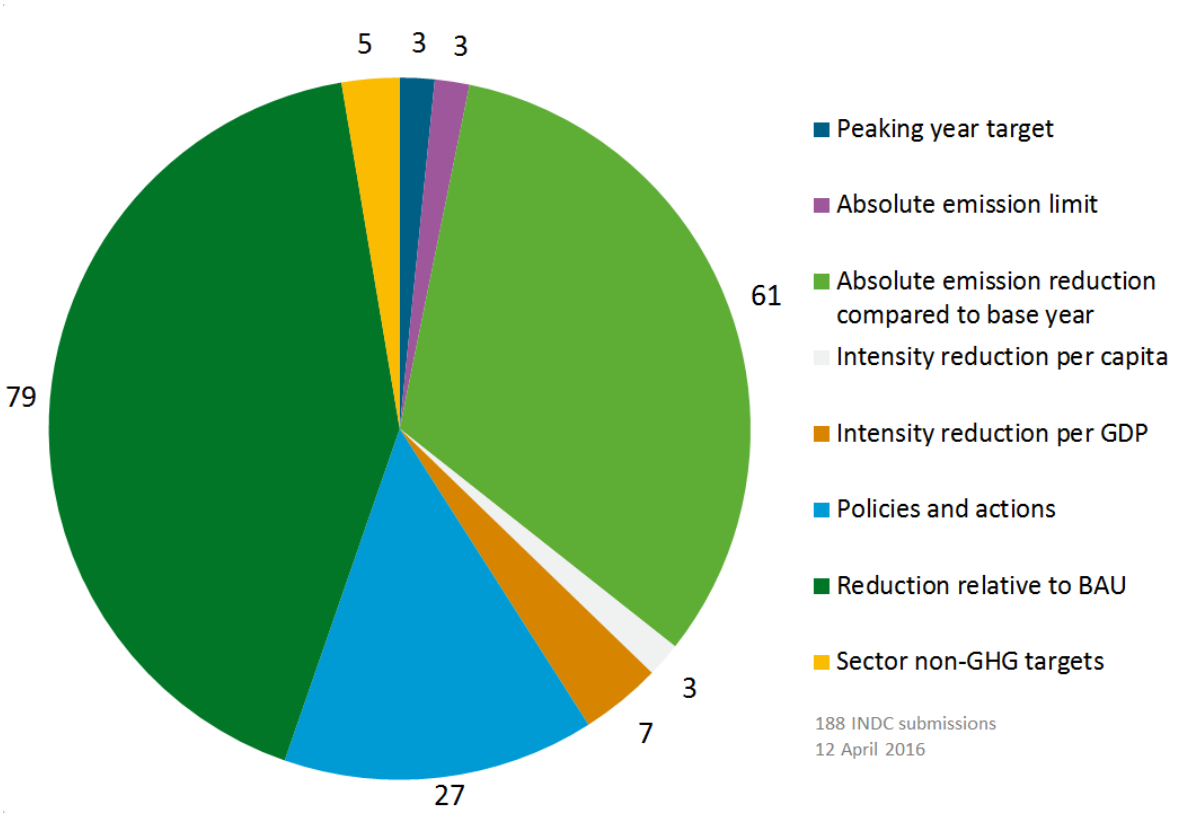
A middle ground option would be to establish a common registry, which may be operated by the UNFCCC Secretariat. This registry would provide a common platform for all parties for transfers and adjustments, while Parties may remain responsible for the consistency of the information fed into the registry.

3.4 Relationship to nationally determined contributions

Due to different responsibility for climate change and actual capacities to address climate change, INDCs differ quite considerably in their ambition. However, since the contributions are nationally determined and since the process was hardly harmonised, they also differ in terms of many other aspects such as the type (Figure 1) and the target year or period (Figure 2). This poses significant challenges with regard to accounting, particularly if ITMOs will be used by Parties.

While adjustments will be straightforward with certain types of targets such as absolute emission limits or absolute emissions reductions compared to a base year, adjustments will be virtually impossible with targets, which refer to policies and actions or which refer to certain sectors of the economy but are not specified in GHG emissions or removals. Intensity targets, either per capita or per unit of GDP or reduction targets relative to Business-as-Usual (BAU) will require some additional regulation in order to ensure the corresponding adjustments can be made appropriately.

Figure 1: Types of targets

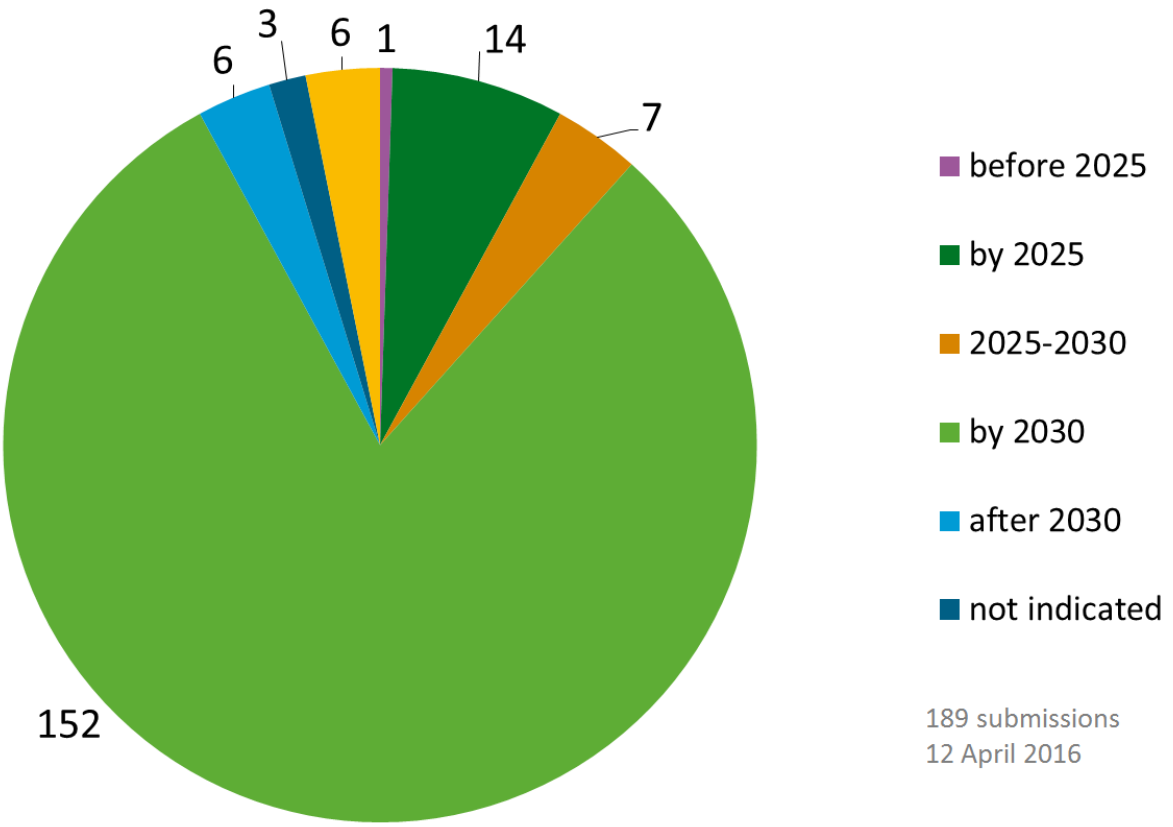


Source: Authors' own compilation

The vast majority of the countries determined that they aim to achieve their target by 2030. However, some countries specified an earlier or later target year or did not even specify when they aim to achieve their target. If the countries with shorter target horizons will update and extend their NDCs in a timely manner, the difference in target horizons may not be a major problem. However, most of the targets are determined for a single target year and do not provide any target figures for the period up

to their target year. This certainly poses a challenge to corresponding adjustments and deserves further attention and regulation.

Figure 2: Target years or periods



Source: Authors' own compilation

International carbon markets provide flexibility in achieving targets both in terms of where and when emission reductions are achieved most cost efficiently. However, if targets are not determined as a trajectory, which includes clear intermediate targets for each year of the covered period, it will be challenging to enable the flexibility in terms of in which year emissions reductions may be achieved.

A target trajectory represents a commitment to limit cumulative emissions over a continuous period, from the start to the end of the target period. In contrast, a single-year target represents a goal or commitment for the target year only, with no specific ambition for the years prior to the target. This is a crucial difference because what matters for climate change is how much is emitted altogether: cumulative emissions. Achieving the long-term temperature goal requires limiting cumulative emissions and thus, accounting for them (Kollmuss et al. 2014).

The problem occurs on the side of both the sellers and the buyers of ITMOs. Several methods are conceivable to overcome this problem:

- **Eligibility:** Exclude countries, which do not provide a clear target trajectory for the use of ITMOs as both sellers and buyers;
- **Conversion of NDCs:** Request parties to convert their single year target into a clear target trajectory for their entire target period;[27]

[27] Since most countries provided just individual target years but no trajectory, many countries would need to be required to do their 'homework' and provide continuous target trajectories.

- **Ensure same vintage:** Only ITMOs 'generated' or achieved by the seller in the same year as the buyer's target year can be used for corresponding adjustments, regardless when the ITMOs were transferred;
- **Division of purchased ITMOs:** Divide the number of ITMOs purchased in the course of the target period to be used in the target year by the number of years of the target period;
- **Methodologies to convert target years into a trajectory:** Common methodologies could be developed under the UNFCCC with the view to provide a clear trajectory for all years of the common target period. It could, for example, be assumed that the trajectory is a straight line from the 2020 inventory emissions to the target year or that the target year figure should be applied to all years of the target period, i.e. that the trajectory is a horizontal line at the level of the target year.

This list is certainly neither complete nor mutually exclusive. Some of the potential options are virtually identical or would at least result in the same outcome and may in addition not be in line with the spirit of the Paris Agreement, which pretty much relies on the self-determination of countries and avoids such concepts as eligibility or conversion requirements in the context of NDCs. Some may be in line with the Paris Agreement but still limit the flexibility in terms of when reductions are achieved (ensure same vintage).

Actually most of these options do not seem to be appropriate. Since climate change is caused by the accumulation of GHG emissions, single target years are just not appropriate. A single year may be easier to communicate and agree domestically but since climate change is caused by accumulated GHG emission, only a budget approach can adequately address the respective challenges. Single year targets therefore need actually to be transformed into a budget even though this budget may be named differently, e.g. target trajectory, to avoid any similarities to the Kyoto Protocol approach. On this background, the last of the above mentioned options may perhaps be the most promising. It would not limit flexibility in terms of ITMO vintages and would also be in line with the spirit of the Paris Agreement since it does not change the NDC but just further specifies it. Parties may even have the possibility to choose among several issues for the specification of a target trajectory. The only requirement they may face if they want to make use of ITMOs as buyers or sellers is that they need to select one of the potential methods for the conversion of a single year target into a target trajectory.

4 Mitigation and Sustainable development Mechanism (Art. 6.4-7)

The Mitigation and Sustainable development Mechanism (MSDM) enables Parties to implement GHG mitigation activities whose results can be used towards fulfilling NDCs. The emission reductions achieved through the activity can either be used by the Party which implements the mitigation activity towards its NDC or by another Party. It can be expected that in most cases parts of the emission reductions achieved will be used towards the NDC of the Party, which implements the activity while other parts will be used by other Parties.

The MSDM will be governed by a body under the UNFCCC, which will ensure a harmonised approach in terms of estimating the amount of emission reduction achieved and that these mitigation activities result in real, measurable, and long-term benefits. On the one hand, the MSDM resembles pretty much the CDM in terms of language and concepts (Table 2):

Table 2: Similarities between the CDM and the MSDM

CDM (Art. 12 of the Kyoto Protocol)	MSDM (Art. 6.4-7 & Para 37-38 of the Paris Agreement)
Resulting in certified emission reductions	Verification and certification of emission reductions
Achieving sustainable development and in contributing to the ultimate objective of the Convention	Contribute to the mitigation of greenhouse gas emissions and support sustainable development
Additional to any that would occur in the absence of the certified project activity	Additional to any that would otherwise occur
Supervised by an executive board of the CDM	Supervised by a body designated by the CMA
Approval of the party involved	Authorised by each Party involved
May involve private and/or public entities	Incentivise and facilitate participation … by public and private entities authorised by a Party
May use the certified emission reductions … to contribute to compliance	Be used by another Party to fulfil its NDC
Share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation	Share of the proceeds from activities … is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation
Elaborate modalities and procedures	Adopt rules, modalities and procedures
Voluntary participation	On a voluntary basis

Source: Authors' own compilation

Although not explicitly stated, neither in the Kyoto Protocol nor in the Paris Agreement, both mechanisms are obviously crediting mechanisms.

Despite these similarities there are, on the other hand, also significant differences:

- While the **CDM** clearly distinguishes the roles of **Annex I Parties** and **non-Annex I Parties**, this distinction is entirely dropped out of the MSDM. While under the CDM developing countries were hosts for mitigation projects, the developed Parties' role was to acquire CERs. Under the MSDM both **developing and developed countries** could basically take **both roles**, i.e. implement mitigation activities to be certified under the MSDM as well as purchasing emission reduction units;
- The CDM is clearly **project-based** (project activities). This was later enhanced by the EB to programmes, which include a number of similar projects. However, in essence the CDM remains a pro-

ject-based mechanism. The MSDM, in contrast, **does not specify the scope** of the mitigation activities but requests that an eligible scope of activities should be further specified in the rules, modalities and procedures. It could thus also be considered as a sectoral mechanism (Bosi & Ellis 2005; Schneider & Cames 2009; Sepibus & Tuerk 2011; Sterk et al. 2014) with many similarities to the New Market Mechanism (NMM) under the UNFCCC, which was defined but never actually implemented;

- The CDM is essentially an **offset mechanism**. From a global perspective, it does not directly contribute to reduce global GHG emissions because each additional unit of GHG emission reduced in one country will be offset by another unit not reduced in another country. The MSDM includes a provision that it shall aim at delivering an overall mitigation in global emissions. Although it still needs to be defined how that requirement can be operationalised, it seems to be clear that the MSDM should aim at going **beyond pure offsetting**.

Although the MSDM can build on experiences from the CDM, a number of issues still have to be discussed and agreed among UNFCCC Parties before the MSDM can effectively be implemented. This is especially the case if the MSDM will be applied at the sector instead of the project level. In the following sections we identify the main issues, consider potential options for how these issues can be addressed and assess, where required and possible, the advantages and disadvantages of the options.

4.1 Scope

As already eluded to, the MSDM does not specify the scope of the mitigation activities covered by the mechanism. This certainly provides more flexibility in terms of which types of mitigation activities can be addressed by the MSDM. In addition to project- and programme-based mitigation activities, as they are well-known from the CDM, the scope could be extended to entire sectors or even to policies.

Whether parties will agree on regulating the scope or whether they will provide full flexibility depends on a number of aspects, mainly related to the question to which extent mitigation outcomes of larger scopes can be accurately identified and monitored. Below we outline a number of questions which need to be discussed and agreed in the context of the scope of mitigation activities:

- How could a sector or a policy be clearly distinguished from another sector or policy, i.e. how could a sector or policy be exactly delineated from another? For sectors, international classifications are available. However, they were mostly elaborated from an economic and financial accounting perspective and may thus not be appropriate for emission reduction monitoring. The sectors defined by the IPCC for GHG inventories may be another option. However, some of them involve a number of very different mitigation activities while certain policies could target mitigation activities in several of these IPCC sectors, which makes monitoring and accounting more complex. For policies, no such international classification exists. Many policy makers and researchers even disagree upon which policies should be considered as market-based instruments and which should not;
- The heterogeneity in terms of potential mitigation technologies may be an additional challenge. Some technologies may be applicable across many sectors or incentivised by different kinds of mitigation policies, while other technologies may cover only a section of a certain sector or may only be incentivised by a very specific policy;
- Data availability may pose another problem. Even if sectors or policies may be clearly defined and delineated, there may be no appropriate data to identify base year emissions or to estimate BAU emission projections. Lack of appropriate data may require that several years of data monitoring need to be inserted prior to the start of a mitigation policy.

Even though these considerations seem to be very specific for sectors or policies, they are actually more general and apply at least to some extent to projects or programmes as well. Difficulties in delineation, heterogeneity of mitigation technologies and data availability are challenges, which are quite familiar from project- and programme-based approaches. They constitute challenges for these ap-

proaches, though perhaps at a different level. One can say that the challenges in determining emission reductions sufficiently accurately grow with the scope. If the scope is larger and/or more heterogenic, the uncertainty is likely to be larger as well. To remain conservative and to ensure that a ton used offset is at least a ton mitigated, uncertainty margins need to be appropriately larger to reflect such incertitude.

These considerations should not be misunderstood as an argument against enhancing the scope of mitigation activities covered by the MSDM. It rather points to the similarities between different scopes and that all scopes face comparable challenges. It also points to the assessment that any efforts to establish approaches based on the idea 'one size fits all' are likely to be moribund. The only way out is, to elaborate scope-specific and, if appropriate, technology-specific methodologies for the determination of baselines and the monitoring of emission reductions. These methodologies should be, as known from and proven by the CDM, gradually be improved once additional knowledge on emission reduction monitoring becomes available and be conservative so that the amount of emission reductions is not overestimated. Based on such a gradual approach, the scope of the MSDM can indeed be enhanced while the coverage of individual methodologies may also be enhanced over time to other sectors or policies. Due to the similarities, such approach can build on many insights, principles and values developed in the context of CDM and JI methodologies.

Another issue which needs to be discussed is whether an initial investment in new technologies as under CDM and JI is required or whether mainly operational activities may qualify under the MSDM as well. Despite all challenges to determine additionality of an initial investment it is still easier to identify the additionality of an investment than of purely operational activities. However, also CDM and JI are not strictly restricted to project activities which require significant upfront investment, also because it is in many cases challenging to clearly distinguish between upfront investments and operational expenditures.

4.2 Relationship to nationally determined contributions

Different to the CDM, which allows generating CERs only in countries without targets, the MSDM can basically be used by all Parties. Under the Paris Agreement virtually all Parties now have NDCs, which include different types of targets. This creates several issues, which have to be discussed and agreed prior to the implementation of the MSDM.

4.2.1 Activities inside or beyond the NDC

The first question is how it could be determined whether an activity is within or beyond the coverage of the NDC. If the NDC does not cover the entire economy but only certain sectors, mitigation activities in sectors, which are not covered by the NDC, are clearly beyond the NDC. The same applies if not all GHGs are included in the NDC but for example only CO_2. Activities aiming at non-CO_2 GHG emissions would then also clearly be beyond the coverage of the NDC. Transfers of credits generated from mitigation activities beyond the coverage of the NDC would not require an adjustment of the NDC. If inventory-based accounting is applied and the activity is covered by the inventory, the respective adjustment would be required, though.

However, even if the NDC is economy wide and covers all gases, there may be still mitigation activities, which are beyond the ambition of the NDC. However, identifying them would require that the NDC is clearly substantiated by a complete list of policies and measures whose mitigation impact is quantified and justified that the NDC is achieved. Theoretically, this approach appears to be straightforward. However, despite the fact that these policy and measures lists are not yet included in the INDCs, it is in practice usually quite challenging to estimate and project the mitigation contribution of individual policies and measures so that high uncertainties can be expected. To ensure conservative estimates and projections, appropriate uncertainty margins would need to be taken into account. Mitigation activities which are not on that list might be considered beyond the ambition of the NDC. They could be

transferred to other countries, since they would result in over-achieving the NDC, provided that the NDC is actually achieved.

Even credits generated from mitigation activities, which fall into the scope of the list of policies and measures could be transferred to other countries if the contribution projected is over-achieved. In this case, the MSDM resembles a JI-style rather than a CDM-style mechanism. Parties with an ambitious NDC will have an incentive to ensure that the amount of credits transferred is actually achieved because they would risk to not achieve their NDC or would need to make up the deficit through increasing other mitigation activities. They would therefore ensure that the respective NDC policy or measure is adequately reflected in the baseline of the mitigation activity used for determining its additionality and monitoring its emissions reduction so that only mitigation beyond that baseline could generate transferable credits.

Countries with a NDC above their BAU projection, i.e. with hot air, would, on the contrary, have little incentive to ensure that their NDC policies and measures are appropriately reflected in the baseline of mitigation activities (Kollmuss et al. 2015). Credits generated from mitigation activities with such inflated baselines could, regardless of whether within or outside the scope of the NDC, undermine the environmental integrity of the Paris Agreement since they would result in higher global GHG emissions unless the transfer of these credits would not be conducted. Measures to prevent such impacts were already discussed in Section 2.3.

Different to credits generated by mitigation activities beyond the coverage of the NDC, all transfers of credits generated from mitigation activities within the coverage of the NDC require adjustments of the NDC or inventory even if they are beyond the ambition of the NDC.

4.2.2 Activities covered by conditional parts of the NDC

A number of developing countries distinguish their NDC in one unconditional part and another part, which could be additionally achieved if appropriate support is received. The support required could have several forms, e.g. bilateral carbon finance or though the Green Climate Fund, technology transfer or capacity building. Revenues from carbon credits could be another form of that transfer.

From a carbon market perspective the conditional NDC appears in the first place to be irrelevant. Policies and measures as well as ambition covered by the unconditional NDC would need to be adequately reflected in the baselines of mitigation activities within the scopes of the NDC. However, if there are other forms of support to 'harvest' the conditional parts of the NDC, it would need to be ensured that they are adequately reflected in the baseline of the respective mitigation activities to avoid double counting between carbon markets and other forms of support.

Since this may become quite complicated, it may be advisable to clearly target support to individual policies or measures. It may even be considered whether only one form of support may be applicable to each mitigation activity in order to properly avoid double purpose, a specific form of double counting (Schneider et al. 2015a), between different forms of support.

If a country would clearly assign a certain mitigation activity to be supported through revenues from carbon markets while parts of the mitigation potential of that activity should be contributed as domestic actions this would need to be similarly reflected in the baseline. However, while this again appears to be straightforward conceptually, it may be quite challenging to adequately estimate the mitigation potential and to clearly distinguish the domestic and supported share. Methodologies for determining additionality and monitoring emission reductions would certainly need to be type specific while they should be improved over time and their application may case by case be enhanced to similar mitigation activities.

4.2.3 Strengthening of the NDC

Art. 4.3 of the Paris Agreement requires that NDCs become more stringent over time. Since domestic policies and measures need to be reflected appropriately in the baseline of MSDM activities, this poses an additional challenge to MSDM implementation because the shape of the baseline may in many cases be uncertain at the start of the mitigation activity. This challenge could be addressed in several ways.

- Crediting periods of MSDM activities could be limited to the period of the NDC, i.e. to 5 years. Since the NDCs are usually adopted somewhat in advance of their entry into force, there may be enough lead time to develop MSDM projects. However, five years may be long enough or even too long for certain types of activities but certainly not for all types of activities so that for some activity types limited extensions into the next NDC period may be considered:
- Baselines and financial additionality of the MSDM activity could be reassessed and potentially be adapted once a new NDC is notified to the UNFCCC;
- NDCs could be adopted several periods in advance so that baselines for longer crediting periods could be derived, enabling longer crediting periods and creating an additional incentive to develop a long-term mitigation strategy;
- An increase in a NDC's ambition could be ignored entirely with only the conditions at the start of the MSDM activity considered, though only for certain types of activities and provided that the crediting periods are not longer than say 7 or 10 years.

Quite obviously none of these options is optimal and fits to all potential mitigation activities, which are conceivable under the MSDM. On the other hand, some of them may not be mutually exclusive but rather complementary. It could therefore be considered which of these options should be applied and this may depend on the type of the MSDM mitigation activity.

4.3 Governance

Similar to the CDM, the MSDM will be supervised by a body under the guidance of the COP/CMA. The EB of the CDM could thus be a role model for this body. Rules and procedures for preparing decisions and for decision-making could be built on those for the CDM, which were continuously refined and improved of the years since it was established. However, there are also important differences to the CDM. Since Art. 6 does not assign certain roles to groups of countries (non-Annex I hosting projects versus Annex acquiring CERs), the composition of the body may be different to the composition of the EB and may perhaps not be proportionate with respect to the share of developed and developing countries. On the one hand, this may contribute to establishing a less politicised body than the EB, particularly if the members of the body would be elected based on their capacities rather than on their origin from one of the UN regions. On the other hand it can be expected that the final composition of the body will not deviate considerably from the EB, since this region-specific composition is applied in several other UN bodies and not only used under the CDM.

In addition to the composition of the body, Parties also need to agree on the competences of the body, such as accreditation of independent verifiers, issuance of units, establishing and maintaining a registry, etc. Basic and important definitions, principles and approaches should be agreed by the COP/CMA and be enshrined in the rules, modalities & procedures. This includes among others general agreements on the scope(s) of the mechanism, the treatment of existing CDM projects under the MSDM, the interaction with NDCs, etc. However, rules on technical details such as methodologies, parameters and issues where the COP/CMA could not agree upon may be developed little by little by the body after its establishment.

Pursuant to the principle 'form follows function', details on the composition of the body and other rules on the government of the mechanism such as decision making, tenure, election of members, etc. should only be addressed once other details of the mechanism become clearer. In other words, gov-

ernance is an important issue, which should not be neglected but only discussed and addressed at a later stage of the negotiations.

4.4 Purpose

The purpose of the MSDM is quite general: "to contribute to the mitigation of greenhouse gas emissions and support sustainable development". In addition, it is specified that the MSDM should facilitate the participation of public and private entities, contribute to emission reduction in host Parties and acquiring Parties and deliver an overall mitigation of global emissions. Compared to the purpose of the CDM, which "shall be to assist Parties not included in Annex I in achieving sustainable development …, and to assist Parties included in Annex I in achieving compliance with their … commitments", the Paris Agreement appears to be more open for other purposes than just contributing to achieving targets under the UNFCCC.

Despite the more limited purpose of the CDM, it was already possible to use it for other purposes rather than for compliance with mitigation obligations under the UNFCCC:

- Private entities, such as individuals or companies, cancelled CERs to offset voluntarily emissions not covered by any obligation (flight, events, products, etc.) through certain service providers (atmosfair, firstclimate, myclimate, etc.). The EB reacted to these developments and established, also as an attempt to compensate declining demand for CERs, a platform which allows private entities to cancel CERs directly under the UNFCCC for offsetting any private emissions (UNFCCC 2016b);
- The methodologies and tools developed by the CDM may also be used in the context of results-based carbon funding. It is also conceivable that CERs are directly used and cancelled in the context of results-based carbon funding. Schneider et al. (2015b) analysed which project types would be most suitable for this purpose and which aspects have to be taken into account to ensure that results-based carbon funding achieves a high mitigation impact and also provides incentives for a transition towards a low carbon economy in host Parties;
- CERs may also be used to offset CO_2 emissions from international aviation above the 2020 baseline emissions (ICAO 2016).[28] Since emissions from international aviation are neither covered by GHG inventories nor by (most of the) INDCs, it is important that any CER used towards offset obligations under the International Civil Aviation Organisation's global market-based measure is appropriately cancelled under UNFCCC to avoid double claiming of the same emission reduction, a specific form of double counting (Schneider et al. 2015a).

It can be assumed that these 'extended purposes' will play an even greater role under the MSDM since the scope of the Paris Agreement is larger and more heterogenic than the Kyoto Protocol. However, despite these enhancements of how the MSDM is used, its role in terms of identifying and finally implementing cost efficient mitigation options may largely continue as under the CDM. By providing incentives to public and private entities to gain financial support for the implementation of a broad range of climate mitigation technologies, crediting mechanisms trigger competitive search for cost-effective mitigation options. Different to 'traditional' carbon funding by the Green Climate Fund or national Oversees Development Agencies, which usually ensures that the funds provided are spent appropriately to prevent misspending and/or corruption but does not accurately monitor the outcome in terms of mitigation delivered, results-based carbon funding puts more emphasis on the impact of the funding. Obviously, this cannot be applied to all areas of potential mitigation since in many areas monitoring impacts and output is virtually impossible. However, in areas where impacts can be monitored sufficiently accurately, results-based carbon funding may provide 'more value for money' in terms of mitigation.

[28] It is unlikely that the CDM will be able to generate CERs post-2020. However, it is currently discussed under ICAO whether CERs generated up to 2020 may become eligible.

This may not be relevant for all countries because many developed and developing countries are already establishing domestic carbon markets (ICAP 2016). However, smaller countries or least developing countries may not have the capacities to develop a full-fledged market-based policy domestically and may thus considerably profit from the incentives provided through the MSDM.

4.5 Existing CDM and JI projects

The Kyoto Protocol and thus CDM and JI do not have an end date so they can formally continue to exist even beyond 2020, even without any further commitment period under the Kyoto Protocol. Due to the true up period, the administration of mechanisms needs to continue for some 3 years beyond 2020 to ensure that all requirements for the second commitment period of the Kyoto Protocol can be appropriately processed. Whether CDM and JI can generate new credits after 2020 is a different and legally debated question. However, even if there was a clear legal opinion that CDM and JI could continue to issue credits post-2020, it remains uncertain whether Parties could politically agree on the continuation of these mechanisms. As soon as the MSDM comes into force, there is little sense to maintain other crediting mechanisms which aim at reducing the same emissions and are largely based on the same concepts but do not take into account the new context under the Paris Agreement. Therefore, it seems very unlikely that CDM and JI will continue generating and issuing credits post-2020.

These considerations trigger the question of how existing CDM and JI projects should be dealt with under the MSDM. Obviously, there are a number of potential answers. The most extreme answers would be no continuation of existing projects at all and quasi automatic continuation under the MSDM as suggested by some Parties. While agreement upon the latter option is very unlikely since it fully ignores the new context, particularly in respect of the fact that many host countries now have developed NDCs and domestic climate policies which are not at all reflected in the baselines of existing projects, the former option may be the 'fallback' if Parties cannot agree on another option. Between these extremes there are a range of not mutually exclusive options which would allow at least certain projects to continue generating credits under the MSDM:

- Continuation of certain project types, for example those which have a great risk that the mitigation activity would be ceased if no further revenues from credits could be expected;
- Continuation only in certain countries, for example least developed countries; many of those did not have the capacity to develop projects in the early years of the CDM and started to make use of the mechanism only very late. For those countries it would be a major drawback if those projects were not be able to continue generating credits;
- Continuation after an adjustment of the baseline which takes into account the host countries NDC;
- Continuation after a re-registration of the project under the rules, modalities and procedures of the MSDM.

An important criterion for determining which or which combination of these options is most appropriate is their potential contribution to reducing global GHG emissions. Certain project types such as renewable energy projects are likely to be continued even without credit revenues, since the electricity revenues are larger than the operational cost. Continuation of such projects would not result in further emissions reductions and may thus not provide the best value for money in terms of global GHG mitigation. Other project types such as the N_2O avoidance from nitric acid projects may on the other hand depend on revenues from credits for continuation of the project (Schneider & Cames 2014; Warnecke et al. 2015). In other words, the question of which projects, if any, may be continued under the MSDM should clearly focus on their potential to contribute to enhancing GHG mitigation. In addition, these projects should be clearly reflected in the inventory and appropriate accounting of their CERs should be ensured.

5 Interaction of the Paris Agreement's market mechanisms

On the one hand, it is essential to carefully elaborate the guidance and the rules, modalities and procedures for each of the market mechanisms separately to ensure comprehensiveness and integrity of their design. On the other hand, it is important to look at the similarities and differences as well as at their interaction from the outset. In the following we will therefore, firstly, look at the similarities and differences in order to identify whether there is a 'level playing field' for the coexistence of both market mechanisms and, secondly, look at their potential interaction from a governance perspective.

5.1 Level playing field

Both market mechanisms, CA and MSDM allow for the international transfer of international carbon market units among UNFCCC parties. However, despite such fundamental similarities there are significant differences (Table 3):

Table 3: Differences between the market mechanisms

	Art. 6.2	Art. 6.4
Raising of ambition	Neither explicitly mentioned in Art. 6.2-3 nor in the respective decision paragraph (36 of 1/CP.21)	Art. 6.4(d) requires that the market mechanism shall "deliver an overall mitigation in global emissions"
Bindingness: guidance versus rules, modalities and procedures	Parties are mandated to develop guidance for the implementation of the market mechanism	Parties are mandated to elaborate more comprehensive and binding rules, modalities and procedures for under Art. 6.7
Promotion of contribution to sustainable development	Just speaks of promotion of sustainable development	Speaks more strongly of a contribution to sustainable development
Governance	Absolutely silent on any governance	A body to supervise the implementation of mechanism is established
Share of Proceeds (SoP)	No such provision	Activities under the MSDM shall provide a share of proceeds to cover administrative expenses and support adaptation on particularly vulnerable countries

Source: Authors' own compilation

- Raising of ambition: As already eluded to, is the purpose of allowing for higher ambition clearly mentioned in Art. 6.1, which is essentially the chapeau of Art. 6 and applies thus to all its articles and related provisions. Despite this general statement in the chapeau, the purpose is neither explicitly mentioned in Art. 6.2-3 nor in the respective decision paragraph (36 of 1/CP.21). In contrast, Art. 6.4(d) requires in addition to the chapeau that the market mechanism shall "deliver an overall mitigation in global emissions";
- Guidance versus rules, modalities and procedures: Under Art. 6.2 Parties are mandated to develop guidance for the implementation of the market mechanism while they are mandated to elaborate more comprehensive and binding rules, modalities and procedures for under Art. 6.7;
- Promotion of contribution to sustainable development: Art. 6.2 just speaks of promotion of sustainable development whereas Art. 6.4 speaks more strongly of a contribution to sustainable development;

- Governance: in Art. 6.4 a body to supervise the implementation of mechanism is established while Art. 6.2 is absolutely silent on any governance so that potential governance of this market mechanism may even be limited to unilateral reporting of Parties involved in international transfers without any scrutiny under the UNFCCC. However, the establishment of a rudimentary body or executing certain oversight functions such as tracking of units or accreditation of verifiers by already existing bodies may not be fully ruled out;
- Share of Proceeds (SoP): Activities under the MSDM shall provide a share of proceeds to cover administrative expenses and support adaptation on particularly vulnerable countries. Parts of the financial advantages of using international carbon market units from this market mechanism will thus be skimmed in contrast to activities under CA, where no such provision exists.

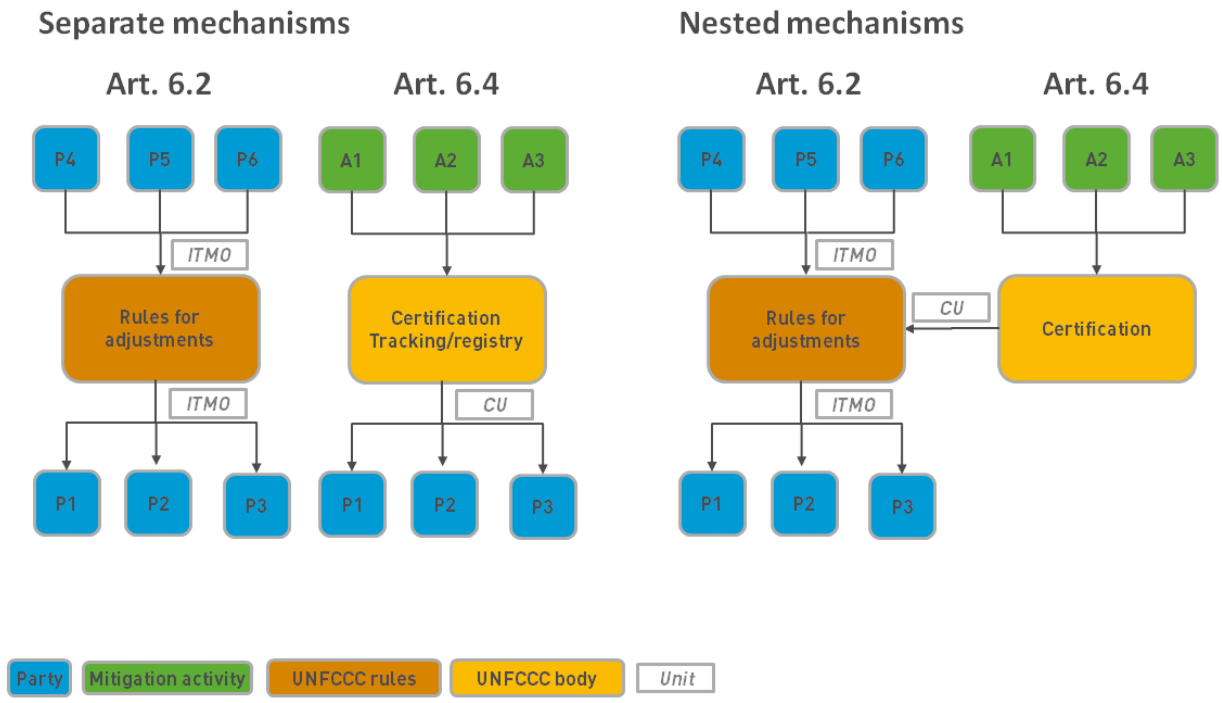
The list may be extended further. However, these entries already illustrate that there are significant differences among both market mechanisms, which may constitute a considerable 'distortion of competition' between both market mechanisms. It seems that the provisions for the MSDM are significantly more stringent and perhaps also more cumbersome than those for CA. Parties may thus prefer CA over MSDM so that finally only one of the market mechanisms may constitute the basis for the international carbon market. This may be a pity and perhaps a waste of resources if a lot of effort is invested in the development of details rules, modalities and procedures for a market mechanism, which is hardly applied in practice.

However, such a development cannot be reliably predicted and thus not fully avoided. If one of the market mechanisms appears to be more attractive to the Parties, this should be accepted, provided that both ensure the same level of environmental integrity. Yet, this can be questioned since the provisions for CA are obviously less stringent and involve less scrutiny of environmental integrity than those for the MSDM. To ensure a somewhat level playing field among both market mechanisms the guidance for CA should thus ensure that the CA contributes similarly to both raising the global mitigation ambition and sustainable development and is equally stringent in terms of environmental integrity.

5.2 Governance

In May 2016 in Bonn, during the first discussions on the implementation of Art. 6 some parties raised the question whether both market mechanisms are operated and governed separately or whether their governance could or should somehow be intertwined. The MSDM resembles, on the one hand, to some extent the CDM and could thus be considered as a separate, independent mechanism which also includes functions such as registration and tracking of transferred units with a view to conduct the corresponding adjustments of the involved parties. On the other hand, CA need to ensure corresponding adjustments of any ITMO. It is obvious that there is at least some overlap in the functions required and that thus it is conceivable to make use of potentially synergies.

Figure 3: Potential relationships of CA (Art. 6.2) and MSDM (Art. 6.4)



Source: Authors' own compilation

Under such a 'nested' approach each of the mechanisms could be focussed on certain functions required for a well-functioning international carbon market. Figure 3 illustrates the differences between 'separate' and 'nested' mechanisms:

- Under the **separated approach** the body of the MSDM would scrutinise whether the respective activities comply with the rules, modalities and procedures and finally issue certified units (CU). The body would also implement the procedures which are required that these CUs can be used towards the NDCs of other countries, including registration and tracking of those CUs;
- Under a **nested approach** the governing body would still scrutinise the activities and if they comply finally issue CUs. However, these CUs are similar to ITMOs so that their international transfers could be processed in the same way as ITMOs are dealt with under CA.

While the separated approach may ensure independence of each mechanism and facilitate internal consistency, the nested approach may increase the overall consistency of the international carbon market under the UNFCCC. Under the nested approach, CUs could also be used towards purposes beyond the international carbon market, for example in the context of results-based carbon funding. These considerations illustrate that both approaches are at least conceivable and cannot be ruled out from the outset. Both have advantage and disadvantages. However, this issue may be not the most urgent issue at this point in time. It can therefore be parked at the time being and again be picked up once the picture of the post-2020 international carbon market becomes more detailed.

6 Summary and conclusions

Our analysis suggests that the purpose of international carbon markets has changed. While increasing economic efficiency was more prominent during the first development phase of international carbon markets, raising mitigation ambition may become more important in the phase to come. Demand for carbon market units for compliance purposes under the UNFCCC is likely to be smaller than under the Kyoto Protocol since many of the potential buyers are expected to refrain from using carbon market units for compliance purpose in the future. However, demand from other areas, such as ICAO, or for other purposes, such as results based carbon funding, may create considerable demand to revitalise the international carbon market.

First estimates also suggest that some countries with relatively weak NDCs could potentially, as under the Kyoto Protocol, make use of international carbon markets and sell excess and ambitionless carbon market units (aka 'hot air') through the Art. 6 mechanisms. However, it is not yet clear whether these abundant amounts could and will actually be converted into units and offered under Art. 6 mechanism. If so, carbon club approaches could be an effective tool to prevent that global mitigation ambition is undermined by such units.

In terms of the design of the two market mechanisms pursuant to Art. 6.2 and 6.4, negotiations have just started. Many fundamental or more technical questions still have to be negotiated and it is not yet clear which positions individual parties will take. Some of these questions are overarching and are similar for both mechanisms, e.g. relationship to NDCs or procedures to ensure robust accounting. Others, such as nature of the ITMOs or governance are quite different and very specific for each of the mechanisms.

A key question will also be, whether, and if yes, how a level playing field can be ensured between both mechanisms. The difference in language in the Paris Agreement for both mechanisms suggests that Art. 6.2 may be less stringent both in terms of ensuring ambition and in terms of strictness of the procedures: Art. 6.2 does not explicitly refer to raising ambition but only implicitly through the chapeau of Art. 6 (6.1) while 6.4 requires delivery of an overall mitigation in global emissions; Art. 6.2 mandates the elaboration of guidance whereas 6.4 envisages the elaboration of rules, modalities and procedures; and finally, sustainable development should be promoted under Art. 6.2 while Art. 6.4 requests that the mechanism should contribute to sustainable development.

Art. 6.2 may thus be more attractive for many Parties since it may be easier to harmonise its requirements with domestic carbon market policies and instruments. However, for smaller Parties or Parties with, so far, less developed domestic GHG mitigation policies, Art. 6.4 may be an attractive option to facilitate and promote the development of domestic carbon markets.

On that background, we can distinguish three different types of countries:

- Parties with developed domestic carbon markets, which are mainly interested in linking their domestic emissions trading schemes to the international carbon market with the view to enhance liquidity and efficiency of their carbon market;
- Parties, which are at the beginning of the development of domestic carbon policies and which do not have NDCs that could be used for corresponding adjustments;
- Finally, a group of countries in-between both previous categories, which would focus on the development of sectoral approaches under Art. 6.2 such as the JCM.

We think it is worthwhile, to further scrutinise the options for the involvement in international carbon markets through in-depth case studies for all three categories of countries.

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Quick Facts on Article 6 - Market Mechanisms

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1 What is Article 6 of the Paris Agreement?

Article 6 of the Paris Agreement (PA) introduces several provisions for using international market mechanisms (UNFCCC 2015). Article 6.1 outlines four main purposes:

(1) implementation of nationally determined contributions (NDCs);

(2) allowing for higher ambition in mitigation and adaptation actions;

(3) promoting sustainable development; and

(4) promoting environmental integrity.

Both the cooperative approaches (CAs) under Article 6.2 and 6.3 and the mitigation and sustainable development mechanism (MSDM) under Article 6.4 allow countries to use internationally transferred mitigation outcomes (ITMOs) to fulfil their NDCs. However, the extent to which ITMOs will be used under these market mechanism approaches is subject to continued negotiation to ensure that all of the objectives outlined in Article 6.1 of the PA are fulfilled. International guidance on implementing Article 6.2 is therefore currently being negotiated under the Subsidiary Body for Science and Technology Advice (SBSTA). Similarly rules, modalities and procedures for implementing Article 6.4 are simultaneously being developed also under SBSTA. According to the co-facilitator's informal work plan, recommendations for both market mechanism approaches are expected to be completed by the 49th SBSTA session in 2018.

1.1 Cooperative approaches (CAs)

CAs are commonly understood to allow Parties to use ITMOs to contribute to the achievement of their NDC. CAs between Parties may involve the linking of their emission trading schemes, the use of international crediting mechanisms or direct bilateral transfers. To avoid the risk of double counting emission reductions, Parties engaging in CAs are expected under Article 6.2 to apply 'robust accounting'. Parties are expected to make 'corresponding adjustments' to either their GHG inventory or NDC target (yet to be determined) in order to account for the flow of ITMOs between Parties. The ability to adjust the NDC target upwards to account for the purchase of ITMOs also provides an opportunity to encourage higher levels of mitigation ambition amongst the Parties.

1.2 Mitigation and Sustainable Development (MSDM) Mechanism

The MSDM is widely understood to be a new market mechanism under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA). The design elements of the MSDM strongly resembles those of the Clean Development Mechanism (CDM): 'the mechanism has a dual objective of supporting mitigation action as well as sustainable development, is under authority and guidance of the CMA and supervised by a UNFCCC body, involves public as well as private entities, and requires mitigation action to be additional, real, measurable, long term, as well as to be verified by designated operational entities' (Schneider et al. 2016).

Although there are many similarities between the MSDM and the market mechanisms under the Kyoto Protocol (KP), there are a number of important differences. Cames et al. (2016) refer to the following key differences:

(1) While the CDM distinguishes between Annex I Parties (acquire certified emissions reductions (CERs)) and non-Annex I Parties (host mitigation projects), this distinction has been dropped from the MSDM;

(2) The CDM is project-based (later redefined by the Executive Board (EB) as programmes, which can include a number of similar projects), whereas the MSDM does not specify the scope of the mitigation activities but requests that the eligible scope be further specified;

(3) The CDM is an offset mechanism, which, from a global perspective, does not directly contribute to reducing global GHG emissions. By contrast, the MSDM is subject to a provision stating that it shall aim to mitigate global emissions overall.

1.3 Differences between the market mechanisms under Article 6

Table 1 provides an overview of the differences between the CA (i.e. Article 6.2-3) and the MSDM (i.e. Article 6.4). The provisions for the MSDM are significantly more stringent and perhaps more burdensome than those for CAs (Cames et al. 2016). Parties may potentially prefer CAs over the MSDM; however this will ultimately depend on the stringency of the guidance currently under development for CAs, which will need to balance the demands from 'those wishing to retain full flexibility and those advocating command and elaborated guidance and/or strong international governance' (Carbon Mechanisms Review 2017a).

Table 4 Differences between the market mechanisms

	CA	MSDM
Raising of ambition	Neither explicitly mentioned in Art. 6.2-3 nor in the respective decision paragraph (36 of 1/CP.21)	Art. 6.4(d) requires that the market mechanism shall "deliver an overall mitigation in global emissions"
Bindingness: guidance versus rules, modalities and procedures	Parties are mandated to develop guidance for the implementation of the market mechanism	Parties are mandated to elaborate more comprehensive and binding rules, modalities and procedures for under Art. 6.7
Promotion of contribution to sustainable development	Just speaks of promotion of sustainable development	Speaks more strongly of a contribution to sustainable development
Governance	Requires transparency to be included in governance. However, no further specification of governance	A body to supervise the implementation of mechanism is established
Share of Proceeds (SoP)	No such provision	Activities under MSDM shall provide a share of proceeds to cover administrative expenses and support adaptation

Source: Adapted from Cames et al. (2016)

2 Why should we use Article 6?

2.1 Buying perspective

The use of Article 6 should benefit buyers of ITMOs in the following possible ways:

- Facilitating the achievement of mitigation targets set towards the Paris Agreement, by providing flexibility to reduce emissions in a cost-effective manner;
- Enabling countries to adopt more ambitious international mitigation targets, due to the cost reductions achieved through international market mechanisms;
- Provide flexibility in achieving targets;
- Allowing the verification of mitigation outcomes from climate finance, i.e. by purchasing and cancelling carbon market units as part of results-based climate finance programmes;
- Provide a product (i.e. ITMO) of a good quality to facilitate voluntary contributions by goverments or private entities, which may for example enable countries to achieve climate neutrality in a quantifiable way.

2.2 Selling perspective

The use of Article 6 should benefit sellers of ITMOs in the following possible ways:

- Enabling countries to use revenue from international market mechanisms to finance emission reductions, which are likely to occur sooner than without the financial incentives from carbon markets;
- Facilitating capacity building, technology transfer and diffusion, and awareness raising that may lead to increased mitigation action in the future;
- Enabling voluntary offsetting of emissions (that undergo robust accounting) by governments, the private sector, individuals, or non-governmental organisations;
- The rigorous MRV protocols expected to be developed under Article 6 approaches, and by following the rules and guidelines agreed multilaterally, will better position seller countries to pitch their mitigation actions for results-based climate finance. Co-benefits include generating business and investment opportunities, creating new job opportunities and strengthening regional economies;
- Improving accounting as data, information and methods used by the market mechanisms can be used to update inventory and improve overall GHG accounting;
- Mobilising private sector finance and innovation potential.

2.3 Environmental perspective

The use of Article 6 should benefit the environment in the following possible ways:

- Article 6.1 of the Paris Agreement refers to the market mechanisms enabling 'higher ambition' in mitigation actions (UNFCCC 2015);
- Article 6.2 strongly outlines the need to avoid the 'double counting' of emission reductions (UNFCCC 2015);
- Article 6.4 specifically mentions that the market mechanism is to 'deliver an overall mitigation in global emissions' (UNFCCC 2015);
- Net emission reductions from market mechanisms under Article 6 could be achieved in various ways that are currently under negotiation:
    - For example, the transfer of an ITMO generated outside of the scope of the selling Party's NDC would result in 'direct' emission reductions rather than simply offsetting the increasing emissions of the buying Party (i.e. as in the CDM);
    - ITMOs could also be discounted to contribute to overall emission reductions.

- Article 6 instruments may enable more mitigation through both earlier actual mitigation action on the ground and through the speeding up of the ambition raising process for NDCs. However only if implemented correctly (i.e. without perverse incentives);
- Article 6 instruments may further the quality of emission reduction units used under the PA by enabling robust, stringent and consistent MRV practices in different carbon pricing instruments acknowledged under it (assuming Parties negotiate strict rules and guidance).

3 What are the contributions and potential risks of Article 6?

3.1 Implementation of NDCs

3.1.1 Contributions

The market mechanisms under Article 6 aim to reduce the cost of mitigating climate change, thereby facilitating the achievement of mitigation targets.

- Article 6.2 refers to the 'use of ITMOs towards NDCs' (UNFCCC 2015); and
- Articles 6.4(c) and 6.5 refer to the use of emission reductions resulting from the Article 6.4 mechanism towards NDCs (UNFCCC 2015).

3.1.2 Risks

The extent to which market mechanisms will be used to fulfil NDCs is currently uncertain. Based on an analysis by IETA (2017), 92 out of the 190 INDCs submitted intend to use the international market mechanisms under Article 6.

- Although the number is quite high, most are aspirant sellers in the carbon market and are mostly low-income countries who have limited experience with existing market mechanisms.

The largest global emitters do not currently intend to use international markets to fulfil their INDCs, which means that at present, there is no significant prospective demand for an international market mechanism.

- However, this does not completely exclude the possibility that more countries may decide to use market mechanisms either during the update process from INDCs to NDCs by 2019 or to fulfil subsequent, more ambitious NDCs.

Of those who may use international market mechanisms, most do not specify what mechanism(s) they intend to use.

3.2 Raising of ambition

3.2.1 Contributions

Article 6.1 refers to allowing for higher ambition in mitigation and adaptation actions; this could be interpreted as the overarching purpose of Article 6, applicable to both the CA and the MSDM (Cames et al. 2016).

Given that the PA requires Parties to update their NDCs every five years after taking into account the outcome of the Global Stocktake, it is expected that the market mechanisms under Article 6 should facilitate 'higher ambition' from the Parties.

'Allowing for higher ambition' could however have different meanings, such as:

- encouraging more ambitious subsequent NDCs (i.e. with abatement costs reduced via trading);
- providing net emission reductions (i.e. possibly via the discounting of ITMOs); or
- providing finance for adaptation actions that go beyond the adaptation measures pledged in Parties' NDCs.

Parties should therefore clarify how they interpret 'allowing for higher ambition' in the forthcoming negotiations.

3.2.2 Risks

The reliance upon ITMOs to fulfil NDCs may delay domestic efforts for abatement by the buying country undermining long-term efforts to decarbonise their economies.

- It may be necessary for limits to be put in place for the contribution of ITMOs towards the achievement of NDCs to prevent the 'lock in' of high carbon investments in the buying country. For example, Sweden's 2040 target includes an 85 % domestic effort and a 15 % effort through the use of international market mechanisms (New Scientist 2017).

The design of the market mechanisms under Article 6 needs to prevent the creation of perverse incentives that deter countries from raising the ambition of their NDCs.

- For example, a country may limit the scope of its NDC to ensure that it can generate more ITMOs that can be traded on the international market. The design of the market mechanisms will therefore have to provide incentives to encourage countries to increase the ambition and scope of their NDCs.

The provisions against double counting (i.e. Article 6.5 and paragraph 36 of the decision text referring to corresponding adjustments) suggest that the transferring country would most likely not be able to use these mitigation outcomes to fulfil their own NDC pledges (conditional or non-conditional) (Spalding-Fecher et al. 2017).

- If it is not possible for the transferring country to use at least part of the mitigation outcome towards their conditional target, then the ambition raising incentive of Article 6 is slightly weakened in this context from the selling perspective. This needs to be further clarified in the negotiations.

3.3 Promoting sustainable development

3.3.1 Contributions

Achieving sustainable development (i.e. delivering economic, environmental and social benefits) is often a further purpose of international market mechanisms.

- For the MSDM under Article 6.4, sustainable development is one of the primary purposes;
- CAs under Article 6.2 also encourages the promotion of sustainable development as one of the requirements for Parties when transferring ITMOs;
- Moreover, Article 6.1 mentions the promotion of sustainable development.

Under Article 6, many countries have argued that the assessment of sustainable development should remain a prerogative of countries.

Nevertheless, there is growing support amongst stakeholders that Parties should be required to report (i.e. sustainable development checklists) on how the use of international mechanisms promotes sustainable development.

3.3.2 Risks

The dual objective of low cost emission reductions and promoting sustainable development under the CDM were often conflicting with one another.

- For example, the most cost effective emission reduction project (i.e. HFC-23 projects) often provided limited benefits with regards to sustainable development. While there was a financial incentive for project developers to realise low cost mitigation potential, similar financial incentives for the promotion of sustainable development were simply not as strong. Albeit the development of

the 'Gold Standard' provided sellers with the option to support projects associated with wider social benefits.

The extent to which this issue reoccurs under the Article 6 market mechanisms will depend upon the stringency of the guidance set under the CAs (Article 6.2) and the modalities and rules applied under the MSDM (Article 6.4).

How sustainable development is ultimately defined, and especially, implemented under Article 6 will also be very important. The mitigation and sustainable development components of the market mechanisms under Article 6 need to be better balanced than was previously the case under the CDM.

3.4 Ensuring environmental integrity

3.4.1 Contributions

In the context of international transfers under Article 6, environmental integrity could mean that the international transfer of ITMOs should not result in higher global emissions than if the NDCs had been achieved only through domestic action. Schneider et al. (2017) argues that the environmental integrity of Article 6 depends upon:

(1) the ambition of the NDCs (i.e. a country with an ambitious economy wide NDC target has an incentive to make sure that ITMOs have sufficient quality otherwise it would have to compensate for the transfer with either further emission reductions or the further purchasing of international units);

(2) incentives for future mitigation action (i.e. market mechanisms may encourage countries to adopt more ambitious targets due to the lower cost of mitigation, however could also create disincentives to pursue mitigation action in the future if this would lower potential revenue from selling credits);

(3) integrity of mitigation outcomes (i.e. the market mechanism makes sure that the issuance or transfer of one unit, defined as 1 t CO_2 eq, leads directly to an emission reduction of at least 1 t CO_2 eq in the transferring country, compared to a counterfactual scenario whereby the mechanism did not exist); and

(4) robust accounting (i.e. global GHG emissions could increase as a result of an international transfer if emission reductions are double counted).

The market mechanisms under Article 6 both aim to ensure the environmental integrity of the PA. For example,

- Article 6.2 requires Parties to 'ensure environmental integrity and transparency' where engaging in CAs;
- Article 6.4 also has a number of provisions that aim to safeguard environmental integrity. These include requiring that mitigation benefits be real, measurable and long term; that additionality is ensured; and that emission reductions be verified and certified by designated operational entities (UNFCCC 2015).

3.4.2 Risks

Will both the international guidance under Article 6.2 and the provisions under Article 6.4 actually address issues of environmental integrity (i.e. additionality, double counting, avoiding hot air etc.) and do so in a consistent manner?

Schneider et al (2017) show in aggregate levels, that current NDC targets represent a decrease compared to projected worldwide BAU emissions in 2030; yet up to 68 % of the mitigation ambition contained in NDCs that are more stringent than BAU could be undermined if all the hot air from NDCs that

are less stringent than BAU were to be transferred. Furthermore roughly 12 to 14 % of global emissions in 2030 are not covered by NDC targets. Depending on the scenario, it is estimated that between 8 and 10 Gt CO_2 eq in 2030 are either not included in NDC targets or represent hot air (Schneider et al. 2017).

In order to avoid the transfer of hot air undermining the environmental integrity of the PA, Schneider et al. (2017) refers to some of the options currently under discussion:

(1) Establishing principles for international guidelines for NDCs;

(2) Ensuring transparency through setting up international reporting and review processes;

(3) Setting eligibility criteria for the participation of countries in the transfer of ITMOs (i.e. based on the ambition and scope of NDC targets);

(4) Setting limits on international transfers (i.e. based on a supplementary principle).

3.5 Involvement of the private sector

3.5.1 Contributions

- The private sector has been one of the major drivers of market mechanisms in the past. In many countries, the CDM and Joint Implementation (JI) have played a crucial role for engaging the private sector in the mitigation debate, convincing the actors that mitigation action can bring not only atmospheric but also financial benefits.
- The search function of a market approach is very important, enabling knowledge of the private sector to be utilised regarding technologies available and under development, their potential to reduce emissions and the resulting investment opportunities.
- Private actors are expecting the continuation of market mechanisms and it is therefore a task of policy makers to fulfil these expectations. The potential use of credits generated by Article 6.4 under climate finance could also be a new way of engaging the private sector.

3.5.2 Risks

- A lack of oversight of the private sector could lead to projects not guaranteeing real emissions reductions if the requirements for transparency and robust accounting are not clearly defined and correctly implemented.
- Without sufficient demand for international credits, the price signal may not be strong enough to finance the mitigation abatement necessary in order to decarbonise economies within the timeframe requested by the IPCC.
- The confidence of the private sector in the market may be completely undermined if CDM investments are destroyed with a ‘stroke of a pen’ regardless of their merits (Carbon Mechanisms Review 2017b). It may be necessary to therefore transition some CDM activities into the MSDM under Article 6.4; however this is subject to ongoing negotiation.

4 Conclusion

This briefing paper has deliberately taken a step back to focus on a fundamental question regarding market mechanisms – namely what are the justifications for the continuation of market instruments post 2020? We have highlighted a range of potential benefits from the perspective of the buyer (i.e. lower compliance costs) and seller (i.e. capacity building / technology transfer) of ITMOs as well as the potential upside for the environment (i.e. net reductions in global emissions). However, these benefits can only be fully realised if the design of future market mechanisms under Article 6 avoid the risks that could ultimately undermine the environmental integrity of the PA. This will require learning from past mistakes and ensuring that safeguards are put in place to limit the transfer of potential hot air. If the market is harnessed correctly (i.e. perverse incentives are avoided), the market mechanisms under Article 6 could successfully work in tandem with the global stocktake to increase ambition levels amongst the Parties in future years.

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Germany's carbon market cooperation with Viet Nam: Prospects for engaging with Article 6 of the Paris Agreement

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Project Background

This case study is part 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). It builds upon two previous outputs produced under the project (see Kachi et al. 2016; Cames et al. 2016).

Study objectives

Germany has been a key-actor in promoting market instruments and in fostering an international carbon market in the past. In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with rules and regulations to be further developed under Article 6, as well as incorporating the interests of Germany and its partners. The purpose of this research is to gather evidence towards answering this question.

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. Deeper thought is given to each country's explicit interest in participating in carbon market development in a post-Paris world and its capability to realise this interest. 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.

Approach

The case studies are the concluding component of a three-stage framework in the aforesaid project:

1. **German carbon market cooperation:** As a first step, current German engagement in carbon market cooperation, including in major initiatives and funds, was outlined. This set the stage for compilation of a comprehensive carbon market cooperation inventory.
2. **Country selection process:** In the second step, the cooperation inventory was taken as the basis for selecting countries for the case study assessment. Three candidates were chosen based on a multi-step selection approach. These represent a spectrum of different levels of carbon market development (from early to advanced). The selected countries were Ethiopia (early), Viet Nam (medium) and Ukraine (advanced).
3. **Case studies:** An in-depth analysis of the three case countries was undertaken in the third step. The case studies provide a first order estimate of a countries' readiness to engage in different market options presented by Article 6 and the pathways for future cooperation with Germany for developing rule-based and well-functioning market instruments.

Note: The first two components have been developed as a stand-alone document. These along with the other two case studies can be found at: https://www.dehst.de/EN/carrying-out-climate-projects/prospects/prospects-node.html.

Methods

The case studies combine a thorough desk research with expert interviews to arrive at a meaningful analysis and derive concrete recommendations on a country level and beyond. They also benefit from two international workshops carried out in January 2017 and May 2017 that provided additional insights and feedback on the assessment.

Acknowledgement

We sincerely thank Vietnamese representatives from the Department of Meteorology, Hydrology and Climate Change (Dr Luong Quang Huy), the Ministry of Natural Resources and the Environment (Mr Pham Van Tan) and the Ministry of Planning and Investment (Mrs Nguyen Tuan Anh) for their valuable inputs and review. The research also benefits from inputs provided by participants of the two project workshops conducted in January 2017 and May 2017.

Finally, the paper benefits from inputs provided by Dr. Karsten Karschunke from the German Environment Agency at various stages of this research.

Abstract

This paper discusses the current readiness of Vietnam to engage in carbon market options that Article 6's provisions may present. Engagement readiness is discussed for three indicators: enabling conditions present in the country to participate in markets; feasibility of maintaining robust accounting and MRV to maintain quality of generated reductions and transparency of transfers; and the compatibility of the country's nationally determined contribution (NDC) to maintain the environmental integrity of Article 6 and strengthen mitigation ambition of the Paris Agreement. The paper argues that at the current level of capacity, crediting instruments seem to be most feasible in the short term. In the medium to longer term, the linking of the proposed small scale ETS for the iron and steel sector may be a future option for Viet Nam. These assertions are arrived at using empirical evidence from interviews, project workshops and literature review on various factors discussed under the three indicators.

Based on the assessment, recommendations are made for Germany to further support Vietnam to participate in Article 6. Three entry-points are recognised: first, furthering in-country MRV capacities for market mechanisms; second, providing focussed technical support on common elements/linkages between Article 6 and NDC implementation; and third, sharing own experiences and lessons learnt for instrument design and implementation.

Kurzbeschreibung

Die Fallstudie diskutiert Vietnams 'Bereitschaft zur Nutzung von Kohlenstoffmarktmechanismen, die möglicherweise im Rahmen des Artikels 6 des Pariser Abkommens umgesetzt werden. Die Bereitschaft für ein mögliches Engagement Vietnams im Kohlenstoffmarkt wird anhand von drei Indikatoren betrachtet: i) die Rahmenbedingungen im Land, welche eine Teilnahme am Kohlenstoffmarkt erleichtern; ii) die Durchführbarkeit von robusten Emissionsberechnungen und MRV, um die Qualität der generierten Emissionsreduktionen und die Transparenz ihrer Transfers zu gewährleisten; und iii) die Kompatibilität des nationalen Klimabeitrags (NDC) mit Artikel 6, um die Umweltintegrität zu erhalten und die Minderungsambition des Pariser Abkommens zu stärken. Das Papier argumentiert, dass die Baseline-und-Crediting-Ansätze auf derzeitigem Niveau der Kapazitäten kurzfristig am ehesten umsetzbar sind. Mittel bis längerfristig könnte die Verknüpfung des vorgeschlagenen Emissionshandelssystems eine Zukunftsoption für Vietnam darstellen.

Die in der Studie vorgestellten Ergebnisse basieren auf empirischen Daten aus Interviews, Projektworkshops und Literaturrecherche zu den drei genannten Bereitschaftsindikatoren. Ausgehend von der Bewertung der Indikatoren werden Empfehlungen ausgesprochen, wie Deutschland Vietnam hinsichtlich der Teilnahme an den Mechanismen unter Artikel 6 bestmöglich unterstützen kann. Drei mögliche Ansatzpunkte für eine solche Unterstützung werden identifiziert: zunächst steht eine Förderung der MRV Kapazitäten für Marktmechanismen im Vordergrund; an zweiter Stelle steht die zielgerichtete technische Unterstützung von gemeinsamen Elementen und möglichen Verknüpfungen zwischen Artikel 6 und der Implementierung des nationalen Klimabeitrags (NDC); und drittens wird das Teilen eigener Erfahrungen und Erkenntnisse hinsichtlich der Ausgestaltung und Umsetzung von Marktinstrumenten hervorgehoben.

List of Abbreviations

BAU	Business as usual
CAT	Climate Action Tracker
CDM	Clean Development Mechanism
CER	Certified emission reductions
CPA	Component project activities
CORSIA	Carbon Offsetting and Reduction Scheme in International Aviation
DMHCC	Department of Meteorology, Hydrology and Climate Change
ETS	Emission Trading Scheme
GEF	Global Environmental Facility
ICAO	International Civil Aviation Organisation
IKI	International Climate Initiative
ITMOs	internationally transferable mitigation outcomes
JCM	Joint Crediting Mechanism
LDC	Least Developed Countries
MBI	Market Based Instrument
MAC	Marginal Abatement Cost
MOC	Ministry of Construction
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
MRV	Monitoring, reporting and verification
NAMA	Nationally Appropriate Mitigation Actions
NDC	Nationally Determined Contribution
POA	Programme of Activities
PDD	Project Design Document
PMR	The Partnership for Market Readiness
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

Viet Nam	
Profile:	Developing country
Income group:	Lower middle income
Population:	91.7 million (2015)
Total emissions:	246.8 Mt CO_2e (including LULUCF) in 2010
Per capita emissions:	1.7 tCO_{2e}/capita (2013)
Key growth sectors:	Services, Industry

Following the reunification of the country in 1976, the Socialist Republic of Viet Nam has been governed as a one-party state by the Communist Party of Viet Nam. Socio-economic reforms during the 1980s, referred to as 'Doi Moi' (meaning economic rejuvenation), were intended to facilitate a transition from a centralised economy to a 'socialist-oriented market economy' (Hays 2008). The reforms encouraged the establishment of private businesses and foreign investment, which led to the country experiencing rapid economic growth between 1990 and 2010 (Table 5). During this time period, the value added from manufacturing and service sectors increased as the country's reliance on the agricultural sector declined slightly (Table 5). Breu et al. (2012) explain that this economic transition was further supported by the country embracing more open trading relations by both joining the World Trade Organisation (WTO) in 2007 and normalising trade relations with the United States. Indeed, the import and export of goods and services have increased considerably since 1990 (Table 5).

Table 5: Overview of socio-economic indicators for Viet Nam

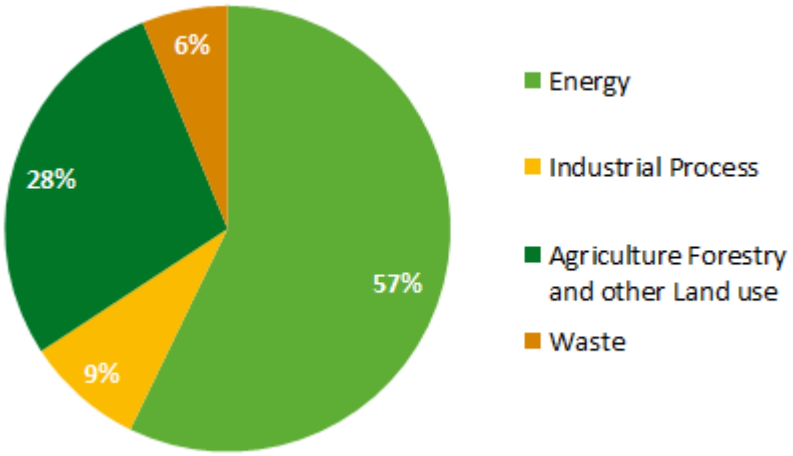
	1990	2000	2010	2011	2012	2013	2014	2015
Population, total (millions)	66.0	77.6	86.9	87.9	88.8	89.8	90.7	91.7
Population growth (annual %)	1.9	1.3	1.0	1.1	1.1	1.1	1.1	1.1
GDP (current in billion US$)	6.5	33.6	115.9	135.5	155.8	171.2	186.2	193.6
GDP growth (annual %)	5.1	6.8	6.4	6.2	5.2	5.4	6.0	6.7
Agriculture, value added (% of GDP)	38.7	22.7	18.4	19.6	19.2	18.0	17.7	17.0
Industry, value added (% of GDP)	22.7	34.2	32.1	32.2	33.6	33.2	33.2	33.3
Services, etc., value added (% of GDP)	38.6	43.1	36.9	36.7	37.3	38.7	39.0	39.7
Exports of goods and services (% of GDP)	36.0	50.0	72.0	79.4	80.0	83.6	86.4	89.8
Imports of goods and services (% of GDP)	45.3	53.3	80.2	83.5	76.5	81.5	83.1	89.0

Source: World Bank (2017)

The majority of emissions in Viet Nam come from the electricity sector (Figure 4). Despite the economic reforms that have taken place in the country, the electricity sector is still mainly controlled by a state owned utility called Viet Nam Electricity (ENV) that is responsible for the majority of electricity transmission, distribution and generation in Viet Nam. Given the structure of the energy market in the

country, fossil fuel subsidies are prevalent with electricity prices capped and differentiated for different users and domestic coal prices are set below market prices in order to enable cheap electricity production and manufacturing (Government of Viet Nam 2014a). Under such a favourable policy environment, the use of fossil fuels in total energy consumption has risen from 28 % in 1990 to 70 % in 2010 resulting in CO_2 emissions per capita increasing from 0.3 to 1.7 metric tons over the same time period (World Bank 2017). It is however important to acknowledge that the goal of the Vietnamese government is to develop a competition based generation, wholesale and retail market by 2023 and that the average electricity selling price has continuously increased in the last few years; albeit it still remains too low to finance overall electricity generation costs (Cattelaens et al. 2015).

Figure 4: Overview of Viet Nam's emissions profile and major contributing sectors



Source: Government of Viet Nam (2014b)

Given that the rapid economic growth in Viet Nam is based upon a high carbon infrastructure, the emission profile of the country is expected to increase in the short to medium term. This is reflected in the country's Nationally Determined Contribution (NDC) submission, where Business As Usual (BAU) emissions are forecast to increase from 246.8 $MtCO_2e$ in 2010 to 787.4 $MtCO_2e$ in 2030 under the assumption of continued economic growth and the absence of climate change policies (Government of Viet Nam 2015). However, with the adoption of the Green Growth Strategy in 2012 the country hopes to implement a range of policies to divert away from this BAU emissions projection (Government of Viet Nam 2014a). Indeed, the revised Power Development Plan VII for the period 2016-2030 (approved by the Prime Minister in March 2016) puts a stronger emphasis on renewable growth, fuel diversification and transmission reliability (Cattelaens et al. 2015).[29] At the same time, under the plan, Viet Nam envisages adding around 40 GW of new coal capacity, which if implemented, would have a detrimental impact on the country's ability to reduce GHG emissions in the energy sector.

Germany has built a solid partnership with the country over 20 years by collaborating on a range of activities. Currently the GIZ are involved in an ongoing project until 2018 that aims to create an overarching framework for nationally appropriate mitigation actions (NAMAs) and measurement, reporting and verification (MRV) in Viet Nam. There is a need for continuation and realignment of such support post Paris. The carbon market framework agreed in Paris will have a much closer link with na-

[29] The revised Power Development Plan increases the renewable generation target from 4.5 % to 6.5 % by 2020 and from 6 % to 10.7 % by 2030 (GIZ 2016).

tional climate mitigation contributions than was the case under the former climate regime. Yet, much of the future carbon market design is still on the drawing board. This ambiguity in understanding how markets will develop and the links it has with national policy frameworks and international commitments creates a need for research at an international and country level. Through this case study, options for connecting these loose ends are conceptualised in a Vietnamese context and recommendations are developed for further German cooperation in order to help achieve them.

The paper is structured as follows: Section 2 provides the background on the carbon market experience of Viet Nam from the years of the CDM to their plans under the NDC. Section 3 outlines Viet Nam's position for the use of Article 6 of the Paris Agreement and identifies current capabilities for participation. Keeping these background elements in mind, Section 4 provides an overview of the market options under Article 6 and establishes an evaluation framework, which is then used for the assessment in Section 5 on Viet Nam's readiness to engage in market mechanisms. In Section 6, recommendations are provided in the conclusion on the role of Germany's cooperation to support Viet Nam's participation in market mechanisms under Article 6.

2 Setting the scene: carbon markets in Viet Nam

With the adoption of the Green Growth Strategy in 2012, the Vietnamese government has set the overall objective of decarbonising its economy by setting both GHG intensity targets (e.g. relative to GDP) and GHG reduction targets (e.g. relative to BAU) (Government of Viet Nam 2014a).[30] It is envisaged within the Green Growth Strategy that carbon pricing (both domestic and international) will play an important role in mitigation activities. Therefore, the following sub-sections provide an overview of the country's experience so far with carbon markets and highlight the potential lessons learnt in order to inform the country's use of market mechanisms in the future.

2.1 Glance into the past: CDM experience, opportunities and challenges

As of February 2017, 255 CDM projects in Viet Nam have been registered, which have generated approximately 16.5 million Certified Emission Reductions (CERs) (UNEP DTU Partnership 2017a).

- Viet Nam is ranked fourth internationally in terms of the number of registered CDM projects, following China, India and Brazil.
- Viet Nam is ranked seventh internationally in terms of the total issuances of CERs, following China, India, Brazil, Mexico, South Africa and Indonesia.

According to the Government of Viet Nam (2014a) the relatively late registration date of CDM projects in Viet Nam, due in part to the lengthy validation and registration processes of the CDM, impacted the country's ranking in terms of the total issuances of CERs. While the majority of CDM projects in Viet Nam were registered during 2012 (e.g. 54 %), the number of CERs issued from these projects only represent 18 % of the total (UNEP DTU Partnership 2017a). Given that the late registration of these CDM projects coincided with the collapse in the CER price, the Government of Viet Nam (2014a) argue that the monitoring and issuance for many projects is no longer financially 'worthwhile' for project developers to continue.

The CDM portfolio of Viet Nam is dominated by hydro projects that account for 78 % of the total number of registered projects (Table 6). The majority of the programme of activities (PoAs) that have been registered in Viet Nam also relate to hydro power projects (e.g. 3 out of 9). Once a PoA is registered an unlimited number of component project activities (CPAs) can be added without undergoing the complete CDM project cycle. However, the uptake of this programmatic approach is yet to be fully utilised in the country with only 112 kCERs issued for CPAs, which are all generated from hydropower projects (UNEP DTU Partnership 2017b).

Table 6: Portfolio of CDM projects in Viet Nam

Project type	Registered projects	Total issuance (kCERs)
Biomass energy	16	85
EE Households	1	
EE own generation	2	
Fugitive	1	8857
Hydro	200	6450
Landfill gas	7	248
Methane avoidance	22	638
Reforestation	1	

[30] By 2030 Viet Nam aim to reduce GHG emissions by 8 % compared to BAU with domestic resources, which will be achieved in part by reducing the emission intensity per unit of GDP by 20 % compared to the 2010 levels and by increasing forest cover to the level of 45 % (Government of Viet Nam, 2015).

Project type	Registered projects	Total issuance (kCERs)
Wind	5	247
Total	255	16526

Source: UNEP DTU Partnership (2017a)

The lack of diversity in the CDM/PoA portfolio of Viet Nam is due partly to the dominance of unilateral projects (e.g. projects undertaken without a foreign partner), which may have limited incentives for technology transfer, innovation and international cooperation (Bruyninckx et al. 2013). Unilateral projects are common as Annex I countries (developed countries and economies in transition) prefer to simply buy CERs rather than invest in the development of CDM projects that are characterised by a diverse set of risks (e.g. policy uncertainty, land acquisition, equipment purchasing, implementation uncertainty etc.). Annex I countries therefore shifted the risks related to equity investments to the companies in the countries hosting the CDM projects (Bruyninckx et al. 2013). However, in the absence of foreign involvement in the development of CDM projects, several barriers have emerged preventing the development of a more diversified portfolio of CDM projects:

- Limited access to capital and political influence: The number of project developers that can mobilise capital and lobby authorities are limited. Indeed, hydro power plants that successfully obtained CDM registration are often managed by (semi) state-owned entities, which can effectively influence policy makers by lobbying for investment in the electricity transmission network in remote areas (Bruyninckx et al. 2013).
- Limited influence on national policies: Vietnamese national policies create favourable conditions for the investment in hydro projects (e.g. the priority of hydro projects in National Power Development Plans). In the absence of Annex I entities actively participating in the CDM, the diversification of the CDM project portfolio in Viet Nam is more difficult to achieve. Furthermore, efforts to attract foreign direct investment to diversify the power mix has been hindered by the Vietnamese government limiting the average price of electricity at a relatively low level to enable the country's products to remain competitive around the globe (Bruyninckx et al. 2013).
- Duplication of project experience by CDM consultants: 'Twin projects' with nearly identical project design documents (PDDs) have been registered in Viet Nam to reduce costs that clearly constrain efforts to diversify the CDM portfolio. Project developers will also often prefer the more certain profits of a hydro power installation over investing in riskier project activities (Bruyninckx et al. 2013). Indeed, the relatively quick approval process for hydro projects in Viet Nam was confirmed during an interview with a policy maker from Ministry of Natural Resources and Environment (MONRE).

Given the additionality concerns associated with hydro power projects in Viet Nam (Bruyninckx et al. 2013) the lack of diversity in the CDM portfolio increases the risk of undermining its environmental integrity. A policy maker from the Department of Meteorology, Hydrology and Climate Change (DMHCC) expressed his frustration that the CDM only tapped into a small portion of the GHG reduction potential of the country. Although the revenues from the CDM may have been lower than anticipated, Viet Nam has nevertheless gained experience with carbon markets – especially with regards to baseline determination and the MRV of projects in the energy sector (Government of Viet Nam 2014a).

2.2 Current carbon market activity in Viet Nam

Nationally Appropriate Mitigation Actions (NAMAs) refers to any action that reduces emissions in developing countries and is prepared under the umbrella of a national governmental initiative. NAMAs have been under development in Viet Nam with the support of two framework projects (internationally funded) to help build MRV capacity in the country:

- 'Support the planning and implementation of NAMAs in an MRV manner' (SPI-NAMAs), 2015-2018 funded by the Japanese government;
- 'Creation of an overarching framework for NAMA and MRV in Viet Nam', 2015-2018 funded by the German government.

Viet Nam has several NAMAs on-going in different sectors (e.g. NAMA in cement sector with Ministry of Construction (MOC), NAMA on energy efficiency in building sector, in waste and renewable energy sectors with MONRE and NAMAs in the steel and fertiliser sectors with the Ministry of Industry and Trade (MOIT)). However, none of these have so far been able to secure the necessary finance for their implementation (Hanh & Loan 2016). Competition for finance remains high and understanding of NAMAs and MRV requirements remain limited according to the Government of Viet Nam (2014b). A policy maker from MONRE suggested that the preparation of the NAMAs submitted to the NAMA registry were not to a high standard and that more international support would be welcomed.

The Partnership for Market Readiness (PMR) by the World Bank intends to address such shortfalls by facilitating collaboration between developed and developing countries to provide funding and technical assistance for the piloting of market-based instruments (MBIs) for GHG emission reductions. Viet Nam is a participant in the PMR and has identified two sectors (e.g. steel and solid waste) for financial support from the PMR to help to develop NAMAs that generate credits. The role of MBIs in facilitating energy efficiency improvements in the power sector will also be investigated under the PMR project (Government of Viet Nam 2012). As a consequence of the financial support from the PMR, the improved MRV capacity of the country should make it more attractive for foreign investment in future NAMAs. The later phase of the PMR project envisages the establishment of domestic carbon market instruments. A policy maker from DMHCC confirmed that there is an ambition within the Vietnamese government to implement a small scale emission trading scheme (ETS) for the steel sector. The government intends to select five installations in the sector to set up a pilot ETS. However, it was stressed that this remains a medium to long term goal that will require time to prepare for and eventually implement after 2020.

The Joint Crediting Mechanism (JCM) in Viet Nam was established in July 2013. Under the JCM, the Japanese government facilitates the diffusion of low carbon technologies, products, systems, services and infrastructure in Viet Nam. The emission reductions that result from these actions can then all be used towards fulfilling Japan's national emission reduction target up until 2020. However, according to a policy maker from MONRE the share of credits between the two countries will need to be re-evaluated after 2021 when Viet Nam starts implementing its NDC. Viet Nam currently has six approved methodologies and four registered projects that have all started to lower emission levels (

Table 7); albeit at a considerably smaller scale than under the CDM. However, a representative from MONRE recently expressed that the most important achievement of Viet Nam's participation in the JCM is the country's improved capacity to manage (e.g. measure, report and verify) the reduction of GHG emissions (Ogahara 2016).

Table 7: Portfolio of JCM projects in Viet Nam

Project title	Registration date	Average annual emission reduction
Introduction of amorphous high efficiency transformers in power distribution systems in the southern part of Viet Nam	15 May 16	610 (t/CO2e)
Low carbon hotel project in Viet Nam: Improving the energy efficiency of commercial buildings by utilization of high efficiency equipment	15 May 16	272 (t/CO2e)
Promotion of green hospitals by improving efficiency / environment in national hospitals in Viet Nam	30 Nov 15	515 (t/CO2e)
Eco-Driving by Utilizing Digital Tachograph System	04 Aug 15	296 (t/CO2e)

Source: JCM Vietnam - Japan (2017)

2.3 Glance into the future

Viet Nam's NDC outlines a GHG reduction pathway for the 2021-2030 period, which comprises of a domestic contribution of 8 % by 2030 (relative to BAU). This could be increased by an additional 25 % depending upon levels of international support e.g. via the financing of NAMAs (Government of Viet Nam 2015). Viet Nam's NDC covers the entire economy (except for industry, which is not currently included in the BAU) and the country is also open to the use of carbon markets in order to fulfil its targets. However, Schneider et al. (2017) strikes a note of caution with the country's use of international market mechanisms as the country is identified as a potential source of 'hot air' (refer to Section 5.3 for further information).

Viet Nam is also a member of the International Civil Aviation Organisation (ICAO). However the country as of yet has not expressed a willingness to voluntarily participate in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) from its outset (ICAO 2017). Given that Viet Nam is forecasted to be the fifth fastest market in terms of additional aviation passengers per year between 2015-35 (IATA 2016), it is expected that the country will exceed the threshold criteria and be obligated to participate in the second phase of CORSIA from 2027 onwards.

3 Country position and capabilities

Viet Nam includes both conditional and unconditional contributions within its NDC. The unconditional contributions are measures 'that will be implemented using domestic resources, while the conditional contributions are measures that could be implemented if new and additional international financial support, technology transfer and capacity building are received' (Government of Viet Nam 2015). The use of Article 6 market mechanisms may help to facilitate a raising of the ambition of Viet Nam's NDC if the country has the domestic capacity to engage in such approaches. The following sections aim to further uncover Viet Nam's readiness and needs for international support to participate in different types of market based approaches being conceptualised under Article 6 of the Paris Agreement – Article 6.2 covering transfers through linked ETSs or bilateral transfers of emission reductions e.g. internationally transferred mitigation actions (ITMOs); and transfers under the Article 6.4 mechanism.

3.1 Viet Nam's position for the use of Article 6

The Vietnamese government is currently adopting a 'wait and see' approach to the negotiation of market mechanisms under Article 6 and have not submitted their own proposals. However, it is expressed within the country's NDC that they are very much open to using market mechanisms to fulfil their obligations (Government of Viet Nam 2015). It is most likely that the country will be a supplier of emission reductions in any post 2020 climate regime.

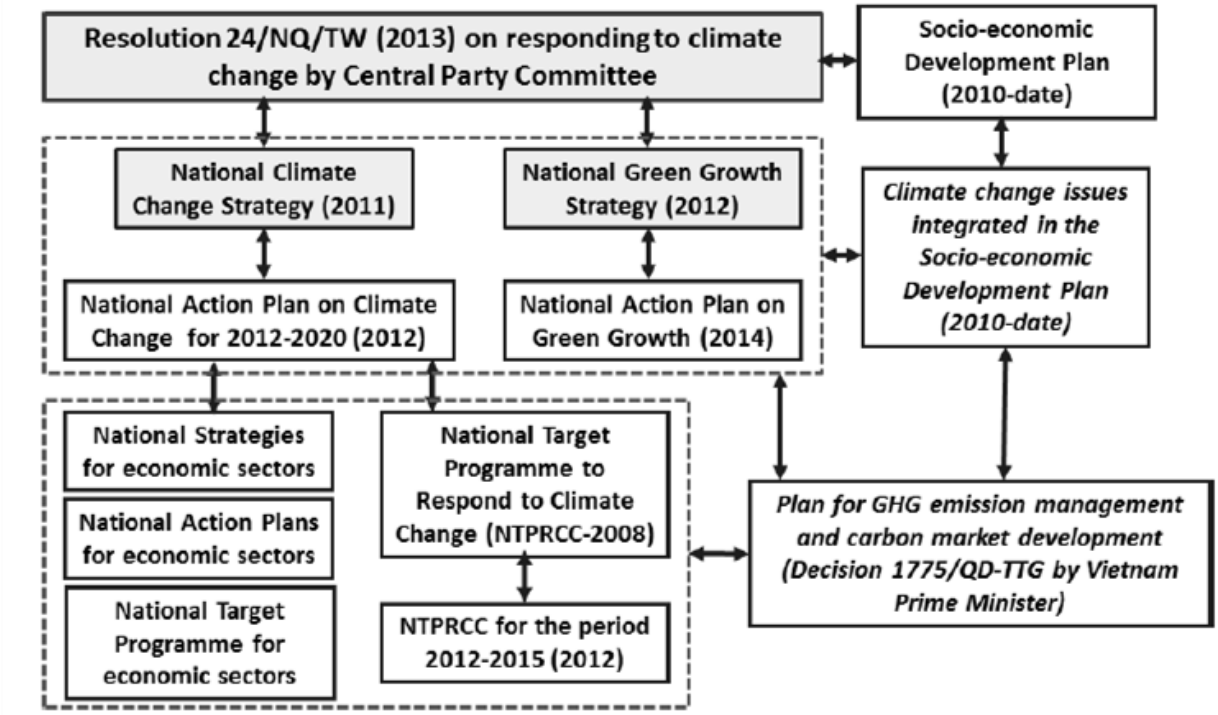
3.2 Classification of carbon market related capabilities

The capacity of Viet Nam to engage in carbon markets has been primarily driven by the country's participation in the CDM. Given the unbalanced portfolio of CDM projects in Viet Nam, this has resulted in the country only having limited experience in non-hydro projects. In order to address this imbalance, Viet Nam is currently working with the World Bank and development partners to enhance their carbon market capacity. Delays in approving the PMR proposal for Viet Nam has slowed progress, however according to a policy maker from MONRE, it is still expected that the Vietnamese government will approve the capacity building activities within the PMR proposal.

3.2.1 Domestic administrative and regulatory capacities

An overview of the most relevant climate change related policies in Viet Nam is provided in Figure 5. In 2013, Resolution 24/NQ/TW identified the key solutions (e.g. awareness raising, education, R&D, improvement of financial mechanisms and policies) that are required to respond to climate change. Strategies are developed (e.g. National Climate Change Strategy and National Green Growth Strategy) that correspond to the broad solutions identified by the Central Party Committee. In order to implement these strategies, action plans are subsequently developed and are associated with specific activities. These action plans are also influenced by the National Target Program to Respond to Climate Change (NTP-RCC) which also lists the implementing organisations (Government of Viet Nam 2014a).

Figure 5: Climate change policies in Viet Nam



Source: Government of Viet Nam (2014a)

The Ministry of Planning and Investment (MPI) has primary responsibility for performing the function of State management over climate change31 in Viet Nam and is the focal point of UNFCCC. Based on the NTP-RCC, MONRE was designated in the year 2008 as the lead agency to facilitate the development of the National Climate Change Strategy and subsequently has also taken the lead on coordinating the policy making process for the National Green Growth Strategies. MONRE is responsible for the implementation of policies, the supervision of their progress, and in the establishment of MRV frameworks. The GHG inventory is also developed under the lead of this ministry. Within MONRE, the Department of Meteorology, Hydrology and Climate Change (DMHCC) is the Designated National Authority (DNA) of Viet Nam and hence represents the focal point for the CDM and for NAMAs. It provides support to the Government in the management of carbon trading in the international context (Government of Viet Nam 2014a).

The domestic administrative and regulatory capacity of Viet Nam to enhance the carbon market capacity of the country is still very much in an early stage of development. However, Booth (2013) argues that although Viet Nam has demonstrated the capacity to plan a national climate change policy framework, intergovernmental coordination still needs to be improved with more clarity needed on the roles of leading authorities to avoid duplication of efforts. Furthermore, there remains considerable work to do to achieve climate change action planning at a sectoral and provincial level. A policy maker from MONRE highlighted the data collection problems experienced with the establishment of a national GHG inventory, which illustrates the lack of regulation to compel stakeholders to provide data on their emissions. From an administrative perspective, interviews with policy makers have suggested that the country could improve how the collection of data is organised and this may be an area for additional support from countries with more advanced carbon markets. The lack of urgency in the collection of data may at be indicative of the fact that there is not yet any demand domestically for carbon

31 State management refers to the provision of advice on national socio-economic development, general economic management, and domestic and foreign investment. The MPI is involved in helping the mainstreaming of climate change response into national and provincial socio-economic development plans (the REDD desk 2017).

credits as the NDC for Viet Nam only specifies a target for the period 2021 to 2030. A policy maker from DMHCC suggested that protocols still need to be developed to delegate responsibility for the collection of data between the different layers of government (e.g. national vs regional).

3.2.2 Accounting capacity

Accounting capacities include those for estimating national emissions, e.g. as done for national communications to the UNFCCC; and accounting for mitigation actions and related emissions reductions, e.g. from projects, programmes and sectoral actions.

Viet Nam's latest national GHG inventory is for the year 2010 and was developed for the country's Initial Biennial Updated Report, which was submitted in 2014 and also included information on GHG mitigation activities, financial, technology and capacity needs and support received for climate activities (Government of Viet Nam 2014b). Viet Nam has also previously submitted two National Communications to the UNFCCC, the latest of which was completed in 2010 with GHG inventory data for the year 2000 (Government of Viet Nam 2010). Greenhouse gas inventories for all of these submissions have been developed with support from international organisations and no organisational system or official institutional arrangement has been established in Viet Nam for these activities, making it difficult to compile data regularly keeping their quality, especially on time-series consistency (Government of Viet Nam 2014a).

According to a policy maker from MONRE, progress towards a national GHG inventory in Viet Nam has so far been very challenging. This is primarily due to issues with the collection of data from different ministries and sectors that are so far reluctant to co-operate. Ministries and sectors have no experience with accounting for their emissions and regard such efforts as an economic burden. A policy maker from DMHCC added that it will be necessary to raise awareness of the potential co-benefits associated with mitigation activities. In addition, the quality of the national GHG inventory is currently being undermined by the use of default IPCC emission factors, inadequate Quality Assurance and Quality Control (QA/QC) procedures and inadequate activity data (Government of Viet Nam 2014b). Improvements to the national GHG inventory are being hindered by a lack of local experts and limited domestic financial resources. Nevertheless, policy makers from both MONRE and DMHCC have suggested that if these difficulties can be overcome (possibly with international support) it is expected that the national GHG inventory will be completed in around two years.

Accounting capacities for mitigation actions at a sector or project level are highly variable and are significantly influenced by the country's experience under the CDM. For example, a policy maker from MONRE explained how Viet Nam has built up its domestic capacity in the accounting of GHG reductions from hydro projects, reflecting the high share of such projects in the country's CDM portfolio. In contrast, the accounting capacity for mitigation activities in other sectors is currently less developed and therefore PMR funding is intended to address this shortfall by building domestic accounting capacity in sectors with considerable mitigation potential. Even for hydro projects, the quality of Viet Nam's GHG data unfortunately still led to delays with project registrations. Bruyninckx et al. (2013) highlighted how the DNA defined a standard calculation sheet for the emission coefficient of the national grid, in order to help lower the costs for hydropower project developers in the preparation of Project Design Documents (PDDs) and in the validation process. However, the emission data included in the standard calculation sheet were averages of 2006, 2007 and 2008 and the Executive Board (EB) required more up to date data. As a consequence, it was necessary for the project developers to use an alternative methodology to re-calculate the emission coefficients (increasing costs and delaying project implementation). This example emphasises the importance of developing the national GHG inventory to enhance the accounting capacity of the country.

3.2.3 Monitoring, reporting and verification (MRV)

MRV capacities can be distinguished as MRV of national emissions and MRV provisions for mitigation activities. In addition to the results, MRV also includes criteria to track implementation progress, effectiveness of the outcomes and support in a transparent manner.

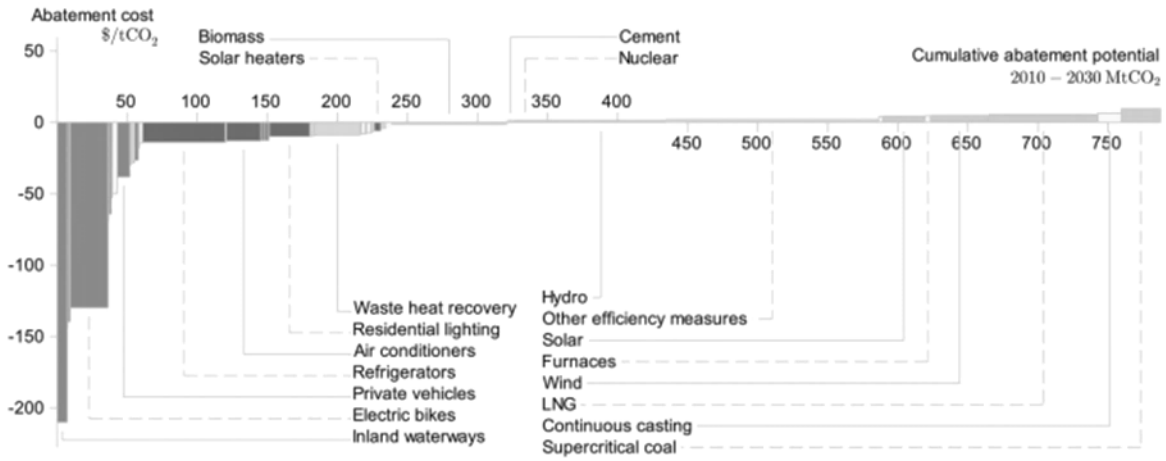
The Project of GHG Emission Management, which was approved by the Vietnamese government in November 2012, sets the target of preparing the framework to register and widely deploy NAMAs. In support of this target, the Decision[32] also includes the establishment of an MRV system at both the national and sectoral levels (Government of Viet Nam 2014a). However, so far, the effective implementation of this Decision has not yet been achieved with Viet Nam's Initial Biennial Updated Report stating that 'current national and sectoral policies to develop and implement NAMA/MRV are inadequate' (Government of Viet Nam 2014b). It was also acknowledged that the MRV systems at the national and sectoral levels are still in a development phase and that there was currently a lack of effective co-ordination between ministries, economic sectors, localities, public and private sectors.

Efforts are therefore on-going to improve the market readiness of Viet Nam, with the PMR providing a leading role in advocating both top-down (e.g. centralised and national/sector reporting, QA/QC at system level) and bottom-up (e.g. installation level data collection, QA/QC at data point level) MRV approaches (Government of Viet Nam 2014a). The need for the development of a registry system to accompany the national GHG inventory should be reviewed on an on-going basis as it prepares for more complex interaction with the international carbon market (Government of Viet Nam 2014a).

3.2.4 Mitigation potentials and costs

It is outlined in Viet Nam's NDC that a roadmap with methods to implement GHG mitigation measures is under development. A policy maker for DMHCC expects that this assessment should be completed by 2018. The roadmap will build upon research conducted by Audinet et al. (2016) that assessed the mitigation potential in Viet Nam between 2010 and 2030 (Figure 6). An interesting outcome from the analysis was a Marginal Abatement Cost (MAC) curve, which showed the mitigation potential as a sum of annual emission reductions between 2010 and 2030. Although any MAC curve is sensitive to the underlying assumptions, Audinet et al. (2016) estimated that 40 % of the country's total mitigation potential between 2010 and 2030 is 'win-win' with negative costs. These 'win-win' abatement options are mainly in sectors such as industry, transport and residential buildings. Audinet et al. (2016) estimates that only 2 % of the total MAC potential between 2010 and 2030 has incremental costs over $10 /$tCO_2$e.

Figure 6: Viet Nam's Marginal Abatement Cost Curve, 2010-2030



[32] Decision 1775 Approval of Project of Greenhouse Gas Emission Management; Management of Carbon Credit Business Activities to the World Market, 21/12/2012.

Note: The figure depicts marginal abatement costs (MACs) and potential emissions reduction up to $10/tCO2 for visualization purposes.
Source: Audinet et al. (2016)

The international carbon market could help to finance the vast majority of the abatement options identified for Viet Nam in Figure 6. However, in order to do so market barriers evident from the country's experience with the CDM need to be overcome to attract the necessary international finance. International support to enhance the capacity of Viet Nam to participate in carbon markets needs to be a priority, especially with regards to the development of a national GHG inventory and improving MRV expertise for a broader range of sectors.

4 Assessment framework for countries' readiness to engage with Article 6

This section lists potential participation options for the countries to engage with Article 6 of the Paris Agreement and introduces an assessment framework to analyse the countries' readiness to participate in the new mechanisms. In the following section, Viet Nam's readiness is discussed in line with this methodological framework.

4.1 Participation options under 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 NDCs and enable ambition raising. These are defined as 'Cooperative Approaches' (discussed in Article 6.2-6.3) and a 'Mechanism for Sustainable Development and Mitigation' (discussed in Article 6.4-6.7). We interpret Internationally Transferred Mitigation Outcomes (ITMOs) as mitigation outcomes realised through any Article 6 approach, and transferred between countries with the objective of NDC achievement of the acquiring country. While the detailed rules and modalities of these mechanisms are being negotiated, countries as well as experts are reflecting on how to best integrate previous experience from market related domestic and international activities.

In Table 8 and the paragraphs that follow, we outline a set of broad and non-exhaustive options for transferring ITMOs and differentiate if they may fall under Article 6.2 'Cooperative Approaches' or under Article 6.4 'Mechanism for Sustainable Development and Mitigation'. These form the basis of the assessment in Section 5.

Table 8: Potential non-exhaustive options for ITMO transfers under Article 6

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	x
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Authors

4.1.1 Participation options under Article 6.2

Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of ITMOs. Multiple instruments could generate ITMOs under Article 6.2, as long as their generation is consistent with the international guidance adopted by the COP. Based on currently operational domestic as well as international carbon pricing instruments and our interpretation of ITMOs, a few broad participation options emerge:

(1) ITMO transfers through linked domestic Emission Trading Schemes (ETS): Mitigation outcomes are traded between established ETS from respective jurisdictions through linking their markets;

(2) ITMO transfers through (bilateral) baseline and crediting on project-by-project or sectoral level: Crediting of emission reductions in non ETS sectors for the countries with ETS, a general crediting approach, or the Joint Crediting Mechanism (JCM) approach;

(3) Direct government-to-government ITMO transfers: Other forms of government-to-government transfers of mitigation outcomes.

4.1.2 Participation options under Article 6.4

Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation, which generates emission reduction credits and operates under the authority of the COP33. Based on engagement in operational international mechanisms and existing structures (e.g. CDM), participation in the mechanism can involve - first and foremost - the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETS) towards meeting the acquiring country's NDC. We assume 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.

(1) Design options that exist under Article 6.4 are yet to be agreed and include a project or programme based mechanism, similar to the CDM/JI approaches; or a sectoral international crediting mechanism in which fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved. Alternatively, credits could be also generated by adopting, quantifying and MRVing GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

4.2 Assessment framework for countries' readiness to engage with Article 6

The development of Article 6 modalities presents several issues and potential challenges, such as environmental integrity, as well as countries' motivation and capacities to participate in the market. They are often interlinked and have implications on how different countries choose their pathways to operationalise Article 6. In the absence of firm rules on the nature and form of market mechanisms possible under Article 6, an assessment of countries' readiness for it cannot be based on precise benchmarks. It can still stock-take the broad preconditions to engage with future mechanisms, identify support needs early on and provide important insights for ongoing negotiations and further development of the modalities for Article 6.

The indicators used in this assessment of 'engagement readiness' of countries are – firstly, the enabling conditions for uptake of Article 6 market instruments (enabling conditions); and secondly, those which ensure that the mitigation outcomes used as ITMOs follow principles of environmental integrity desirable under Article 6 (compatibility of the NDC; feasibility to maintain robust accounting and MRV). These indicators and factors underlying each are briefly discussed below:

[33] 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.

Table 9: Assessment framework for countries' readiness for Article 6

Indicators	Factors considered in the assessment
Enabling conditions	Availability of instruments
	Political will
Feasibility of maintaining robust accounting and MRV	Accounting capacity
	Implementation capacities
	MRV systems
	Registry experience
Compatibility of the NDC	Scope of NDC and type of target
	Clarity of NDC
	Nature of NDC
	NDC ambition
	Coverage of GHGs

Source: Authors

4.2.1 Enabling conditions

Prior experience and availability of instruments such as emission trading schemes, crediting instruments and bilateral transfers have a facilitative role in Article 6 uptake. Furthermore, Paris Agreement has redefined the paradigm for international climate policy as unlike the KP, all Parties are taking up some form of contributions towards global mitigation efforts. As all Parties are free to buy or sell ITMOs, market instruments will have an impact on (and be impacted by) domestic mitigation efforts. Hence, political will of Parties to pursue domestic and international instruments, facilitating their uptake by stakeholders, and ensuring the quality of ITMOs will be critical in the post-Paris world.

4.2.2 Feasibility to maintain robust accounting and MRV

Firstly, these indicators include experiences of a country with economy wide emission accounting e.g. in the form of a national emissions inventory, MRV systems and prior registry experience. Secondly, experiences with accounting approaches for specific sectors and mitigation activities (similar to project-based crediting instruments) are considered. Additionally, presence of appropriate institutional frameworks, e.g. a coordinating body, would be critical to maintain robust accounting and MRV. Further, interest and implementation capacity of stakeholders (e.g. businesses, NGOs, and state agencies) is important to maintain robustness of accounting and MRV provisions agreed in Paris.

4.2.3 Compatibility of the NDC

The relationship of ITMOs with NDCs will be critical for maintaining the environmental integrity of Article 6 instruments and strengthening mitigation ambition of the Paris Agreement. Considering the broad range of NDCs that have been submitted to the UNFCCC, aspects such as the nature (conditional or unconditional) and scope (sectoral, actions only, economy wide) of the NDC, elements of quantifiability such as clear emission trajectories and clarity of underlying actions are important. Moreover, ambition of the NDC could influence generation of genuine emission reduction credits ('hot air').

5 Viet Nam's readiness to engage with Article 6 market options

The aim of this section is to analyse the potential readiness of Viet Nam to engage with Article 6 options, by applying the methodological framework provided in the previous section, as well as to outline specific country needs for the implementation of Article 6.[34]

5.1 Enabling conditions

Viet Nam has gained extensive experience with market mechanisms that can be built upon in the future. At the current level of capacity, a crediting instrument based on past experience seems to be more feasible for Viet Nam. For example, the country's experience with the JCM may provide the enabling conditions for a cooperative approach to be formed with Japan under Article 6.2. It is most likely that this would initially involve a continuation of the crediting mechanism that is currently in place with Viet Nam, whereby emission reductions from projects are credited to the NDC of Japan in return for financial support and the transfer of technology. However, the extent to which these efforts are credited to Japan in the future will be the subject of negotiation as Viet Nam will need to also ensure that their NDC is also fulfilled. Several issues with regards to the accounting of such transfers have been identified by IGES (2016) and these will require further consideration for Viet Nam's future participation in the JCM:

- Clear accounting policy needs to be established for the use of JCM credits towards Vietnam's NDCs;
- Clarity required on how Vietnam will use JCM credits generated outside of the target year of its NDC;
- Robust reporting processes will be necessary in Vietnam to prevent double counting of JCM credit use at the national level.

In the medium to longer term, the cooperative approach with countries, such as Japan, could involve the linking of a small scale ETS in the iron and steel sector. The setting of an ETS cap will rely upon improving the availability of data on the historic emissions of installations expected to be within the scope of the policy instrument (e.g. mandatory bottom up reporting of emissions). Additional information on projected emissions and marginal abatement costs would also ideally be available in order to set the ETS cap. Further key design elements of the ETS will also need to be carefully considered (e.g. allocation, cost containment, compliance etc.). Once an ETS is established, the possibility of linking to other ETSs as a means of engaging in cooperative approaches under Article 6 is a possibility. According to the PMR & ICAP (2016) the linking of ETSs requires the following:

- An agreement on acceptable levels of ambition in each jurisdiction and the willingness to agree upon changes to ambition levels over time;
- The harmonisation of key design features to ensure environmental integrity and price stability;
- Necessary preparation time for linking and may even be designed from the outset (e.g. Quebec's ETS) to link to other markets.

Given the country's considerable experience with the CDM (refer to Section 2.1), it is also very likely that Viet Nam could participate in market mechanisms through the crediting mechanism envisaged under Article 6.4. Furthermore, the approved methodologies already developed under the country's participation in the JCM may be helpful to quickly develop simple yet robust methodologies in any future crediting mechanism under Article 6.4. The fact that Viet Nam's NDC is economy wide (except

[34] Given the high uncertainty of the Article 6 negotiations and the fact that it will take considerable time (at least till COP 24 in 2018) to negotiate the exact design details of the new mechanisms, this study can only provide limited analysis with regard to potential options of the country under Article 6 of the Paris Agreement.

for industry) should also ensure that their access to the mechanism is not too limited (e.g. there is a proposal to only allow ITMOs to be generated within the scope of a country's NDC).

Viet Nam's government has already expressed the intention to participate in the future international market mechanisms under Article 6 in the NDC. Given that the details of the mechanisms under Article 6 are yet to be agreed, it is not possible to obtain a definitive view from the Vietnamese government on how they expect to participate in market mechanisms. Nevertheless, it was clear that the less restrictive nature of Article 6.2 may appeal to Viet Nam and enable the country to build upon its' collaboration with Japan under the JCM. Given the need to establish a national GHG inventory and to improve upon its' current MRV capacity, the use of market mechanisms under Article 6.2 may enable the country greater access, depending upon the stringency of the guidance.

Table 10: Summary of the indicator 'Enabling conditions'

Indicators	Factors	Current situation
Enabling conditions	Availability of instruments	•Planned ETS (small scale pilot for steel sector in the medium to longer term) • Experience with CDM and JCM
	Political will	• Willingness to participate in Art. 6 expressed in NDC • Establishment of a framework of climate change policies but there is a lack of financial resources for implementation and enforcement 'on the ground'

Source: Author's assessment

5.2 Feasibility to maintain robust accounting and MRV

The quality of the national GHG inventory under development is limited by the use of default IPCC emission factors, inadequate QA/QC procedures and inadequate activity data (Government of Viet Nam 2014b). Improvements to the national GHG inventory are being hindered by a lack of local experts and limited domestic financial resources. Without further improvements to the national GHG inventory, it will be more challenging for the country to fully participate in the market mechanisms under Article 6. Furthermore, the development of MRV systems in Viet Nam are highly variable depending upon the mitigation activity and therefore considerable efforts are also underway (supported by the PMR) to improve capacities in sectors with high mitigation potential (refer to Section 3.2.4). However, participation in the JCM is expanding the capacity of the country to perform MRV on a greater number of emission reduction projects (refer to Section 2.2). The implementation and enforcement of climate change policies 'on the ground' to maintain robust accounting and MRV remains a considerable challenge for the country and it is therefore important for private sector stakeholders to also engage in the developing carbon market in Viet Nam.

Table 11: Summary of the indicator 'Feasibility of maintaining robust accounting and MRV'

Indicators	Factors	Current situation
Feasibility of maintaining robust accounting and MRV	Accounting capacity	• Work is underway to establish a national inventory system but hindered by a lack of experts and financial resources
	Registry experience	• Limited
	MRV system	• Ongoing active development of the MRV sys-tem (e.g.

Indicators	Factors	Current situation
		through PMR support) but currently uneven distribution of MRV knowledge by sec-tor based on previous experience of crediting mechanisms
	Implementation capacity	• Coordinating institutions – (but additional personnel resources could be required) • Private sector stakeholders currently need more incentives and support in order to participate in the development of the domestic carbon market

Source: Author's assessment

5.3 Compatibility of NDC

Viet Nam has set both unconditional and conditional targets in its NDC that puts forward quantifiable absolute emission reductions. While the NDC says its targets are economy wide, it excludes the industry sector in its target setting. This means that Viet Nam could generate ITMOs without necessarily impacting the ambition of the country's NDC.[35] This leads to the question of whether the NDC is sufficiently ambitious given the absence of the industrial sector from the country's NDC. Schneider et al. (2017) argues that the NDC targets of Vietnam could be a potential source of 'hot air' (e.g. target level of emissions are higher than BAU emissions). The research applies an independent BAU to the one adopted in the NDC of Viet Nam revealing strong differences in the expectations of future emission levels – that if true may make the target of Viet Nam's NDC less ambitious. Indeed, in a forthcoming study, Vieweg et al. (2017) suggests that the BAU may not 'appropriately' reflect future developments mainly due to the assumptions in the energy sector.[36]

In order to prevent the transfer of hot air, it is possible that less ambitious NDCs could be excluded from the international carbon market. 'Potential solutions may thus be formal or informal agreements among Parties interested in the environmental integrity of the Paris Agreement, to transfer units only among Parties with sufficiently ambitious NDCs' (Cames et al. 2016). Based on existing assessments of the ambition level of Viet Nam's NDC, it could be assumed that there might be a certain risk that the country's participation in the new generation of market mechanisms could be restricted until the country raises the ambition level of its NDC.

Table 12: Summary of the indicator ' Compatibility of NDC'

Indicators	Factors	Current situation
Compatibility of NDC	Scope of NDC	• Economy wide (excluding industry)
	Clarity of NDC	• Absolute emissions reduction target • Target year only

[35] The scope of the NDC and the trajectory to reach the conditional and unconditional emission reduction targets in 2030 will need to be further clarified along with a further explanation on what exactly constitutes 'international support' for Vietnam to then fulfil its more ambitious conditional target.

[36] Vieweg, M.; Fekete, H.; Luna, L. & Hoa, V. X. (2017) identify that 'outdated electricity demand projections were used that are not in line with the most current (lower) estimates from the Ministry of Energy' at the time of INDC preparation. In addition, Vieweg, M.; Fekete, H.; Luna, L. & Hoa, V. X. (2017) find that 'the baseline assumes that all expected demand growth is delivered through new coal-fired power' which is deemed to be unrealistic and incompatible with existing strategies for the power sector in Vietnam.

Indicators	Factors	Current situation
	Nature of NDC	• Unconditional and conditional elements
	NDC ambition	• Potential for hot air
	Coverage of GHGs	• CO_2, CH_4, N_2O, HFCs, PFCs, SF_6

Source: Author's assessment

5.4 Engagement with Article 6 options

Table 13 provides an overview of Viet Nam's readiness to engage in various market options under Article 6. In general, the range of preliminary options listed previously in Table 8 (refer to Section 4) could all be used by Viet Nam in the future. Still, given the current level of experience and capacity, crediting instruments seem to be the most feasible in the short term. In the medium to longer term, the linking of the proposed small scale ETS for the iron and steel sector may be a future option for Viet Nam. Allocating more personnel resources to the development of market mechanisms as well as to the UNFCCC reporting could support the country's engagement with Article 6 options. Apart from that, raising the level of NDC ambition is crucial to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any). Finally, stronger domestic high-level political support and broader stakeholder engagement are factors that could additionally foster participation of the country in the new mechanisms.

Table 13: Potential engagement options for Viet Nam based on the readiness assessment

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	Potential engagement options
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Authors

6 Conclusions and recommendations

Germany continues to hold a keen interest in supporting the development of rule-based and well-functioning carbon markets in its partner countries. In the post-Paris context, however, existing German cooperation in the field of carbon markets may need to be readjusted and further shaped in line with the rules and guidance being developed under Article 6. The readiness assessment undertaken in Section 5 has aimed to provide empirical evidence to this effect. It outlines the entry points for German cooperation with Viet Nam by discussing the country's readiness to engage in Article 6. Building on the assessment, the following paragraphs provide recommendations on the prospects for future German cooperation with Viet Nam on carbon markets. Three broad areas of potential cooperation have been identified:

1) **Furthering in-country MRV capacities for market mechanisms:**

- Viet Nam's MRV systems at the national and sectoral levels are in a development phase and there is currently a lack of effective co-ordination between ministries, economic sectors, localities, public and private sectors. Furthermore, technical and financial resources within the country to develop MRV systems are limited. It is therefore crucial to involve the private sector and that incentives are needed to engage private stakeholders from the start, because the state budget cannot cover all necessary resources.[37] Hence, an entry point for international cooperation to build readiness towards future markets could be by supporting enhanced technical readiness of sectoral actors. To a certain extent, efforts are already ongoing with support from the PMR to focus on building up MRV capacities in several sectors with large mitigation potential. However, further technical and financial support remains necessary.
- Urgent needs also exist for developing in-country capacities in national emissions accounting. According to a policy maker from MONRE, progress towards a national GHG inventory in Viet Nam has so far been very challenging. This is primarily due to issues with the collection of data from different ministries and sectors that are so far reluctant to co-operate. An additional challenge is that those responsible for implementing MRV on the ground have different levels of education and knowledge. Therefore international support to develop tools for streamlined, common emissions reporting and training for actors (at different levels of governance) reporting and administering these systems would be beneficial.

2) **Focussed technical support on linkages between Article 6 and NDC implementation.**

- If Viet Nam's current participation in the JCM is to evolve into a cooperative approach with Japan, further work would be necessary to ensure that ITMOs generated under the crediting mechanism would meet the environmental standards that will eventually be set out in the guidance to Article 6.2. It would also be necessary to agree upon how ITMOs generated under the cooperative approach would be distributed amongst the two countries.
- Alternatively, if the country participates in Article 6.2 via the linking of a future domestic ETS, the key need would be technical and financial support for the design, successful launch and operation of the ETS. One possible way is to organise detailed and demand-driven, tailor-made technical exchange with countries and subnational jurisdictions where an ETS is already operational. The issue of linking an ETS would also require additional technical support and political coordination.
- Viet Nam may also be supported to develop experience with registry systems for documenting and tracking mitigation outcomes and associated support. Such support could either take the

[37] Based on the view from Nguyen Thi Dieu Trinh (representing the Ministry of Planning and Investment) who provided an overview of the common needs of Viet Nam to participate in market mechanisms under Article 6 at a recent side event in Bonn in May 2017, during the on-going UNFCCC negotiations.

form of in-country work supported by the German government or could happen through Viet Nam's participation in programmes supported by Germany such as the PMR.

3) **Sharing experiences and lessons learnt:**

- A third significant need identified was to learn from experiences of other jurisdictions on administrative and technical issues. Specifically, learning from experiences of developed countries was highlighted to be an extremely useful resource for countries beginning to develop domestic systems by Vietnamese representatives in the current project's workshop. International technical guidelines as well as case studies from developed countries on how to establish market mechanisms could be extremely helpful for Viet Nam to learn from this experience.

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Market Mechanism Positions on the Way to Paris: Elements of the debate on market mechanisms and their influence on the Paris Agreement

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1 Introduction

The Paris Agreement is hailed as an amazing diplomatic success and a major step forward for global climate policy both in general and specifically with respect to the development of carbon market mechanisms under Article 6. Such a strong anchor for market mechanisms in the multilateral agreement was not a foregone conclusion and previous negotiations on the Framework for Various Approaches (FVA), the New Market Mechanism (NMM) as well as in the Durban Platform for Enhanced Action (ADP), had made little progress on the multilateral level since the Parties asked the SBSTA to elaborate modalities and procedures for the new market mechanism in Doha. At the same time, various countries and notably the World Bank have made considerable efforts to foster carbon markets initiatives, promoting further work on market development from the bottom up. With the strong anchoring language of Article 6 in the agreement, market promotors now need to strategically take stock of the situation, the compromises made, the extent to which parties' positions have changed, and how the various bottom-up initiatives fit together in order to effectively influence carbon market developments through 2020 and thereafter. To this end, we track some of the main elements of the debate on market mechanisms to form a basis to understand, analyse, and foster a discussion on the Paris compromise of Article 6 and what it means for the future of carbon markets.

2 The status of market mechanisms in the negotiations before Paris

For the period after the expiry of the (first) commitment period of the Kyoto Protocol after 2012, negotiating a global successor and anchoring a strong role for markets has been an arduous process filled with fits and starts, before a stalemate prevailed over the past few years:

- The COP 13 Bali Action Plan established the Ad-Hoc working group on Long-Term Cooperative Action under the Convention (AWG-LCA) as a subsidiary body for GHG mitigation actions to work on "various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions" (UNFCCC/CP/2007/6/Add.1).
- At COP 16 in Cancun, Parties decided "to consider the establishment (…) of one or more market-based mechanisms to enhance the cost-effectiveness of, and to pro-mote, mitigation actions" (UNFCCC/CP/2010/7/Add.1).
- The COP 17 Durban Decisions emphasized that "various approaches, including opportunities for using markets, to enhance the cost effectiveness of, and to promote, mitigation actions, bearing in mind different circumstances of developed and developing countries". A New Market Mechanism was also defined "operating under the guidance of and authority of the COP to enhance the cost effectiveness, and to promote, mitigation actions" (UNFCCC/CP/2011/9/Add. 1).
- At COP 18 in Doha, Parties requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to conduct a work programme drawing on the work of the AWG-LCA to elaborate a framework for such (various) approaches, to conduct a work programme to elaborate non-market-based approaches, as well as to elaborate modalities and procedures for the new market mechanism defined in Durban (UNFCCC/CP/2012/8/Add.1).

Between Doha and Paris, no substantive progress had been made in the elaboration of a work programme for either a Framework for Various Approaches or a New Market Mechanism in the SBSTA. The role of markets was still uncertain in the future Paris Agreement and Parties were reluctant to continue on their elaboration in SBSTA without a clearer market reference in the future agreement to show how it would be used. At the same time, various countries blocked discussions on markets in the ADP, for example in the ADP2-7 in Lima in 2014[38], when Algeria for the Arab Group and China said

[38] International Institute for Sustainable Development - IISD (2014). Market and Non-Market Mechanisms Under the Convention. Earth Negotiations Bulletin 14 December 2014. Pg. 25.

sections on market and non-market approaches could prejudge discussions under the SBs[39]. This had led to a stalemate in the subsidiary bodies[40] pending progress and references to markets in the Paris Agreement.

3 Positions on markets going into Paris

A reflection of the previous negotiations, there was a broad spectrum of views on including market provisions in the Paris Agreement. The conflicting positions led few major interested parties to expect a compromise, possibly meaning that markets would be left out of the agreement. A plurality of Parties agreed that market and non-market based mechanisms should be eligible for use to fulfil Intended Nationally Determined Contributions (INDCs) goals, but there was no consensus on the exact formulation of market provisions and the extent to which markets should be centrally overseen and accounted for.

The EU, the EIG and Norway were and are the strongest market advocates for the development of a mechanism with strict rules to be developed under the auspices of the UNFCCC. The EU placed particular importance on language clarifying what double counting means when it comes to transfers; and the inclusion of an "own contribution" related to issues of moving beyond offsetting (a position supported by AOSIS). Further, the EU called for mentioning aviation and maritime emissions as part of Article 6. The Umbrella group, notably the US, Japan, and New Zealand, are also important advocates for markets, but see the UN-FCCC as having more of an advisory and perhaps at most a coordinating role across a number of mechanisms. Umbrella members put an emphasis on bilateral initiatives, hold that they do not need "permission" to use markets to fulfil their contributions/commitments, and resist a strong multilaterally controlled accounting framework. New Zealand was perhaps the strongest market advocate and decided to coordinate a ministerial declaration on carbon markets[41] as a potential substitute for an expected lack of political signal in the Agreement itself. Concerns of what various double counting provisions could mean for the necessity of ratification of the Agreement, the US especially resisted prescriptive language on double counting.

AILAC supports a more centralized approach to multilateral oversight but is not an avid advocate and has applauded that many Annex 1 countries intend to fulfil their commitments without the use of international markets. AOSIS members were largely open or neutral with regard to provisions for markets in the Paris Agreements, although they clearly have a preference for centralized oversight in the design and use of any such mechanisms with the SIDS (the membership of which overlaps significantly with AOSIS) call for any mechanism to move beyond pure offsetting and for such a mechanism to help raise funds for adaptation in countries worst affected by climate change.

ALBA has consistently opposed to the use of markets in the Paris Agreement, and although other groups do not always exactly support ALBA's views, similar opposition often comes from the Arab Group, various African Group members, Russia and China. The Like Minded Group is not necessarily united on the issue of markets, but members (a mix of various ALBA, BASIC, Arab Group, African Group Members and others) are generally at least sceptical if not hostile to markets. Specifically, Bolivia's main focus was on a framework for non-market mechanisms, while Venezuela and the Arab Group aimed to block any decision on markets whatsoever.

BASIC countries, while to some extent open to market mechanisms, were not generally advocates for their inclusion in the Paris agreement and have expressed the view that non-market based approaches should be on equal standing with a market mechanism. Brazil stressed that a mechanism in the Paris

[39] IISD (2014). Ad Hoc Working Group on the Durban Platform for Enhanced Action. Earth Negotiations Bulletin 14 December 2014. Pg. 38.

[40] SBSTA 42 also failed to reach any conclusions. See IISD (2015). Subsidiary Body for Scientific and Technological Advice. Earth Negotiations Bulletin 14 June 2015. Pg. 21.

[41] The declaration can be found here: https://www.mfe.govt.nz/sites/default/files/media/Ministerial-Declaration-on-Carbon-Markets.pdf.

Agreement must be based on top-down accounting rules separate from NDCs with a focus on a successor to the CDM. Further, Brazil was intent on excluding forestry from markets and flatly against bilateral and voluntary emissions trading schemes, and was rather an advocate for an Economic Mechanism (EM) under the PA as a complementary tool, comprised of general guidelines related to an enhanced CDM (CDM+) while resisting any inclusion of an "own contribution" under such a mechanism. South Africa, while not otherwise a strong advocate for markets in general, called for including a sustainable development aspect under any new mechanism (resisted by EU and the US).

LDC's are generally not as critical as ALBA and the Arab Group, but are also generally not strong advocates. Though the LDCs note that while most action must be achieved domestically[42], markets could sometimes be used and that any market mechanism must ensure LDC access and have direct international verification and oversight.[43] The African Group and LDCs (which overlap with each other) also called for a share of proceeds to go to LDCs and adaptation, although notably Senegal joined New Zealand in its Ministerial Declaration. The Least Developed Countries (LDCs) in their submission in 2013[44] was cautious of a NMM: 'full implications of the introduction of a NMM must be properly considered before its establishment'.

The Coalition of Rainforest Nations led by Panama called for a clear inclusion for forestry and sinks and resisted Brazils positioning.

4 Using markets at home: the role of markets in INDCs

Parallel to the multilateral level and erstwhile stalemate, there has been and is a great deal of momentum when it comes to markets in a primarily domestic context and such developments are not necessarily consistent with countries' international negotiating positions. A survey of the role of such mechanisms in INDCs further illustrates that advocacy for the inclusion of markets does not necessarily correspond with the actual use of markets – either domestically on the national level or internationally.

While Norway, the EIG, and New Zealand all are strong advocates for the use of markets, use markets at home, and intend to use international markets in the post 2020 period; the EU and the USA which are also both advocates for provisions for market use internationally, do not intend to use international markets to meet their INDC targets after 2020. Several countries intend to use or are open to participating in international markets although they do not use emissions trading programs at home. These include Japan, many LDC's and many African Group members. ALBA group members neither intend to use international markets nor intend to use market based approaches domestically. AILAC members are divided with some participating and exploring markets internationally and domestically and some neither using markets internationally or domestically.

Based on an analysis of the 129 INDCs submitted by 5 November 2015, 62 Parties are planning to use international market mechanisms while 20 are considering their use.[45] While the number (86 out of 129) is quite high, most are aspirant sellers in the carbon market and are mostly low-income countries who have limited experience with existing market mechanisms.

Only thirteen Parties explicitly consider buying units: Canada, Costa Rica, Japan, Liechtenstein, Mexico, Moldova, Monaco, New Zealand, San Marino, Singapore, Switzerland, South Korea and Turkey; most of these potential buyers are not significant emitters. None of the seven largest global emitters intend to

[42] IISD (2014). ADP 2-4 Summary. Earth Negotiations Bulletin. 17 March 2014. Pg. 11.

[43] IISD (2014). ADP 2-4 Summary. Earth Negotiations Bulletin. 17 March 2014. Pg. 11.

[44] IISD (2014). ADP 2-4 Summary. Earth Negotiations Bulletin. 17 March 2014. Pg. 11.

[45] Submitted INDCs are available online at http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx for a further summary see Obergassel and Gornik (2015) http://www.carbon-mechanisms.de/fileadmin/media/dokumente/publikationen/PB-INDCs-Markets-UPDATE_fin.pdf.

use international markets to fulfil their INDCs, which means that at present, there is no significant prospective demand for an international market mechanism. Of those who may use international market mechanisms, most do not specify what mechanism(s) they intend to use.

Many countries are working on market based approaches to climate change mitigation. Many countries would be interested in being a source of units to be sold internationally, and while several countries have expressed the intention or have reserved the option to use markets in reaching their declared INDC goals, they do not account for a large share of global emissions. The use of markets internally or willingness to participate in a potential future market mechanism is not necessarily reflected in these countries' negotiating positions in the UNFCCC.

5 Complementing efforts: promoting markets through diverse initiatives

For countries interested in using and promoting markets, there are several initiatives parallel and perhaps complementing the international negotiations and a great deal of effort and resources being invested in fostering market development in various countries. In many cases, these initiatives seek to complement the international climate governance structure in developing both cap-and-trade / emission trading programs, baseline and credit programs, and offset approaches increasingly tied to a carbon tax. Notable initiatives include those of the World Bank (Partnership for Market Readiness (PMR), Networked Carbon Markets), the International Carbon Action Partnership (ICAP), and the G7 Carbon Markets Platform. These initiatives have provided multiple high level opportunities to discuss the role of markets in the future even if there had been no concrete proposal on markets in the Agreement.

In terms of concrete country impact, resources invested, as well as process duration, the PMR is likely the most influential initiative to date promoting a broad agenda of market based instruments. The PMR supports emerging economies and developing states in their efforts to develop and pilot various carbon pricing mechanisms, e.g. domestic emissions trading systems (ETS), scaled-up crediting mechanisms, or carbon taxes. Large-scale support is provided in the form of grant funding and technical assistance. For example, China has been allocated $8 million to design and prepare a national ETS, including for work on cap setting, allocation, MRV, mechanisms for price containment, market oversight, and a legal framework. South Africa has been allocated $5 million to refine design features of the proposed carbon tax and complementary offset mechanism, as well as strengthen MRV capacity.[46]

Other initiatives such as ICAP (focusing on linking ETS) offer a discussion platform and capacity developments approaches in a mutual learning context but is narrower in scope and focus on more specific issues. Several other recent initiatives (Networked Carbon Markets, Carbon Pricing Leadership Initiative, the G7 Carbon Markets Platform) aim to provide additional fora or capacities to discuss recent developments such as the discussion on carbon pricing.

6 The Paris Compromise

The inclusion of the provisions establishing the framework for market-based approaches in the text of the Paris Agreement was possible thanks to several major developments in the negotiation process, notably based on the joint Brazilian-EU proposal released well into the COP 21 on 8 December, which then became the basis for further negotiations and compromise.[47] The final Article 6 lays out a number of provisions cooperative approaches involving internationally transferred mitigation outcomes (6.2); and a centralized mechanism (6.4) for transferring emissions reductions developed within the UNFCCC. The compromise bridged the various positions on the centralised coordinating role of the

[46] Partnership for Market Readiness (2015), Summary of Implementing Country Participants' PMR Activities, November 2, 2015, p. 2, 4.

[47] European Commission, DG CLIMA (2015), EU and Brazil agree ground breaking proposal on carbon markets at Paris climate talks http://ec.europa.eu/clima/news/articles/news_2015120804_en.htm.

COP/CMA (Conference of the Parties serving as the Meeting of the Parties to the Agreement), a move beyond pure offsetting, conditions for sustainable development, that trading be voluntary and subject to mutual agreement of Parties, forestry, sustainable development, a provision of the proceeds on trading, and as well as a number of others negotiated in bilateral meetings and informal informals. Further, Article 6 places a framework for non-market mechanisms on equal footing with (market) mechanisms and cooperative approaches

It was significant that the compromise came out of a joint proposal between Brazil and the EU, representing two different negotiating groups with different interests. Brazil's concerns' of subnational trading occurring without national government approval and that forestry not be included in trading was addressed by the provision that trading be "voluntary and author-ized by participating Parties", while forestry is not explicitly mentioned in Article 6, rather only "sinks" in decision 37. For cooperative approaches, the final draft "promotes" sustainable development (as per South Africa), but does not "require" it as a criteria (as per the Umbrella Group). Further, such cooperative approaches "shall apply" robust accounting (as per EU, EIG); "consistent" with guidance under the CMA (but could allow for cooperative approaches if guidance is not provided). The EU got its wanted provisions on own contribution in the provision "to contribute to the reduction of emission levels in the host Party" and net mitigation in the provision "to deliver an overall mitigation in global emissions". LDC's have their "share of the proceeds" for "[assistance] to developing country Parties that are particularly vulnerable.

A further success was the ability to include the negotiating positions of the countries that were either cautious about (e.g. AILAC, Russia) or consistently opposed to (ALBA, Arab Group members, some African Group members and the Like Minded Group) the use of mar-ket-based mechanisms. The proponents of the non-market approaches (most importantly Bolivia) were willing to relent on their opposition to markets as long as market approaches were clearly voluntary and Non-Market Approaches were given equal footing.

7 Post Paris, through 2020 and thereafter

The development of multilateral UNFCCC rules, modalities, and procedures for Article 6 of the Paris Agreement will advance in a highly dynamic field parallel to, and interacting with, domestic and international initiatives on various levels and notably a framework for non-market approaches. While according to current INDC's there is a lack of significant demand, provisions to ratchet up ambition in five year cycles and successful, and robust elaboration on Article 6, combined with strategic support of bottom up efforts may yet potentially have the potential to provide the building blocks for a global carbon market after 2020. Still, a number of important issues and questions need to be addressed including: What conflicts are left for future negotiations? What will future mechanisms actually look like? What exactly should Article 6 accomplish? What should be done with existing flexible instruments? What are the next priorities to be tackled next, what later, by when? This workshop welcomes your views on these questions, many others, and how to interpret the various provisions of Article 6 in order to contribute to these future developments with robust accounting and environmental integrity.

Environmental Research of the
Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

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What options exist for countries under Article 6 and how to realise them?

Input paper for the workshop "Are countries ready for Article 6? Preliminary results from case study research", 12 May 2017, Bonn

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May 2017

1 A new framework for international carbon market under development

Negotiating the design of the new generation of carbon market mechanisms is a crucial task to be completed over the coming years. 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, specifically Cooperative Approaches (Art. 6.2-3) and a Mechanism for Sustainable Development and Mitigation (Art. 6.4-7). While the detailed rules and modalities of these mechanisms are being negotiated, countries as well as experts are reflecting on how to best integrate previous experience from market related domestic and international activities.

Certain key issues and potential challenges can be identified, such as environmental integrity, as well as countries' motivation and capacities to participate in the market. They are often interlinked and have implications on how different countries choose their pathways to operationalise Article 6.

Against this background, the aim of this input paper is, first, to outline several broad non-exhaustive options for countries to participate in the new market mechanisms; second, pro-pose an initial list of evaluation criteria to identify feasible options for specific countries, and, third, identify potential contentious issues that can impede future development of markets. This input paper is meant to present some initial ideas to stimulate the discussion at the workshop in Bonn on 12 May 2017.

1.1 Participation options under Article 6.2

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. Based on currently operational domestic as well as international carbon pricing instruments and our interpretation of ITMOs, a few broad participation options emerge:

(1) ITMO transfers through linked domestic Emission Trading Schemes (ETSs): Mitigation outcomes are traded between established ETSs from respective jurisdictions through linking their markets;

(2) ITMO transfers through (bilateral) baseline and crediting on project-by-project or sectoral level: Crediting of emission reductions in non ETS sectors for the countries with ETSs, a general crediting approach, or the Joint Crediting Mechanism (JCM) approach;

(3) Direct government-to-government ITMO transfers: Other forms of government-to-government transfers of mitigation outcomes.

1.2 Participation options under Article 6.4

Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation, which generates emission reduction credits and operates under the authority of the COP[48]. Based on engagement in operational international mechanisms and existing structures (e.g. CDM), participation in the mechanism can involve - first and foremost - the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETSs) towards meeting the acquiring country's NDC. Several design options exist under Art. 6.4:

[48] 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.

(1) A project or programme based mechanism, similar to the CDM/JI approaches;

(2) A sectoral international crediting mechanism: Fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved; alternatively, credits could be also generated by adopting and quantifying GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

The development of Article 6 modalities must ensure environmental integrity of international market mechanisms as agreed in the Paris Agreement. While international consensus and rule making is critical to achieve the desired environmental integrity, effective domestic approaches and capacities are needed to guarantee operationalisation of stringent environmental integrity provisions under Article 6 approaches. An assessment of available options in the context of current carbon market capacities of countries can provide important insights for the development of modalities for Article 6 approaches.

2 Evaluation of the pros and cons of Article 6 options against country contexts

To evaluate the options defined above with respect to different countries' specific participation approaches for Article 6, we propose the following list of criteria to consider:

(1) Feasibility of maintaining robust domestic accounting (including measures to avoid double counting, e.g. domestic accounting capacity);

(2) Domestic structure and capacity to measure, report and verify;

(3) Domestic administrative and regulatory capacity;

(4) Quantifiability and transferability of reductions (clarity in the NDC – quantifiable tar-gets, clear definition of mitigation actions to be undertaken to achieve the targets, clarity in coverage and scope of activities etc.);

(5) Continued use of existing structures;

(6) Actual mitigation capacity of the country/ sector;

(7) Acceptance and capacity of stakeholders (primarily the private sector);

(8) Overall political will and enabling environment.

3 Potential contentious issues

(1) **Stringency and environmental integrity:** There is a possibility that potential host countries may favour Article 6.2 approaches over Article 6.4 with the assumption that the former have less stringent environmental integrity requirements without centralised oversight. At the same time, many donor/ buyer countries would want to set a similar level of environmental integrity requirements for both of them.

(2) **Stakeholder engagement:** Domestic market related stakeholders' dynamics have changed considerably since the active period of the implementation of the CDM/JI projects. In some host countries, a favourable attitude towards the development of domestic market policy instruments (such as ETS) is currently to a great extent driven by international donors, whereas key domestic stakeholders play a less prominent role. Apart from that, distrust and a critical view of markets as a burden for the economy still prevents major steps in the development of market mechanisms in many countries.

(3) **Supply and demand:** Moreover, a further issue is uncertainty regarding the supply and demand for mitigation outcomes. Potential demand as calculated based on cur-rent NDCs is assessed to

be limited (see e.g. Cames et al. 2016)[49]; the demand from international aviation and shipping is yet uncertain. Potential host countries might thus not be willing to participate in Article 6 before a liquid and sizable market is foreseeable.

(4) **Wait and see attitude:** Generally, many Parties have adopted a "wait and see attitude" instead of an active role in the development of the design of the new mechanisms, which may harm the rule making process for the creation of the international carbon market.

(5) **Route to mobilise finance:** Finally, a challenge that can be identified is that Article 6 is often viewed as a potential channel for mobilising financial support. The question is whether there would be space to accommodate it in the traditional 'market mechanism' concept or a separate approach for that would be required.

4 Open questions for the workshop

- What is your view on the previously mentioned options and evaluation criteria?
- What foreseeable pathways for the operationalisation of Article 6 (for countries in different market development stages) could be conceived?
- What is your opinion about the contentious issues and how to solve them?
- What are potential benefits for countries to use international market mechanisms post 2020?

[49] Cames, Martin; Sean Healy, Dennis Tänzler, Lina Li, Julia Melnikova, Carsten Warnecke and Marie Kurdziel (2016): International market mechanisms after Paris. Discussion Paper. Berlin: German Emissions Trading Authority (DEHSt).

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Germany's carbon market cooperation with Ukraine: Prospects for engaging with Article 6 of the Paris Agreement

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and Öko-Institut. The contents of this publication do not necessarily reflect the official opinions of the German Environment Agency.

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Project Background

This case study is part 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). It builds upon two previous outputs produced under the project (see Kachi et al. 2016; Cames et al. 2016).

Study objectives

Germany has been a key-actor in promoting market instruments and in fostering an international carbon market in the past. In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with rules and regulations to be further developed under Article 6, as well as incorporating the interests of Germany and its partners. The purpose of this research is to gather evidence towards answering this question.

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. Deeper thought is given to each country's explicit interest in participating in carbon market development in a post-Paris world and its capability to realise this interest. 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.

Approach

The case studies are the concluding component of a three-stage framework in the aforesaid project:

1. **German carbon market cooperation:** As a first step, current German engagement in carbon market cooperation, including in major initiatives and funds, was outlined. This set the stage for compilation of a comprehensive carbon market cooperation inventory.
2. **Country selection process:** In the second step, the cooperation inventory was taken as the basis for selecting countries for the case study assessment. Three candidates were chosen based on a multi-step selection approach. These represent a spectrum of different levels of carbon market development (from early to advanced). The selected countries were Ethiopia (early), Viet Nam (medium) and Ukraine (advanced).
3. **Case studies:** An in-depth analysis of the three case countries was undertaken in the third step. The case studies provide a first order estimate of a countries' readiness to engage in different market options presented by Article 6 and the pathways for future cooperation with Germany for developing rule-based and well-functioning market instruments.

Note: The first two components have been developed as a stand-alone document. These along with the other two case studies can be found at: https://www.dehst.de/EN/carrying-out-climate-projects/prospects/prospects-node.html.

Methods

The case studies combine a thorough desk research with expert interviews to arrive at a meaningful analysis and derive concrete recommendations on a country level and beyond. They also benefit from two international workshops carried out in January 2017 and May 2017 that provided additional insights and feedback on the assessment.

Acknowledgement

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Finally, the paper benefits from inputs provided by Dr. Karsten Karschunke from the German Environment Agency at various stages of this research.

Abstract

This paper discusses the current readiness of Ukraine to engage in carbon market options that the provisions of Article 6 of the Paris Agreement may present. Engagement readiness is discussed for three indicators: enabling conditions present in the country to participate in markets; feasibility of maintaining robust accounting and MRV to ensure the quality of generated reductions and transparency of transfers; and the compatibility of the country's Nationally Determined Contribution (NDC) to maintain the environmental integrity of Article 6 and strengthen mitigation ambition of the Paris Agreement. The paper argues that both the cooperative approaches under Article 6.2 and the mechanism based on baseline and crediting instruments under Article 6.4 could be viable for Ukraine to participate in the post 2020 international carbon market. These assessment results are based on solid analysis of empirical evidence from interviews, insights from project workshops and literature review regarding various factors discussed under the three indicators.

Basing on the assessment, recommendations are provided on how Germany could further support Ukraine to participate in Article 6. Several entry-points are identified such as supporting MRV capacity building to ensure its sufficiency and compatibility with Article 6 requirements; providing political, technical and financial support for the creation of a specialised body responsible for climate policy issues; enhancing dialogue with broader stakeholders within the country; and conducting further studies on mitigation potential in various sectors. The case study also highlights the need for detailed and demand-driven, tailor-made technical exchange on the design and linking of emissions trading systems, which would support Ukraine's potential participation in Article 6.2.

Kurzbeschreibung

In diesem Bericht wird die derzeitige Ausgangslage der Ukraine erörtert, sich an den marktbasierten Ansätzen zu beteiligen, die in Artikel 6 des Pariser Abkommens vorgesehen sind. Diese Ausgangslage wird auf Basis von drei Dimensionen diskutiert: aktuelle Rahmenbedingungen im Land, welche die Teilnahme am Kohlenstoffmarkt ermöglichen könnten; die Kapazität, robuste Bilanzierungsregeln und MRV-Prozesse zu gewährleisten, um die Qualität der generierten Reduktionen und die Transparenz der Transfers zu gewährleisten; und die Vereinbarkeit des national festgelegten Beitrags des Landes zur Aufrechterhaltung der Umweltintegrität von Artikel 6 und zur Steigerung des Ambitionsgrads des Pariser Abkommens. Die Studie argumentiert, dass sowohl kooperative Ansätze unter Artikel 6.2 als auch der Mechanismus unter Artikel 6.4 mögliche Einstiegspunkte zum internationalen Kohlenstoffmarkt für die Ukraine bieten können. Diese Behauptungen basieren auf den empirischen Beispielen aus Interviews, Projektworkshops und Literaturrecherche zu verschiedenen Faktoren, die im Rahmen von drei Indikatoren diskutiert werden.

Auf Basis der Bewertung werden Empfehlungen für Deutschland zur weiteren Unterstützung der Teilnahme der Ukraine an Artikel 6 gemacht. Mehrere Einstiegspunkte werden identifiziert, wie z.B. die Unterstützung von MRV-Kapazitäten, um ihre ausreichende Kompatibilität mit den Anforderungen des Artikels 6 zu gewährleisten; politische, technische und finanzielle Unterstützung für die Schaffung einer für klimapolitische Fragen zuständigen Institution in der Ukraine; die Intensivierung des Dialogs mit einem breiteren Feld von Stakeholder-Gruppen innerhalb des Landes; und die Vorbereitung neuer Analysen über das spezifische Minderungspotenzial in verschiedenen Wirtschaftssektoren. In der Fallstudie wird auch der Bedarf an einem detaillierten und nachfrageorientierten technischen Austausch über die Gestaltung und Verknüpfung von Emissionshandelssystemen hervorgehoben, der die potenzielle Beteiligung der Ukraine an Artikel 6.2 unterstützen würde.

List of Abbreviations

AAU	Assigned Amount Unit
BAU	Business as usual
CAT	Climate Action Tracker
CDM	Clean Development Mechanism
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme in International Aviation
EBRD	European Bank for Reconstruction and Development
ERU	Emissions Reduction Unit
ETS	Emissions trading system
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse gas
GIS	Green Investment Scheme
GIZ	Deutsche Gesellschaft für die Internationale Zusammenarbeit
ICAO	International Civil Aviation Organisation
ICAP	International Carbon Action Partnership
ITMOs	Internationally transferred mitigation outcomes
ITL	International Transaction Log
JI	Joint Implementation
KP	Kyoto Protocol
LULUCF	Land use, land use change and forestry
MACC	Marginal abatement cost curve
MENR	Ministry of Ecology and Natural Resources, Ukraine
MRP	Market Readiness Proposal
MRV	Monitoring, reporting and verification
NECU	National Ecological Centre of Ukraine
NDC	Nationally determined contribution
NGO	Non-governmental organisation
PMR	Partnership for Market Readiness of the World Bank
SBSTA	Subsidiary Body for Scientific and Technological Advice
SEIA	State Environmental Investment Agency, Ukraine
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WTO	World Trade Organisation

1 Introduction

Ukraine	
Profile:	Economy in Transition
Income group:	Lower Middle Income
Population:	45.2 million, in 2015
Total GHG emissions:	322.9 $MtCO_2e$, in 2015 (excl. LULUCF)
High-emission sectors:	Energy, Industrial Processes and Product Use

Ukraine became an independent sovereign state after the collapse of the Soviet Union in 1991 and is still in transition to a market economy. The country experienced a deep economic crisis between 1991 and 1995, characterized by a significant decline of GDP and production volumes, hyperinflation, and massive privatization. The period between 1990 and 1999 was characterized by large emissions reductions, mainly due to economic transition and structural changes such as the shift from energy-intensive production sectors towards services (SEIA 2014: 23). The government overcame the crisis by the late 1990s, and between 2000 and 2008 the country's GDP increased substantially. In this period, emissions grew at a rate of 1.6% per year (SEIA 2014: 23). In 2008, Ukraine joined the World Trade Organization (WTO), thus strengthening its international economic ties. The world financial crisis led to a decrease in energy consumption and greenhouse gas (GHG) emissions, mainly from manufacturing, industrial processes, and construction. After recovering from the crisis in 2010, the economy reached a new high in 2013, with the GDP amounting to 183.3 billion USD (Table 1). In 2014, however, the next economic downturn followed, which is still ongoing.

Table 14: Overview of socio-economic indicators for Ukraine

	1990	2000	2010	2011	2012	2013	2014	2015
Population, total (millions)	51.9	49.2	45.9	45.7	45.6	45.5	45.4	45.2
Population growth (annual %)	0.2	-1.0	-0.4	-0.4	-0.2	-0.2	-0.3	-0.4
GDP (current in billion USD)	n/a	31.3	136.0	163.2	175.8	183.3	133.5	90.6
GDP growth (annual %)	-6.3	5.9	4.2	5.5	0.2	0.0	-6.6	-9.9
Agriculture, value added (% of GDP)	25.6	17.1	8.4	9.5	9.1	10.0	11.7	14.0
Industry, value added (% of GDP)	44.6	36.3	29.3	29.1	28.4	25.8	26.2	26.3
Services, etc., value added (% of GDP)	29.9	46.6	62.3	61.4	62.5	64.2	62.2	59.7
Exports of goods and services (% of GDP)	27.6	62.4	47.1	49.8	35.4	43.0	48.6	52.8
Imports of goods and services (% of GDP)	28.7	57.4	51.1	56.4	56.4	52.2	52.1	54.8

Source: World Bank 2016

The crisis of 2014 was rooted in the geopolitical position of Ukraine as a transit country between its Eastern and Western partners. On the one hand, Ukraine is a part of the European Union's (EU) European Neighbourhood Policy and the Eastern Partnership, which aim to bring the EU and its partners closer. The agenda of the Eastern Partnership includes i.a. enhancing economic and energy ties and strengthening energy security. The EU-Ukrainian energy cooperation also involves progressive integration of the Ukrainian energy market with that of the EU. On the other hand, Ukraine has close his-

toric and economic relations with Russia. In 2014, Ukrainians protested in Kyiv, demanding closer association with the EU and the removal of president Yanukovych who opposed it. The uprising resulted in the change of government, and Ukraine signed the Association Agreement with the EU (see section 2) that includes i.a. Free Trade Agreement provisions. The Association Agreement entered into force in 2017. However, the political crisis led to the outbreak of conflict in the Eastern part of the country. Since 2014, Ukraine has been struggling to restore peace on its territory and ensure economic stability. Industrial production volumes as well as international trade and investments have declined considerably.

The position as a transit country influences Ukraine's energy policy to a large extent. Ukraine is the main transportation hub of Russian gas to Europe (SEIA 2014: 19). Being one of Europe's largest energy consumers and one of the most energy and carbon intensive European countries (SEIA 2014: 36), Ukraine was until recently highly dependent on Russian natural gas and oil. Yet, it also extracts and produces all types of energy domestically (coal, natural gas, petroleum, electricity and heat energy) and owns 3.5% of global coal reserves (SEIA 2014: 18; 20).

The country is, however, striving to lessen energy dependence and diversify its energy mix, as stated, for example, in the Energy Strategy 2035, which was adopted in August 2017 (Cabinet of Ministers of Ukraine 2017). To this end, measures to enhance energy efficiency and increase the deployment of renewable energy as well as nuclear energy would play a key role. Back in 2009, the country introduced the 'green tariff' for the production of electricity by solar and wind power plants (SEIA 2014: 20). Since then, installed wind and solar power capacity has been growing, although their share in the energy mix remains low (0.1% of the total primary energy supply in 2015) (Cabinet of Ministers of Ukraine 2017). According to the new Energy Strategy, the country aims to increase the share of renewables including large hydro to 25% of its total primary energy supply by 2035 and significantly decrease the share of coal (to 12.5% from the current 30.4%). Currently, the total primary energy supply mix comprises 30.4% coal, 28.9% natural gas, 25.5% nuclear, 11.6% oil, and around 4% renewables including large hydro (Cabinet of Ministers of Ukraine 2017).

Table 15: Overview of energy statistics for Ukraine

	1990	2000	2010	2011	2012	2013
CO_2 emissions (metric tons per capita)	n/a	6.5	6.6	6.3	6.5	6.0
Fossil fuel energy consumption (% of total)	91.8	84.2	84.2	79.6	79.3	78.2
Electric power consumption (kWh per capita)	4787.5	2778.4	3549.8	3662.4	3640.6	3600.2
Electricity production from coal (% of total)	38.2	30.1	36.9	38.2	40.5	41.8
Electricity production from natural gas (% of total)	16.7	17.5	8.3	9.5	8.1	7.2
Electricity production from oil (% of total)	16.1	0.7	0.4	0.3	0.3	0.2
Electricity production from nuclear (% of total)	25.5	45.2	47.3	46.3	45.4	43.0
Electricity production from hydro (% of total)	3.5	6.6	7.0	5.6	5.3	7.1
Electricity production from renewables (% of total)	0	0.0	0.1	0.1	0.4	0.7

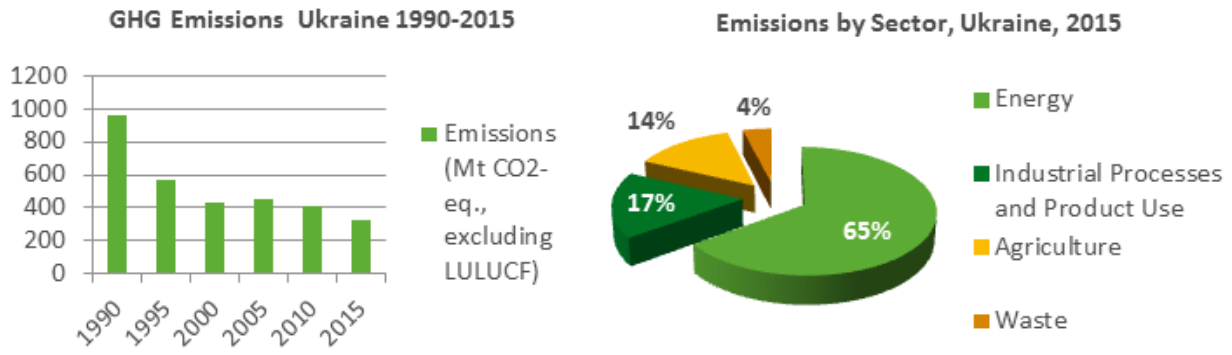
Source: World Bank 2016

Energy is the largest source of greenhouse gas (GHG) emissions, responsible for around 65% (without LULUCF) in 2015 (Figure 1), followed by industry (17%). Around 81% of energy sector emissions come from fuel combustion and about 19% are fugitive emissions (MENR 2017b: 8). Within energy

sector emissions, energy industries are responsible for 45% of emissions, and manufacturing industries and construction for another 8%. Transport makes up 15% of emissions. In industrial processes, major sources of emissions are metal production, chemicals and mineral products (MENR 2017b: 118). Ferrous and steel metallurgy play a prominent role; cement production is another large source of carbon dioxide emissions, both from direct energy consumption as well as from chemical process for clinker production (SEIA, 2014: 23). The agricultural sector is the third largest source of emissions (14%), followed by waste (4%). In 2015, GHG emissions in Ukraine constituted 322.9 Mt CO2-eq. excluding LULUCF, which was 66.4% lower than in 1990, and 12.3% lower than in 2014. The country expects growth of industrial production levels to reconstruct facilities and infrastructure that fell victim to the conflict of 2014, which may lead to an increase in emissions in the near future (UNFCCC 2015: 1).

Since 2000, signs of gradual decoupling of emissions from the economic development can be traced: The growth of emissions is not directly correlated with the rate of economic development. This is mainly due to economic restructuring and the growth of the services sector as well as activities to increase energy efficiency and reduce carbon intensity of production implemented by the government (MENR 2016: 5). Still, Ukraine's economy remains highly emissions-intensive. Energy efficiency is relatively low in many sectors (2.1 times lower than in the world's average and 4 times lower compared to developed countries) (PMR n/a), and institutional and legal arrangements limit incentives to invest in abatement technologies (SEIA 2014: 18). Restructuring the economy to pursue a path of low carbon growth is one of the country's top priorities.

Figure 7: GHG emissions in Ukraine



Source: National Inventory Report Ukraine 2017

Climate Policy Milestones

Ukraine has adopted a number of strategic policies that reaffirm the goal of low-carbon economic development, for example, the Concept of the National Policy in Climate Protection until 2030 (Cabinet of Ministers of Ukraine 2016), and it ratified the Paris Agreement on 19 September 2016. In its Nationally Determined Contribution (NDC), Ukraine unconditionally pledges not to exceed 60% of its 1990 GHG emissions (including LULUCF) in 2030. It also has a long-term commitment to reduce emissions by 50% from 1990 levels (excluding LULUCF) by 2050 (SEIA 2014: 9). In August 2017 the Energy Strategy 2035 was adopted, which sets the target to reduce GHG emissions from final energy consumption by 20% from 2010 levels by 2035. Climate goals set in the Energy Strategy have received positive assessments from the Ukrainian NGOs (interview with "Ecoaction").

International Climate Cooperation with Germany

International cooperation plays an important role for achieving the country's climate targets. Germany has built a solid partnership with Ukraine in the area of climate change mitigation. Through the International Climate Initiative, Germany has implemented several projects with the main focus on establishing a robust monitoring, reporting and verification (MRV) system and building capacities for introducing a domestic emissions trading scheme (ETS) in Ukraine, which were carried out by the United Nations Development Programme (UNDP), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), and a number of think tanks and consultancies. Main types of cooperation have been capacity building and technical support. Currently the GIZ is involved in a project on the development of an ETS in Ukraine. Germany also provides financial support to several multilateral initiatives such as the World Bank's Partnership for Market Readiness (PMR), whose mandate is to support the development of carbon pricing instruments in participating countries including Ukraine.

The case study is structured as follows: Section 2 provides an overview of the carbon market experience of Ukraine, starting from the years of the JI to the current work and the plans under the nationally determined contribution (NDC). Section 3 elucidates Ukraine's position on the use of Article 6 of the Paris Agreement and identifies current domestic capabilities for participation. Section 4 introduces a non-exhaustive list of market options that may exist in the post-Paris market mechanisms. It further outlines the framework for assessing country readiness to engage with these market options. Based on this assessment framework, Section 5 then provides a comprehensive assessment of Ukraine's readiness with regards to the different participation options and respective needs for the implementation of these options. Finally, in Section 6, specific recommendations and entry points for Germany to further support Ukraine's participation in Article 6 are provided.

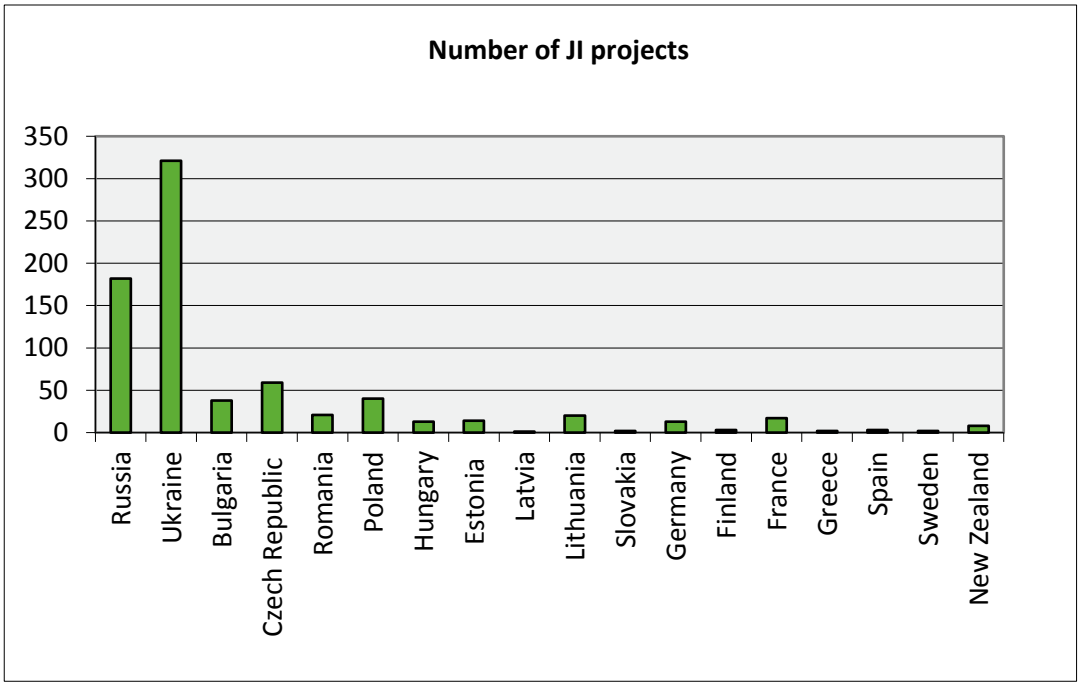
2 Setting the scene: carbon markets in Ukraine

Ukraine has gained significant experience with international market-based mechanisms, especially compared to its neighbouring countries, and is developing domestic market instruments. This section gives an overview of Ukraine's carbon market portfolio as well as key stakeholders in the country's climate policy. Finally, a brief analysis of Ukraine's NDC with regard to market mechanisms is presented.

2.1 Glance into the past: International carbon market activities

Ukraine is an Annex I Party to the United Nations Convention on Climate Change (UNFCCC) and an Annex B Party to the Kyoto Protocol (KP)[50]. Ukraine has actively been using the KP international market based mechanisms, in particular, Joint Implementation (JI) and trading of the Assigned Amount Units (AAUs) under the Green Investment Scheme (GIS). Figure 2 shows that Ukraine implemented the largest number of JI projects (321 in total). It has also been the largest supplier of Emissions Reduction Units (ERUs), with 516,736 issued kERUs. As demonstrated by Table 4, the majority of the projects were implemented within the Track 1 procedure, which differs from Track 2 through the lack of oversight of the verification procedure and accreditation of Independent Entities by the JI Supervisory Committee (UNFCCC 2014). Within Track 2, only Russia implemented more JI projects than Ukraine, but the number of ERUs issued from Ukraine's projects was significantly higher. In Ukraine, JI has been regarded as an important mechanism for attracting foreign investment for the implementation of emissions reduction measures in industry (SEIA 2014: 36). As demonstrated in Table 3, the highest number of projects, also responsible for the majority of ERUs, was implemented in the areas of industrial energy efficiency, energy distribution, and fugitive emissions. The majority of JI projects were supported by EU countries, primarily Denmark, Germany, Ireland, Netherlands and the United Kingdom, as well as by Japan and Switzerland (SEIA 2014: 36).

Figure 8: Number of JI Projects by Country



Source: UNEP JI Pipeline 2017

[50] Annex I Parties to the UNFCCC include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition, including the Russian Federation, the Baltic States, and several Central and Eastern European States. Annex B Parties to the Kyoto Protocol includes 38 countries plus the European Community that accepted quantified emission limitation and reduction commitments.

The assessment of the implementation of JI projects in Ukraine conducted by the National Ecological Centre of Ukraine (NECU) in 2012 revealed both positive and negative experiences. On the one hand, JI facilitated the implementation of emission reduction projects that would not have happened otherwise such as coal mine methane and N_2O emission reduction projects at nitric acid plants as well as certain fuel switch and landfill gas projects (NECU 2012: 6). Moreover, JI triggered bottom-up emission reductions efforts in the industry sector, which was crucial for raising awareness of the private sector about the importance of industrial transformation. It also led to increased understanding among companies that they can benefit from taking measures to mitigate GHG emissions (interview with "Ecoaction"[51]). JI gave birth to domestic consulting companies in the area of climate change and helped the private sector to develop "a taste for mitigation projects" (interview with a carbon market negotiator).

Table 16: Portfolio of JI Projects in Ukraine and expected volume of ERU

Project Type	Registered projects	Total kERUs*
Agriculture	12	28225
Biomass Energy	8	1231
Cement	3	4418
Coal bed/mine methane	16	28525
Energy Distribution	45	73911
Energy efficiency (EE) households	1	3493
EE industry	57	125039
EE own generation	7	11117
EE service	14	9337
EE supply side	12	18830
Fossil fuel switch	3	5668
Fugitive	116	413840
Hydro	3	2015
Landfill gas	9	1637
Methane avoidance	3	1204
N2O	3	5556
Solar	1	38
Transport	4	9224
Wind	4	3354
Total	**321**	**746661**

[51] For more information about the interviewees see Annex.

Table 17: Issued number of ERU in Ukraine by track

	Track 1	Track 2	Total
No. of projects	250	71	**321**
Issued kERUs	506551	10185	**516736**

*Includes registered kERUs and those at determination
Source: UNEP JI Pipeline

On the other hand, problems started to arise at a later stage under Track 1 procedure. Due to the loopholes of JI, many "free riders" could enter the system, i.e. projects that could be implemented without JI but used the mechanism to raise easy funding (NECU 2012: 6). Projects were approved of in large numbers, while thorough control of the quality of each of them was partly lacking. This resulted in doubts regarding real additional mitigation from some of the projects, insufficient transparency and in some cases apparent "re-labelling" of already existing projects for JI purposes (interview with "Ecoaction"; Kollmuss et al. 2015: 79). Estimated required costs of some projects were much higher than the actual financial needs (interview with "Ecoaction"). This not only undermined environmental integrity and trust in JI but also flooded the international carbon offset market supply with cheap emission reduction credits that, in combination with other factors, drove down the international carbon price.

Along with JI, Ukraine also participated in the GIS, another international market mechanism based on International Emissions Trading defined under Article 17 of the KP. The GIS was introduced to allow governments to sell surplus international emission rights under Kyoto commitment periods to other governments for their compliance purposes. The revenues had to be "greened", i.e. channelled to the development and implementation of projects that achieve GHG emission reductions (hard greening) or build up the necessary framework for this process (soft greening) (Li and Tänzler 2016: 5). While Annex I countries were not willing to buy "hot air" for compliance, GIS could unlock the surplus AAUs in Central and Eastern Europe, and at the same time leverage financial revenues from AAU sales for climate benefits in the host countries. From a legal perspective, GIS represents a self-imposed binding commitment by the seller countries to fulfil the conditions of the buyers (Türk et al. 2008: 5). In 2009, Ukraine set a provisional target to sell 400 million AAUs under the GIS (Türk et al. 2013: 19). Despite a large amount of AAUs to offer[52], Ukraine only concluded three deals under the scheme. The reasons for that were the absence of clearly defined investment and greening schemes and the unstable political situation (Türk et al. 2013: 7) as well as a lack of international demand (interview with "Ecoaction"). Priority areas for GIS projects identified by the government were energy efficiency in buildings and in Kyiv subway, reconstruction in public and residential buildings, thermal measurement equipment, district heating, modernisation of the mining sector, and waste water treatment (Türk et al. 2013.: 30). Table 5 gives an overview of the deals concluded by Ukraine. In 2009, 44 million AAUs were sold to Japan's government and private companies. In 2012, Ukraine and the Sumitumo Corporation agreed on the delivery of about 1200 Toyota Prius hybrid cars for Ukraine's police vehicle renewal project as part of the 2009 agreement (Türk et al. 2013: 19). Further 3 million AAUs were sold to Spain in 2009. In 2011, UN suspended Ukraine from AAU trading for violating KP emissions reporting rules, but it regained eligibility in 2012.

[52] The amount of AAUs that Ukraine's government planned to reserve for GIS was second largest after Poland. This amount is, however, not to confuse with the actual AAU surplus, which was much higher in some cases (e.g. Russia) (Türk et al. 2013: 7).

Table 18: Portfolio of GIS Projects in Ukraine

Seller	Buyer	MtCO2	Date Agreed	Project Type
Ukraine	Japan (New Energy and Industrial Technology Development Organization - NEDO)	30	May 2009	Coal mine water treatment, energy efficiency in public facilities and central heating system, transportation
Ukraine	Japan (Asuka Green Investment, Itouchu, Marubeni, Mitsui, Sojitz, Sumitumo)	14	May 2009	Transportation including hybrid cars
Ukraine	Spain (Spanish Carbon Fund)	3	December 2009	Modernization of a steel mill

Sources: UNEP JI Pipeline; Türk et al. 2013, pp. 32-33

Similar to JI, the implementation of the GIS in Ukraine has received mixed assessment in literature. On the one hand, Ukraine's government stressed that owing to successful realisation of GIS projects, Ukraine considerably enhanced cooperation with Japan (Türk et al. 2013: 20). On the other hand, projects were criticised by some civil society representatives for being unjustifiably expensive and bringing insignificant emissions reductions (NECU 2013: 1). Moreover, due to substantial delays in project implementation, Ukraine had to return €5 million in AAU sale proceeds to Japan (Carbon Pulse 2016).

All in all, despite certain weaknesses in the context of JI and GIS projects, participation in international market mechanisms under the KP allowed Ukraine to gain valuable experience that can be built upon in the future. In particular, necessary institutional arrangements were made to realise and manage GHG mitigation projects; national legislation regulating project activities and their accounting was adopted (SEIA 2014: 36). A large number of enterprises participated in the project activities and gained experience of collecting and processing GHG data, monitoring and reporting emissions, as well as providing verification services (SEIA 2014: 36).

2.2 Domestic carbon market activities

The history of domestic carbon pricing in Ukraine began with fiscal instruments. In 2011, a tax on CO_2 emissions came into effect as part of a wider environmental tax designed to limit emissions of various pollutants into the atmosphere, water and soils (SEIA 2014: 37). Currently, the GHG tax component covers almost all stationary sources of GHG emissions, mainly the power sector and processing industry, with revenues going to the national budget. However, the tax rate is very low (about 0.02 EUR per tCO_2), and some studies have indicated that its impact is negligible (Frey 2016). However, the tax could play a complementary role supporting other climate policy instruments.

2.2.1 Partnership for Market Readiness

To enhance state control over GHG emissions, in 2011 the Cabinet of Ministers of Ukraine mandated the State Environmental Investment Agency of Ukraine (SEIA)[53] (see **Fehler! Verweisquelle konnte nicht gefunden werden.** for more information) to develop draft regulations on the MRV of anthropogenic GHG emissions (SEIA 2014: 9). The work on MRV legislation is supported by the World Bank's Partnership for Market Readiness (PMR), which Ukraine joined in 2011. The development of the MRV system at facility level was placed at the core of the Market Readiness Proposal (MRP) submitted to the PMR Secretariat in 2014. MRV is seen "as a critical prerequisite for selection and implementation of the GHG reduction instruments, both fiscal and market-based" (SEIA 2014: 11).

[53] Since the dissolution of the SEIA in 2015, this work has been carried out by the Ministry for Ecology and Natural Resources of Ukraine.

In 2014, the PMR resolution decided on allocating Implementation Phase Funding in the amount of USD 3,000,000 for carrying out PMR activities identified in Ukraine's MRP (PMR 2014). The grant must be implemented by 30 June 2019 (PMR 2016). In particular, the funding provides support for Ukraine to develop the regulatory framework for the operation of the MRV system (including MRV framework law as well as secondary and complementary regulations); establish requirements and procedures at installations level for the development of the monitoring plan, preparation and verification of reports on GHG emissions; and develop methodologies for each type of activities included in the MRV system, monitoring and reporting templates, and comprehensive guidelines for the operators (SEIA 2014: 12-13). At a later stage, Ukraine is planning to receive international support for the development of an MRV database including the inventory of installations and GHG emissions, personnel trainings in maintenance of the database as well as more general trainings of stakeholders on MRV. These activities are not within the scope of the PMR project.

Figure 9: Provisional activities for inclusion in the MRV system at initial stage

1. Stationary Combustion of Fuels
2. Production of Iron and Steel
3. Production of Ferroalloys
4. Metallurgical Coke Production
5. Production of Cement
6. Production of Ammonia
7. Production of Limestone
8. Production of Nitric Acid
9. Production of Adipic Acid

Source: SEIA, 2014

A robust MRV system is seen as a solid starting point for the introduction of domestic market-based instruments, in particular the national ETS. To this end, the PMR is providing support to assess the design options for a domestic ETS with primary focus on methodological and design issues for benchmarking and auctioning (SEIA 2014: 13).

2.2.2 Association Agreement with the European Union

The introduction of a national ETS is stipulated not only by the national climate targets, but also by the "Association Agreement with the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine, of the other part" (referred to as Association Agreement). It was ratified by the country in September 2014 (ICAP 2017: 34). The main objective of the Agreement was gradual approximation of Ukraine's policies and legislation in various spheres (economy, financial sector, legal system, environment, etc.) to those of the EU, in return of financial and political support as well as preferential access to the EU markets (SEIA 2014: 10). Climate change-related issues are addressed in Article 365 (c) Title V and Annex XXX to the Agreement. According to them, Ukraine has to adopt national legislation and designate competent authorities, establish a system for identifying relevant installations and GHGs, develop a national allocation plan to distribute allowances to installations, establish a system for issuing GHG emission permits, issue allowances to be traded domestically, and introduce MRV and enforcement systems and public consultations procedures (Association Agreement 2014: Annex XXX). Joining the EU ETS is seen as an essential element for closer economic association with the EU. The Agreement foresees the introduction of an ETS within two years of its entry into force (Association Agreement 2014: Annex XXX). It fully entered into force in 2017.

In 2016, the Cabinet of Ministers of Ukraine adopted a Concept of State Climate Change Policy Implementation until 2030 (Cabinet of Ministers of Ukraine 2016). The concept mentions i.a. the objectives of developing and implementing a domestic ETS in accordance with the provisions of Directive 2003/87/EC and setting up and ensuring operation of an MRV system. In 2017, the government adopted a new Roadmap for the implementation of the MRV system and ETS. The Roadmap includes the development of a legal and technical basis for MRV, pilot activities in industry and power sector, trainings for stakeholders, analysis of potential benchmarks for ETS sectors, and the development of ETS elements such as competent authority, data management system, allocation plan etc. (MENR 2017a). The MRV system is planned to become operational in 2019, but it would need to function successfully for at least two years to enable the launch of an ETS.

The country is provisionally considering the coverage of various sectors in the future national ETS, with a mixture of obligatory or voluntary involvement, as revealed by the interviews. While conceptualising the ETS design, Ukraine is looking at experiences of different countries and regions including Japan, Canada, the Western Climate Initiative, etc. (interview with a carbon market negotiator). Apart from the PMR, Ukraine is working on MRV and ETS development with the assistance of the European Bank for Reconstruction and Development (EBRD), US Agency for International Development (USAID), GIZ, UNDP and other institutions (ICAP 2017: 34; ClimaEast 2017, and UNDP n/a).

2.3 Glance into the future: Ukraine's first NDC under Paris Agreement

Ukraine ratified the Paris Agreement on 19 September 2016, and its INDC (now its first NDC) was submitted on 30 September 2015. In its NDC, Ukraine stated that it will actively participate in existing and future international market mechanisms, and that its current emission reduction target does not take market mechanisms into account (Ukraine's NDC 2015). In addition to the intention to participate in market mechanisms under Article 6, Ukraine is also willing to voluntarily participate in International Civil Aviation Organization (ICAO)'s global market-based measure scheme from its outset (European Civil Aviation Conference, 2016).

Ukraine unconditionally aims to reduce GHG emissions by at least 40% below 1990 levels, including LULUCF, by 2030, which would be equivalent to 40% below 1990 levels excluding LULUCF under current trends (Climate Analytics et al. 2017). Its NDC covers energy, industrial processes and product use, agriculture, LULUCF and the waste sector, but does not specify the mitigation contribution of each sector.

The most recent emissions data shows that in 2015, emissions excluding LULUCF were 66.4% below 1990 levels (MENR 2017b). The NDC thus allows substantial growth of Ukraine's emissions from present levels, whereas under all scenarios consistent with limiting warming below 2°C, its emissions should be steadily decreasing (Climate Analytics et al. 2017). Due to this, Climate Action Tracker (CAT) has rated Ukraine's NDC as "critically insufficient" in its assessment of the ambition and fairness of the NDCs rates. Under current policy, Ukraine's projected emissions in 2030 will be between 14% higher to 20% lower than the NDC target (Climate Analytics et al. 2017). Ukraine has, however, indicated that it is planning to revise its NDC after "the restoration of its territorial integrity and state sovereignty as well as after the approval of post-2020 socio-economic development strategies with account of investment mobilization" (UNFCCC 2015: 2).

Ukraine's extensive experience with market mechanisms spurred the country's interest in market based approaches. In the next section, Ukraine's interest in future carbon markets is discussed along with a thorough assessment of current domestic capacities to participate in them.

3 Country position and capabilities

This section encompasses the summary of Ukraine's interest and negotiation position regarding Article 6 and the analysis of Ukraine's domestic capabilities that could support the use of market mechanisms under the Paris Agreement.

3.1 Interest in using international markets and positioning in the usage of Art. 6

As already discussed in the previous section, Ukraine's NDC demonstrates the country's intention to use international market mechanisms under the Paris Agreement. In its submissions to the Subsidiary Body for Scientific and Technological Advice (SBSTA) related to Article 6 (UNFCCC 2016b, UNFCCC 2016c and especially UNFCCC 2017b), Ukraine emphasises the importance of a holistic approach towards market provisions stipulated in Article 6.2, 6.4 as well as non-market mechanisms under Article 6.8. The country stresses the importance of non-market approaches, which could include fiscal instruments, general economic instruments, etc.

The submissions do not specify whether Ukraine intends to use both Article 6.2 and 6.4 or one particular market mechanism. From the interviews, the impression is that currently, there is no clear preference at the MENR for either Article 6.2 or Article 6.4; the use of Article 6.8 is also considered.

The submissions state that the implementation of the Paris Agreement strongly depends on how well the experience gained from the KP will be used in the future. In particular, one of the lessons learned as identified by Ukraine was a "lack of simple and clear determination of measuring and legal meaning of mitigation outcomes from KP flexible mechanisms" (FCCC/SBSTA/2016/2, para. 96). To improve this in the future, Ukraine suggests that any and all outcomes from activities under Art. 6.2 and 6.4 shall be quantifiable and measurable in Metric Tons of CO_2e of already achieved or future mitigation of GHG. It is worth mentioning that the country is strongly against "copying and pasting" CDM methodologies in the Paris Agreement and highlights the necessity for developing a new methodological framework to avoid old mistakes, as revealed by the interviews.

In the SBSTA submission of April 2017, Ukraine makes concrete suggestions to improve the clarity of Article 6. In particular, several types of ITMO classification are proposed such as classification by source (from emissions reduction, absorption and avoidance activities), origin (national, bilateral and multilateral), methodology (adopted by the UNFCCC or Parties), form (units under Article 6.4 or other forms such as e.g. securities) and issuing bodies (UNFCCC or Parties) (UNFCCC 2017b). The country also proposes a number of facilitative bodies to manage market mechanisms, in particular, a monitoring panel mainly focusing on cooperative approaches, a governing panel for a mechanism under Article 6.4, a methodological panel, and a supervisory panel in charge of disputes' resolution. In addition, a non-market facilitative panel has also been proposed.

Ukraine is eager to implement markets under Article 6 and is supporting robust accounting and pushing for environmental integrity. While there are diverging definitions of environmental integrity in the international debate, in the view of Ukraine, it is a sum of environmental and economic soundness. At the same time, Ukraine is striving to contribute to the creation of a strong, robust and liquid international market. Key questions that are important for the MENR and the private sector in Ukraine at the current stage include the ways of creating a liquid national product, maintaining the market deficit to generate liquidity in the long term and the use of innovative instruments. The country could potentially act both as a buyer and a seller under Article 6, as indicated by the interviews.

3.2 Classification of carbon market related country capabilities

This subsection comprises the analysis of Ukraine's current accounting and MRV capacities, administrative and regulatory capacities as well as the potential of various sectors for the future use of market mechanisms under Article 6 of the Paris Agreement.

3.2.1 Domestic accounting capacity

Ukraine, as an Annex I Party to the UNFCCC and Annex B Party to the KP, is required to develop and submit annual inventories on GHG emissions and removals, which are not controlled by the Montreal Protocol, to the UNFCCC Secretariat using the methodologies of the Intergovernmental Panel on Climate Change (IPCC). As of April 2017, the country has submitted six National Communications (the latest one in 2013) and one Biennial Report (also in 2013). The most recent National Inventory Report was submitted to the UNFCCC in 2017. The MENR coordinates the preparation and submission of the reports.

National level data, which is used for the national GHG inventory, is the most comprehensive data on GHG emissions and removals in Ukraine. In 2011, the National Centre for GHG Emission Inventory was established as a substructure of the SEIA (now it is a substructure of the MENR) and is in charge of the inventory preparation including data collection, analysis and processing. The national GHG inventory partly also uses sector level emissions data. As for the company-level data, more information is provided in section 3.2.2.

An important experience acquired through the participation in the KP was the development of the automated electronic system for recording and processing information – the National Electronic Registry of Anthropogenic Emissions and Absorption of Greenhouse Gases of Ukraine, which operates in accordance with international standards for technical data interchange (SEIA 2014: 36). The Registry was created to ensure the accurate issuance, holding, transfer, acquisition, cancellation and retirement of AAUs, ERUs, and Removal Units (RMUs), as well as information about individual or corporate bodies generating emissions or absorption of GHGs.

Despite the well-established in-country accounting capacities, Ukraine twice had to respond to issues related to reporting under the UNFCCC but managed to regain compliance in both cases. In 2011, the country was temporarily suspended from participating in KP mechanisms because it was stated that the national reporting system of Ukraine did not ensure that its annual submission was sufficiently transparent, consistent, comparable, complete and accurate as required by the guidelines for national systems (UNFCCC 2011: para. 8, in connection with Annex, para. 12 and 23). Ukraine submitted a progress report on the implementation of the plan to address its non-compliance and regained full eligibility to participate in the KP mechanisms in 2012.

In September 2016, the Compliance Committee of the KP adopted a decision on Ukraine's non-compliance with full reporting requirements under the first commitment period of the KP, primarily because of a temporary interruption of the connection of Ukraine's National Electronic Inventory of Anthropogenic Emissions and Greenhouse Gas Emissions to the International Transaction Log (ITL) in 2015 (UNFCCC 2016a). Nevertheless, after submitting two progress reports to address non-compliance, Ukraine managed to formally demonstrate its full compliance with its commitments under the KP for the first commitment period (UNFCCC 2017a: para. 29).

3.2.2 Domestic MRV capacity

In Ukraine, companies have to report their air pollutants and GHG emissions quarterly and annually to the State Statistics Service and environmental agencies on all six types of GHGs included in the Kyoto basket (SEIA 2014: 48). Reporting requirements apply to stationary sources only and not mobile sources. The reported data is used for levying environmental taxes including the CO_2 tax. In addition, through participation in JI projects, some companies also accumulated valuable experience in the collection and processing of the data on GHG emissions as well as the development and maintenance of GHG monitoring systems (NECU 2012).

At the same time, the current system of reporting on GHG emissions at company level requires significant improvement. The reported data is known to be of a rather low quality (interview with MENR, and SEIA 2014: 48). The main reasons for the high level of uncertainty regarding the reported data are

(1) the absence of data verification and quality control and (2) the lack of common and consistent methodologies for the calculation of GHG emissions (interview with MENR, and SEIA 2014). Furthermore, the collected data is filed at the regional offices of the State Statistics Service of Ukraine and is currently supplied to the national statistical authorities only aggregately.

The PMR is currently actively supporting the development of an MRV system in Ukraine. A project implementation unit was created to coordinate PMR activities. Templates for monitoring plans and emissions reports are being elaborated, and work is being conducted to launch the MRV pilots in nine companies in various economic sectors (which may include energy, iron and steel, coke, cement, etc.). Support is provided to manage the process of company selection for MRV purposes. Moreover, methodologies for the development of benchmarks suitable for use as an allowance allocation tool in the sectors considered for the national ETS are being developed. Apart from that, the PMR has started working on the methodologies for the accreditation of verifiers (interviews with MENR and "Ecoaction"). While implementing and managing JI projects, the country had experience of accrediting companies to provide third party verification services, which can be built upon for the national ETS. Further work on monitoring and reporting guidance documents and tools will be carried out throughout 2017 and beyond.

To create a comprehensive regulatory framework for a functioning MRV system in Ukraine, the Cabinet of Ministers resolved in May 2011 that "draft acts providing for functioning of the system for state recording, monitoring, reporting, and reliability checks of data related to anthropogenic GHG emissions" are to be developed (SEIA, 2014: 50). In June 2013, the first draft MRV law was prepared by the SEIA. The first draft was rejected, but this work continued under the PMR, whose mandate includes support for the development of a regulatory framework for MRV in Ukraine, including primary legislation, bylaws, and methodological guidance for regulated installations and other stakeholders. The new draft national legislation package on MRV including draft provisions on the accreditation of verifiers is expected to be developed by the end of 2017 and finalized in 2018 (interview with MENR).

The interviews revealed that there is potential to further enhance coordination of international support activities in the field of MRV. In particular, projects that support the development of an MRV system could be better coordinated with those providing technical assistance for the ETS establishment. The latter include components such as the establishment of an electronic data management system, which is also relevant for the development of the MRV system (interview with MENR).

3.2.3 Domestic administrative and regulatory capacity

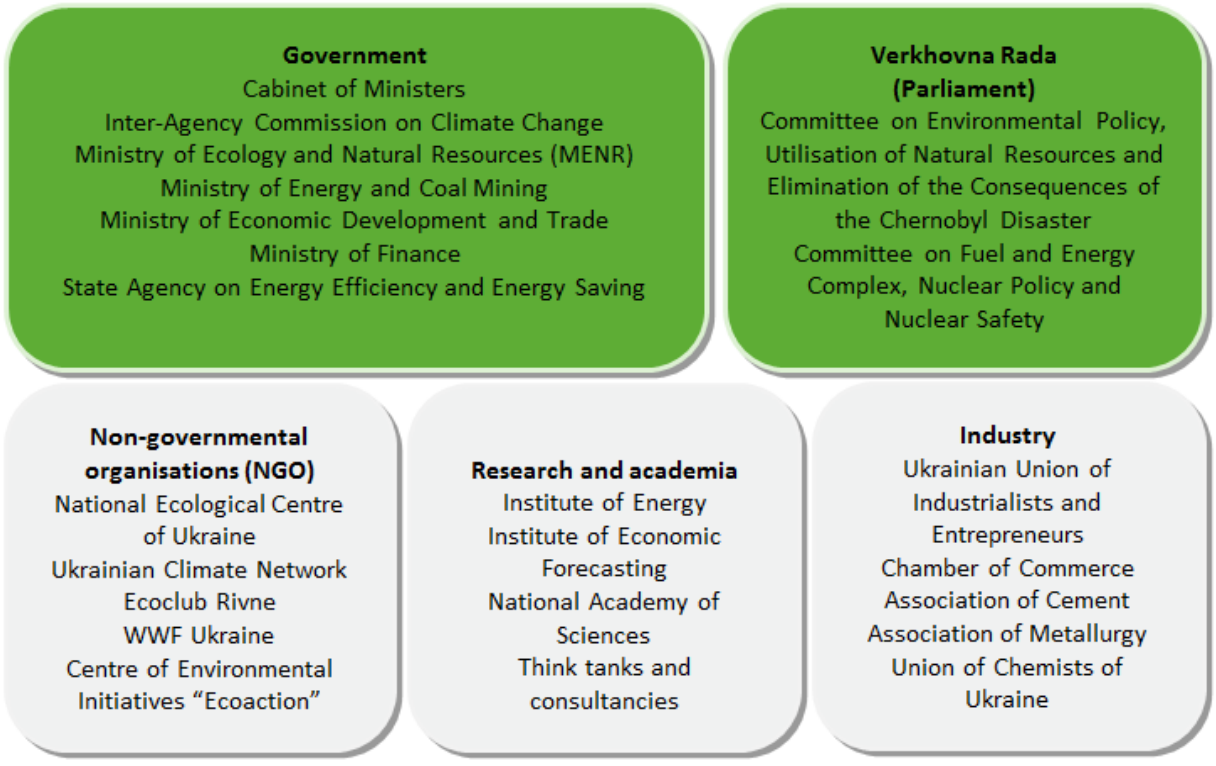
Several groups of stakeholders that influence Ukraine's climate policy can be identified (Figure 4). At the governmental level, the MENR is the central executive authority responsible for the formulation and implementation of the national policy in the field of environmental and climate protection, including carbon markets and ETS development. It is also a focal point and beneficiary of the PMR activities in Ukraine as well as support programmes by other donors.

The Inter-Agency Commission on Climate Change (ICCC) was established in 1999, and includes representatives of the MENR, the Ministry of Economic Development, the Ministry of Energy and Coal Industry, the Ministry of Infrastructure, other ministries and departments as well as representatives from the Ukrainian NGO climate network. It coordinates the implementation of national measures in line with Ukraine's international climate commitments and approves of official submissions to the UNFCCC Secretariat (SEIA 2014: 31). The Cabinet of Ministers is the ultimate decision-making body and is responsible for policy coordination and oversight of state energy companies. The Verkhovna Rada Committee on Environmental Policy and Chernobyl Aftermath Mitigation is a legislative body that initiates and submits environmental and climate laws. The Committee on Fuel and Energy Complex, Nuclear Policy and Nuclear Safety also plays an important role in the development of the climate-related legislation. The landscape of key stakeholders also includes non-governmental organisations, industry associations, academia, research institutions, and climate think tanks.

During the implementation of the KP, the necessary institutional arrangements were established to realise and manage JI and GIS projects, and the responsible state authority – the State Environmental Investment Agency (SEIA) – was in place (SEIA 2014: 36). SEIA was the separate state authority responsible for execution of the UNFCCC provisions and implementation of GHG mitigation projects (SEIA 2014: 35). Along with the implementation and making suggestions for the advancement of the national climate policy, SEIA was responsible for laying the groundwork for national emissions trading as well as acting as the national focal point for international carbon market activities such as JI and the GIS.

Ukraine's institutional capacities reduced substantially as a result of the dissolution of the SEIA in 2015, which was spurred by the political and economic crisis and the Presidential decree on Optimisation of governmental entities. Functions of the SEIA were delegated to the Department of Climate Change and Ozone Layer Protection within the MENR, which includes a specialised unit devoted to ETS. This institutional change resulted in a considerable reduction of personnel capacities dedicated to the work on ETS and the engagement in international carbon market activities (interview with MENR). It also resulted in occasional partial fragmentation of functions and certain coordination limitations among ministries. For instance, the decision on the participation of Ukraine in the ICAO Carbon Offsetting and Reduction Scheme in International Aviation (CORSIA) was taken with only limited cross-ministerial coordination.

Figure 10: Key stakeholders in Ukraine's climate policy



Source: Authors, based on SEIA, 2014 and interviews

Against this background, the establishment of a new body specialising in climate policy could bring many benefits, help enhance coordination and build synergies among various international support activities in the area of market-based mechanisms. However, it is not envisaged at the current stage due to a number of issues that need clarification (e.g. the legal ability of the MENR to establish such a body, financial resources, and high-level political support). In an interview, several options for the new

authority were identified: It could be a new central executive body at the national level, a regional institution for Central or Eastern Europe (which could also foster regional cooperation and dialogue on market mechanisms) or a public-private partnership at the national or regional level. Interestingly, planned PMR activities include the provision of support for the establishment of the National Competent Authority for administering MRV and ETS, including setting up a "Help Desk" to assist regulated installations in complying with their new obligations under the scheme (PMR 2016). However, no such authority has been established or is envisaged in the near future (interview with MENR).

With regard to the regulatory capacity, Ukraine has adopted a number of laws regulating the implementation of JI and accounting of GHG emissions. This legislation was, however, primarily oriented exclusively towards KP mechanisms and has several weaknesses according to NGO assessments, i.e. it was insufficient to ensure that only qualified projects were implemented, and lacked transparency (interview with "Ecoaction"). Currently, intensive work is conducted to develop MRV legislation. The PMR support for the preparation of the MRV legislation has received positive assessments (interview with the MENR). A comprehensive, integrated legislative package is seen as a key prerequisite for establishing a solid basis for carbon market activities.

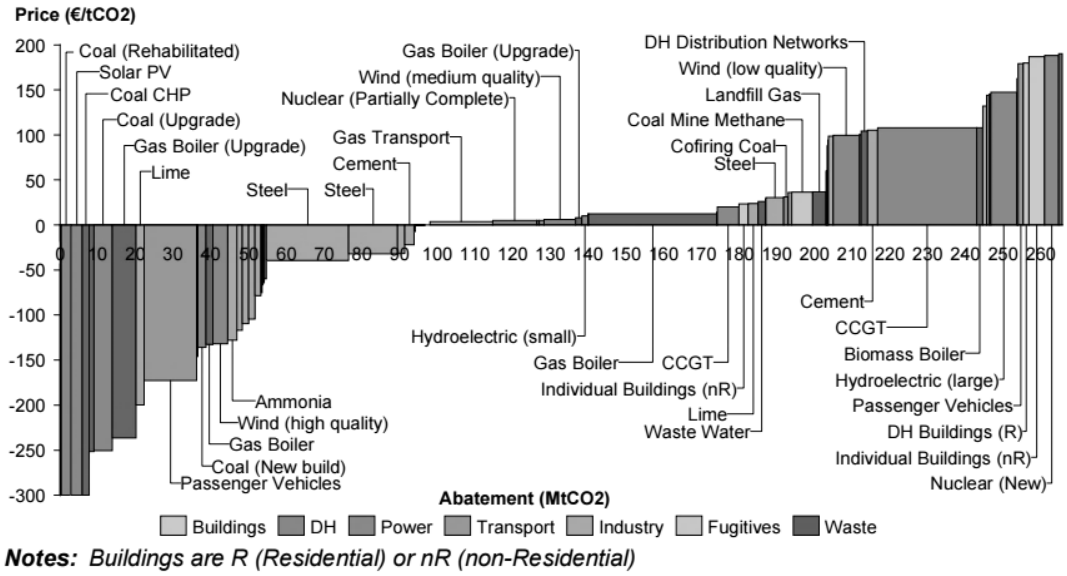
It is worth mentioning that the positioning of the climate policy, although its role has recently been increasing, still remains a rather low priority within the national policy framework in comparison with other political priorities (PMR 2016 and interviews). A strategic long-term vision on climate change as a key political and security issue at all levels of government would create a robust enabling environment for Ukraine's participation in carbon markets. Involving a broader range of stakeholders in the discussion on market mechanisms and ETS could also strengthen support for the climate policy (e.g. according to NGO assessments, the Parliament or the Ministry for Economic Development and Trade could be more actively engaged in the debate).

3.2.4 Actual mitigation capacity

As mentioned previously, Ukraine's NDC covers energy, industrial processes and product use, agriculture, LULUCF as well as waste. To assess the mitigation potential of various sectors, EBRD funded a study investigating the opportunities for reducing GHG emissions in Ukraine between 2010 and 2030 (NERA et al. 2012). The main output of this work is an investors' marginal abatement cost curve (MACC) for three policy scenarios – Status Quo (Figure 5), Planned Policies and Enhanced Policies. It should be noted, however, that against the background of recent economic developments in Ukraine, a new study updating the MACC is highly recommended.

The study suggests that, under the policy Status Quo, there is potential to reduce emissions by around 98 $MtCO_2e$ in 2030 through profitable investments, even without a carbon price or additional climate policies. This abatement potential can be increased to 266 $MtCO_2e$ including measures with a positive cost. These measures could be supported by carbon markets. Under the Status Quo, industry (with the steel sector playing a major role) is identified as the largest source (about 50%) of profitable abatement potential.

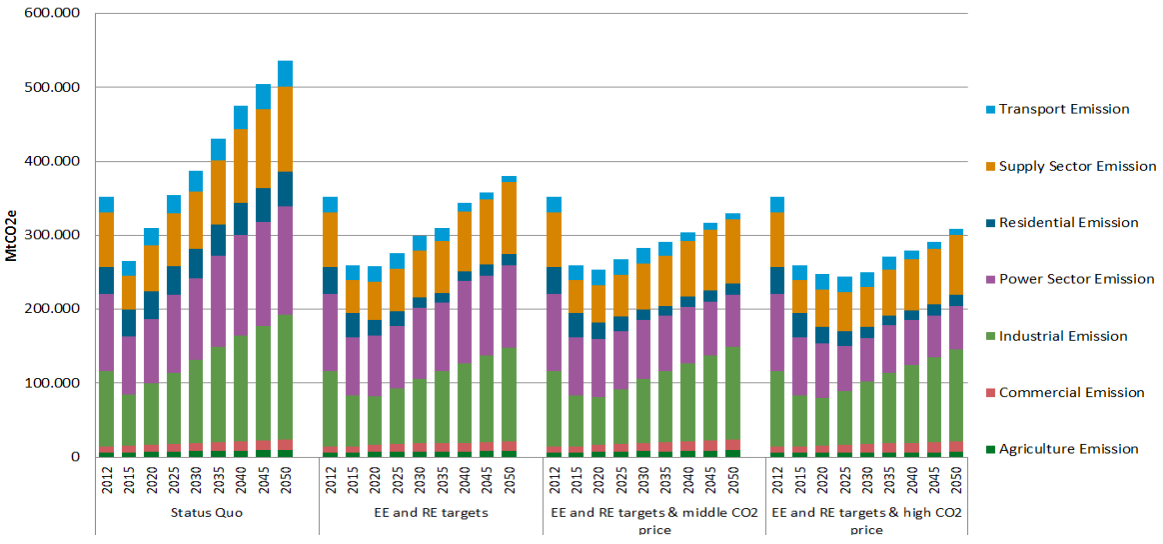
Figure 11: MACC for Status Quo Policy Scenario (2030)



Source: NERA et al. for EBRD 2012

More recently, USAID conducted a study, which includes a forecast of GHG emissions in Ukraine by sector in various policy scenarios by the year 2050 (USAID 2015). The results in several scenarios are demonstrated in Figure 6. In particular, in the scenario with energy efficiency and renewable energy targets[54] ("EE & RE targets"), GHG could be reduced by 23% by 2050 compared to the Status Quo scenario. By introducing middle CO_2 prices in addition to energy efficiency and renewable energy targets ("EE & RE targets + CO_2 prices"), this reduction would constitute over 28%. Finally, by introducing high CO_2 prices ("EE & RE targets + high CO_2 prices"), a reduction of almost 33% against BAU could be achieved by 2050 (USAID 2015: 64; 68). The power sector and industry see most of the mitigation potential in all scenarios. Substantial emissions reductions are also possible in the residential and transport sector.

Figure 12: GHG emissions by scenario



[54] Along with the targets set in the new Energy Strategy, Ukraine supports the development of renewable energy sources through a feed-in tariff ("Green tariff"), which has been positively assessed by major climate NGOs in terms of triggering GHG emissions reductions (interview with NECU). For more information on the tariff rates and conditions, see http://zakon4.rada.gov.ua/laws/show/5485-vi (in Ukrainian).

Source: USAID 2015

In addition, under the project 'Capacity Building for Low Carbon Growth in Ukraine' commissioned by the UNDP and supported by the German Ministry for Environment, sectoral analysis focusing on Ukrainian industries with regard to their GHG reduction potential and economic assessment of the proposed domestic ETS were conducted and low carbon development scenarios between 2011-2050 were developed (DIW ECON, 2014). The results illustrated that metal industry has an annual mitigation potential of up to 30% (27 $MtCO_2e$), non-metallic mineral products industry 11 $MtCO_2e$ and chemical and chemical products at least 1 $MtCO_2e$ per year respectively.

While providing a good overview of the relative mitigation potential per sector, a cautious attitude towards the validation of these studies should be noted. Considerable uncertainties do exit regarding Ukraine's emission trajectory and mitigation potential due to the changes in the macroeconomic situation in the last years as described in section 1.

According to Ukraine's Market Readiness Proposal under the PMR (SEIA, 2014: 68-69), the power sector, district heating, and industrial sectors are considered to be the most suitable for inclusion into an ETS or other market-based instruments. Main reasons are that these sectors comprise mostly easily identifiable large point sources; they are responsible for a significant portion of GHG emissions and offer numerous and largely profitable mitigation opportunities. Finally, they are already subject to many regulatory and reporting requirements and allow for a relatively uncomplicated MRV process. In an interview, a climate policy expert from Ukraine admitted that while most of JI projects were realised in industry, there is a vast potential for mitigation activities in other sectors such as agriculture, forestry and transport, which should be utilised in the future.

Keeping the current country capacities in mind, the next section discusses the framework based on which Ukraine's readiness to engage with Article 6 is assessed.

4 Assessment framework for countries' readiness to engage with Article 6

This section lists potential participation options for the countries to engage with Article 6 of the Paris Agreement and introduces an assessment framework to analyse the countries' readiness to participate in the new mechanisms. In the next section, Ukraine's readiness is discussed in detail based on this methodological framework.

4.1 Participation options under 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 NDCs and enable ambition raising. These are defined as 'Cooperative Approaches' (discussed in Article 6.2-6.3) and a 'Mechanism for Sustainable Development and Mitigation' (discussed in Article 6.4-6.7). 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. While the detailed guidance and rules for Article 6 are currently being negotiated, countries as well as experts are reflecting on how to best integrate experiences from previous and existing market related activities in the future mechanisms. Based on existing market experiences, a range of options may exist for countries to transfer mitigation outcomes in the post-Paris market mechanisms.

In Table 6 and the following paragraphs, we outline a set of broad and non-exhaustive options for transferring ITMOs and differentiate if they may fall under Article 6.2 'Cooperative Approaches' or under Article 6.4 'Mechanism for Sustainable Development and Mitigation'. These form the basis of the assessment in the next section.

Table 19: Potential non-exhaustive options for ITMO transfers under Article 6

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	x
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Authors

Participation options under Article 6.2 - Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of ITMOs. Multiple instruments could generate ITMOs under Article 6.2, as long as their generation is consistent with the international guidance that is to be adopted by the COP. Based on currently operational domestic as well as international carbon pricing instruments and the above outlined interpretation of ITMOs, a few broad participation options emerge:

1. **ITMO transfers as a result of linked domestic Emission Trading Schemes (ETSs):** Emission permits or corresponding ITMOs are transferred as a result of trades between established ETSs from respective jurisdictions through linking their markets.
2. **Direct government-to-government ITMO transfers:** This could take different forms. For instance, emission permits similar to assigned amount units (AAU) in the Kyoto Protocol's International Emission Trading are transferred as ITMOs.
3. **ITMO transfers as result of (bilateral) baseline and crediting instruments:** These include crediting of emission reductions in non-ETS sectors for the countries with ETSs, or a general crediting

approach, or the Joint Crediting Mechanism (JCM) type bilateral crediting approach. Such instruments may operate on project-by-project or sectoral level.

Participation options under Article 6.4 - Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation which generates emission reduction credits and operates under the authority of the COP. Based on engagement in operational international mechanisms and existing structures (e.g. CDM), participation in the Article 6.4 mechanism can involve, first and foremost, the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETSs) towards meeting the acquiring country's NDC. We assume that emission reduction credits generated under Article 6.4, which are internationally transferred and used by the acquiring country towards its NDC, are also potentially be regarded as ITMOs.

1. **Design options that exist under Article 6.4** are yet to be agreed and include a project or programme based mechanism similar to the CDM/JI approaches; or a sectoral international crediting mechanism in which fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved. Alternatively, credits could be also generated by adopting, quantifying and MRV of GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

4.2 Assessment framework for countries' readiness to engage with Article 6

The development of Article 6 modalities presents several issues and potential challenges, such as environmental integrity, as well as countries' motivation and capacities to participate in the market. They are often interlinked and have implications on how different countries choose their pathways to operationalise Article 6. In the absence of firm rules on the nature and form of market mechanisms possible under Article 6, an assessment of countries' readiness for it cannot be based on precise benchmarks. It can still stock-take the broad preconditions to engage with future mechanisms, identify support needs early on and provide important insights for ongoing negotiations and further development of the modalities for Article 6.

The indicators used in this assessment of 'engagement readiness' of countries are – firstly, the enabling conditions for uptake of Article 6 market instruments (enabling conditions); and secondly, those which ensure that the mitigation outcomes used as ITMOs follow principles of environmental integrity desirable under Article 6 (compatibility of the NDC; feasibility to maintain robust accounting and MRV). These indicators and factors underlying each are briefly discussed below:

Table 7: Assessment framework for countries' readiness for Article 6

Indicators	Factors considered in the assessment
Enabling conditions	Availability of instruments
	Political will
Feasibility of maintaining robust accounting and MRV	Accounting capacity
	Implementation capacities
	MRV systems
	Registry experience
Compatibility of the NDC	Scope of NDC and type of target
	Clarity of NDC
	Nature of NDC

Indicators	Factors considered in the assessment
	NDC ambition
	Coverage of GHGs

Source: Authors

1.1.1 Enabling conditions

Prior experience and availability of instruments such as emission trading schemes, crediting instruments and bilateral transfers have a facilitative role in Article 6 uptake. Furthermore, Paris Agreement has redefined the paradigm for international climate policy as unlike the KP, all Parties are taking up some form of contributions towards global mitigation efforts. As all Parties are free to buy or sell ITMOs, market instruments will have an impact on (and be impacted by) domestic mitigation efforts. Hence, political will of Parties to pursue domestic and international instruments, facilitating their uptake by stakeholders, and ensuring the quality of ITMOs will be critical in the post-Paris world.

1.1.2 Feasibility to maintain robust accounting and MRV

Firstly, these indicators include experiences of a country with economy wide emission accounting e.g. in the form of a national emissions inventory, MRV systems and prior registry experience. Secondly, experiences with accounting approaches for specific sectors and mitigation activities (similar to project-based crediting instruments) are considered. Additionally, presence of appropriate institutional frameworks, e.g. a coordinating body, would be critical to maintain robust accounting and MRV. Further, interest and implementation capacity of stakeholders (e.g. businesses, NGOs, and state agencies) is important to maintain robustness of accounting and MRV provisions agreed in Paris.

1.1.3 Compatibility of the NDC

The relationship of ITMOs with NDCs will be critical for maintaining the environmental integrity of Article 6 instruments and strengthening mitigation ambition of the Paris Agreement. Considering the broad range of NDCs that have been submitted to the UNFCCC, aspects such as the nature (conditional or unconditional) and scope (sectoral, actions only, economy wide) of the NDC, elements of quantifiability such as clear emission trajectories and clarity of underlying actions are important. Moreover, ambition of the NDC could influence generation of genuine emission reduction credits ('hot air').

The next section discusses the Ukrainian case in detail using the analytical lens provided by the above defined framework.

5 Ukraine's readiness to engage with market options under Article 6

The modalities of Article 6, which are currently under development, may present challenges for participating countries to ensure environmental integrity, and impact the countries' motivation and capacities to participate in future international carbon markets. These are often interlinked and have implications on how different countries choose their pathways to operationalise Article 6. Based on the background of Ukraine's experience with market mechanisms and existing market related capacities, the next paragraphs assess and discuss Ukraine's readiness to engage with market options under Article 6, by applying the framework of three readiness indicators as defined in the previous section[55].

5.1 Enabling conditions

Ukraine has gained experience with market mechanisms that can be built upon in the future. A lot of work has been focused on the development of an MRV system, and once it is finalised and runs smoothly, the country may move ahead with preparing and introducing an ETS, which is embedded in its domestic and international commitments. The Association Agreement with the EU is one of the factors that catalyse the establishment of Ukraine's ETS. Once the domestic ETS is functioning, it could be one of the ways for the country to engage with Article 6.2. However, if Ukraine were to link its ETS with one or several other systems, it could take considerable time for negotiating and aligning design elements.

At the same time, as described in section 2.1, Ukraine has gained wide-ranging experience with crediting instruments. It implemented the largest number of JI projects and accumulated experience of using various types of GIS activity such as 'hard' as well as 'soft' greening. At the current level of capacity, a crediting instrument based on past experience with JI, therefore, seems to be more feasible for Ukraine than engagement with Article 6 through ETS linkage, at least in the short term. Such a crediting instrument could apply to both Article 6.2 and 6.4, subject to different guidance / rules, modalities and procedures and different governance (these are currently under negotiation). Not only project and programme based but also sectoral mechanisms could be an option for Ukraine, though based on existing experience, project based mechanisms may be easier to implement. Participation in the Joint Crediting Mechanism (JCM) is also conceivable, provided that it is eligible under Article 6.

Additionally, direct government-to-government ITMO transfers under Article 6.2 may build upon the accumulated experience with GIS. It is worth noting, however, that Article 6.2 is expected to have more international guidance on accounting, environmental integrity and transparency issues, while for GIS, these were self-defined by the seller and buyer countries. Therefore, more effort could be required to implement mechanisms under Article 6.2.

Ukraine's government has already expressed the intention to participate in the future international market mechanisms under Article 6 in the NDC as well as SBSTA submissions. Currently, the MENR does not show stronger preference for either Article 6.2 or 6.4[56]. Interviews have revealed that domestic political support for the development of market mechanisms from the Parliament, the top level of the government as well as the general public are not yet strong enough. Currently, it is not among the highest policy priorities. A strategic long-term vision on climate change as a key political and security issue at all levels of government would foster Ukraine's participation in markets. International support

[55] Given the high uncertainty of the Article 6 negotiations and the fact that it will take considerable time (at least till COP 24 in 2018) to negotiate the exact design details of the new mechanisms, this study can only provide limited analysis with regard to potential options of the country under Article 6 of the Paris Agreement. Country representatives stress that it is challenging to evaluate the readiness of Ukraine to implement Article 6 as long as there are no agreed international rules to make it operational.

[56] Based on Ukraine's position that Article 6.2, 6.4 and 6.8 have to be regarded in a holistic approach, the country could also use certain types of outcomes that could result from/be common for all of these mechanisms, in case they are eligible under Article 6 (see e.g. UNFCCC 2017b, which refers to an "integral approach for operationalization of Article 6 provisions stipulated in paras 6.2, 6.4 and 6.8").

for MRV and ETS, which is provided by a number of international donors, is considered to be a strong external catalyser for the development of market instruments.

Whilst enabling conditions exist, effective implementation of Article 6 instruments requires, among others, strong domestic systems to measure, monitor, report and verify mitigation outcomes that will be transferred internationally. These are discussed in the following subsection.

Table 20: Summary of the indicator 'Enabling conditions'

Indicators	Factors	Current situation
Enabling conditions	Availability of instruments	• Planned ETS (ongoing work on MRV; commitment to ETS development anchored in national climate policy documents; ETS to be introduced after MRV system is finalised) • Experience with JI and GIS
	Political will	• Willingness to participate in Art. 6 expressed in NDC and SBSTA submis-sions; however, domestic high-level political support for market mecha-nisms could be stronger • Association Agreement with EU is a strong incentive to introduce an ETS; support by international partners for MRV and ETS

Source: Authors' assessment

5.2 Feasibility to maintain robust accounting and MRV

Ukraine has been developing the National Emissions Inventory and reports to the UNFCCC on an annual basis. The greenhouse gas registry was established and is maintained. Still, a temporary suspension from KP market mechanisms happened in the past due to reporting flaws and occasional non-compliance with deadlines, which indicates that more resources may be needed to ensure continuous robust accounting in order to be better prepared for Article 6 implementation. The fact that the country managed to regain reporting compliance under UNFCCC in both cases so far demonstrates that it has capacities to provide high-quality reporting.

Administrative capacities are established in the form of a specialised Division of Registry Maintenance and Emissions Trading within the Department of Climate Change, Atmosphere Protection and Ozone Layer Protection under the MENR. Given its current role, the MENR could be in charge of the implementation and management of the mechanisms under Article 6. The analysis has, however, illustrated large potential for strengthening the current capacities e.g. through the creation of a separate body focusing on climate issues (other possible forms include a regional hub or a public-private partnership) or increasing technical staff under the MENR.

At the level of private sector stakeholders, the analysis indicates a relatively high interest in market mechanisms, which is primarily based on experience with JI and GIS. However, interviews have shown that the debate on market mechanisms and ETS in particular has so far been concentrated in relatively narrow circles surrounding the MENR, and a broader stakeholder engagement (e.g. of the Parliament, the Ministry of Economic Development and Trade, and private sector) could further support the implementation of Article 6.

Smooth implementation of Article 6 at the level of private stakeholders would to a large extent depend on the ability to perform high-quality MRV measures. Ukraine is actively working on its MRV system, and many previous MRV gaps are currently being addressed, among others by the PMR project. Finalising and ensuring flawless operation of an MRV system will be a crucial step towards ensuring robust accounting in the context of future market mechanisms.

Last but not least, a critical determinant of effectiveness of mitigation outcomes is the presence of domestic systems, which can transparently track ITMOs generated and transferred to avoid double accounting. These systems may be the same or differ for Article 6.2 and 6.4. Cames et al. (2016) point to a range of design possibilities for Article 6.2 transparency procedures - from reporting adjustments under the Paris transparency framework (Article 13) to developing registries for recording transfers. Similarly, Article 6.4 may also require an international register like the one under the CDM. Whichever design approach is ultimately agreed upon by international negotiation, transparent documentation systems at the domestic level will be critical for its effective enforcement. Ukraine has substantial registry experience based on the development and maintenance of the National Electronic Registry of Anthropogenic Emissions and Absorption of Greenhouse Gases.

Table 21: Summary of the indicator 'Feasibility of maintaining robust accounting and MRV'

Indicators	Factors	Current situation
Feasibility of maintaining robust accounting and MRV	Implementation capacity	• MENR is acknowledged as a coordinating institution but additional per-sonnel and technical resources may be required • Relatively high interest among private sector stakeholders but their involvement could be enhanced • Capacity at the level of private stakeholders depends on the ability to do high-quality MRV (e.g. at installation level) • Development of market mechanisms could be supported more effective-ly by bodies other than the MENR (e.g. involving Parliament, other governmental bodies)
	Accounting capacity	• Established accounting procedures, developed National Inventory, annual reporting of national GHG emissions • Managed to restore compliance after temporary suspension from the use of KP mechanisms due to reporting issues
	MRV system	• Ongoing active development of the MRV system (e.g. through PMR support)
	Registry experience	• Registry established and maintained

Source: Authors' assessment

5.3 Compatibility of NDC

Clarity in the scope of activities covered by the NDC is paramount towards ensuring environmental integrity of Article 6 (Cames et al. 2016). Having a clear and quantifiable target, including transparently defined baseline emissions against which the target is set are critical for ensuring the quality of mitigation outcomes. Ukraine has an economy wide NDC that puts forward a quantifiable absolute emissions reduction target, which would be more suitable for the use of both Article 6.2 and 6.4 mechanisms compared to less or non-quantifiable types of NDC targets.

Ukraine has a single-year target, i.e. it does not define any obligations during the period leading up to the target year. Single year targets can pose specific accounting challenges for ITMO transfers. One key challenge is the lack of obligation in the period leading up to the target year. As single year targets do not define any intermediate milestones, the seller country can transfer ITMOs without any limitations in the vintages before the target year i.e. they have a higher potential to generate 'hot-air'. In a similar manner, a buyer country with a single year-target may need to buy less ITMOs, compared to those with specific obligations for intermediate years. Additionally, different target types can make the com-

parability between NDCs difficult and make the international accounting complicated. Ukraine would, therefore, need to develop or disclose the emission trajectory of its NDC pledge in the near future.

In addition, ambition of a NDC can be a key determinant to the quality of generated ITMOs. The term 'quality' is used here in the context of the genuineness of a mitigation outcome being used for international transfers. A less ambitious NDC may provide more reduction credits for the same effort, for instance, by inflating the baseline (i.e. generate 'hot air'). While an assessment of the ambitiousness of the NDC is beyond the scope of this research, an independent policy assessment by Climate Action Tracker rates the ambition and fairness of Ukraine's NDC as "critically insufficient" (Climate Analytics et al. 2017), and domestic NGOs (interview with "Ecoaction") also consider that its ambition could be further enhanced. Still, the intention to revise the NDC and the approval of post-2020 socio-economic development strategies have been emphasised by the current NDC. Some of these strategies are already adopted, e.g. the recently announced Energy Strategy 2035. A substantial cost-effective mitigation potential existing primarily in the industry and power sectors as well as broad mitigation opportunities in other sectors demonstrate that raising NDC ambition is possible.

Table 22: Summary of the indicator 'Compatibility of NDC'

Indicators	Factors	Current situation
Compatibility of NDC	Scope of NDC	• Economy-wide, absolute reduction target (positive for the use of market mechanisms) • Single year target (presenting a multi-year trajectory would be more beneficial)
	Clarity of NDC	• NDC defines clear, quantifiable targets • Includes reference to several policies for meeting the target (e.g. ETS establishment) • Emissions trajectory missing
	Nature of NDC	• Unconditional on international support
	NDC ambition	• Insufficient as per some researchers (CAT assessment)
	Coverage of GHGs	• CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3

Source: Authors' assessment

5.4 Engagement with Article 6 options

Table 11 summarises Ukraine's readiness to engage in various market options under Article 6. In general, the whole range of preliminary options listed in the subsection 4.1 (Table 6) could be used by Ukraine in the future. Still, given the current level of experience and capacity, crediting instruments as well as direct government-to-government ITMO transfers seem to be most feasible in the short term. In the long term, engagement through an ETS could also be viable, provided that the underlying MRV system is operating flawlessly and the ETS is up and running.

Allocating more personnel resources to the development of market mechanisms as well as to the UNFCCC reporting could enhance the country's readiness to engage in Article 6 options. Apart from that, raising the level of ambition of the NDC is of importance to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any). Finally, stronger domestic high-level political support and broader stakeholder engagement are factors that could further foster participation of the country in the new mechanisms.

Table 23: Potential engagement options for Ukraine based on the readiness assessment

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	Potential engagement options
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	x
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Authors

6 Conclusions and recommendations

Germany has been a central actor in fostering international carbon markets in the past, and continues to hold a keen interest in supporting development of rule-based and well-functioning carbon markets under the Paris Agreement. In the post-Paris context, however, the question arises in how far existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with the rules and regulations to be established under Article 6, without compromising the interests of Germany and its partner countries. Building on the assessment presented in section 5, recommendations have been developed on the prospects for future German cooperation with Ukraine to support activities related to carbon market instruments.

Prospects for future cooperation between Germany and Ukraine

The assessment carried out in section 5 points towards certain gaps and needs where Germany's cooperation can support Ukraine in getting ready for Article 6. Some of these are related to the implementation of all Article 6 options, while others are more option-specific.

6.1 Recommendations related to all Article 6 options

Create a specific checklist on a sufficient, Art. 6 compatible MRV system. To begin with, the major prerequisite for the smooth functioning of an ETS and any other market mechanisms is a robust MRV system, which requires both administrative capacity of the government and implementation capacity of the private sector. According to the representatives of the Ukrainian government and NGOs, international support for MRV that is currently being provided (primarily by the PMR) is addressing the existing capacity gaps well (i.e. assistance in drafting MRV legislation, piloting MRV measures, providing trainings for operators, establishing MRV-related infrastructure). At the same time, once the international rules and guidance for Article 6 are established, new support activities could focus on creating a specific checklist to make sure that the MRV system is sufficient and compatible with Article 6 requirements, based on which further gaps and support needs may be identified.

Enhance the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms and the perspectives of Article 6. Secondly, the analysis has illustrated that more emphasis could be put on ensuring greater involvement of broader public and private sector actors and stakeholders (e.g. the Parliament, the Ministry of Energy and Coal Mining or the Ministry of Economic Development and Trade and the private sector) in the discussions around policy making and implementation of MRV and market mechanisms. Future bilateral and international cooperation activities could foster the dialogue with broader stakeholders by engaging them in events and discussions on topics related to market mechanisms in general and the perspectives of Article 6 in particular.

Provide support for the creation of a body specialising in climate policy issues. At the same time, the study has demonstrated that strengthening the resources of the MENR by creating a specialised climate policy institution (which could be a governmental structure, public-private partnership or regional institution for Ukraine and neighbouring/partner countries) could help better coordinate donor activities and cross-ministerial interaction. Political, technical and financial support for the creation of such a specialised body as well as the provision of targeted activities to enhance its capacity once the institution is established would increase Ukraine's readiness to implement future market instruments.

Conduct studies on the opportunities for raising NDC ambition. Another overarching factor that could substantially foster the use of all Article 6 options in Ukraine is raising its NDC ambition. To this end, detailed studies assessing the current mitigation potential of multiple sectors and the economy as a whole as well as studies on how to most effectively realise the mitigation potential to increase the level of ambition are recommended. Updating the understanding of sector-specific mitigation potential, measures, and cost may also be required.

Dedicate more resources to accounting and strengthen high-level political support. Domestically, dedicating more resources to deliver compliance with the UNFCCC reporting requirements could help ensure continuous robust accounting. Finally, building strong high-level political support for market mechanisms could help Ukraine further pave the way for using various Article 6 options.

6.2 Option-specific recommendations

Organise a technical exchange between Ukraine and partners on the design of an ETS. If Ukraine were to choose the path of engaging in Article 6.2 with a future domestic ETS, the key need would be technical and financial support for the design, introduction and operation of the ETS. One possible way is to organise detailed and demand-driven, tailor-made technical exchange with countries and subnational jurisdictions where ETSs are already operational. The issue of linking ETSs would require additional technical support and political coordination. Direct international support for the establishment of an ETS in Ukraine is planned and partly being provided, but it requires time to assess the effectiveness of this support.

Conduct studies focusing on the potential and challenges for using international crediting mechanisms and sectoral crediting in particular. What is more, to foster Ukraine's possible participation in international crediting mechanisms, studies specifically focusing on the potential and challenges for using these mechanisms would be required. Special focus could be on analysing the prospects for sectoral crediting, which would be a new focal area for Ukraine. Last but not least, Ukraine could strengthen its own experience with market instruments by engaging in technical knowledge exchange with countries that have had experience of using mechanisms of other kinds (e.g. Joint Crediting Mechanism).

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Germany's carbon market cooperation with Ethiopia: Prospects for engaging with Article 6 of the Paris Agreement

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Disclaimer: This paper was written for the German Environment Agency (UBA) as part of the project titled "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ 3714 41 506 0). The project has been conducted by adelphi in cooperation with NewClimate Institute and Öko-Institut. The contents of this publication do not necessarily reflect the official opinions of the German Environment Agency.

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Project Background

This case study is part 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). It builds upon two previous outputs produced under the project (see Kachi et al. 2016; Cames et al. 2016).

Study objectives

Germany has been a key-actor in promoting market instruments and in fostering an international carbon market in the past. In the context of the paradigm shift induced by the Paris Agreement, the question arises in how far the existing German cooperation in the field of carbon markets needs to be readjusted and further developed in line with rules and regulations to be further developed under Article 6, as well as incorporating the interests of Germany and its partners. The purpose of this research is to gather evidence towards answering this question.

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. Deeper thought is given to each country's explicit interest in participating in carbon market development in a post-Paris world and its capability to realise this interest. 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.

Approach

The case studies are the concluding component of a three-stage framework in the aforesaid project:

1. **German carbon market cooperation:** As a first step, current German engagement in carbon market cooperation, including in major initiatives and funds, was outlined. This set the stage for compilation of a comprehensive carbon market cooperation inventory.
2. **Country selection process:** In the second step, the cooperation inventory was taken as the basis for selecting countries for the case study assessment. Three candidates were chosen based on a multi-step selection approach. These represent a spectrum of different levels of carbon market development (from early to advanced). The selected countries were Ethiopia (early), Viet Nam (medium) and Ukraine (advanced).
3. **Case studies:** An in-depth analysis of the three case countries was undertaken in the third step. The case studies provide a first order estimate of a countries' readiness to engage in different market options presented by Article 6 and the pathways for future cooperation with Germany for developing rule-based and well-functioning market instruments.

Note: The first two components have been developed as a stand-alone document. These along with the other two case studies can be found at: https://www.dehst.de/EN/carrying-out-climate-projects/prospects/prospects-node.html.

Methods

The case studies combine a thorough desk research with expert interviews to arrive at a meaningful analysis and derive concrete recommendations on a country level and beyond. They also benefit from two international workshops carried out in January 2017 and May 2017 that provided additional insights and feedback on the assessment.

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Finally, the paper benefits from inputs provided by Dr. Karsten Karschunke from the German Environment Agency at various stages of this research.

Abstract

This paper discusses the current readiness of Ethiopia to engage in carbon market options that may be presented under Article 6 of the Paris Agreement. Engagement readiness is discussed using three indicators: i) enabling conditions present in the country to participate in markets; ii) the feasibility of maintaining robust accounting and MRV standards to ensure both the quality of emission reductions and transparency of transfers; and iii) the compatibility of the country's nationally determined contribution (NDC) to deliver the environmental integrity of Article 6 and strengthen the mitigation ambition of the Paris Agreement. The paper argues that instruments that build on baseline and crediting approaches appear to be the most immediate carbon market entry-point for Ethiopia, considering its experience, capacities and interests. Such instruments may develop under Article 6.4 and/or come under the purview of Article 6.2's cooperative approaches. These assertions are arrived at using empirical evidence from interviews, project workshops and literature review on the three indicators of readiness considered in this assessment. Based on the assessment, recommendations are made for Germany to further support Ethiopia to participate in Article 6. Three support entry-points are recognised: first, furthering in-country MRV capacity for market mechanisms; second, providing focussed technical support on common elements/linkages between Article 6 and NDC implementation; and third, sharing own experiences and lessons learnt for instrument design and implementation. The case study further highlights the need for creating more interlinkages between markets and other relevant agenda items in the ongoing negotiations, especially with Article 13 on transparency issues and Article 9 on climate finance. Addressing these interlinked elements in a collective manner is critical for the effective implementation of the Paris Agreement.

Kurzbeschreibung

Die Fallstudie diskutiert Äthiopiens ‚Readiness' für die Nutzung von Kohlenstoffmarktmechanismen, die möglicherweise im Rahmen des Artikels 6 des Pariser Abkommens umgesetzt werden. Die ‚Readiness' für ein mögliches Engagement Äthiopiens im Kohlenstoffmarkt wird anhand von drei Indikatoren betrachtet: i) Rahmenbedingungen im Land, die eine Teilnahme am Kohlenstoffmarkt erleichtern; ii) die Durchführbarkeit von robusten Emissionsberechnungen und MRV, um die Qualität der generierten Emissionsreduktionen und die Transparenz ihrer Transfers zu gewährleisten; und iii) die Kompatibilität des nationalen Klimaziels (NDC) mit Artikel 6, um die Umweltintegrität zu erhalten und die Minderungsambitionen des Pariser Abkommens zu stärken. In der Studie wird argumentiert, dass für Äthiopien solche Instrumente, die auf ‚baseline-and-crediting' Ansätzen aufbauen, den unmittelbarsten Einstiegspunkt in den globalen Kohlenstoffmarkt bieten – basierend auf den Erfahrungen, Kapazitäten und Interessen des Landes. Solche Instrumente werden möglicherweise unter Artikel 6.4 und/ oder im Rahmen der ‚cooperative approaches' unter Artikel 6.2 Gestalt annehmen. Die in der Studie vorgestellten Ergebnisse basieren auf empirischen Daten aus Interviews, Projektworkshops und Literaturrecherche zu den drei genannten ‚Readiness' Indikatoren. Ausgehend von der Bewertung der Indikatoren werden Empfehlungen ausgesprochen, wie Deutschland Äthiopien hinsichtlich der Teilnahme an den Mechanismen unter Artikel 6 bestmöglich unterstützen kann. Drei mögliche Ansatzpunkte für eine solche Unterstützung werden identifiziert: zunächst steht eine Förderung der MRV Kapazitäten für Marktmechanismen im Vordergrund; an zweiter Stelle steht die zielgerichtete technische Unterstützung von gemeinsamen Elementen und möglichen Verknüpfungen zwischen Artikel 6 und der Implementierung des nationalen Klimabeitrags (NDC); und drittens wird das Teilen eigener Erfahrungen und Erkenntnisse hinsichtlich der Ausgestaltung und Umsetzung von Marktinstrumenten hervorgehoben. Die Fallstudie hebt auch die Notwendigkeit hervor, eine stärkere Verknüpfungen zwischen Marktaspekten und anderen Themen, zum Beispiel Artikel 13 (Tranzparenz) und Artikel 9 (Klimafinanzierung), herzustellen. Die Adressierung dieser miteinander verbundenen Elemente ist essenziell für die effektive Umsetzung des Pariser Abkommens.

List of Abbreviations

AGN	African Group of Negotiators
BAU	Business as usual
CAT	Climate Action Tracker
CDM	Clean Development Mechanism
CER	Certified emission reductions
Ci-Dev	World Bank's Carbon for Development initiative
CORSIA	Carbon Offsetting and Reduction Scheme in International Aviation
CRGE	Climate Resilient Green Economy strategy
ERC	Ethiopian Railway Corporation
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan, Ethiopia
GEF	Global Environmental Facility
ICAO	International Civil Aviation Organisation
IKI	International Climate Initiative
ITMOs	Internationally Transferred Mitigation Outcomes
JCM	Joint Crediting Mechanism
LDC	Least Developed Countries
LRT	Light Rail transport
MAPT	Measurement and Performance Tracking for Mitigation Actions project
MoEFCC	Ministry of Environment, Forests and Climate Change, Ethiopia
MRV	Monitoring, Reporting and Verification
NAMAs	Nationally Appropriate Mitigation Actions
NDC	Nationally Determined Contribution
POA	Programme of Activities
PMR	World Bank's Partnership for Market Readiness initiative
RTK	Revenue tonne kilometres
REDD+	Reducing emissions from deforestation and forest degradation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SRM	Sectoral Reduction Mechanism
UNFCCC	United Nations Framework Convention on Climate Change

1 Introduction

Ethiopia	
Profile:	Least developed country
Income group:	Low-income
Population:	102,403,196[57]
GHG emissions:	146 $MtCO_2e$, in 2013 including LULUCF (1.58 tCO2e/capita)[58]
Key growth sectors:	Agriculture, Services, Industry (Construction), Transport

Ethiopia is a federal parliamentary republic with nine states (called 'national regional states'). The current political system is based on the Ethiopian Constitution of 1995. Despite recurring inflationary challenges and environmental extremes, especially droughts, Ethiopia's economy has grown at an average annual rate of 10% over the past decade, with much of this growth driven by state owned and administered institutions. It now aims to transition its economy to achieve middle-income status by 2025.

Currently, agriculture and services contribute over 80% to the country's GDP, but industrial activities are increasingly gaining focus in Ethiopia's development planning (Table 24). The first five-year development plan – the Growth and Transformation Plan, GTP I (2010-2015) – placed a strategic focus on creating enabling conditions for priority industrial sectors such as textiles, sugar, leather products and cement while doubling agricultural production by 2015. These goals were achieved as economic value added by industry increased gradually from 10% to 16% per year over the course of the GTP I period and agriculture maintained its value (The Ethiopian Herald 2015). The second GTP (GTP II) continues from 2016 to 2020 and aims to further integrate the industrial and services sectors in the Ethiopian economy. It further aims to promote higher value crops and livestock production to shift the economy towards agro-industrialisation.

In 2013, Ethiopia's national emissions stood at 146 $MtCO_2e$, i.e. 0.4% of global emissions. This includes emissions from Land, Land-use change and forestry (LULUCF). As Figure 13 illustrates, emission intensive sectors that account for a large share of total emissions in high-emitting countries, such as industry and power, currently make up a much smaller share of Ethiopia's national emissions. Industries contribute approximately 1% of the national emissions, most of which comes from the construction sub-sector. The power sector also accounts for a small share of energy sector emissions as Ethiopia's grid is largely reliant on hydropower. The energy sector overall emits close to 15% of the national emissions and a major share of this is from transportation. Close to 80% of the national emissions originate in the agriculture (i.e. crop production, livestock, manure and agricultural soil management), forestry and land-use sector (Federal Democratic Republic of Ethiopia 2015, p.54).

However, this situation is expected to change as socio-economic development progresses. Similar to the rest of Africa, Ethiopia is experiencing high rates of urban population growth of ~4.4%/year (Federal Democratic Republic of Ethiopia 2011, p.92). Developmental pressures and the economic vision to achieve middle-income status by 2025 is expected to increase demands for energy intensive infrastructure in the country. As per official estimates, the industrial sector, followed by transport, are expected to register the largest annual growth in emissions (Federal Democratic Republic of Ethiopia 2011, p.15). The sectoral emissions profile may, therefore, become more evenly distributed over the years.

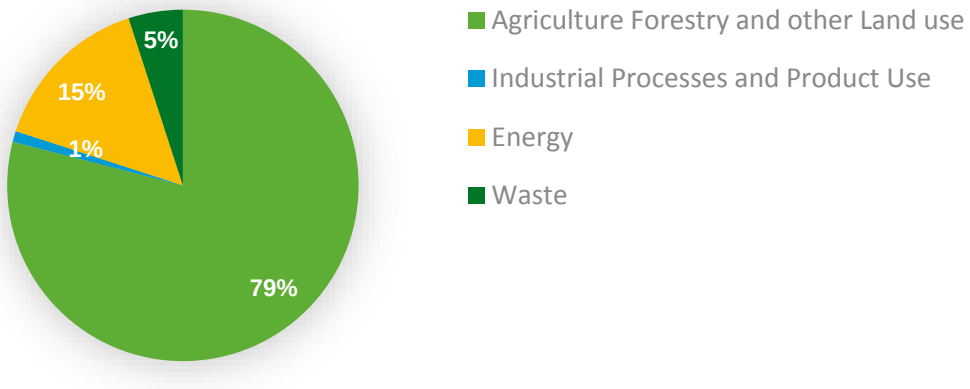
[57] (World Bank 2016c)
[58] As reported in Ethiopia's latest national communications (Federal Democratic Republic of Ethiopia 2015). These include LULUCF emissions and are based on AR4 IPCC Global Warming Potential (GWP) factors over a 100-year time horizon.

Table 24: Overview of socio-economic indicators for Ethiopia

	1990	2000	2010	2011	2012	2013	2014	2015
Population, total (millions)	48.1	66.4	87.6	89.9	92.2	94.6	96.9	99.4
Population growth (annual %)	3.4	2.9	2.6	2.6	2.6	2.5	2.5	2.5
GDP (current billion USD)	12.2	8.2	29.9	31.9	43.3	47.7	55.6	61.5
GDP growth (annual %)	2.7	6.1	12.6	11.2	8.7	10.6	10.3	9.6
Inflation, consumer prices (annual %)	5.2	0.7	8.1	33.2	22.8	8.1	7.4	10.1
Human Development Index (HDI)	--	0.284	0.412	0.423	0.429	0.436	0.442	--
Agriculture, value added (% of GDP)	52.0	47.8	44.7	44.7	48.0	44.9	41.9	41.0
Industry, value added (% of GDP)	9.8	12.2	10.2	10.5	10.3	11.9	14.7	16.3
Services etc., value added (% of GDP)	38.2	40.0	45.1	44.7	41.8	43.2	43.4	42.8
Exports, goods & services (% of GDP)	--	--	--	16.7	13.8	12.5	11.6	9.8
Imports, goods & services (% of GDP)	--	--	--	31.6	31.6	29.0	29.1	27.4

Source: World Bank 2016b

Figure 13: Overview of Ethiopia's emissions profile and major contributing sectors



Source: Federal Democratic Republic of Ethiopia (2015)

As Ethiopia stands on the cusp of an economic transition, it aims to delink future economic growth from emissions. To this effect, the government developed a Climate Resilient Green Economy (CRGE) strategy in 2011. The plan sets out a blue-print for creating a green economy delivered through zero carbon growth. Agriculture, forestry, power and transport form the four key pillars of the CRGE strategy. The CRGE strategy aims to increase agricultural and land use efficiency; GHG sequestration in the forestry sector; renewable power development; and technology advancement in the industry, transport, and building sectors.

International cooperation is considered critical for achieving Ethiopia's climate action plans. The country's submissions to the United Nations Framework Convention on Climate Change (UNFCCC) recognise this and position carbon markets as a channel for support. Past international cooperation with Ethiopia has focussed on building the fundamental knowhows and capacities on market based instruments. German carbon market cooperation, in particular, has supported research in identifying enabling factors for the uptake of carbon market based approaches in Sub-Saharan Africa, particularly on standardised Clean Development Mechanism (CDM) methods and accounting approaches. German funding has further provided platforms for sharing experiences between countries on developing national processes, capacities and systems for accounting mitigation measures in a measurable, reportable and verifiable manner at multiple levels (i.e. national, intervention and actor level)[59]. These activities have been carried out in close cooperation with national actors through bilateral or multilateral channels.

This cooperation needs to be continued and realigned considering the changing paradigm of multilateral effort under the Paris Agreement. The expanded international coverage of the Paris Agreement invariably links carbon markets to global mitigation effort, as each country has domestic targets towards the accord and the flexibility to use markets as a seller/buyer to achieve them. Further, and crucially, Article 6 allows for the use of flexibility instruments to encourage countries to strive for 'higher ambition in their mitigation and adaptation actions' (Art 6.1) and 'deliver an overall mitigation in global emissions' (referred to only in Article 6.4). With carbon markets still on the drawing board two years after the Paris Agreement was signed, the continued ambiguity on how markets will develop and interact with national policy frameworks and international commitments creates a need for country-level research. Through this case study, options for addressing these ambiguities are conceptualised in the Ethiopian context and recommendations are made on multilateral and bilateral cooperation pathways for Germany, to improve the readiness of countries to engage with market options under Article 6.

The case study is structured as follows: Section 2 provides the background on carbon market experience of Ethiopia, starting from the years of the CDM to Ethiopia's plans under the nationally determined contribution (NDC). Section 3 elucidates Ethiopia's position on the use of Article 6 of the Paris Agreement and identifies current domestic capabilities for participation. Section 4 introduces a non-exhaustive list of market options that may be developed under the Paris Agreement framework. It further outlines the framework for assessing the readiness to engage with these market options. Keeping these background elements in mind, Section 5 provides an assessment of Ethiopia's readiness for different participation options and respective needs for the implementation of these options. Finally, in Section 6, specific recommendations are provided for Germany's entry points to support Ethiopian participation in mechanisms developed under Article 6. Insights from the Ethiopian case for informing further development of the modalities and procedures for Article 6 are also briefly discussed.

[59] Author's compilation under work package 2 of the project.

2 Setting the scene: carbon markets in Ethiopia

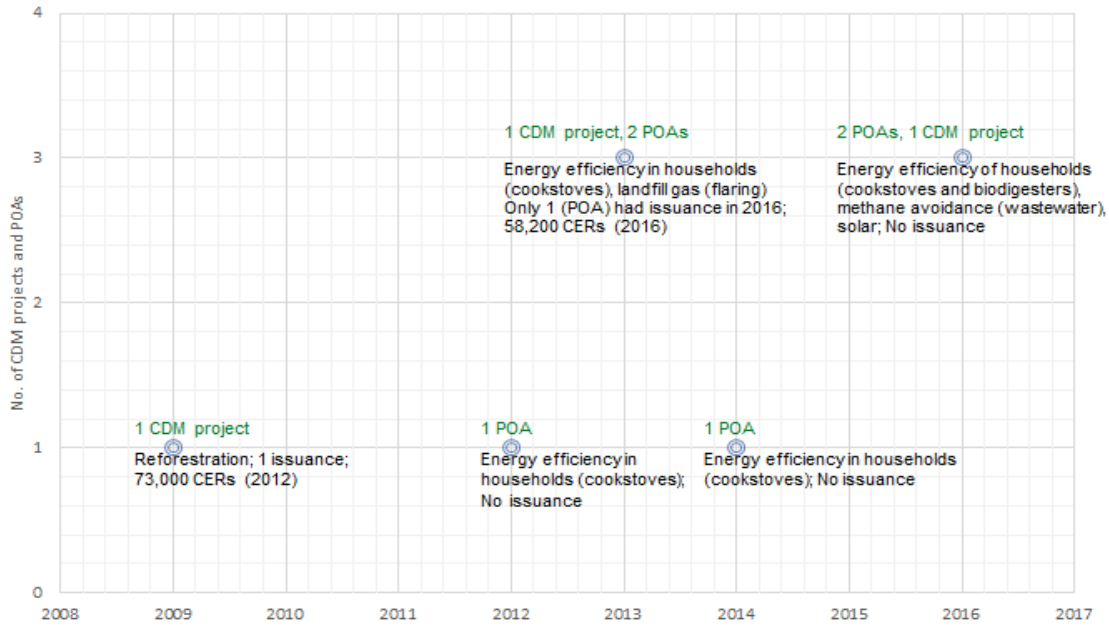
Ethiopia's current carbon market experience comes largely from its participation in international market based instruments, particularly the CDM. Ethiopia has the highest technical potential among LDCs to develop CDM projects, estimated at 32 million Certified Emission Reductions (CERs) annually (Arens & Burian 2012). This potential lies mostly in mitigation activities addressing agricultural residues; followed by hydropower, energy from forest residues and efficient cook stoves. Yet much of this potential could not be translated into registered projects due to a range of domestic, international and mechanism design related challenges.

2.1 Glance into the past: Carbon market experience, opportunities and challenges

Ethiopia has registered eight projects under the CDM so far. Three of these are single CDM projects and five are Programmes of Activities (POAs). Ethiopia is also part of a registered regional POA. The registration history of CDM projects is illustrated in Figure 14. Of all registered projects, only two have had CER issuances. No successive issuances were requested. This is likely to be due to the decline of global CER prices in compliance carbon markets. One project is currently under validation; a step required prior to applying for registration under CDM.

Ethiopian projects have focussed on reducing emissions from economically and socially relevant sectors. These are: forestry, household energy efficiency, renewables and the solid waste and waste water sectors. The first CDM project was registered in 2009 in the forestry sector – the 'Humbo assisted natural regeneration project' – and was also the first registered afforestation/reforestation project from Africa. All registered POAs, except for one solar programme, entail the deployment of energy efficient cook stoves for domestic use. These projects aim to reduce non-renewable biomass consumption in households and deliver socio-environmental co-benefits such as reduced deforestation and improved health. The waste sector projects include one project on landfill gas recovery from open waste sites in Addis Ababa and another one on methane avoidance by construction of a common effluent treatment plant for industrial waste in Modjo city, a tannery hub.

Figure 14: Registration history of Ethiopian CDM projects



Source: UNEP DTU's CDM and POA pipeline (version: February 2017)

Several factors constrained the participation of Ethiopia in CDM. A 2012 report by a high-level panel established by the CDM Executive Board summarises drivers that influenced CDM implementation and constrained CDM investments in some countries and regions. These include limitations in national CDM capacities, CDM system complexity, unfavourable national investment climate, smaller overall mitigation potential (represented by national GHG emission levels) and limited prior CDM experience (Spalding-Fecher et al. 2012, pp.130–132). All these challenges are relevant in the Ethiopian case as indicated by the stakeholders interviewed as part of this study. Capacity challenges linked to limited readiness and knowhow in the country on utilising the CDM; scarcity of CDM consultants and verifiers for project development; and limited availability of domestic and international credit for upfront financing of projects made manoeuvring through the complicated UNFCCC process challenging for Ethiopian stakeholders. Further, CDM Executive Board's decision-making inconsistencies in specific projects and unequal representation in CDM governance structures is quoted as another constraint by one of the interviewees. Additionally, the reduction potential of many individual projects was too small to generate a sufficient quantity of emissions reduction credits to compensate the upfront costs. Further, a large proportion of the mitigation potential lay in physically disaggregated sectors such as household energy efficiency instead of point sources which are comparatively less complicated to account.

Constraints specific to project types further impeded CDM uptake. For instance, having a hydropower reliant grid means that the grid electricity emission factor for Ethiopia is quite small. This meant that Ethiopia was unable to benefit from renewable energy opportunities as per the CDM's assessment framework for power projects. Some other promising sectors, such as forestry, were simply too challenging to set up and implement CDM activities. The 'Humbo assisted natural regeneration project' developed by the non-governmental organisation (NGO) World Vision and supported by World Bank's BioCarbon Fund was developed over a period of six years from pre-project preparation to registration (Brown et al. 2011). The concept of POAs, introduced for tapping micro-scale mitigation potential under CDM, however, was an important launching pad for Ethiopia, with five POAs registered within a span of five years.

UN agencies have been working with the Ethiopian designated national authority (DNA) in building capacity under the Nairobi Framework for CDM capacity building in under-represented regions. Efforts under this framework included supporting the Ethiopian DNA on tasks such as website development (UNDP 2017). International partners have also supported the identification of mitigation opportunities and project development. Four Ethiopian projects have been supported so far by the UNFCCC's CDM Loan Scheme, which covers the CDM project cycle cost[60], reducing the upfront financial burden on project developers. However, support efforts have not resulted in substantial numbers of new projects on the ground, especially when the support has not been extended throughout project development. Ethiopian experience with international support resonates the general experience with donor support, where a lack of domestic capital limits what capacity building could achieve (Okubo & Michaelowa 2010). Further, the demand for CERs diminished just when capacity building efforts started showing results (Kreibich et al. 2017).

The German government's cooperation approach has been to support research activities aimed at developing Ethiopia or region-specific methods, approaches and guidance for carbon markets and monitoring, reporting and verification (MRV). For instance, under its Umweltforschungsplan (2012), the German Federal Environment Agency (UBA) sponsored a study to develop a standardised baseline framework for rural electrification projects in East African countries. The intention of the exercise was to develop an advisory tool to assist DNAs and practitioners in developing and implementing standardised CDM approaches for rural electrification in Eastern Africa, with Ethiopia as a case study. Another project funded under the International Climate Initiative (IKI) focussed on sharing experiences

[60] Support includes PDD development and consultant costs, registration fees.

on institutional capacity development for national greenhouse gas (GHG) accounting under the Measurement and Performance Tracking for Mitigation Actions project (MAPT).

While on-the-ground results have been limited, the CDM experience increased the familiarity of Ethiopian policy makers with mitigation (Hoch 2012). The Ethiopian DNA has actively involved itself in carbon market activities. By 2010, over 40 project information notes were submitted to the DNA (Hoch 2012, p.13), most from public sector actors as country is dominated mainly by state owned and administered institutions. In recent years, a broad range of local actors have also engaged in CDM project development. Project submissions have come from the Addis Ababa City Administration, the Leather Industry Development Institute, the Development Bank of Ethiopia and some regional and local consultancies have also emerged.

2.2 Current carbon market activity

Ethiopia was quick to adapt mitigation ideas initially conceptualised under the CDM into nationally appropriate mitigation actions (NAMAs) and aims to get international finance, including through markets (e.g. as credited NAMAs). For instance, the NAMA for Ethiopia's Light Rail Development was initially conceptualised under the CDM. Ethiopian NAMAs focus on building the much-needed infrastructure and capacity in three sectors – energy, waste, and transport – and are in line with the otherwise strong inclination of the Ethiopian government to develop these sectors.

- **Transport:** The transport sector NAMAs focus on railways and are spearheaded by the Ethiopian Railway Corporation (ERC). The first railway NAMA aims for a transit oriented development strategy for the recently inaugurated Light Rail Transport (LRT) in Addis Ababa; the second seeks support for developing a railway academy for training professionals, and a third on undertaking vulnerability assessment. ERC launched the first leg of their LRT in 2015 and is now adapting the NAMA proposal, which could not receive funding from the NAMA facility, for submission to the Green Climate Fund (GCF) (ERC 2016).
- **Waste:** The waste sector NAMA – COMPOST NAMA – aims at facilitating Integrated Solid Waste Management and Urban Green Infrastructure approaches in six selected Ethiopian cities and towns. The NAMA is co-financed by the Global Environmental Facility (GEF), supported by UNDP and implemented by the Ministry of Urban Development, Housing and Construction.
- **Renewables:** The third NAMA focal sector is off-grid renewable energy. A NAMA proposal was prepared with funding from the German Federal Ministry of Environment, Nature Conservation, Buildings and Nuclear Safety (BMUB) and has been approved by the Ethiopian government in 2016. Non-hydro renewables have been the government's priority to diversify and expand infrastructure in the power sector. In 2014, just 25% of households had access to electricity (IEA 2016).

Table 25: NAMA portfolio of Ethiopia

NAMA title	Sector	Type of action	Total cost (mln USD)	Finance requested (mln USD)	Finance received (mln USD)	Funder
Ethiopia Addis Ababa Light Rail Transit Oriented Development NAMA	Transport	Project	8.90	7.70		
Ethiopia Railways Establishment of Climate Vulnerability Infrastructure Investment Framework NAMA	Transport	Project	0.15	0.15		

NAMA title	Sector	Type of action	Total cost (mln USD)	Finance requested (mln USD)	Finance received (mln USD)	Funder
Ethiopian Railways Railway Academy NAMA	Transport	Project	0.30	0.30		
Ethiopian Green Energy NAMA	Energy	Strategy/ Policy	n/a	n/a		BMUB
Ethiopian Urban NAMA: Creating Opportunities for Municipalities to Produce and Operationalise Solid Waste Transformation (COMPOST)	Waste	Strategy/ Policy	50.20		6.67	GEF

Source: NAMA Database and UNFCCC NAMA registry

Ethiopia has also been receptive to new mechanisms and platforms for supporting market mechanisms in recent years. It signed an agreement with Japan to collaborate on the Joint Crediting Mechanism (JCM) in 2013, the same year the scheme was launched. While no projects have been registered to date, three methodologies on renewable power generation through micro hydro, solar PV and biomass combined heat and power have been approved (JCM 2017). A broad set of line ministries are part of the JCM governing body.

Ethiopia also participates in World Bank's Carbon for Development (Ci-Dev) initiative, which is supporting two POAs – on off-grid solar and household energy efficiency – up to 2024 with results-based payments for achieved abatement (World Bank 2015). It has not sought membership of the World Bank's Partnership for Market Readiness (PMR) yet.

Being an LDC, Ethiopia is currently not obliged to contribute to the International Civil Aviation Organisation's (ICAO) Carbon Offsetting and Reduction Scheme in International Aviation (CORSIA). However, if it achieves middle-income status by 2025, Ethiopia will have to participate in the second phase of the scheme (2027-2035) as its share of international aviation activity already falls under the regulated range. CORSIA's second phase is obligatory to all member states whose share of international aviation activity in revenue tonne kilometres (RTK) in 2018 is above 0.5% or whose share falls in the cumulative total of the top 90% of international aviation emissions (when each member state is ranked from highest to lowest in terms of RTKs), except if they are LDCs, Land Locked Developing Countries and Small Island Developing States (ICAO 2016). Owing to the prominent regional and international footprint of the state owned Ethiopian Airways, Ethiopia's share to the global civil aviation in terms of RTKs was 0.6% in the year 2012 already (ICAO 2013).

In addition to recent international market based approaches, Ethiopian leaders have also supported broader carbon pricing approaches such as carbon taxes and ETS in international platforms. In 2016, the Ethiopian Head of State joined five other country counterparts at an event for the World Bank's High-Level Panel on Carbon Pricing and called upon the international community to double the global emissions covered by explicit carbon prices to 25% by 2020 and 50% by 2025 (World Bank 2016a). However, developing such complex instruments domestically in the immediate future is not foreseeable according to the interviewed stakeholders.

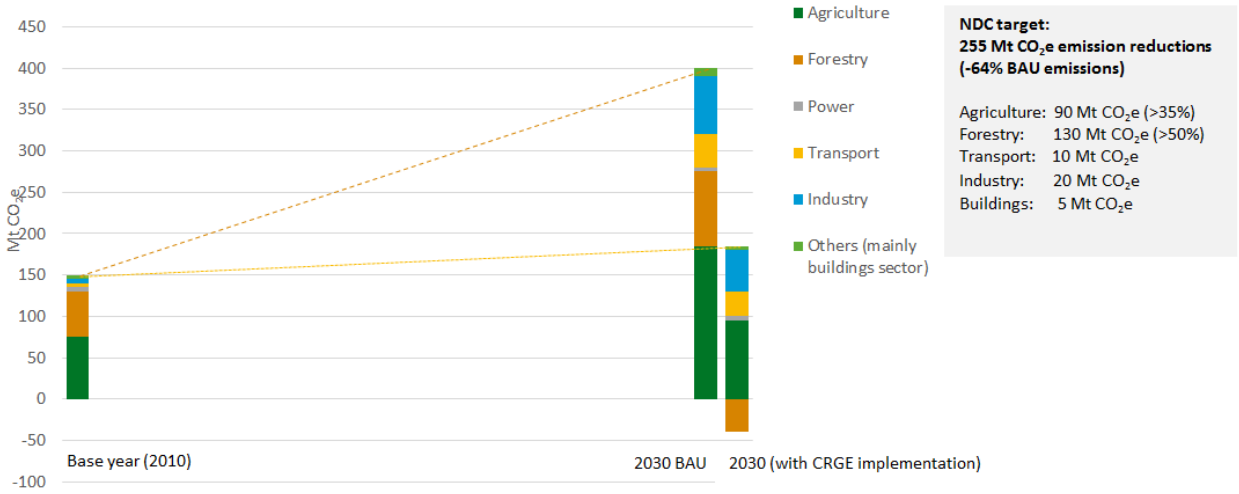
2.3 Glance into the future: Ethiopian NDC towards the Paris Agreement

The motivation for carbon market mechanisms is also evident in how Ethiopia has positioned its contributions towards the Paris Agreement. Ethiopia submitted a single year target of reducing

255 $MtCO_2e$ from projected 'business-as-usual' (BAU) emissions in 2030 (400 $MtCO_2e$). The target covers the most significant sectors. Sectoral breakdown of the Ethiopian NDC is as follows (Figure 15):

- **Agriculture sector**, including crops and livestock, is expected to contribute 90 $MtCO_2e$ or over 35% of the targeted reduction. This will be achieved mostly by improving efficiency of current cropping and livestock management practices and adopting low emission techniques.
- **Forestry sector** is projected to contribute over 50% to the reduction target, mainly by reducing deforestation through efficient cook stoves, soil carbon sequestration by increasing afforestation and reforestation, and rehabilitation of degraded lands for cropping or as pastures.
- **Industries** are expected to reduce their emissions in 2030 relative to the BAU level by 20 $MtCO_2e$ through various energy efficiency improvements. The cement sector is stated to have the most potential in the CRGE strategy.
- **Modernisation of transportation** through local and long-distance rail network development, improvements in urban bus transport in the capital city Addis Ababa and implementation of strict fuel and emission intensity standards are projected to lead to 10 $MtCO_2e$ worth of reductions in 2030 from transport, relative to the BAU level.
- **Buildings sector** is expected to reduce its emissions in 2030 by 5 $MtCO_2e$ relative to the BAU level. Waste generation and off-grid energy consumption are included in the sector.

Figure 15: Summary of Ethiopia's emission reduction plans as per the NDC and CRGE strategy



Source: Redrawn based on CRGE strategy and NDC of Ethiopia (Federal Democratic Republic of Ethiopia 2011)

Although not part of the contribution, the NDC notes that clean power export to neighbouring countries such as Djibouti and Kenya can lead to additional emission reductions of 19 $MtCO_2e$. Between 2015-2016, power exports contributed 123 million USD, or 7%, to Ethiopia's GDP (venturesafrica 2016). No details are provided on whether this mitigation would be accounted for by Djibouti and Kenya or by Ethiopia.

Despite the limited success in generating carbon finance through CDM projects, the experience of Ethiopia with market mechanisms piqued the country's interest in market approaches and helped in developing pilot activities in most of the relevant emission intensive sectors. In the next section, Ethiopia's interest in future carbon markets is discussed along with a detailed assessment of the current domestic capacity to participate in such markets.

3 Country position and capabilities

Finance generated through carbon markets is considered a channel for mobilising international support and an important factor in achieving the ambitious targets outlined in Ethiopia's NDC and the CRGE strategy (Government of Ethiopia, 2014, p.21). With this premise, the next paragraphs provide an overview of Ethiopia's position for the use of Article 6 carbon market approaches and its domestic capacity to engage in such approaches.

3.1 Interest in using international markets and positioning on the usage of Art. 6

Post-Paris market negotiations have progressed in the form of discussions on fundamental questions around the nature, design and use of market approaches. Submissions have been requested on fundamental questions such as accountability and governance of the approaches, linkages between Article 6.2 and 6.4, transparency and environmental integrity of the approaches. The first round of submissions was invited in the run-up to COP 22 and SBSTA 45 in November 2016; and the second was requested by March 2017 for discussion in an informal roundtable at SBSTA 46. Ethiopia has been active in these discussions, and participates as a member of the Least Developed Countries (LDC) group and African Group of Negotiators (AGN). It has responded to both rounds of submissions so far, independently (Government of Ethiopia 2016b; Government of Ethiopia 2016a) as well as under the LDC group (LDC group 2017a; LDC group 2017b).

The foundation of Ethiopian positioning on Article 6 is that, as an LDC, its NDC ambition falls under Article 4.6 and is conditional. Ethiopia's plan to engage in Article 6 hence focuses on leapfrogging old technologies using cooperative approaches. At present, Ethiopia sees most of its emissions reductions to serve as internationally transferred mitigation outcomes (ITMOs) to finance the leapfrogging[61]. However, there can be some small emissions reduction efforts that could be categorized as unsupported.

Ethiopia aims to actively engage in the development of rules for future markets, particularly for the Article 6.4 mechanism, to avoid design limitations of the sort that impeded its participation in the CDM. It supports the development of new modalities and procedures, but remains open to explore which rules from the current mechanisms could be replicable in Article 6.4. Their interest in rule making foresees engagement in all aspects, including first rules and standards, governance aspects, representation of members and experts, implementation, governance integrity, and accountability mechanisms; without taking any element outright from past mechanisms.

Under Article 6.2 approaches, Ethiopia identifies a clear need for NDCs to be accountable to generate and transfer ITMOs. It stresses on the need for all NDCs to be quantifiable in an absolute manner and in terms of their GHG impact, i.e. determined against a defined base year or baseline, to be considered in the Article 6.2 framework. ITMOs are expected to have a GHG metric, i.e. counted as tonnes of CO_2e. Ethiopia has also highlighted a need for harmonisation of NDCs as NDCs of different ambition levels, transparency and without a clear definition of the trajectory of the long-term target ('short-term balance sheet') can put at risk the environmental integrity of emission reductions.

Ethiopia endorses strict domestic provisions embedded in national legislations to ensure environmental integrity. Substantiating support for strict domestic structures, the Ethiopian submissions propose multilateral structures for transparency in the use of carbon markets. It is suggested that the ITMO transfers must be supervised by and recorded under a 'centralised oversight mechanism', supported by national registries under the Paris Agreement. Further, ITMOs should be accounted only once; and in both provider and acquirer countries' registries (Government of Ethiopia 2017; Government of Ethiopia 2016a). Ethiopian submissions identify the need for checking baselines at three resolutions: at the plant level to ensure comparison with peers; at the national level for comparison and compati-

[61] Ethiopian carbon market negotiator, Personal communication.

bility with the country's NDC; and at the global level to ensure that no double counting of emission reductions occur.

Ethiopia supports setting a net mitigation contribution from both Article 6.2 and 6.4 approaches. To achieve this, high standards of quality, transparency and stringency in provisions to ensure the expected environmental integrity from Article 6 approaches is needed. It must be noted that the Paris Agreement only defines a net mitigation effect for the Article 6.4 mechanism.

3.2 Current carbon market related capabilities in Ethiopia

Current carbon market capacities in Ethiopia can be traced to two sources. Firstly, mitigation projects and programmes piloted under the CDM in desirable sectors have pioneered models for design, documentation and execution of actions in these sectors. Secondly, sectoral mitigation actions planned under the CRGE strategy have kick-started institution building and capacity development at the federal and provincial levels; and integration of scattered mitigation activities developed for carbon markets into concerted sectoral actions towards the CRGE. While these activities have increased the overall familiarity for identifying mitigation potentials and created specific capacity in some actors, several limitations remain. Particularly critical is to ratchet up capacity beyond a few champions, and develop concrete institutionalised expertise to independently undertake activities.

3.2.1 Domestic administrative and regulatory capacity

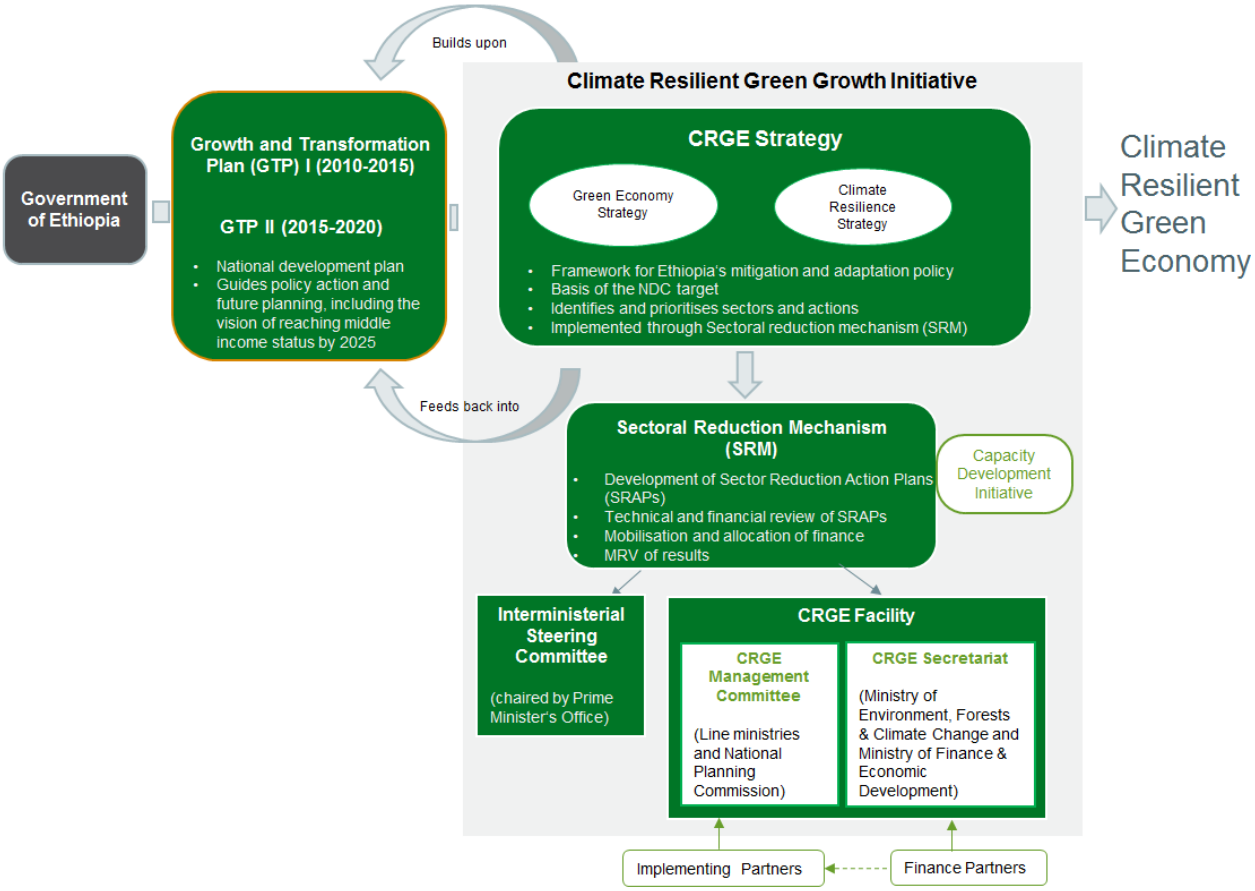
Technical oversight of mitigation actions under the CRGE strategy comes under the purview of the Ministry of Environment, Forests and Climate Change (MoEFCC)[62]. Its responsibilities include providing methodological guidance and defining procedures for MRV. Specific implementation responsibility rests upon sectoral ministries and designated entities in Ethiopia's national regional states, particularly in energy, agriculture, transport, industry and urban development sectors. The MoEFCC has additional coordination responsibilities and presides over tri-monthly meetings with ministries and regional agencies in charge of implementation. The meetings discuss planning issues and check the status of progress of ongoing activities under the CRGE strategy under the GTP II plan period. The CRGE strategy is being facilitated by the highest political office and the Prime Minister chairs a high-level committee overseeing its implementation, to which the MoEFCC reports.

Although a broad institutional framework exists, details of responsibilities, stakeholder relationships and coordination procedures are still under development in Ethiopia. The MoEFCC has created focussed departments (termed 'directorates') for the MRV of CRGE activities, national communications and carbon markets[63]. However, similar intra-ministerial structures are still evolving in implementing ministries (Echnoserve 2012). A few individuals in each ministry have technical expertise, deriving from their involvement in national communications and domestic strategy development. However, this capacity needs to be broadened for Ethiopia to be in a position to establish a systematic monitoring system. Institution building and knowledge at the sub-national level is also at a nascent stage. The typical mandate of regional environmental agencies has so far been environmental monitoring and impact assessment. A process of building sub-national capacities has also begun.

[62] The Environmental Protection Agency (EPA) was elevated to MoEFCC following a legislative amendment in 2013.

[63] Representative from MoEFCC, Personal communication.

Figure 16: Architecture of Ethiopia's CRGE strategy and associated institutional structures



Source: Redrawn based on information in the CRGE strategy and CRGE facility manual

3.2.2 Accounting capacity

Accounting capacity covers estimating national emissions, e.g. as done for national communications to the UNFCCC; and accounting for mitigation actions and related emissions reductions, e.g. from projects, programmes and sectoral actions. Accounting emissions as well as emission reductions is a prerequisite to assess progress towards national and international mitigation objectives. Accounting is a distinct but overlapping competency to MRV (discussed in the next section), with accounting focussed on how progress towards a mitigation objective is assessed and MRV focussed on monitoring progress on actions/emissions/support, gathering and sharing information/data on monitored indicators and review processes. The crucial nature of the two to ensure environmental integrity of mitigation outcomes warrants their separate discussion.

Ethiopia's latest national inventory is for the year 2013 and was developed for the second national communication. The second national communication was submitted in 2015 and prepared with the support of GEF and UNDP. However, protocols and procedures for continuous tracking of GHG emissions, and collecting and storing data are yet to be established in Ethiopia.

Accounting capacity for mitigation actions is also limited. However, some Ethiopian stakeholders are familiar with accounting in a few sectors of interest, mainly through the CDM. These match with activities fast-tracked under the CRGE, e.g. reducing emissions from deforestation and forest degradation (REDD+), in rural energy and efficient stove projects, in the power sector and from livestock. The first three are discussed below as examples.

In the forestry sector, the Humbo forest regeneration CDM project and pilots under REDD+ have together enhanced domestic public and private accounting capacities in Ethiopia. Forestry mitigation

activities face specific accounting challenges for identifying carbon pools; defining baseline and leakage emissions; and monitoring the project over time. Rigorous training is also a pre-requisite. To this effect, the approaches and methods developed under the Humbo project have been pioneering. In addition to developing technical knowhow, the project also established novel approaches for community engagement such as defining user rights and establishing community cooperatives for project management (Terefa n.d.; Brown et al. 2011). These are specifically important lessons for a country like Ethiopia which still follows traditional land tenure systems. Additional accounting capacity is also gradually being built through progress under the framework of REDD+. A national REDD+ Secretariat is currently being established to coordinate and lead the REDD+ process, supported by a technical working group and three specific task forces. Yet, actual expertise for monitoring and carbon accounting in REDD+ is still developing. For that reason, a number of capacity building activities in regional pilot projects aim to significantly raise the level of accounting expertise in the near future (CIFOR 2015). Several donors (e.g. Norway) and multilateral funding channels (e.g. World Bank's Forest Carbon Partnership Facility's Readiness Fund) are supporting the sector.

Cookstove programmes are also considered lucrative by domestic stakeholders for securing carbon financing. Over 90% of the Ethiopian population relies on fuel wood procured mostly through unsustainable practices (Ministry of Water Irrigation and Electricity 2017). Like afforestation projects, cookstove programmes also require specific technical expertise for their design and implementation. Accounting challenges faced amongst these programmes include monitoring the use of new efficient stoves, fuel saved over the project period and the efficiency of the stove; and determining locally relevant default values for the fraction of non-renewable biomass (i.e. biomass derived from woody/non-woody sources that cannot be replenished) for estimation of emission reductions (Global Alliance for Clean Cookstoves 2017; Lee et al. 2013). Here again, Ethiopia's four registered cookstove CDM POAs have provided relevant stakeholders some understanding of accounting emission reductions from cookstove distribution programmes. Further opportunities for integrating and aligning governmental programmes with CDM type intervention are also under discussion. The Ministry of Water, Irrigation and Energy is exploring options to align the 'national efficient cookstove dissemination programme' with the Ethiopian Development Bank's ongoing cookstove POA. The POA is receiving carbon financing from World Bank's Ci-Dev initiative for CERs generated between 2016-2024.

Off-grid power is of particular interest in Ethiopia for increasing domestic energy access, considering high grid expansion costs and long implementation timeframes. Here again, pilot activities undertaken under the CDM with the support of the international community have created specific emission accounting models. For instance, the Development Bank of Ethiopia manages an 'off-grid renewable energy programme' and has signed an emission reduction purchase agreement with the Ci-Dev initiative (World Bank 2016b). A NAMA proposal for developing policies and regulations for off-grid generation, along with some pilots has also been developed in 2015 with the support of the BMUB.

Other important sectors where Ethiopians have had some relevant experiences include transportation, with modal shift railway NAMAs (details in section 2.2); and industry, particularly in the cement sector, wherein a standardised baseline for clinker production using positive lists for fuel switch, feedstock switch and technology switch have been submitted to the UNFCCC. The focus in the agriculture sector has mainly been on building resilience and promoting climate smart agriculture practices.

3.2.3 Monitoring, reporting and verification (MRV)

MRV capacity can be distinguished between MRV related to national emissions and MRV provisions for mitigation activities. In addition to the results, MRV also includes criteria to track implementation progress, effectiveness of the outcomes and support in a transparent manner.

Despite improvements in institutional capacity, Ethiopia is still far from developing a consolidated, synchronised and digitised MRV framework for national emissions. Data collection is not mandatory and specific mandates for data collection currently do not exist. Synchronisation of reporting in the

national regional states is another key challenge for developing national MRV capacity. However, with varied reporting mandates and approaches in the designated ministries in regional states, developing protocols for such synchronisation has been a challenge. To alleviate barriers with regards to different reporting mandates of these agencies, MoEFCC stated that the Ministry has now successfully facilitated institutional restructuring in the regions, achieving a first and critical step towards developing a synchronised MRV framework in the country[64]. A lack of formalised and standardized protocols and procedures for data reporting and monitoring has been cited as a key challenge in the second national communication of Ethiopia (Ministry of Environment and Forest 2015).

MRV requirements for mitigation actions conceived as individual projects, programmes and sectoral interventions includes the development of a monitoring plan, a protocol for reporting of data and defining verification procedures. The green economy vision outlined in the CRGE strategy is materialised through a sectoral reduction mechanism (SRM) which outlines the process for delivering actions. A web-based CRGE register is already in place and working to make an inventory of proposals seeking financial support[65]. The provision of funding has also been streamlined through a CRGE facility which pools domestic and international finance; and disburses it to proposals in the registry through various financial instruments. The MoEFCC is currently working on developing procedures for MRV of actions in the SRM.

In parallel to establishing a consolidated and synchronised MRV framework for emissions and mitigation actions at the national level, efforts on the development of a robust and transparent MRV system are undertaken under the REDD+ process. In the particular context of REDD+, an MRV Roadmap was prepared in 2013 and a National Forest Inventory launched in 2014. The data collection process for the inventory is currently ongoing. Specific data and capacity gaps that were identified in the MRV Roadmap are being addressed by the REDD+ Secretariat with support from a technical working group and an MRV task force. Once the necessary capacity has been built on the ground, the REDD+ Secretariat will coordinate the full implementation of the MRV Roadmap (CIFOR 2015). A coordination mechanism could then help to link different MRV related activities and structures at different levels and inspire further MRV capacity building beyond REDD+ with a view to developing the above mentioned consolidated and synchronised MRV framework.

With this current capacity in mind, the next section discusses the framework on which Ethiopia's readiness to engage with Article 6 is assessed.

[64] MoEFCC representative, Personal communication.

[65] CRGE registry: http://www.ethcrge.info/home.php.

4 Assessment framework for countries' readiness to engage with Article 6

4.1 Participation options under Article 6

Article 6 of the Paris Agreement includes several provisions allowing for the use of international carbon markets to support the implementation of NDCs and enable ambition raising. These are defined as 'Cooperative Approaches' (discussed in Article 6.2-6.3) and a 'Mechanism for Sustainable Development and Mitigation' (discussed in Article 6.4-6.7). We interpret ITMOs as mitigation outcomes realised through any Article 6 approach, and transferred between countries with the objective of contributing towards the NDC of the acquiring country. While the detailed guidance and rules for Article 6's provisions are currently under negotiation, countries as well as experts are reflecting on how to best integrate experiences from previous and existing market related activities in the future mechanisms. Based on existing market experiences, a range of options for transferring mitigation outcomes may exist for countries in the post-Paris market mechanisms.

In Table 26 and the paragraphs that follow, we outline a set of broad and non-exhaustive options for transferring ITMOs and differentiate between those that may fall under Article 6.2 'Cooperative Approaches' or under Article 6.4 'Mechanism for Sustainable Development and Mitigation'. These form the basis of the assessment in section 5.

Table 26: Potential non-exhaustive options for ITMO transfers under Article 6

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	
ITMO transfers as a result of linked Emission Trading Schemes	x
Direct transfers of ITMOs between countries	x
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Authors

Participation options under Article 6.2 - Article 6.2 encompasses direct cooperation between sovereign states that involves the transfer of ITMOs. Multiple instruments could generate ITMOs under Article 6.2 as long as their generation is consistent with the international guidance that is to be adopted by the COP. Based on currently operational domestic, as well as international, carbon pricing instruments and the outlined interpretation of ITMOs, a few broad participation options emerge:

1. **ITMO transfers as a result of linked domestic Emission Trading Schemes (ETSs):** Emission permits or corresponding ITMOs are transferred as a result of trades between established ETSs from respective jurisdictions through linking their markets.
2. **Direct government-to-government ITMO transfers:** This could take different forms. For instance, emission permits similar to assigned amount units (AAU) in the Kyoto Protocol's International Emission Trading are transferred as ITMOs.
3. **ITMO transfers as result of (bilateral) baseline and crediting instruments:** These include crediting of emission reductions in non-ETS sectors for the countries with ETSs, or a general crediting approach, or the Joint Crediting Mechanism (JCM) type bilateral crediting approach. Such instruments may operate on project-by-project or sectoral level.

Participation options under Article 6.4 - Article 6.4 establishes a Mechanism for Sustainable Development and Mitigation which generates emission reduction credits and operates under the authority of the COP. Based on engagement in operational international mechanisms and existing structures (e.g.

CDM), participation in the mechanism can involve, first and foremost, the generation of emission reduction credits and their transfer between countries (and/or obligated entities e.g. in ETSs) towards meeting the acquiring country's NDC. We assume that emission reduction credits generated under Article 6.4, which are internationally transferred and used by the acquiring country towards its NDC, may potentially also be regarded as ITMOs.

1. **Design options that exist under Article 6.4** are yet to be agreed and include a project or programme based mechanism similar to the CDM/JI approaches; or a sectoral international crediting mechanism in which fixed sectoral baselines/thresholds could be set and credits generated if a lower level of emissions is achieved. Alternatively, credits could be also generated by adopting, quantifying and carrying out MRV for GHG-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

4.2 Assessment framework for countries' readiness to engage with options under Article 6

In the absence of firm rules on the nature and form of market mechanisms possible under Article 6 of the Paris Agreement, an assessment of countries' readiness to engage with such mechanisms cannot be based on precise benchmarks. However, a readiness assessment can still take stock of the broad preconditions to engage with Article 6, identify support needs and provide important insights for ongoing negotiations and the further development of modalities for Article 6.

The indicators used in this assessment of 'engagement readiness' of countries are, first, the enabling conditions for the uptake of Article 6 market instruments (enabling conditions); second, factors which ensure that the mitigation outcomes used as ITMOs follow principles of environmental integrity desirable under Article 6 (feasibility of maintaining robust accounting and MRV; compatibility of the NDC). These indicators and their constituent factors are outlined in Table 27 and briefly discussed below.

1. **Enabling conditions –** We assume that pprior experience and availability of instruments such as emission trading schemes, crediting instruments and bilateral transfers play a facilitative role in Article 6 uptake. Furthermore, the Paris Agreement has redefined the paradigm for international climate policy as unlike the Kyoto Protocol (KP), all Parties have taken up some form of contributions towards global mitigation efforts. As all Parties are free to buy or sell ITMOs, market instruments can have an impact on (and be impacted by) domestic mitigation efforts. Hence, the political will of Parties to pursue domestic or international instruments, facilitate their uptake by stakeholders, and ensure quality of ITMOs will be critical in the post-Paris world.
2. **Feasibility of maintaining robust accounting and MRV** – Article 6 instruments would require strong domestic systems to supplement and strengthen internationally agreed guidance and rules to measure, monitor, report and verify the ITMOs for Article 6.2 and Article 6.4 respectively, assuming the two have comparable stringency. This includes experiences of a country, first, with economy wide emission accounting, e.g. in the form of national emissions inventories and MRV systems and prior registry experience. Second, experiences with accounting approaches for specific sectors and mitigation activities (similar to project-based crediting instruments). Additionally, the presence of appropriate institutions, e.g. a coordinating body, would be critical to maintain robust accounting and MRV. Further, interest and implementation capacity of stakeholders (e.g. businesses, NGOs, and state agencies) is important to maintain robustness of accounting and MRV provisions included in the Paris Agreement.
3. **Compatibility of the NDC** – Lastly, the relationship of ITMOs with NDCs will be critical for maintaining the environmental integrity of Article 6 instruments and strengthening the mitigation ambition of the Paris Agreement. Considering the broad range of NDCs that have been submitted to the UNFCCC, among others, aspects such as the nature (conditional or unconditional) and

scope (sectoral, actions only, economy wide) of the NDC, elements of quantifiability such as clear emission trajectories and clarity of underlying actions are important. Moreover, the extent of ambition of the NDC could influence the generation of genuine emission reduction credits ('hot air').

Table 27: Indicators and factors used in readiness assessment

Indicators	Factors considered in the assessment
Enabling conditions	Availability of instruments
	Political will
Feasibility of maintaining robust accounting and MRV	Accounting capacity
	Implementation capacities
	MRV systems
	Registry experience
Compatibility of the NDC	Scope of NDC and type of target
	Clarity of NDC
	Nature of NDC
	NDC ambition
	Coverage of GHGs

Source: Authors

The next section discusses the Ethiopian case in detail using the analytical lens provided by the framework set out above.

5 Ethiopia's readiness to engage with market options under Article 6

Based on the background of Ethiopia's experience with market mechanisms and existing carbon market related capacity, the following paragraphs discuss Ethiopia's readiness to engage with potential market options discussed in section 4.1 and to identify the pathways it may choose for participating in Article 6. The analysis is classified as per the three indicators of readiness defined in section 4.2 and synthesised towards the end of the section.

5.1 Enabling conditions

Ethiopian leaders have also been vocal proponents of carbon pricing approaches on international platforms in recent years. Ethiopia's interest in future carbon markets is reflected in a strong commitment to international climate negotiations on the topic. Ethiopian negotiators are keen on engaging in rule development on both Article 6.2 and 6.4 while being open to use either or both in the future. In their words, they are in a 'wait-and-see while participating' mode. This international commitment is translated domestically in the form of clear leadership from the highest political office.

The early experiences with carbon market instruments have played a role in shaping the domestic discourse on carbon markets. Ethiopia faced many difficulties in participating in KP's flexibility instruments and could only register nine projects and POAs under CDM in a decade, with even lower issuance. Despite this, experiences with the CDM are considered to have helped in developing an aptitude for robust quantification of mitigation activities under planned policies and beyond, with an aspiration to explore carbon pricing/results-based support to incentivise future mitigation activities[66]. Markets are mentioned in crucial policy documents such as the CRGE strategy as well as in the NDC as an innovative instrument for international financing support (Government of Ethiopia 2014). Ethiopia has also been open to collaborate with international actors on mitigation projects and programmes e.g. under JCM and NAMAs. Experiences from these instruments add into the pool of gradually developing capacities towards project/programme level accounting and MRV.

Overall, the existing experience with different market based instruments, ongoing efforts and political willingness to engage in future carbon markets highlights a conducive enabling environment for participation in future markets. Experience is deeper for baseline and crediting instruments working on a project and programmatic scale, while domestic instruments such as an ETS and tax are still a low priority.

Table 28: Summary of the indicator 'Enabling conditions'

Indicators	Factors	Current situation
Enabling conditions	Availability of instruments	• Some experience of CDM, NAMAs, JCM
	Political will	• Active participation in Article 6 negotiations • Highest political office coordinates CRGE

Source: Author's assessment

5.2 Feasibility of maintaining robust accounting and MRV

Current carbon market capacities in Ethiopia come from two sources. First, mitigation projects and programmes piloted under the CDM in priority sectors have pioneered approaches for design, documentation and execution of actions in these sectors. Second, sectoral mitigation actions planned under

[66] MoEFCC representative, Personal communication.

the CRGE strategy have kick-started institution building through capacity development at the federal and provincial levels; and integration of scattered mitigation activities into concerted sectoral actions in priority sectors such as forestry, efficient cook stoves, renewable power, and transportation sectors.

MRV approaches are being developed in sectors prioritised in the CRGE strategy and the NDC, particularly as sub-sectoral, programmatic-scale interventions. Efforts are underway to institutionalise MRV processes in these sectors, both independently and with the support of donors. Activities so far have furthered familiarity of some domestic stakeholders for designing emission accounting and implementation protocols in priority sectors. In doing so, the country has actively engaged with multilateral agencies and gathered international support on developing accounting and MRV protocols for complex sectors such as forestry or household energy efficiency. These existing activities can serve as primers for developing projects and programmes for carbon markets in the future.

To this effect, capacities are being developed for administering and implementing mitigation actions. MOEFCC, which has previously been the CDM DNA, is emerging as the national technical regulator and coordinating body for the CRGE. The Ministry has dedicated departments for supporting MRV design and implementation of actions. Leading line ministries are also required to establish similar departments and institutional restructuring is underway in federal regions for synchronising reporting. So far, state-owned organisations, state agencies, and non-governmental organisations have been more prominent in the NDC implementation and carbon-market discussions, while private sector investment appears far less prominent and remains concentrated in a few industrial sectors such as cement. The state, and other non-state actors, may continue to assume important roles in future market instruments considering much of the mitigation potential lies in development centric sectors which can be less attractive to private agents due to higher investment risks.

Several challenges can influence the effectiveness of outcomes generated for transfers under Article 6. The first set of challenges pertains to domestic capacity. Designing interventions, accounting for emission reductions and the related MRV activities require nuanced technical and administrative capacity. In Ethiopia, such expertise is beginning to develop, but needs to be scaled-up in this transitional period for markets. The capacity of federal agencies to oversee MRV design and implementation of actions is limited to a few 'champions' who have a history of participating in different national efforts. Agencies are often understaffed to administer mitigation action at the necessary scale. Fiscal constraints to allocate such dedicated resources are identified as a critical challenge. Further, implementation capacity, particularly technical capacity to define and administer protocols for designing MRV in priority sectors; and continual data collection and monitoring progress of interventions is limited. Pockets of expertise lie with just a few actors, e.g. existing managing entities of POAs, local consultants, and active ministries. Limited private sector interest may also inhibit scaling up potential. On-going efforts in the country are working towards addressing some of these challenges. For instance, some line ministries are looking for active exchanges and collaboration with non-state actors with know-how of sectoral MRV and accounting (e.g. of CDM POA development). But such efforts need to be continued and scaled-up.

The second challenge regards systems required to effectively undertake MRV. Developing arrangements for a robust economy-wide emissions inventory will be challenging for Ethiopia as the current experience in such exercises is limited. Ethiopia's sole experience of recording economy-wide emissions is for national communications to UNFCCC. Two national communications have been submitted so far, through technical support from multilateral organisations. A lack of formalised and standardized protocols for data reporting, monitoring and QA/QC are recognised as a key challenge in Ethiopian national communications, although one must note the efforts underway to synchronise reporting, especially in the national region states, through institutional restructuring. Such robust inventories will be needed for any direct transfers based on inventory reports, for instance, by subtracting emission balances from participating Parties' inventory reports as was done for International Emission Trading under the Kyoto Protocol.

Another critical determinant of the effectiveness of mitigation outcomes is the presence of domestic systems which can transparently track ITMOs generated and transferred to avoid double counting. These systems may be the same or differ for Article 6.2 and 6.4. Cames et al. (2016) point to a range of design possibilities for Article 6.2 transparency procedures – from reporting adjustments under the Paris transparency framework (Article 13) to developing registries for recording transfers. Similarly, Article 6.4 may also require an international register like that under the CDM. Whichever design approach is ultimately negotiated, transparent documentation systems at the domestic level will be critical for its efficient enforcement. While Ethiopia supports strict transparency provisions which include national registries supporting a centralised oversight mechanism, the current experience with registry systems in Ethiopia is limited to the online CRGE registry which hosts projects seeking support from the CRGE facility.

Overall, Ethiopia's MRV framework and accounting capacity seems to be developing sector by sector and mostly in NDC priority sectors. Aggregation of these individual systems into a coherent and comprehensive national framework remains a work in progress. Systems for economy-wide emission tracking are also yet to be established, limiting Ethiopia's ability to participate in direct transfers based on corresponding adjustments through robust economy-wide inventory reports in the immediate future.

Table 29: Summary of the indicator 'Feasibility of maintaining robust accounting and MRV'

Indicators	Factors	Current situation
Feasibility of maintaining robust accounting and MRV	Implementation capacity	• MoEFCC is emerging as a technical regulator • Technical capacities in few champions • Limited sub-national capacities
	Accounting capacity	• Limited experience of national emissions inventory development • Slightly better experience of project/program level emission reduction accounting
	MRV system	• MRV systems developing sector-by-sector; to be aggregated at the federal level
	Registry experience	• No concrete registry experience, a 'CRGE register' exists but serves mostly as a portal for projects seeking support

Source: Author's assessment

5.3 Compatibility of NDC

Clarity in the scope of activities covered by the NDC is paramount towards ensuring the environmental integrity of Article 6 (Cames et al. 2016). Having a clear and quantifiable target (in GHG terms), including transparently defined baseline emissions against which the target is set are critical for ensuring the quality of mitigation outcomes. The Ethiopian NDC is fairly clear in its scope. It defines an economy wide absolute reduction target of reducing emissions by 255 $MtCO_2e$ from the BAU level expected in 2030 (= 400 $MtCO_2e$). The target is defined by adding abatement potentials in priority sectors and the interventions that will lead to this abatement are elaborated in the CRGE strategy. The growth rate assumptions for key economic sectors underlying the BAU baseline setting are also defined in the CRGE strategy, although the NDC does not mention them.

Ethiopia's NDC has a single-year target, i.e. it does not define any obligations during the period leading up to the target year. Single year targets can pose specific accounting challenges for ITMO transfers. Central to the accounting challenges posed by single-year targets is the lack of obligation in the period leading up to the target year. As single year targets do not define any intermediate milestones, the seller country can transfer ITMOs without any limitations in the vintages before the target year. They therefore have a higher potential to generate 'hot-air'. In a similar manner, a buyer country with a single year-target may need to buy fewer ITMOs than if specific obligations existed for intermediate years. Additionally, different target types can make comparability difficult between NDCs and could make international accounting extremely complicated. While Ethiopia supports disclosure of such information in their submissions to SBSTA on Article 6, the country will need to develop/disclose the emission trajectory of their NDC pledge in the near future.

In addition, ambition of an NDC can be a key determinant to the quality of generated ITMOs. The term 'quality' is used here in the context of the genuineness of a mitigation outcome being used for international transfers. A less ambitious NDC may provide more reduction credits for the same effort, for instance, by inflating the baseline (i.e. generate 'hot air'). While an assessment of the ambition of the NDC is beyond the scope of this research, independent policy assessments rate the ambition and fairness of Ethiopia's NDC as "2°C compatible" (Climate Action Tracker 2016). The rating indicates that Ethiopia's climate plans are within the range of what is considered to be a fair share of global effort, but is not consistent with the Paris Agreement's 1.5°C temperature limit.

Ethiopia's climate commitment for 2030 is consistent with holding warming well below 2°C, and limiting warming to 1.5°C. More so, Ethiopia's commitment does not require other countries to make comparably deeper reductions or greater effort, and is in the most stringent part of its 'Fair Share' range.

Further, the Ethiopian NDC transparently states the overall methodology for the BAU baseline used in target setting. Future growth rates used for projections are based on the GTP. Reading the NDC in conjunction with the CRGE strategy provides a comprehensive set of supporting information.

The nature of an NDC also raises important issues. Being an LDC, Ethiopia interprets its ambition in the context of the flexibility provided by Article 4.6 of the Paris Agreement. Article 4.6 states that LDCs and SIDS 'may' develop low emission development strategies keeping in mind their specific circumstances. In this context, Ethiopia sees its NDC as a vehicle for its goal to achieve a middle-income status by 2025. The NDC is conditional on the receipt of international support. As carbon finance through ITMO transfers is considered a sub-set of the international support by Ethiopian stakeholders, assuming enough demand exists, Ethiopia can in principle transfer all emission reductions planned under its NDCs through markets.

However, this possibility raises challenges for the implementation of the Paris Agreement which transcend the discussion on carbon markets. The first challenge is with regards to the risk of double counting between mitigation and finance pledges of countries. Commentators define this as a specific form of double counting, called 'double purpose' (Schneider et al. 2014); and is related to NDCs which are completely conditional or have conditional elements, i.e. where finance and technology support from developed countries is needed to help a country meet its pledge. The underlying argument is that if ITMOs transferred from conditional NDCs are subtracted from the seller country's balance sheet and subsequently used towards both the mitigation as well as support pledge of the buying country; the buyer is not supporting the host country in achieving its pledge as it will have to subtract the transferred reductions (Schneider et al. 2014). This points again towards the need for adopting clear disclosure and accounting rules for emission reductions achieved domestically and those sold or bought; as well as for support provided and received.

While it may not apply to Ethiopia owing to its LDC status, the conditional nature of NDCs points to the need to define clear rules for countries to participate in market mechanisms. Current NDC submissions give no clarity on whether ITMOs will be generated from sectors within the NDC or beyond and, if so,

whether additional mitigation efforts will be undertaken to achieve the reductions proposed in the NDC. Merely deducting ITMOs from conditional NDCs without compensating for these offsets will be counterproductive to the overall objective of reducing global emissions and containing global warming. The quantum of contributions from conditional NDCs is materially large. Estimates suggest that the conditional elements in NDCs submitted so far can together lead to an additional 0.2°C decrease in global mean temperatures by the end of this century (Rogelj et al. 2016). In principle, therefore, each country should have at least an unconditional target which is more ambitious than its baseline emissions and a conditional one which can be achieved through Article 6. Then, on the international level, seller countries should report all reductions that occur domestically and the portion that is transferred; and buyer countries should also report emission reductions that occur domestically as well as the reductions bought. In addition, buyers should not report emission reductions they help facilitate under climate finance pledges towards achieving their own NDCs.

Table 30: Summary of the indicator 'Compatibility of NDC'

Indicators	Factors	Current situation
Compatibility of NDC	Scope of NDC	• Economy-wide, absolute reduction target • Single year target
	Clarity of NDC	• NDC and CRGE define clear, quantifiable targets • Interventions for meeting the target clearly defined but emissions trajectory missing • Supported and unsupported actions yet to be defined
	NDC ambition	• Sufficient as per literature
	Nature of the NDC	• Conditional on international support
	Coverage of GHGs	• CO_2, N_2O, CH_4

Source: Author's assessment

Synthesising the discussion above, Ethiopia has gained some prior experience with, and is working towards, improving the enabling conditions for future carbon markets. Current experiences include baseline and crediting approaches in the country. As section 4 describes, such instruments could be developed under the new international market mechanism to be agreed under Article 6.4 as well as under Article 6.2's Cooperative Approaches, modelled, for instance, on a JCM-type bilateral collaboration. On the other hand, domestic carbon pricing instruments are still not under consideration, limiting ITMO transfers resulting from such instruments (e.g. through ETS linking) as a market entry-point in the immediate future. Further, systems for economy wide emissions tracking are yet to be established, limiting Ethiopia's ability to participate in direct government-to government transfers that require robust inventory reports in the near future. Therefore, from the participation options discussed in section 4, **Article 6.4 mechanism or Article 6.2 approaches based on baseline and crediting instruments developed at programmatic scales appear to present the most immediate carbon market entry-point for Ethiopia. However, Ethiopia will need to work on making the link between its carbon market uptake and NDC achievement clearer.** It must be stressed here that the assessment is a first order one given the uncertainty of Article 6 negotiations and the fact that it will still take at least until 2018 (COP24) to negotiate the exact design details of the new mechanisms. Table 31 summarises this assessment.

Table 31: Potential engagement options for Ethiopia based on the readiness assessment

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	Potential engagement options
ITMO transfers as a result of linked Emission Trading Schemes	

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)	Potential engagement options
Direct transfers of ITMOs between countries	
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx

Source: Author's assessment

6 Recommendations

Germany continues to hold a keen interest in supporting development of rule-based and well-functioning carbon markets in its partner countries. In the post-Paris context, however, existing German cooperation in the field of carbon markets may need to be readjusted and further shaped in line with the rules and guidance being developed under Article 6. The readiness assessment undertaken in Section 5 has aimed to provide empirical evidence to this effect. It outlines the entry points for German cooperation with Ethiopia by discussing the country's readiness to engage in Article 6.

Building on the assessment, the following paragraphs provide recommendations on the prospects for future German cooperation with Ethiopia on carbon markets. Observations from the analysis which may inform the ongoing negotiations on Article 6 are also assimilated at the end.

6.1 Prospects for future cooperation between Germany and Ethiopia

Three broad areas of potential cooperation are identified:

1. Furthering in-country MRV capacity for market mechanisms
2. Focussed technical support on linkages between Article 6 and NDC implementation
3. Sharing own experiences / lessons learnt

Furthering in-country MRV capacity for market mechanisms. Ethiopia's domestic MRV framework has a sectoral focus. Hence, an entry point for international cooperation to build readiness towards future markets can be by *supporting enhanced technical readiness of sectoral actors,* both public and private. Such pools of specific sectoral capacities can be used by state actors as needed and may circumvent the constraints Ethiopia faces in staffing dedicated technical professionals in state institutions such as sectoral CRGE units and other administrative agencies. Further, there is an urgent need to develop in-country *experience in national emissions accounting*. This includes developing tools for streamlined, common emissions reporting and training for actors reporting and administering these systems. A third element is to provide *technical training* on methods and assessment approaches for both intervention specific and economy-wide emissions accounting. Currently, technical knowhow is limited and spread amongst a few high-level champions and non-state experts. Support would also be useful in *raising awareness* among targeted stakeholders, e.g. local agencies, private sector and local communities either implementing the interventions or potentially affected by them.

Focussed technical support on linkages between Article 6 and NDC implementation. German cooperation to Ethiopia has been largely indirect in the past. An avenue of expanding German cooperation in the future can be to provide more long-term focussed support on the linkages between Article 6 and NDC implementation. Technical support for *developing a multi-level MRV system* is one such area. Multi-level MRV systems can administer mitigation activities at the national, sectoral and intervention levels and are being discussed in some countries under the PMR. Such systems can include the infrastructure needed for MRV (e.g. IT infrastructure), regulatory frameworks, and standards etc. for undertaking MRV at different levels. Ethiopia supports such an approach in principle in its submissions to SBSTA. Further, Ethiopia could be supported to develop its experience with *registry systems* for documenting and tracking mitigation outcomes and associated activities. Such support could either take the form of in-country work supported by the German government or could be facilitated through Ethiopia's participation in programmes supported by the German government, such as the PMR.

Sharing experiences and lessons learnt. A third significant need identified in this research was to learn from experiences of other jurisdictions on administrative and technical issues. Specifically, Ethiopian representatives highlighted that learning from the experiences of developed countries was an extremely useful resource for countries in the early stages of developing domestic systems.

6.2 Feedback for ongoing negotiations on Article 6

Linkage between Article 6 and Article 13. The Ethiopian case highlights the currently underexplored linkages between Article 6 and Article 13 on transparency of actions and support. One such linkage relates to the question of *how ITMO transfers affect NDC implementation and global mitigation ambition*. With a significant number of countries including conditional elements in their NDCs, offsetting from conditional contributions can risk lowering the overall ambition of global mitigation and therefore requires further consideration in the ongoing negotiations. The Paris Agreement anchors these links in Article 13.7 (b) on information necessary to track progress towards NDC implementation; and Article 6.3 and 6.5 on the use of mitigation outcomes towards NDCs.

Linkage between Article 6 and Article 9. Another linkage is with Article 9 on financial support and Article 13.10 on information on support required and provided. To avoid situations where a unit is both used towards a mitigation pledge and simultaneously counted towards financial and technology pledges made under the Paris Agreement also requires a cross-article discussion on double accounting.

Discussions on these and other linked issues that affect the environmental integrity of the Paris Agreement can facilitate its effective implementation.

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

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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

AAU	Assigned Amount Unit
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.67 Together, these two provisions lay the foundation of post-Paris international carbon markets.68

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 anoth-

67 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.

68 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).

er 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. 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[69]; 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

[69] 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.

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.

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[70] 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 32.

Table 32: 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	CDM/JI Initiative	3,5

[70] A budget item normally describes the lowest level in the budget structure.

Budget item	Support area	Target initiative	Budget (in million €)
	mechanisms		
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 33.

Table 33: 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 2016b).

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 Bienni-

al 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 out-

put 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.[71] 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).[72]

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.

[71] For more information on the Strategic Dialogue held in Japan see: METI: Press Release (accessed: 02.12.2016).

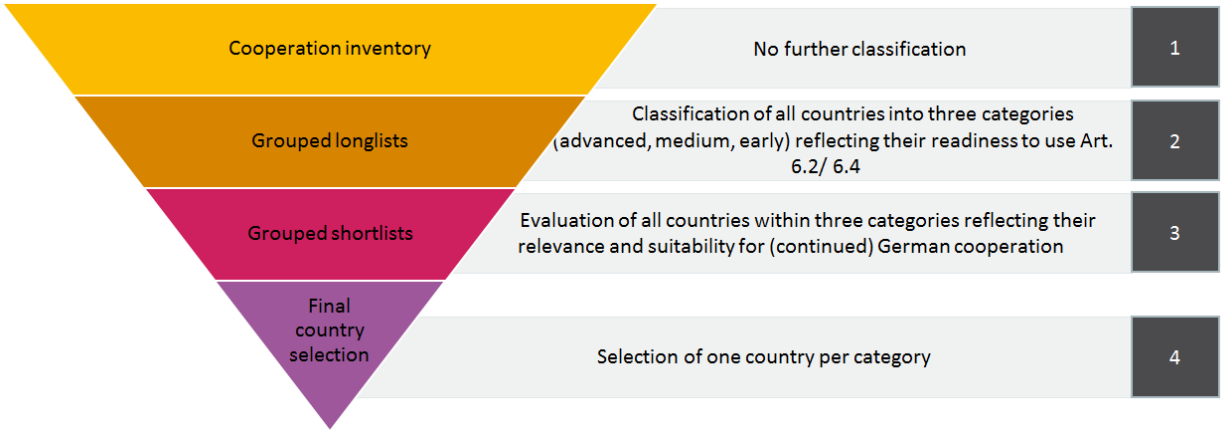
[72] Status as of September 2016.

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.

Figure 17: 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 17 describes four steps that lead to the final selection of the three case study countries:

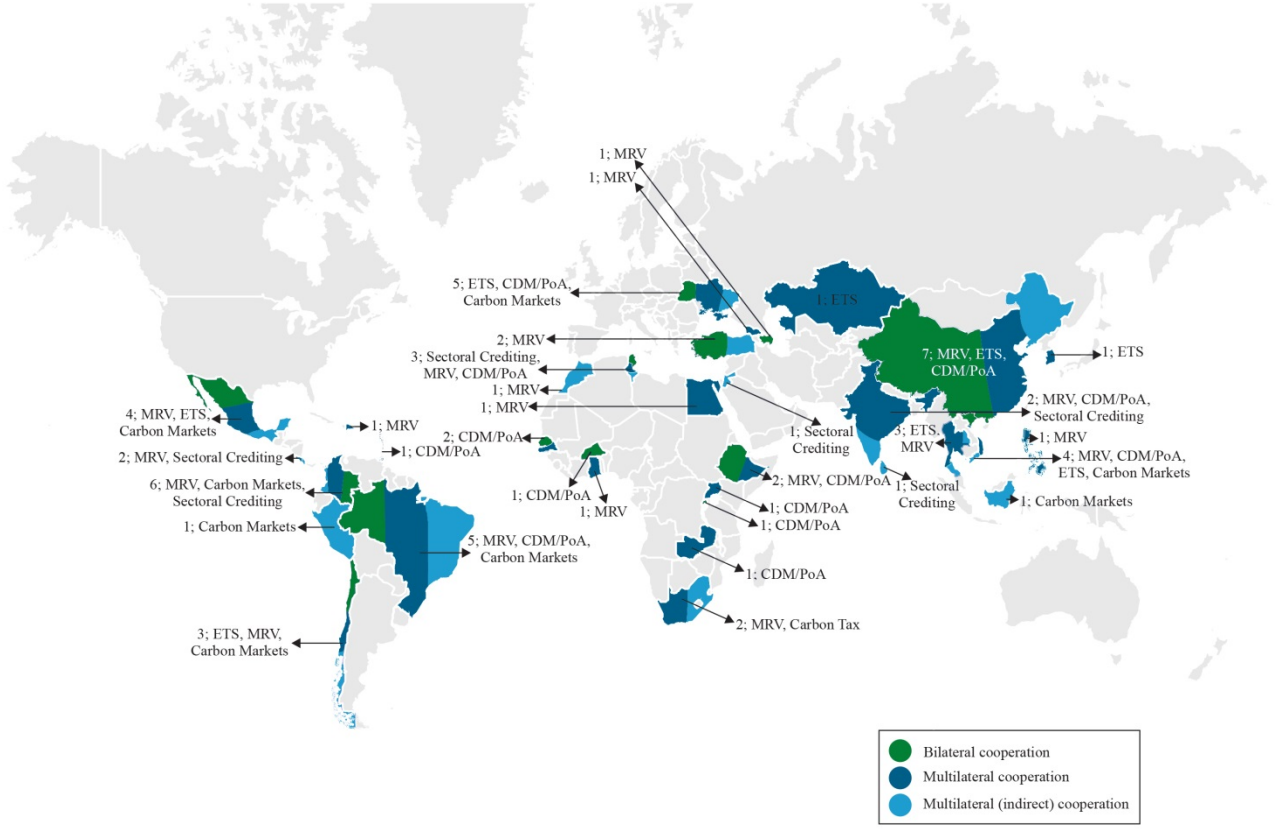
- Step 1: Compilation of Germany-led carbon market related international cooperation activities in a cooperation inventory. Presentation of information by country and initiative, including key facts and relevant links.
- Step 2: Classification of countries of the inventory along a set of qualitative 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.

Figure 18: World map on German carbon market cooperation



Source: Own compilation, based on carbon market inventory

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.[73] 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

[73] 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).

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[74], 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.[75]

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.

- **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 volun-

[74] 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).

[75] For current submissions on Article 6 see UNFCCC submissions portal (accessed: 19.12.2016).

tary 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 34.

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 34: 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 34: 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)]

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

Source: Authors

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 CO2 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 CO2 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 1. 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: [76]

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. 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 coor-

[76] 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.

dination 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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9 Annex II: Workshop Dokumentations

Umweltforschungsplan des
Bundesministeriums für Umwelt,
Naturschutz, Bau und Reaktorsicherheit

Forschungskennzahl: 3714 41 506 0

Marktmechanismen nach Paris: Konsequenzen aus Artikel 6 des Pariser Abkommens für internationale Marktmechanismen bis und nach 2020

Erkenntnisse aus einem Workshop im Umweltbundesamt am 15. Februar 2016

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Im Auftrag des Umweltbundesamtes

Februar 2016

1 Hintergrund

Die Perspektiven von Marktmechanismen als Teil der internationalen Klimapolitik vor und nach Paris standen im Mittelpunkt des Workshops am 15. Februar 2016 im Umweltbundesamt in Berlin. Der Workshop ist Teil eines Forschungsvorhabens von adelphi, Öko-Institut und NewClimate Institute im Auftrag des Umweltbundesamtes, das die Wechselwirkungen zwischen Neuen Marktmechanismen und Emissionshandelssystemen analysiert. Hierfür werden in einem ersten Schritt die Dynamiken der Verhandlungen zu Marktmechanismen vor Paris, einzelne Länderpositionen und die Rolle von diversen Initiativen, die den UNFCCC-Rahmen ergänzen, untersucht (s. Input Paper sowie Präsentation Aki Kachi im Anhang). Diese Perspektive soll dazu beitragen, die Pariser Ergebnisse besser einordnen zu können und mögliche Entwicklungen im Nachgang zu antizipieren. In einem zweiten Schritt wird die Verankerung von Marktmechanismen durch Art. 6 des Pariser Abkommens im Detail analysiert, die weitere Ausgestaltung in den kommenden Verhandlungen begleitet und hierzu mögliche Szenarien der resultierenden Governance entwickelt (s. Präsentation Martin Cames im Anhang). Im dritten Teil des Vorhabens werden bilaterale sowie multilaterale Kooperationen Deutschlands hinsichtlich ihrer Relevanz für die Ausgestaltung der Marktmechanismen untersucht und für einzelne Länderbeispiele Fallstudien erstellt. Der vorliegende Bericht fasst die wesentlichen Diskussionspunkte des Workshops zusammen.

2 Einflussfaktoren der Einigung von Artikel 6 zu Marktmechanismen

In den Verhandlungen bis Paris konnte keine Einigung zum Thema Marktmechanismen erzielt werden. Sowohl in der SBSTA als auch in der ADP stockten die Verhandlungen zu diesem Thema bis Ende 2015. Das Ergebnis in Form von Artikel 6 des Pariser Abkommen wurde auch erst in den letzten Stunden der Verhandlungen realisiert. Als Zwischenfazit des Vorhabens wie auch mit Blick auf die Diskussionen der Teilnehmerinnen und Teilnehmer des Workshops verdeutlicht sich die Vielschichtigkeit der einzelnen Beiträge, die das Zustandekommen des Kompromisses zu Marktmechanismen in Paris ermöglicht haben. Auch im Nachgang von Paris dürften sie weiter eine Rolle spielen. Folgende Einflussfaktoren standen im Mittelpunkt der Workshop-Diskussion, ohne dass hierbei abschließend Einigkeit über die spezifische Bedeutung hergestellt werden konnte:

2.1 Die EU-Brasilien Koalition

Eine ganze Reihe von Positionen zu Marktmechanismen sind in die Verhandlungen eingebracht worden, so etwa seitens der Umbrella Group, der EU, der Environmental Integrity Group (EIG), der Like-Minded Group (LMG), der Arabischen Liga oder der Alliance for the Peoples of our America (ALBA) Group. Als bedeutend für den weiteren Verhandlungsverlauf wurde teilweise von Teilnehmerinnen und Teilnehmern ein Kompromissvorschlag der EU und Brasiliens am Ende der ersten Woche von Paris wahrgenommen. Skepsis bestand hinsichtlich der Frage, ob solche Verhandlungskoalitionen stabil bleiben und auch nach Paris einen positiven Effekt auf die Verhandlungen haben werde – etwa, um auf der nun anstehenden eher technischen Ebene der Ausgestaltung weiter zu Fortschritten zu führen. Ersten Aufschluss hierüber dürften die weiteren Verhandlungen in 2016 geben.

2.2 Die Frage der Non-Market Approaches (NMAs)

In der langen Verhandlungshistorie zur Rolle von Marktmechanismen hat sich das Element von nichtmarktbezogenen Ansätzen immer auch als potenzieller Blockadepunkt erwiesen. In Paris erhielt der Ansatz der NMAs die größte Unterstützung von Bolivien und Venezuela. Zudem zählten die Afrikanische Gruppe, die Arabische Liga, einige Staaten der LMG sowie vereinzelt Russland zu den Befürwortern. Durch die Verknüpfung von NMAs mit anderen Verhandlungsschwerpunkten, wie z.B. Kapazitätsaufbau, Technologietransfer oder der Rolle der Forstwirtschaft, konnte die Position gegenüber Marktmechanismen zwar deutlich gestärkt werden, zu einer Blockade führte dieser Punkt indes in Paris nicht.

2.3 Die Rolle der USA

Die USA spielen weiterhin eine wesentliche Rolle, wenn es um die Realisierung von klimapolitischen Verhandlungslösungen geht, wobei sie sich hinsichtlich ihrer Positionen in den letzten Jahren zunehmend kompromissbereiter erwiesen haben. Im Rahmen der Umbrella Group-setzten sich die USA für einen dezentral ausgerichteten Mechanismus ein. In vielen bilateralen Diskussionen engagiert, unterstützten sie grundsätzlich auch den EU-Brasilien Kompromiss. Während der Diskussion wurde zudem angeführt, dass die amerikanische Delegation in letzter Minute den Konflikt zwischen Marktbefürwortern auf der einen und NMAs-Befürwortern auf der anderen Seite entschärft habe. Trotz dieser konstruktiven Rolle in den Verhandlungen zu Marktmechanismen bleibt abzuwarten, wie sich die US-amerikanische Position nach den Präsidentschaftswahlen im November 2016 entwickeln wird.

2.4 Die Bedeutung unterstützender Initiativen

Das Verhandlungsergebnis in Form von Art. 6 spiegelt nicht lediglich die Kompromisslinie zwischen einzelnen Länderpositionen wider, sondern unterstreicht grundsätzlich die Bedeutung, die einem größeren Vertrauen unter den Parteien und Verhandlungsgruppen zukommt. Zu dieser übergeordneten konstruktiven, vertrauensvollen Atmosphäre dürften auch parallel zu den eigentlichen Verhandlungen lancierte Initiativen beigetragen haben, die nach der Kopenhagen Konferenz 2009 etabliert wurden. Zu diesen Formaten zählen u.a:

- die unter der deutschen G7-Präsidentscaft initiierte Carbon Market Platform, die 2015 ein solches Dialogforum etabliert hat, auch um Verhandlungen unter der UNFCCC zu unterstützen. Dies wird 2016 für weitere Staaten jenseits der G7 geöffnet.
- die ministeriale Erklärung zu Kohlenstoffmärkten ("Ministerial Declaration on Carbon Markets"), die von Neuseeland im Dezember 2015 initiiert wurde. Die wachsende Gruppe der Unterzeichnerstaaten, darunter auch Deutschland, sollen Richtlinien unter Art. 6.2. produzieren.
- die International Partnership on Mitigation and MRV, in welcher Partnerländer seit 2010 technische Aspekte der Minderungsagenda vorbringen und diskutieren konnten.

Vor dem Hintergrund der Diskussionen der Einflussfaktoren der Einigung in Paris zu Art. 6 stellen sich u.a. folgende Fragen für die Zukunft:

- Was bedeutet der EU/Brasilianische Kompromiss für die Zusammenarbeit der beiden Akteure? Kann dies ein stabiles Element für weitere Fortschritte im Bereich der Marktmechanismen sein?
- Welche Rolle kann die Umbrella-Group mit ihrem breiten Spektrum an Akteuren spielen?
- Was ist die Rolle von einzelnen Komplementärprozessen, wenn wichtige Akteure (z.B. Japan) dabei oft ausgeschlossen bleiben?
- Wie können einzelne Antreiber wie die Schweiz unterstützt werden?

3 Was ist mit Artikel 6 beschlossen worden?

Die Frage, was mit Artikel 6. tatsächlich beschlossen worden ist, diskutierten die Teilnehmerinnen und Teilnehmer stark vor dem Hintergrund, in welcher Weise vorher existierende Ansätze wie NMM und FVA sich im PA wiederfinden. Für die Bewertung von Artikel 6 gilt es zunächst festzuhalten, dass in Artikel 6.1 als Funktionsbestimmung freiwillige Kooperationen für ein ambitionssteigerndes Engagement im Minderungs- und Anpassungsbereich sowie bei der Unterstützung von nachhaltiger Entwicklung und Umweltintegrität aufgeführt sind. Ausgangspunkt stellen hierbei die National Determined Contribution (NDC) da. Im Folgenden wird sich hinsichtlich der Begrifflichkeit in der Regel auf NDCs bezogen, da davon ausgegangen wird, dass im Zuge der Ausgestaltung (und spätestens mit dem Inkrafttreten) des PA das anfänglich vorangestellte „intended" obsolet wird.

3.1 Welche Mechanismen werden in Art. 6 definiert?

Die Steigerung der Ambitionen etwas im Minderungsbereich kann durch verschiedene Mechanismen unterstützt werden. Grundsätzlich wurde von verschiedenen Teilnehmerinnen und Teilnehmer angemerkt, dass einige in Art. 6 genutzte Terminologien zum Teil vage formuliert sind und somit erheblicher Ausarbeitungsbedarf in den weiteren Verhandlungen besteht. Als wesentliche Mechanismen wurden diskutiert:

1) „Cooperative Approaches" (Art. 6.2;dezentraler Mechanismus);
2) „Mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development" (Art. 6.4; multilateraler Mechanismus) und
3) „Framework for Non-Market Approaches" (Art. 6.8)

3.2 Konnten zwischen Durban 2011 und Paris 2015 Fortschritte erzielt werden?

Eine kritische Reflektion der einzelnen Elemente in Art. 6 legt den Schluss nahe, dass viele Elemente schon in ähnlicher Weise während der COP in Durban 2011 festgehalten wurden. Bereits in Durban einigten sich die Länder auf einen „Framework for Various Approaches", dem der nun festgehaltene Ansatz „Cooperative Approach" ähnelt. Dies gilt auch für den Ansatz eines Marktmechanismus, ferner wurde der Ansatz der NMA bereits diskutiert. Modalitäten wurden indes nicht weiter ausgearbeitet. Als wesentlicher Unterschied zwischen dem Paris Ergebnis und den Resultaten von Durban wurde in der Diskussion auf die Art der Mandatierung und des Zeitrahmens verwiesen: das Pariser Abkommen enthält ein klares Mandat für die Ausarbeitung der drei Mechanismen für die Zeitperiode nach 2020. Eine Teilnehmerin verwies zudem darauf, dass sich aus dem Bezug zu Framework bei FVA ableiten lasse, dass ursprünglich ein breiterer Steuerungsrahmen vorgesehen war. Im Kontext der Cooperative Approaches in Art. 6.2. werde nunmehr lediglich Prinzipien als Flankierung genannt.

3.3 Worin liegen wesentliche Unterschiede zwischen den Mechanismen?

Je nach Anwendungsbereich des Art. 6 werden für Art. 6.2 und Art. 6.4 unterschiedliche Systeme aufgebaut werden müssen: Dezentral in den beteiligten Ländern bzw. ein zentrales Gremium unter UNFCCC. Die Diskussion zeigte, dass dies wesentlich dann eine Herausforderung darstellen dürfte, wenn man sie als gemeinsamen Mechanismus interpretiert. Zudem kam die Frage auf, ob nicht ein wesentlicher Unterschied zwischen den Mechanismen darin bestehen wird, dass die in Art. 6.2 herbeigeführten Emissionsminderungen wesentlich einen bilateralen Fokus haben werden und damit nicht ohne weiteres in anderen Kontexten nutzbar oder transferierbar sein werden. Dieser Punkt ist allerdings im Text des Paris Agreements nicht klar ausgeführt. Im Gegensatz hierzu lege die Formulierung in Art. 6.4 nahe, dass hier zentral Einheiten oder Units generiert und international verkauft werden.

Weiter wurde darauf verwiesen, dass Art. 6.4 verschiedene Modalitäten nennt, die so im Art. 6.2 nicht genannt werden. So ist der Transfer der „share of proceeds" für besonders verwundbare Staaten beispielswiese nur im Kontext des Art. 6.4 vorgesehen, gleiches wurde hinsichtlich der Relevanz von Units bei der Erzielung von Global Net Mitigation angeführt. Art. 6.4 muss allerdings nicht nur im Sinne der Nutzung eines Marktmechanismus betrachtet werden, wie eine Teilnehmerin anmerkte. Vorstellbar ist zudem, den Mechanismus für Sustainable Development auch mit Blick auf Beiträge der Klimafinanzierung auszugestalten.

Eine weitere in der Diskussion genannte Lesart ist, Art. 6.4 als eine Ausgestaltung von Art. 6.2 zu interpretieren. Dies beruht auf der Beobachtung, dass Art. 6.4 wesentlich detaillierter abgehandelt wird, aber prinzipiell ähnliches generiert: Minderungsbeiträge, die von anderen Ländern verwendet werden können. Dies entspräche einer Art „geschachtelten" Mechanismus aus Art. 6.2 und Art. 6.4, indem Art. 6.4 für internationale Transfers die Regeln & Strukturen von 6.2 nutzen könnte. Für die endgültige Klärung dieses Punktes bedarf es sowohl für Art. 6.2 als auch Art. 6.4 noch der weiteren Ausgestaltung (projektbasiert/sektoral; Teilnahmeberechtigung usw.).

3.4 Welche Fragen sind bez. Art. 6.4 wesentlich zu klären?

Bei der spezifischen Erörterung des Art. 6.4 wurde auf das unklare Verhältnis zwischen Art. 6.4 (c) und (d) verwiesen, was mögliche konkurrierende Ansprüche hinsichtlich der Rolle von erzielten Minderungsergebnisse betrifft. D.h. wie verhält sich die Einlösung des eigenen im NDC ausgewiesenen Beitrags oder ggf. zu Nettominderungen auf globaler Ebene? Unklar ist zudem, wie sich exakt der Anwendungsbereich des Art. 6.4 für unterschiedliche Zielaussagen in NDCs darstellt. Dies betrifft etwa die Behandlung von denjenigen NDCs, die nicht die gesamte Wirtschaft bzw. die gesamten Emissionen des Landes umfassen, sondern nur einen Teil der Wirtschaft bzw. der Emissionen eines Landes adressieren, z.B. weil sie nicht über hinreichende Kapazitäten verfügen. Positiv wurde vermerkt, dass Art. 6.4 grundsätzlich auch die Einbeziehung von Ländern mit lediglich geringen Kapazitäten in die internationalen Bemühungen ermöglicht, wodurch diese gestärkt werden könnten. Andererseits bestehe, auch die Gefahr von negativen Anreizsetzungen eines solchen differenzierten Vorgehens: Länder könnten dazu neigen, von der Ausgestaltung gesamtwirtschaftlicher NDCs abzusehen, wodurch sogenannte pervers Anreize für lediglich geringe, weil sektoral beschränkte Ambitionen geschaffen würden.

3.5 Welche Rolle nimmt der Bezug zu Sustainable Development ein?

Sustainable Development wird im Pariser Abkommen nicht klar ausdefiniert, auch nicht in der direkten Bezugnahme im Rahmen von Art. 6.4. In der Diskussion wurde auf die CDM-Erfahrungen verwiesen, wo es längliche Diskussionen dazu gab, ob es ausreicht, dass Beiträge zu Sustainable Development von Gastländern definiert werden oder ob dies im Rahmen eines freiwilligen Mechanismus geprüft werden sollte. Auch mit Blick auf das Pariser Abkommen stellt sich grundsätzlich diese Herausforderung. In der Diskussion wurde auch zu bedenken gegeben, dass sich durch die prominente Erwähnung des Nachhaltigkeits-Konzeptes als zu berücksichtigendes Element bei Minderungsbeiträgen der Fokus auf Minderung ggf. abschwächen könnte.

3.6 Welche Vorgaben gibt es für das Accounting?

Accounting-Ansätze für Marktmechanismen sind in Artikel 6 nicht dezidiert festgelegt worden, es wird aber u.a. zur Vermeidung von Doppelzählungen die Anwendung robuster Anrechnungsverfahren eingefordert. Die Workshop-Diskussion verdeutlichte, dass sich hierdurch Fragen ergeben – etwa mit Blick auf die Rolle der Treibhausgasinventare. Diese würden eine geprüfte Basis für Minderungs-Maßnahmen in Art. 6 bieten, allerdings werden sie z.B. in Art. 37 der Supporting Decision zur Umsetzung von Art. 6.2 nicht direkt erwähnt, vielmehr ist die Rede allgemeiner von “adjustments by Parties for both anthropogenic emissions by sources and removals by sinks covered by their NDCs”. Teilnehmerinnen und Teilnehmer sahen hier Herausforderungen (etwa mit Blick auf die Glaubwürdigkeit) da NDCs als nationale politische Entscheidungen im Grunde einfach geändert werden können, zudem sind sie nicht immer quantifiziert. Zudem ist die Frage zu beantworten, wie mit den Staaten umgegangen werden soll, die keine adäquaten Inventare vorweisen können.

3.7 Was ist hinsichtlich der Entwicklung der notwendigen Modalitäten zu erwarten?

Die Erarbeitung der Modalitäten wird voraussichtlich einige Zeit in Anspruch nehmen. Zwar wird 2018 zum ersten Mal eine Bestandsaufnahme zu den NDCs stattfinden, in der Diskussion wurde jedoch darauf verwiesen, dass zum Beispiel die Verabschiedung verbindlicher Accounting-Regeln nicht vor dem ersten Stock-Taking der NDCs in 2018 zu erwarten sei. Der weitere Verhandlungsprozess kann zwar auf eine reiche Erfahrung mit der Entwicklung von Modalitäten aufbauen, gleichzeitig bestehen alte Konflikte fort, die erneut aktuell werden und die Lage vor Paris wiederherstellen können.

Mögliche Schwierigkeiten, die in der Diskussion genannt wurden, betreffen z.B. den zu erreichenden Konsens darüber, ob die Ausgestaltung des Art. 6.2 die Entwicklung von Leitfäden voraussetzt. Es wurde vermutet, dass verschiedene Länder (z.B. Japan, Neuseeland) kaum darauf warten werden, bis

solche Leitfäden entwickelt worden sind. Zudem wurde das japanischen JCM als kritisches Beispiel angeführt, da die meisten Partnerstaaten nicht alle als im Klimaschutz fortgeschritten gelten können (z.B. weil verlässliche Inventare fehlen). Eine Reihe weitere Fragen sind für die Entwicklung von Modalitäten relevant, können aber technisch gelöst werden, die betrifft den Umgang mit konditionalen NDC-Elementen, mit Single-Year Targets oder der Bestimmung des allgemeinen Zeithorizontes für Minderungsziele.

3.8 Wie sind Ambition und Umweltintegrität einzuschätzen?

Analysen der (I)NDCs im Vorfeld der Paris Konferenz haben gezeigt, dass die zugesagten Minderungsbeiträge deutlich höher liegen als die Minderungszusagen im Kyoto-Protokoll. Gleichzeitig wurde in der Diskussion darauf verwiesen, dass es nur wenige Länder gibt, deren Ziele über ein Business-as-usual Szenario hinausgehen. Die Diskussion ergab kein klares Bild, ob bei der Umsetzung des Pariser Abkommens in ähnlicher Weise „Hot Air"-Herausforderungen zu erwarten sind, wie beim Kyoto-Protokoll. Eine Punkt, der dagegen spricht, ist sind nicht zuletzt die Erfahrungen aus diesem Prozess und sehr viel mehr Klarheit darüber, welche Länder vergleichbare ambitionierte Zielsetzung verfolgen und in erster Linie als Kooperationspartner in Frage kommen.

3.9 Wie gestaltet sich die Zukunft von CDM/JI?

Um die weitere Zukunft von CDM und JI einschätzen zu können, ist u.a. der noch abzuschließende Review abzuwarten. Zu klären bleibt auch die Rolle der in diesem Bereich bislang aktiven Institutionen, wie das CDM Executive Board. Ein Argument gegen eine schnelle Abwicklung des CDM sind die bestehenden institutionellen sowie personellen Kapazitäten, die auch weiterhin genutzt werden können. Auch eine systematische Überführung in neue Arrangements für die Nutzung von Marktmechanismen wurde als Vorschlag in der Diskussion angeführt. Allerdings wurde auch auf die inhärenten Probleme des CDM hingewiesen, die nicht ohne weiteres gelöst werden können (z.B. Zusätzlichkeit, die Frage standardisierte Baselines usw.).

3.10 Regelung der Emissionen vom Luft- und Schiffsverkehr

Emissionen des Luft- und Schiffsverkehrs sind im Pariser Abkommen nicht direkt erwähnt. Zu klären ist die in der Diskussion geäußerte These, dass diese Emissionen dennoch in den Anwendungsbereich des Abkommens fallen, weil ihre Minderung den Zielen des Abkommens entspräche. Die EU hat die Erwähnung des Luft- und Schiffsverkehrs im Abkommen angestrebt, allerdings war eine direkte Erwähnung schwer durchsetzbar. Art. 4 des Abkommens spricht von „anthropogenic emissions" und kann so interpretiert werden, dass auch Luft- und Schiffsverkehr davon abgedeckt werden. Der Art. 6 ist ebenfalls breit angelegt, sodass er Kauf und Nutzung von Offsets für den internationalen Luft- und Schiffsverkehr ermöglichen könnte. Auch die Frage der Nutzung von Gutschriften aus der Land- und Forstwirtschaft/REDD+ ist offen. Genauere Entscheidungen zur Regelung der Emissionen des Luftverkehrs sollen noch 2016 getroffen werden. Der Präsident von ICAO hat bereits einen Vorschlag für einen globalen marktbasierten Mechanismus (GMBM) vorgelegt, was als positives Zeichen gewertet werden kann. Ob ausschließlich UNFCCC-Units bei ICAO zugelassen werden, ist allerdings noch offen.

4 Schlussbemerkungen

Die Diskussionen der Teilnehmerinnen und Teilnehmer verdeutlicht, dass derzeit Artikel 6 noch mehr Fragen aufwirft, als er Antworten bietet. Die Workshop-Diskussion hat dazu beigetragen, den wesentlichen Klärungsbedarf bei der Ausgestaltung von Art. 6 zu identifizieren – zusammengefasst lassen sich diese in folgenden Rubriken einteilen, die auch im weiteren Verlauf des Vorhabens eine bedeutende Rolle spielen werden:

1) Wie kann die Gesamtarchitektur der verschiedenen Mechanismen und damit ihr Verhältnis zueinander weiter ausgestaltet werden?

2) Wie (und wann) werden strategisch wichtige Terminologien besetzt bzw. ausdefiniert?
3) Wie können zentrale Prinzipien z.B. zur Umweltintegrität wirksam umgesetzt werden (Stichwort Doppelzählung)?
4) Wie werden einzelne Körperschaften, Regeln und Verfahrensprozeduren ausgestaltet?

Die Diskussionen im Rahmen des Workshops hat ferner gezeigt, dass es wesentlich darauf ankommen wird, zu einem Diskussionsrahmen beizutragen, in dem die Bestimmungen von Art. 6 von den Entscheidungsträgern konstruktiv ausgestaltet werden können. Für den weiteren Vorhabenverlauf ist entsprechend eine wichtige Frage, wie die Bundesregierung hier einen sinnvollen Beitrag leisten kann und auf welche Weise internationale Verhandlungsallianzen befördert werden können.

5 Agenda des Workshops

Zeitrahmen	Programm
13.00 – 13.30	Begrüßung und Einführung *Dr. Karsten Karschunke, Klimaschutzprojekte - Nationale Zustimmungsstelle CDM/JI, Umweltbundesamt – Deutsche Emissionshandelsstelle (DEHSt)* *Dennis Tänzler, adelphi*
13.30 – 14.30	Auswertung der Diskussion zur Entwicklung von Marktmechanismen bis Paris: UNFCCC und internationale Markt-Initiativen *Aki Kachi, adelphi* • Welche Rolle haben Marktmechanismen in den Verhandlungen vor Paris gespielt? • Welche Positionen haben wichtiger Länder vor Paris eingenommen? • Wo haben sich Länder bewegt und eine Einigung möglich gemacht?
14.30 – 14:45	Kaffeepause
14:45 – 16.45	Analyse des Verhandlungsergebnisses der COP 21 und Weiterentwicklung von Zielen und Positionen für den Verhandlungsprozess im Jahr 2016 *Dr. Martin Cames, Öko-Institut* • Welche Konflikte konnten gelöst werden, welche wurden nur verschoben? • Welche Möglichkeiten bietet Art. 6 für Marktmechanismen? • Wie weiter mit CDM, JI, NMM & Co.? • Welche Ziele der Nutzung von Märkten sind erreichbar auf Basis des Paris Agreements? • Welche Zeithorizonte ergeben sich aus dem Paris Agreement? • Welche Aktivitäten müssen als erstes ergriffen werden?
16.45 – 17.00	Zusammenfassung der Diskussion und Verabschiedung *Dr. Karsten Karschunke, UBA/DEHSt* *Dennis Tänzler, adelphi*

6 Liste der Teilnehmerinnen und Teilnehmer

Name	Vorname	Organisation
Bodle	Ralph	Ecologic Institut
Cames	Martin	Öko-Institut e.V.
Dransfeld	Björn	Greenwerk
Gibis	Claudia	Umweltbundesamt
Greiner	Sandra	Climate Focus GmbH
Harthan	Ralph	Öko-Institut e.V.
Honegger	Matthias	Perspectives
Kachi	Aki	adelphi
Karschunke	Karsten	Umweltbundesamt
Kleinschmidt	Julia	Ecologic/BMUB
Kollmuss	Anja	SEI Associate
Kreibich	Nicolas	Wuppertal Institut
Kruse	Marcel	Umweltbundesamt
Kühleis	Christoph	Umweltbundesamt
Kurdziel	Marie-Jeanne	NewClimate Institute
Li	Lina	adelphi
Martin	Emilio	Umweltbundesamt
Melnikova	Julia	adelphi
Pauly	Nadine	Umweltbundesamt
Raeschke-Kessler	Konrad	Umweltbundesamt
Riedel	Arne	Ecologic Institut
Schneider	Lambert	SEI Associate
Tänzler	Dennis	adelphi
Taibi	Fatima-Zahra	UNFCCC
Warnecke	Carsten	NewClimate Institute
Wehner	Stefan	GreenWerk
Wolke	Frank	Umweltbundesamt

Environmental Research of the
Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Project number: 3714 41 506 0

Options for enhancing international cooperation to implement Article 6 of the Paris Agreement: German and international perspectives

Workshop minutes, 25 January 2017, Berlin

By

Dennis Tänzler, Julia Melnikova and Emily Wright

adelphi consult GmbH

With contributions from

Carsten Warnecke, Marie-Jeanne Kurdziel, Ritika Tewari

NewClimate Institute

Sean Healy

Öko-Institut e.V.

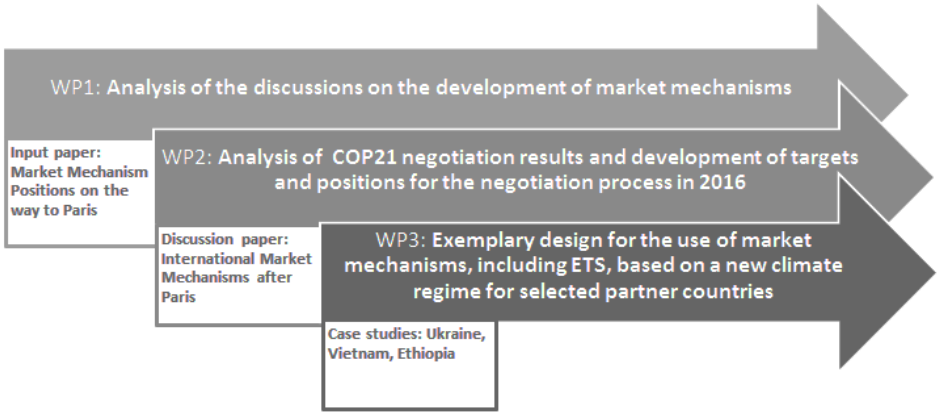
On behalf of the German Environment Agency

January 2017

1 Welcome and introduction

Dr. Karsten Karschunke from the German Environment Agency (UBA) and Dennis Tänzler from adelphi welcomed the workshop participants on behalf of the project team and introduced the research project "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ: 3714 41 506 0). The project is being conducted by adelphi, Öko-Institut and NewClimate Institute for the German Environment Agency from 2015 to 2017. The content of the workshop was outlined, starting with an overview of the results from Work Package 2 with a focus on Article 6 provisions followed by a presentation of the methodological approach and preliminary findings from the three country case studies for Work Package 3.

Figure 1: Project Design



Source: Authors

2 Presentation of progress on market mechanisms since COP 21 and main issues and options for design and operationalisation

Sean Healy, researcher Energy & Climate, Öko-Institut

Sean Healy presented the findings from the second work package, giving an overview of the various insights from the resulting discussion paper, which focused on the analysis of the provisions of Article 6 of the Paris Agreement (PA) as well as recent developments in the UNFCCC negotiations. An overview of the content of the presentation is provided below and then outlined in more detail in the subsequent sections of the workshop minutes.

Overview

There has been a paradigm shift in international climate policy away from the targets and timetables under the Kyoto Protocol (KP) towards the pledging and review of nationally determined contributions (NDCs) under the PA. The role of market mechanisms has therefore been redefined primarily as a means of 'raising ambition' among the Parties. However, the use of market mechanisms to enhance levels of NDC ambition also poses risks for the environmental integrity of the PA (refer to Section 1). As a consequence, the presentation mainly focused on the various design options for the market mechanisms under Article 6.2 and 6.4 to ensure high levels of environmental integrity (refer to Section 2). The presentation concluded with Sean Healy raising issues regarding the expected use of both market mechanisms (refer to Section 3), current progress in the Article 6 negotiations (refer to Section 4) and how the International Civil Aviation Organisation (ICAO) may influence the Article 6 negotiations in the near future (refer to Section 5).

2.1 Risks to environmental integrity in the Paris Agreement

The PA includes several provisions that aim to ensure the environmental integrity of international market mechanisms. Although the term environmental integrity is not defined within the PA, it is commonly considered to mean that the use of international transfers does not result in higher global GHG emissions than if the NDCs had been achieved only by domestic action. Four factors may undermine the environmental integrity of international market mechanisms: a) the environmental integrity of mitigation outcomes may be at risk if additionality is not ensured under a crediting mechanism; b) low ambition of NDCs could lead to the transfer of hot air; c) a lack of robust accounting of international transfers could lead to the double counting of emission reductions; and, finally, d) the incentives for future mitigation action and raising ambition may be insufficient.

2.2 Main design considerations for the two market mechanisms under Article 6

2.2.1 Cooperative approaches (CA) under Article 6.2

The discussion on Cooperative Approaches was divided into three areas, based on recent negotiation topics from Marrakesh.

2.2.1.1 Nature and scope of ITMOs

Cooperative Approaches (CA) enable Parties to use Internationally Transferred Mitigation Outcomes (ITMOs) to achieve their NDCs and require parties to apply robust accounting. With regard to the nature and scope of ITMOs under Article 6.2, several open issues were presented (see table below):

Table 1: Nature and scope of ITMOs

Name	Organisation
Metric	ITMOs require a measuring unit, either one common metric (tCO_2eq) or several metrics (e.g. renewable energy capacity/ generation).
Accounting unit	The same number of units that are added in one country need to be deducted in another country. An open question is how these transfers should be recorded (one option is a unit that is issued as a certificate, which can be issued, cancelled and surrendered, and which may also be transferred many times by Parties; another option would be a pure accounting unit that only exists in the GHG accounts of the Parties involved in the ITMO transfer).
Relation of ITMOs to the scope of the NDC of the transferring country	ITMO transfers could either be limited to within the transferring country's NDC or also include transfers beyond NDCs. The first option would have the advantages that it is simpler for accounting, gives an incentive to ensure environmental integrity and encourages countries to move towards economy wide targets.
Use of ITMOs by the acquiring country	Parties could define ITMOs in at least two different ways: either only as mitigation outcomes that are both internationally transferred and used by acquiring countries towards their NDCs, or as mitigation outcomes that are internationally transferred and that may be used for different purposes such as voluntary cancellation.
Mechanism type	These could include trading mechanisms (i.e. linking emissions trading schemes (ETS)), crediting mechanisms or other types of government to government transfers.
Fungibility of ITMOs	How ITMOs are defined could have impacts on their fungibility (i.e. whether they could be mutually substituted in place of one another). Full fungibility would only be assured if Parties agreed that ITMOs are an international compliance unit. In practice, it is expected that groups of countries may apply different scopes, rules

Name	Organisation
	and standards under Article 6.2., which means that full fungibility is unlikely.
Relationship to Article 6.4	It depends on both the definition of ITMOs and the scope of the market mechanism under Article 6.4. Several options exist, e.g. that emission reductions under Article 6.4 could either be considered as ITMOs whenever they meet ITMO definition (i.e. international transfer/used to fulfil NDC) or always/never be considered as ITMOs.

Source: Authors

2.2.1.2 Corresponding adjustments

Article 6.2 requires countries to apply "robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the CMA". Paragraph 36 of decision 1/CP.21 specifies that the guidance under Article 6.2 should ensure that double counting is avoided on the basis of "a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by the NDC". Different options for making corresponding adjustments include the application of corresponding adjustments to inventory emissions (where Parties with a net purchase of ITMOs subtract this amount from their inventory while sellers of ITMOs would add them to their inventory), and the application of corresponding adjustments to NDCs (where Parties with a net purchase of ITMOs add this amount to their NDC while sellers of ITMOs would subtract them from their NDC).

2.2.1.3 Diversity of NDCs

The diversity of NDCs represents a challenge to making the necessary corresponding adjustments under Article 6.2. In the presentation, Sean Healy illustrates this challenge by showing the difficulties associated with completing a corresponding adjustment between a country with a single year target (i.e. representing a commitment for the target year only, with no specific ambition for the years prior to the target) and a country with a target trajectory (i.e. representing a commitment to limit cumulative emissions over a continuous period). Sean Healy argues that if targets are not determined as a trajectory, it will be challenging to enable the flexibility in terms of which year emissions reductions may be achieved by. The diversity of NDCs can be broadly addressed in two ways:

1) **Ensuring the compatibility of NDCs:** This could be done by restricting eligibility (e.g. excluding countries that do not provide a clear target trajectory) or setting requirements for conversion (e.g. requesting that countries convert their NDCs / adopt common methodologies (i.e. to convert target years into a trajectory)).
2) **Conversion of corresponding adjustments:** If the mitigation targets of two countries involved in CA are not expressed in the same way, corresponding adjustments could be converted. Challenges of this approach include GWP values (i.e. from different IPCC assessment reports), non GHG mitigation targets (i.e. RES or EE targets) as well as reference levels (i.e. BAU / emission intensity / historical base year).

2.2.2 Mitigation and sustainable development mechanism (MSDM) under Article 6.4

The MSDM should enable parties to implement GHG mitigation activities whose results can be used to fulfil NDCs / support sustainable development. Although there are many similarities between MSDM and the market mechanisms under the Kyoto Protocol (KP), a number of important differences were identified. While the Clean Development Mechanism (CDM) distinguishes the roles of Annex I Parties (acquire certified emissions reductions (CERs)) and non-Annex I Parties (host mitigation projects), this distinction has been entirely dropped from the MSDM. The CDM is project-based (later redefined by the Executive Board (EB) as programmes, which can include a number of similar projects), whereas

the MSDM does not specify the scope of the mitigation activities but requests that the eligible scope be further specified. The CDM is essentially an offset mechanism, which, from a global perspective, does not directly contribute to reducing global GHG emissions. By contrast, the MSDM is subject to a provision stating that it shall aim to mitigate global emissions overall. Several open issues regarding the design of the MSDM were also presented:

1) **Scope:** In addition to project and programme-based mitigation activities, the scope of MSDM could be extended to entire sectors or even to policies. That would raise a number of questions, e.g. how a sector or policy could be clearly distinguished from another sector or policy.
2) **Strengthening the NDC:** It could be an additional challenge to MSDM implementation as the shape of the baseline may be uncertain at the start of the activity. Possible solutions include limiting the crediting periods for MSDM activities to the NDC period or adapting baselines for MSDM activities after a new NDC.
3) **Governance:** Article 6.4 mentions supervision by a body under the guidance of the COP/CMA. Whether this body will be similar to the EB of the CDM or what the competences of the body will be are examples of issues that have yet to be agreed on.
4) **Existing CDM/JI projects under the MSDM:** The two extreme positions at either end of the spectrum are no continuation and quasi automatic continuation. Further options include continuation for certain projects or certain countries, the adjustment of baselines or the re-registration of projects under MSDM.

2.3 Key similarities and differences between CA and MSDM

Both CA and MSDM allow for the international transfer of international carbon market units among UNFCCC Parties. However, several key differences were presented (see table below). The substantial differences between the two market mechanisms may result in considerable distortion of competition. The provisions for the MSDM are significantly more stringent and perhaps more burdensome than those for CAs. Parties may thus prefer CAs over the MSDM, and in the end it may be that only one of the market mechanisms forms the basis for the international carbon market. To ensure a somewhat level playing field between both market mechanisms the guidance for CA should ensure that the CA contributes both to raising global mitigation ambition and sustainable development, and is equally stringent in terms of environmental integrity.

Table 2: Differences between the market mechanisms

	Art. 6.2	Art. 6.4
Raising of ambition	Neither explicitly mentioned in Art. 6.2-3 nor in the respective decision paragraph (36 of 1/CP.21)	Art. 6.4(d) requires that the market mechanism shall “deliver an overall mitigation in global emissions”
Bindingness: guidance versus rules, modalities and procedures	Parties are mandated to develop guidance for the implementation of the market mechanism	Parties are mandated to elaborate more comprehensive and binding rules, modalities and procedures for under Art. 6.7
Promotion of contribution to sustainable development	Just speaks of promotion of sustainable development	Speaks more strongly of a contribution to sustainable development
Governance	Absolutely silent on any governance	A body to supervise the implementation of mechanism is established

	Art. 6.2	Art. 6.4
Share of Proceeds (SoP)	No such provision	Activities under the MSDM shall provide a share of proceeds to cover administrative expenses and support adaptation on particularly vulnerable countries

Source: Authors' own compilation

2.4 Update from Marrakesh and prospects for future negotiations

Marrakesh outcomes included procedural conclusions for mechanisms under Article 6. In particular, submissions are due on 17 March 2017 in response to the discussions undertaken in the three sub-items of the Article 6 negotiations. Following the submissions, the Secretariat will organise a roundtable discussion amongst the Parties at SBSTA 46 in May 2017. The issues raised will continue to be under consideration at SBSTA 46. COP 22 resulted in purely procedural conclusions, and little progress was made because submissions may be somewhat more structured. No agreement on a work plan towards adoption of rules, modalities and procedures (RMP) by 2018 was reached.

2.5 ICAO's influence of the Article 6 negotiations

In October 2016, ICAO adopted its resolution on a global market based measure (GMBM). With this resolution, ICAO created the CORSIA as a high level framework for the mechanism. A key element of CORSIA that has not yet been finalised is the eligibility criteria for programmes and project types. Aggregated demand from CORSIA (2021-35) is expected at 2.7 Gt, compared to 1.7 Gt issued under the CDM from 2001 to 2017. Demand from aviation is thus likely to be an important driver of carbon markets post 2020. Additional demand is important as almost a quarter of countries stated that they do not intend to use market mechanisms to fulfil their NDCs.

3 Q&A and open discussion with the participants

The presentation was followed by a discussion of selected key themes:

- The relationship between the mechanisms under Article 6.2 and Article 6.4;
- The environmental integrity of market mechanisms in view of the NDCs' diversity;
- The transition from the CDM and JI to the mechanisms under Article 6;
- How financing will work under the new mechanism;
- The role of the ICAO process to define the offset units under CORSIA.

Summary of the discussion

The relationship between the mechanisms under Article 6.2 and Article 6.4

The question of transfer of units was one major element of the discussion. One participant stated that it might be better to limit transfers under CAs to within the scope of the transferring country's NDC, but this could lead to an issue if units were generated under 6.4, became ITMOs and were then later transferred under 6.2. The presenter replied that it would indeed be important to consider the scope of the mechanisms under both articles. It might be better to limit the use of the CAs under Article 6.2. to transfers within the scope of NDCs, as Parties themselves would have an incentive to ensuring environmental integrity in those cases. In contrast, Article 6.4 could potentially cover reductions both inside and outside the scope of the NDCs, with UNFCCC oversight ensuring environmental integrity. This debate is, however, still open in the negotiations.

Another participant stated that Article 6.4 was generally targeted at developing countries, but is also the mechanism that potentially imposed the tougher accounting rules and requirements on countries. It could thus be both difficult and crucial to strike a balance here. The issue of linking the two mechanisms was especially important for countries to transition from the mechanisms under Article 6.4 to 6.2 at some point. The presenter noted that Article 6.4 put more emphasis on the private sector and third party engagement, which could result in some capacity building that would gradually allow the countries to later move towards CAs. Also the question of whether Article 6.4 would cover one or more mechanisms came up. The presenter said that there were different views on that within the negotiation process, and that having bottom-up, fragmented carbon market approaches in the future was not excluded.

The environmental integrity of market mechanisms in view of the NDCs' diversity

Another participant raised the issue of dealing with different NDC types. He asked, as example, how nesting would happen in the case of an activity under Article 6.4 taking place within the scope of a more "shady" NDC (e.g. one with a relative intensity target or per capita target). Considering such cases could have implications for the mechanisms' design. The presenter suggested that one strategy to deal with the diversity of NDCs could be to start trading within "carbon clubs", groups of countries with a similar level of ambition and a common understanding, in the hope that these would expand over time. It could be important at some point to make a choice between having a diversity of NDCs and constrained use of market mechanisms (e.g. within carbon clubs), or having a standardized structure for compiling NDCs and broader use of market mechanisms. Creating a compromise could require a methodology that could make adjustments between the different types of NDCs without compromising environmental integrity.

Transition from the CDM and JI

One participant asked if a specific end-date for the CDM (e.g. the moment when the mechanism under Article 6.4 becomes operational or the end of the true-up period of the KP) was envisaged. Another participant expressed the concern that multiple mechanisms could lead to double counting as well as a doubling up of effort and said that it should be our upmost aim to bring all international transfers within the framework of Article 6 to ensure environmental integrity. He admitted that there would need to be a transitional period at least up until the end of the true-up period of the KP.

Another participant noted that, based on the World Bank's experience, a major issue was the lack of clarity on the eligibility criteria for the different mechanisms, which is important to move forward. Once the rules for the mechanism under 6.4 became clear, the transition from the CDM would happen naturally. Another participant made the point that CERs were used to fulfil the commitments under the KP, and when the commitments were no longer valid after 2020 there would be little point in using CERs unless there was a transformation rule. The presenter also referred to ICAO as probably the key demand in the post 2020 era. ICAO's decisions on credibility criteria could have some impact on the Article 6 discussions. It would thus be important to ensure compatibility between ICAO's offset mechanism and Article 6.4. With regard to CORSIA, the CDM could be stopped as long as there was another mechanism in place that ICAO could use and which matched its eligibility criteria. The presenter added that ICAO could also potentially use offsets from the voluntary market.

How financing will work under the new mechanism

One participant said that the discussion had focused on technicalities so far, whereas financing would also have a huge influence on the design of the new mechanisms. It was therefore important to consider who will pay (demand) and who will generate mitigation outcomes (supply): the private sector (e.g. the aviation industry), which would be more in favour of direct transfers and a CDM-style system, or individual governments, which would want to trade in order to meet their NDCs and increase ambition. Different groups would favour different mechanisms. The presenter noted that some countries capable of generating high demand had already indicated in their NDCs that they would not be using

market mechanisms (e.g. the EU, and the US if they still decide to participate in the PA), which is another reason to look at aviation as a key generator of demand. However, he added that the aviation industry could come under pressure to lobby for lower standards.

Another participant emphasised that it was important to look at money flows, as markets provided a cheaper way to achieve mitigation. Triggering private sector investment would be key to achieving transformational change, as government funds were insufficient. Once clear eligibility criteria, rules and procedures for Article 6.4 were in place and the financial flows were clear, project developers would move over to the new mechanism. One participant responded that Brazil had suggested speeding up the transition by incorporating a lot of the CDM methodology into the new mechanism. The question was what should be kept in from the CDM and what needed to change. Another participant said that the transition issue was on the table in Marrakesh, but it was hard to discuss it without having defined the destination – i.e. MDSM. The question of how to deal with existing projects under the new mechanism should thus be discussed in the final stages of the negotiations.

The role of the ICAO process to define the offset units under CORSIA

One participant mentioned that there would most probably be no immediate demand from CORSIA in 2021 and that he disagreed with the demand projections that ICAO was putting out. He said that a large proportion of demand was due to come from the US, and that this would depend on the cooperation of the US administration. It was also still an open question as to whether India and China would participate, as both had already stated that they did not respect ICAO authority to impose unit criteria. The participant therefore surmised that many of the predictions regarding future demand for the mechanisms under Article 6.2 and 6.4 were on shaky ground. Another participant mentioned the current pressure on project participants, due to the financial uncertainty with regard to where new demand will come from. It would be simpler for project developers if CDM just continued until a new mechanism was up and running. Another participant warned that the danger of such a suggestion was that it would remove the impetus for the transition to the new mechanism.

4 Presentation of international cooperation on the development of carbon markets and market-based mechanisms

Marie-Jeanne Kurdziel, Climate Policy Analyst, NewClimate Institute

Marie Kurdziel presented the initial results from the research project's third work package, which is focusing on the prospects for German cooperation on the development of carbon markets in line with Article 6. The central question for the work package is how international cooperation in general, and German cooperation in particular, can contribute to a rule-consistent and well-integrated use of market instruments in a post-Paris world.

Overview

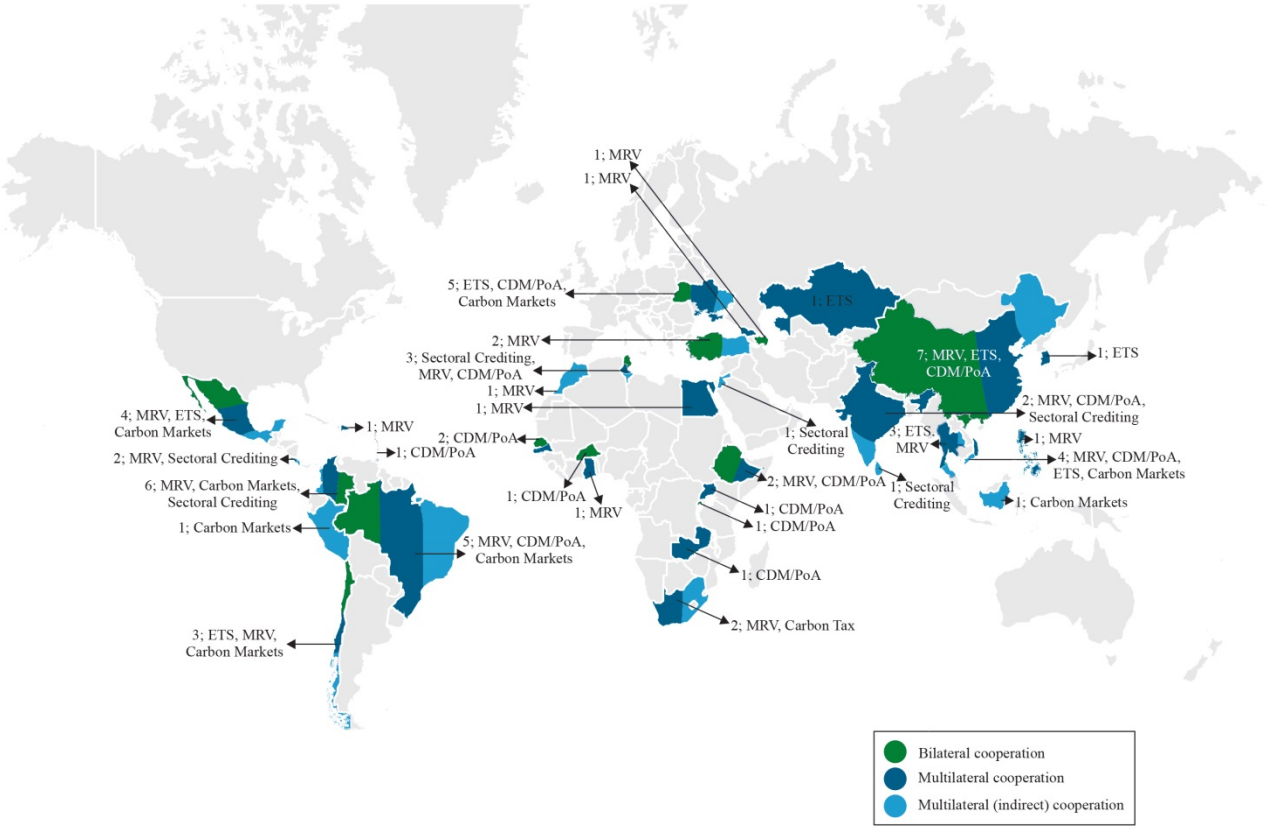
To analyse future prospects of German and international carbon market cooperation after Paris, the research team applied a three-step approach for the third work package: (1) German carbon market cooperation (providing an overview on German carbon market cooperation in the form of a comprehensive carbon market inventory); (2) Country selection process (Selecting three candidates for case studies that represent a spectrum in terms of carbon market readiness and options to make use of Article 6); (3) Case studies (Analysing selected candidates to deliver case-based recommendations).

4.1 German carbon market cooperation

Cooperation activities were included in the carbon market inventory created by the researchers in case they fulfilled the following selection criteria: (1) Germany was directly or indirectly involved in the cooperation activity; (2) the focus of the cooperation activity was on markets or related issues; (3) the cooperation activity took place in the past five years; and (4) the information on the cooperation

activity was publicly accessible. The data was collected on a country-by-country basis in a comprehensive Excel spreadsheet and comprises 34 countries and 81 projects and initiatives. It contains information about factors such as the scope, type, focus, status, funding source, volume and timeframe of the cooperation activities. The research team also visualised the results of the German carbon market cooperation inventory on a world map:

Figure 2: World Map of German international cooperation on carbon markets



Source: Warnecke et al. 2017

4.2 Country selection

To select three countries for in-depth case studies, the research team defined criteria and categories that reflected the spectrum of carbon market related expertise across countries and helped classify the countries into three categories (advanced, medium and early). These qualitative criteria were used to underpin categorisation from expert discussions. The table below shows examples of the criteria that were used:

Tabelle 3: Exemplary criteria for country selection

Exemplary criteria	Advanced	Medium	Early
Position on carbon markets	positive	open	open
Participation in international initiatives	yes	yes	possibly
Experience with international market mechanisms	yes	yes	possibly
Experience with national market instruments	one or more instruments at national or sectoral level exist	instruments at national or sectoral level exist/are	do not exist/are planned

Exemplary criteria	Advanced	Medium	Early
		planned	
Legal and institutional framework for market mechanisms	exists/is being established	is being established	does not exist/is planned
MRV system	exists/is being established	is being established	does not exist/is planned
GHG inventory	recent and high quality	exists	exists
Options for linking market instruments	explored (short-term)	considered (medium-term)	not ruled out (long-term)

Source: Authors

The team drew up long and short lists of countries for each category, and selected three countries for the case studies: Ukraine (advanced group), Vietnam (medium group) and Ethiopia (early group). The different categories may have the following implications for the use of Article 6:

1) **Advanced stage:**

- Potentially more interested in the options provided under Article 6.2, e.g. with a view to linking emissions trading systems (ETS);
- Countries interested in participating in Article 6.2 must have the necessary legal and institutional arrangements at domestic level to safeguard environmental integrity;
- Article 6.2 may potentially be more attractive than Article 6.4 for countries at a more advanced stage of carbon market development.

2) **Medium stage:**

- Potentially more interested in using Article 6.2, e.g. to reflect bilateral mechanisms;
- Countries must have the necessary legal and institutional arrangements at domestic level to safeguard environmental integrity;
- The bilateral mechanism could be more attractive for countries at a medium stage of carbon market development that have not (yet) established a domestic ETS.

3) **Early stage:**

- Possible interest in using Article 6.4;
- Countries with limited domestic capacity can benefit from the centralised governance approach and CDM experience;
- The question remains open as to whether the early-stage countries will be able and willing to fulfil the more stringent requirements of Article 6.4.

It was highlighted that countries will likely look into options for using both Article 6.2 and 6.4, or use the mechanisms in a different way than expected. As long as no rules for Article 6 have been established, there is a lot of room to interpret how markets may be used.

4.3 Introduction to selected case studies

In this part of the workshop, the research team presented their initial observations on the three selected case study countries.

4.3.1 Ukraine

Ukraine plans to establish a national ETS in line with the obligations under the 2014 UA-EU Association Agreement. In 2015, Ukraine's government adopted the "Concept of ETS Development", which outlined the main steps required to establish a national ETS. The country has accumulated extensive, although mixed, experience with international market mechanisms in the past, having hosted 321 Joint Implementation (JI) projects, which is the largest number of Track 1 projects and the second largest number in Track 2 (after Russia). Ukraine has the largest number of issued emission reduction units (ERUs). It also participated in the Green Investment Scheme (GIS). Although an ETS is to be developed, the relevant stakeholders lack understanding and support, and the political and economic situation in the country remains challenging.

Ukraine has capacities for international reporting, having issued six National Communications and annual National Inventory Reports (last in 2016). The country experienced major institutional changes in 2014, including the closing of the State Environmental Investment Agency (SEIA), which used to be a major focal point for international activities, and centralisation under the Ministry of Ecology and Natural Resources. Some experts have expressed concerns regarding Ukraine's NDC ambition level and the quality of its reporting under the UNFCCC. Ukraine has cooperated with Germany on four recent projects, with one still ongoing, and the main focus has been on monitoring, reporting and verification (MRV) and ETS development. Types of cooperation include capacity building and technical support. On a multilateral level, Ukraine has been active in the Partnership for Market Readiness (PMR). The main PMR focus was the design of a roadmap for ETS implementation and the development of MRV as a first step towards the ETS.

In its NDC, the country stated its willingness to participate actively in the development of existing international market mechanisms and the implementation of new ones. SBSTA submissions do not specify which mechanism Ukraine intends to use. However, they mention several lessons learned from the KP, such as the need for a clear and simple way to determine the measurement and legal meaning of mitigation outcomes from flexible mechanisms. Ukraine is in favour of a common metric for ITMOs ("…shall be quantifiable and measurable in Metric Tons of CO2e of already achieved or future mitigation of GHG"). Overall, Ukraine fulfils the criteria of an "advanced" country within the project. It could potentially use both Art. 6.2 and 6.4 (if environmental integrity and transparent reporting were guaranteed).

4.3.2 Vietnam

Vietnam hosted 255 registered CDM projects generating 16,353 kCERs. Since 2013 it has been a Signatory of the Joint Crediting Mechanism, actively developing NAMAs, and a member of the Partnership for Market Readiness (PMR). GIZ has been working in Vietnam for more than 20 years. An example of cooperation in relation to carbon markets is the project "Creation of an overarching framework for NAMAs and MRV in Viet Nam" (2014-2018), commissioned by BMUB and implemented by the Vietnamese Ministry of Natural Resources and Environment. Through the International Climate Initiative (IKI), Germany contributes to the PMR, which is helping to finance the implementation of an ETS pilot scheme. Another IKI-funded project aims to strengthen capacities for the preparation of high quality Biennial Update Reports (BURs) and/or National Communications in Vietnam and other selected countries.

Vietnam's NDC states that the country intends to apply market instruments. Vietnam participates in the Like Minded Developing Countries (LMDC) negotiation group and has actively been engaging in Article 6 negotiations:

Vietnam's position on Article 6.2

- It supports 'broad' guidance for Article 6.2 on accounting and use of ITMOs;

- ITMO use to achieve NDCs shall be voluntary and only authorised by Parties;
- Avoidance of double counting and transparency of governance must be guaranteed;
- Sustainable development should be facilitated in a 'bottom up' manner.

On Article 6.4 Vietnam considers it necessary to:

- Deliver overall mitigation in global emissions / complement NDC efforts;
- Define the scope of activities under the mechanism;
- Facilitate access for the participation of small and medium projects;
- Establish a regular review process of the outcomes from the mechanism.

Vietnam appears to be in the medium stage of carbon market development with a range of experience in both international market mechanisms (i.e. Vietnam is ranked fourth internationally for the number of CDM registered projects; JCM participation) and there has been German cooperation on various aspects of MRV and development of market mechanisms (i.e. pilot ETS scheme planned based on PMR funding). Vietnam's NDC states that the country has experienced difficulties with the establishment of a national GHG inventory system, and an MRV system at all levels.

Overall, in the medium to long term, the implementation of a proposed ETS could be reflected under Article 6.2. However, in the shorter term, the crediting mechanism under Article 6.4 may be more accessible for Vietnam whilst improvements to the domestic inventory system are ongoing.

4.3.3 Ethiopia

Ethiopia has hosted nine registered CDM projects (three CDM and six POAs), and has signed a bilateral agreement to participate in the Joint Crediting Mechanism in 2013. However, no projects have been registered yet. It is not a member of the PMR. German support has been mostly channelled through UBA and BMUB with the main focus on MRV and CDM/POA. The types of cooperation included capacity building (e.g. for monitoring systems, GHG inventories and institutional capacities) and scientific guidance (on emission reduction accounting, etc.). Ethiopia's INDC is assessed as 'sufficient' on ambition and fairness (by the CAT analysis). Ethiopia explicitly identifies itself as a 'seller of emission reduction units' in the INDC. It has been actively engaging in Article 6 negotiations. Ethiopia is currently open to using both Article 6.2 and 6.4:

Ethiopia's position on Article 6.2 (as drawn from Ethiopia's submission to SBSTA 45)

- ITMOs need to be GHG reduction units;
- All NDCs need to be quantifiable in terms of their GHG impact;
- ITMO transfers can be bilateral or multilateral or both;
- Supports 'broad' guidance on accounting and use of ITMOs to avoid any double counting;
- Discusses potential situations that risk environmental integrity of ITMO transfers due to varied nature of NDCs, e.g. 'encouraging ambition from lax contributions…and then wishing to participate as sellers of ITMOs', 'encouraging to enhance inadequate information from ITMOs', 'long term targets without short term balance sheets'.

Ethiopia's position on Article 6.4 (as drawn from Ethiopia's submission to SBSTA 45)

- Draws on African CDM experience to discuss design aspects of 'fresh' Article 6.4 modalities and procedures;

- Inclusiveness in accounting approaches and methodologies;
- Reflection on specific circumstances in Africa;
- Suggests checking baselines at the plant level (with peers), national level (with NDC) and global level (no double accounting) to ensure 'overall mitigation and 'long term benefits'.

All in all, Ethiopia is open to exploring carbon pricing instruments. Ongoing efforts on developing domestic institutional arrangements for MRV could be a useful basis for facilitating the design of the instruments in future. Germany is cooperating with Ethiopia on various aspects of MRV. Currently, there are many opportunities for deepening cooperation on the design and implementation of market-based mechanisms under the PA, especially for mechanisms under Article 6.4.

4.4 Q & A

One participant asked whether the presenters could go into more detail about the different issues the three countries faced with regard to cooperation on MRV. The presenters noted that existing institutional capacity was likely to be a key factor in determining what kind of MRV challenges each country faced. For example, whereas in Ethiopia cooperation activities focused on issues such as the creation of institutional capacities for MRV, Ukraine already had significant capacities and was looking into ways of addressing gaps in the existing infrastructure.

5 Plenary discussion on prospects for cooperation on market-based mechanisms with selected partner countries

Guiding questions for input statements

- What key lessons have been learned with regard to countries' participation in international cooperation activities on market mechanisms (CDM/JI experience, capacity building for ETS, etc.)?
- What main opportunities do you see for countries' future participation in international market mechanisms after the Paris conference? What are the major capacity gaps and challenges that need to be addressed by international cooperation?
- What specific implications do you see for German cooperation activities in the future?

Frank Wolke, German Environment Agency (UBA)

Frank Wolke stated that Article 6 should allow countries to factor their cooperation with other countries into meeting their emissions reduction commitments, and therefore to increase the number of mitigation outcomes and the ambition of climate action. Cooperative approaches also have the potential to increase the cost effectiveness of CO2 reduction. However, creating the right incentives for cost-effective CO2 reduction will very much depend on the guidance and the rules developed for the implementation of Article 6. He also mentioned that Article 6.2 does not only refer to ETS, and that Article 6 should be understood in a much broader sense, in which any kind of cooperation on projects to reduce CO2 could fall within this framework. This could be a big challenge, especially given the issues with conversion of outcomes. Moreover, promoting ETS does not automatically lead to mitigation outcomes. There could be a number of outcomes that cannot be traded via ETS and these types of cooperation should also be considered.

Ivan Gaidutskiy, Parliament Committee of Ukraine

Ivan Gaidutskiy agreed that we need wide range of instruments to face the challenges ahead. He said there had been a lot of discussion in Ukraine about the development of an ETS, as well as about environmental taxes. He emphasised that the country was very open to cooperation with Germany and other countries to attract investment and new ideas. He stressed that there was increasing political will within the Ukrainian parliament and the government to develop a national ETS, given the longer

term goal of joining the EU ETS, which will be an essential element for closer economic association with the EU. Earlier, there was a lack of understanding of market mechanisms among stakeholders and only weak political and economic support. Although there remains much room for improvement, the country is now increasingly looking into ways of actively participating in international cooperation activities. Since the adoption of the PA, private sector actors have been increasingly interested and engaged in the topic.

Aki Kachi, Carbon Market Watch

Aki Kachi said that there were many relevant actors engaged in the process apart from the SBSTA negotiators. He claimed that the reason for the lack of progress on markets was neither that countries did not know whether to buy or sell nor the differences in the Parties visions' of Article 6.2 and 6.4. Rather, he said that the interdependency of the market provisions with Article 6.8 and climate finance were more important. Countries did not want the market mechanisms' track to prejudge other negotiating tracks, such as loss and damage, and accounting. Until there was progress in these other tracks, the negotiations on markets would not move forward. He also remarked that it was a miracle that we even have Article 6 in the PA, as it was a last-minute compromise between the EU and Brazil that others bought into. He said that this willingness to compromise had broken down since Paris, and many negotiating blocks were moving further apart in their positions. He said what was needed was renewed focus on transformational change and decarbonisation. The CDM had not been successful in achieving this, which was why the CDM could not be adopted by the PA.

Felicity Creighton Spors, World Bank

Felicity Creighton Spors said that the approaches under Article 6 should kick-start sustainable and ongoing change. She stated that trillions of dollars were needed and it was thus important to catalyse private sector investment. She said it was not possible to solve climate change without markets, as they would significantly bring down the costs of mitigation. It was therefore important to consider why financing was not flowing into the countries. She said the new mechanism design had to address the political, technical and financial barriers to markets functioning properly, as the CDM was not effective in this regard (e.g. low participation due to lack of trust). In her view, the question of additionality received too much attention, whereas the real problem was ambition and the clarity of baselines. Long-term baselines were what the private sector needed, and would allow markets grow. She stressed the importance of supporting countries that are low ambition due to a lack of institutional capacity or data, or due to political tensions. She also noted that there was uncertainty in many countries about when to buy and sell, and that aid could help develop these markets and create the track history that would incentivise investors to invest. She mentioned several examples, e.g. the World Bank's PMR that aims to pilot measures and then share that knowledge or the World Bank's Carbon Initiative for Development, which supports Least Developed Countries (LDCs). She said Article 6.4 might be targeted at LDCs, but it was more difficult to use in practice, and that was where support and finance was most needed.

Q & A

One participant argued that uncertainty in the countries about when to buy and sell was not the main problem. The level of ambition was on the table and needed to be improved. He therefore said the real question was how the mechanisms could best support the ratcheting up of ambition. He also remarked that it would be too optimistic to assume that additionality checks would become superfluous. Germany had accumulated a lot of experience with this. The additionality checks were put in place to show that the country that got the money really needed it. He stressed that maximizing "value for money" and "value for many (people)" was crucial. Felicity Creighton Spors conceded that additionality was important. However, she questioned whether "additional" additionality was necessary if there were strong baselines and a high level of ambition. She highlighted that she was first and foremost referring to sectoral mechanisms. If the objective was to achieve a lot in a short time at an achievable price, it

was important to accept a certain amount of freeriding. The criteria had to be simple if the private sector was to get on board.

6 Wrap-up of the discussions and concluding remarks

By looking at German cooperation and selected case study countries, the research team follows two main objectives: to give recommendations to Germany on how to adapt its existing cooperation approaches and to use the case studies to examine practical examples of how to prepare for Article 6 implementation. As many Article 6 elements are still undefined and countries have diverging views, giving recommendations will be challenging. While the countries are trying to move forward from very different starting points, identifying current capacity gaps is a useful approach.

Article 6 of the PA has two main objectives. On the one hand, it should ensure environmental integrity and, on the other hand, it should be usable and foster international cooperation. It is crucial to find a balance between a perfectly designed mechanism that nobody would use and would therefore be useless, and a popular mechanism that would have numerous loopholes and thus be useless as well. The focus of the negotiations should lie in searching for a compromise between these two extremes, which would at the same time fit into the framework of the PA.

7 Workshop Agenda

Time frame	Programme
13.00 – 13.15	Welcome and introduction *Dr. Karsten Karschunke, Emissions Reduction Projects – CDM (DNA)/JI (DFP), German Environment Agency (UBA/DEHSt)* *Dennis Tänzler, Director International Climate Policy, adelphi*
13:15 – 14:00	Presentation of progress on market mechanisms since COP 21 and main issues and options for design and operationalisation *Sean Healy, Researcher Energy & Climate, Öko-Institut* • Article 6 negotiation update and reflection • Main issues of the two approaches in Article 6 • Relationship between the provisions, incl. synergies and conflicts • Prospects for future negotiations and 'rule book' design
14:00 – 14:30	Q&A and open discussion with the participants
14:30 – 14:45	Coffee break
14.45 – 15:30	Presentation of international cooperation on the development of carbon markets and market-based mechanisms *Marie-Jeanne Kurdziel, Climate Policy Analyst, NewClimate Institute* • Inventory of Germany's carbon market cooperation • Initial analysis of selected countries – Ukraine, Vietnam and Ethiopia
15:30 – 16:30	Plenary discussion on prospects for cooperation on market-based mechanisms with selected partner countries Participants will discuss together with experts working in national contexts and on behalf of international initiatives (e.g. World Bank, GIZ, KfW): • Relevant carbon market updates including prospects of Article 6 engagement (domestic and international experiences and plans) • International as well as bilateral cooperation with Germany including a reflection and outlook
16:30 – 16:45	Wrap-up of the discussions on the dynamics and prospects for cooperation on markets, and the future outlook *Carsten Warnecke, NewClimate Institute*
16:45 – 17:00	Concluding remarks and closing *Dr. Karsten Karschunke, UBA/DEHSt* *Dennis Tänzler, adelphi*

8 List of participants

Last Name	First Name	Organisation
Börner	Matthias	KfW
Creighton Spors	Felicity	World Bank
Gaidutskiy	Ivan	Parliament Committee of Ukraine
Garcia	Rocio	AILAC Negotiator
Gläser	Anne	GIZ
Greiner	Sandra	Climate Focus
Hausotter	Tobias	GIZ
Healy	Sean	Öko-Institut e.V.
Hunzai	Tobias	Climate Focus
Kachi	Aki	Carbon Market Watch
Karschunke	Karsten	German Environment Agency (UBA)
Kleinschmidt	Julia	Ecologic/BMUB
Kreibich	Nicolas	Wuppertal Institute
Kurdziel	Marie-Jeanne	NewClimate Institute
La Hoz Theuer	Stephanie	Independent Consultant
Martin-Rodriguez	Emilio	German Environment Agency (UBA)
Melnikova	Julia	adelphi
Pauly	Nadine	German Environment Agency (UBA)
Raeschke-Kessler	Konrad	German Environment Agency (UBA)
Ryfisch	David	GIZ
Schmidt	Volker	GIZ
Tänzler	Dennis	adelphi
Tewari	Ritika	NewClimate Institute
Warnecke	Carsten	NewClimate Institute
Wolke	Frank	German Environment Agency (UBA)
Wright	Emily	adelphi

Environmental Research of the
Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Project number: 3714 41 506 0

Are countries ready for Article 6? Preliminary results from case study research

Workshop minutes, 12 May 2017, Bonn

By

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NewClimate Institute

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Öko-Institut e.V.

On behalf of the German Environment Agency

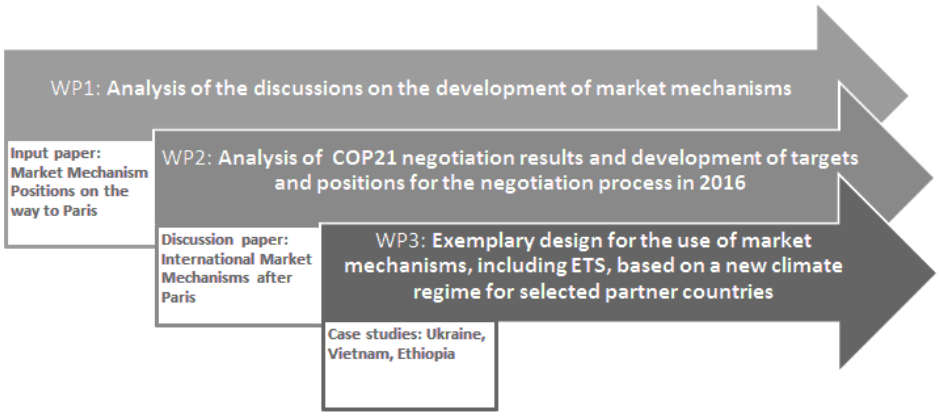
June 2017

1 Welcome and introduction

Dr. Karsten Karschunke from the German Environment Agency (UBA) welcomed the participants and noted that the workshop was taking place back to back to the ongoing negotiations on Art. 6. He highlighted that the aim of the workshop was to create an open atmosphere for discussion among the participants and also to hear the views of the representatives of the countries, some of which tend to remain silent during the negotiations. He said that the workshop presented a "touch with the real world" because it offered an opportunity to get country insights regarding the potential use of Art. 6.

Dennis Tänzler from adelphi introduced the research project "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ: 3714 41 506 0). The project is being conducted by adelphi, Öko-Institut and NewClimate Institute for the German Environment Agency from 2015 to 2017. The content of the workshop was outlined, starting with an overview of the preliminary results of the research work from Work Package 3 with a focus on potential intentions and capacities of case study countries (Ukraine, Vietnam and Ethiopia) to implement Art. 6 followed by a panel discussion with representatives from the three examined countries.

Figure 1: Project Design



Source: Authors

2 Are countries ready for Article 6? Preliminary results from case study research: presentation & discussion

2.1 What options exist for countries under Article 6 and how to realise them? Summary of the input paper

Lina Li, Project Manager, adelphi, gave an overview of the Input Paper "What options exist for countries under Art. 6 and how to realise them", which was prepared for the workshop. She reminded that Art. 6 of the Paris Agreement included several provisions allowing for the use of the international carbon market to support the implementation of Nationally Determined Contributions (NDCs) and enable ambition raising, specifically Cooperative Approaches (Art. 6.2-3) and a Mechanism for Mitigation and Sustainable Development (Art. 6.4-7). She said that many Parties had indicated their interest in the use of markets in their NDCs, but had different positions and were at different stages of carbon market development. Therefore, they could potentially have various options for using Art. 6. She explained that the aim of the input paper was, first, to list several broad non-exhaustive options for countries to participate in the new market mechanisms; second, propose an initial list of evaluation criteria to identify feasible options for specific countries, and, third, identify potential contentious issues that could

impede future development of markets. With regard to potential participation options, she presented those ones that were outlined in the input paper:

Options under Article 6.2 and 6.4

Article 6.2:

1. ITMO transfers through linked domestic Emission Trading Schemes (ETSs): Mitigation outcomes are traded between established ETSs from respective jurisdictions through linking their markets.
2. ITMO transfers through (bilateral) baseline and crediting on project-by-project or sectoral level: Crediting of emission reductions in non ETS sectors for the countries with ETSs, a general crediting approach, or the Joint Crediting Mechanism (JCM) approach.
3. Direct government-to-government ITMO transfers: Other forms of government-to-government transfers of mitigation outcomes.

Article 6.4:

1. A project or programme based mechanism, similar to the CDM/ JI approaches;
2. A sectoral international crediting mechanism: Fixed sectoral baselines/ thresholds could be set and credits generated if a lower level of emissions is achieved; alternatively, credits could be also generated by adopting and quantifying greenhouse gas (GHG)-friendly policies in particular sectors or be based on intensity-based baselines e.g. GHG emissions per unit of output.

She also emphasised that environmental integrity had to be at the core of all options. She then said that one of the key questions was which capacities countries needed to implement those options. In the following, she listed the factors that, according to the ongoing work on case studies, could potentially influence the countries' readiness and, as a result, options to participate in Art. 6:

1) Feasibility of maintaining robust domestic accounting (including measures to avoid double counting, e.g. domestic accounting capacity).
2) Domestic structure and capacity to measure, report and verify (MRV).
3) Domestic administrative and regulatory capacity.
4) Quantifiability and transferability of reductions (clarity in the NDC – quantifiable targets, clear definition of mitigation actions to achieve the targets, clarity in coverage and scope of activities etc.).
5) Continued use of existing structures.
6) Actual mitigation capacity of the country/ sectors.
7) Acceptance and capacity of stakeholders (primarily the private sector).
8) Overall political will and enabling environment.

Finally, she focused on the potential contentious issues that could theoretically hinder or otherwise impact participation of the countries in Art. 6, as identified through the interviews and desk research:

1) **Stringency and environmental integrity:** There is a possibility that potential host countries may favour Art. 6.2 approaches over Art. 6.4 with the assumption that the former have less stringent environmental integrity requirements without centralised oversight. At the same time, many donor/ buyer countries would want to set a similar level of environmental integrity requirements for both.
2) **Stakeholder engagement:** In some host countries, a favourable attitude towards the development of domestic market policy instruments (such as ETS) is currently to a great extent driven

by international donors, whereas key domestic stakeholders play a less prominent role. Apart from that, distrust and a critical view of markets as a burden to the economy often prevails.

3) **Supply and demand:** Potential demand is assessed to be limited; the demand from international aviation and shipping is yet uncertain. Potential host countries might not be willing to participate in Art. 6 before a liquid and sizable market is foreseeable.

4) **Wait and see attitude:** Many Parties have adopted a "wait and see attitude" instead of an active role in the development of the design of the new mechanisms.

5) **Route to mobilise finance:** Art. 6 is often viewed as a potential channel for mobilising financial support. The question is whether there would be space to accommodate it to the traditional 'market mechanism' concept or a separate approach for that would be required.

She then gave the floor to other speakers who presented the preliminary research results for three case study countries – Ukraine, Vietnam and Ethiopia.

2.2 Preliminary insights from case study countries

2.2.1 Ukraine

Julia Melnikova, Research Analyst, adelphi, presented the preliminary research results from the case study on Ukraine. First, she gave a brief overview of the past and current use of international and domestic market mechanisms in Ukraine. Second, she focused on the results of preliminary analysis of domestic capacities for potential use of Art. 6 and, finally, spoke about Ukraine's potential interest in the use of carbon markets. She pointed out that these were preliminary observations made during the research work and not final results, and that getting "real-life" insights from country representatives during the panel discussion was crucial to verify those observations and work further on the case study.

Key takeaways

- Extensive experience with market mechanisms (JI, GIS) & plans to develop an ETS
- Ongoing work on MRV, administration capacities could be strengthened, strong accounting capacity
- Interest in markets expressed in NDC and SBSTA submissions, holistic approach to Art. 6

She reminded that Ukraine had had extensive experience of using international market mechanisms, most importantly through Joint Implementation (JI) and trading AAUs under the Green Investment Scheme (GIS). She said that Ukraine had implemented by far the largest number of JI projects, mostly in the areas of industrial energy efficiency, energy distribution, and fugitive emissions. She said that research had revealed a lot of positive experience related to JI and GIS. In particular, awareness of the private sector about the importance of mitigation measures and their potential benefits was raised; many projects were implemented that would not have been possible otherwise; companies obtained extensive MRV experience. However, she said that representatives of Ukrainian NGOs highlighted that under Track 1, projects had been accepted in large numbers, without sufficient means of quality control and a lack of transparency. As a result, some projects did not deliver sufficient emissions reductions, which undermined trust in JI. She said that domestically, Ukraine had an intention to develop an ETS, which was in line with its obligations under the Association Agreement with the EU of 2014. She added that the development of a robust MRV scheme was regarded as the first step towards an ETS.

Proceeding to the preliminary analysis of domestic capacities of Ukraine to potentially participate in Art. 6, she first mentioned that the intention of the project team was to evaluate various aspects of "market readiness", e.g. potential administration, regulatory, MRV or accounting capacities. She said that the overall aim was to identify potential capacity gaps with a view to making conclusions on how these gaps could better be addressed by current or future cooperation activities in order to support

country participation in Art. 6. As far as MRV capacity is concerned, she spoke about the extensive work on MRV, which was currently being done by the government with support from Partnership for Market Readiness (PMR), including the work on MRV legislation and database, trainings for installation operators, methodologies for GHG emissions calculation, planned MRV pilots, etc. She confirmed that the companies in Ukraine already had reporting requirements but the remaining challenges were primarily the absence of data verification and the lack of common and consistent methodologies for the calculation of GHG emissions. Regarding administration and regulatory capacity, she said that while the country was advanced and had established a well-functioning coordinating framework, the interviews had revealed certain challenges resulting from a recent institutional change – the dissolution of the State Environmental Investment Agency (SEIA), which used to be a specialised body coordinating all domestic as well as international climate policy issues. She said that currently, climate policy was concentrated within the Ministry for Ecology and Natural Resources (MENR), but that due to the scarcity of the personnel resources, the creation of a new body could potentially strengthen institutional capacities but was not envisaged at the current stage. Finally, regarding accounting capacity, she observed that Ukraine had a well-established process for the preparation of the national GHG Inventory and submitted annual National Inventory Reports (NIRs) to the UNFCCC. She remarked that although the country had twice temporarily been suspended from participating in international markets for reasons related to reporting under UNFCCC, it had regained accounting credibility. Additionally, she mentioned that a strategic vision of climate change as an issue of high political priority could strengthen Ukraine's participation in Art. 6.

Speaking about the potential interest of Ukraine in markets, she quoted its NDC, which stated that "Ukraine will participate actively in the development of existing international market mechanisms and implementation of new ones". She also said that, as the interviews had suggested, the country could potentially be more interested in the use of Art. 6.2, but could also imagine participating in Art. 6.4. Moreover, she gave a brief insight in Ukraine's Submissions to the Subsidiary Body for Scientific and Technological Advice (SBSTA) on guidance on cooperative approaches referred to in Art. 6.2, and on rules, modalities and procedures for the mechanism established by Art. 6.4. In particular, she mentioned that the submissions included a suggestion to use a common metric for the outcomes ("…shall be quantifiable and measurable in Metric Tons of CO2e of already achieved or future mitigation of GHG"). Apart from this, she highlighted the integral approach that Ukraine had taken towards Art. 6.2, 6.4 and 6.8 provisions, i.e. both market and non-market mechanisms, and their role in the creation of the holistic enabling environment for facilitating financial flows. Finally, she mentioned that in the latest submission of 2017, Ukraine had proposed an "Art. 6 Decisions' package" covering five Decisions introducing e.g. several types of ITMO classification.

In the conclusion, she said that a lot of effort was currently going on in the country, and that, while the preliminary analysis had revealed certain capacity gaps, they could be overcome through various types of capacity building activities. She said that the country had an interest in Art. 6 and that at the current stage, all options that had been listed in the input paper were, in her view, open for Ukraine.

2.2.2 Vietnam

Sean Healy, Researcher Energy & Climate, Öko-Institut, presented preliminary research results for Vietnam. In his presentation, he first briefly introduced the country context, then spoke about Vietnam's interest in using markets, and, finally, described its domestic capacities.

Key takeaways

- Extensive experience with CDM and JCM
- Need for improvements in administration, MRV & accounting capacity, though basis already exists
- Interest in markets expressed in NDC and national strategies, wait-and-see approach to Art. 6

To begin with, he mentioned that energy made up 57% of Vietnam's GHG emissions, with increasing energy generation from coal, natural gas and oil. He said that energy was followed by industrial processes (9%), Vietnam being one of the top cement producers. He named agriculture, with a significant share of methane emissions, as the third largest source (36%), followed by LULUCF (8%) and waste (6%). He also said that Vietnam's GDP had been growing fast in past years. He pointed out that Vietnam was ranked 4th with regard to registered CDM projects and 7th in terms of the CERs issued, although CER issuance was not as high as the country had hoped. Hydro power dominated the CDM project portfolio. He also said that Vietnam had four registered projects under the Joint Crediting Mechanism (JCM), and a lot of knowledge exchange with Japan had been going on since 2013.

Proceeding to the interest of Vietnam in using markets, he highlighted that in 2012, the National Green Growth Strategy had been approved, which included mitigation targets and measures as well as regulations on linking with international carbon markets. He also confirmed that Vietnam's NDC stated that the country intended to apply market instruments. He remarked that the studies on the marginal abatement cost curve (MACC) of Vietnam had demonstrated high cost-effective mitigation potential that could be utilised. He also mentioned that Vietnam was actively developing NAMAs. With regard to negotiations on Art. 6, he expressed the view that Vietnam had adopted a 'wait and see' approach and added that it had not submitted separate submissions so far.

Speaking about domestic capacities of Vietnam, he mentioned that with regard to domestic administration and regulatory capacities, Vietnam had been successful in planning the national climate change policy framework and establishing intergovernmental coordination. However, he also said that certain improvements were needed, with more clarity required on the roles of leading authorities to avoid the duplication of efforts. He drew an example of the cement sector, which was regulated by different agencies, with the information not always shared among them. With regard to accounting capacity, he said Vietnam was moving in the right direction and that Inventories for National Communications had been carried out by Vietnamese organisations with financial support from international organisations.

He added that the progress towards a national GHG inventory had been challenging, partly due to issues connected with the collection of data from stakeholders that were reluctant to co-operate. He noted that the improvement of QA/QC procedures and activity data could also contribute to enhancing the accounting capacity. Finally, regarding MRV capacity, he quoted Vietnam's Initial Biennial Updated Report of 2014, which stated that current national and sectoral policies that aimed to develop and implement NAMA/MRV were inadequate. He pointed out that the focus of the NAMAs under development was mainly on improving MRV at the sectoral level. He highlighted that domestic capacity for MRV of hydro power projects was assessed as most advanced owing to the experience gained from the CDM, but that in other sectors it was weaker. He briefly described some of the proposed NAMAs and said that one of them included the development of the first sector database for the cement sector, which could lead to significant improvements.

He concluded that a lot of effort was going on in Vietnam, however, the implementation of the planned activities depended to a large extent on technical and financial support. He also mentioned that currently, support was being provided by the PMR i.a. for a crediting NAMA in the steel and waste sector with a perspective of developing a market-based instrument in these sectors in the future. All in all, he summarised that Vietnam already had a good track record with regard to international markets, however, its capacities needed to improve. He said the key question at this point was how to best realise the transition from NAMA proposals to implementation.

2.2.3 Ethiopia

Ritika Tewari, Climate Policy Analyst, NewClimate Institute, presented preliminary research results for Ethiopia. Ritika started off with a short background on the country context and experience with mar-

ket instruments, then presented an assessment of Ethiopia's interest in using markets and preliminary evaluation of domestic capacities for potential participation in Art. 6.

Key takeaways

- Certain experience with CDM
- MRV, administration and accounting capacities are "work in progress", while the right enabling environment for uptake of market mechanisms exists
- Interest in markets expressed in NDC and SBSTA submissions, wish to contribute to rule-making and garner international finance

Setting the context, Ritika emphasised that Ethiopia's GHG emissions only made up 0.4% of global emissions and were mostly concentrated in sectors like deforestation, livestock and crop cultivation, which were also of great social and economic significance for the country. She further noted that whereas electric power, transport, industry and building only had small shares today, emissions in these sectors were expected to rise at the fastest rates with economic development.

She went on to outline that Ethiopia's current carbon market experience was largely gained through the CDM. The sectoral spread of CDM projects reflected the country's emissions patterns, with projects focused on reforestation, methane avoidance, energy efficient cook stoves, etc. She remarked that although Ethiopia had been assessed to have the highest emission reduction potential among African Least Developed Countries (LDCs), only a limited number of projects had been realised due to several constraints. Critical ones among these have been: a mismatch between the country's mitigation potential and available accounting methodologies; implementation challenges; and insufficient capacities for independent off-take (e.g. MRV capacity, access to upfront finance). However, in spite of restricted participation in the CDM, Ethiopia has succeeded in gradually mainstreaming carbon markets in its policy discourse. She also remarked that Ethiopia was quick in transferring ideas initially conceptualised under CDM into NAMAs.

This internalisation of markets in the policy discourse is also reflected in Ethiopia's interest in future markets. Synthesising the analysis of Ethiopian submissions and interviews with relevant country stakeholders, Ritika mentioned that Ethiopia has clearly stated its interest in future markets in its first NDC. It has also been actively participating in Art. 6 negotiations, as opposed to a 'wait and see' approach of many countries. Literature indicates that Ethiopia envisages to mobilise international support via markets to implement its NDC as well as the Climate Resilient Green Economy (CRGE) strategy. Further, the country hopes to influence and participate in the rule-making for markets from the start to avoid design limitations like those in the CDM. Distilling the SBSTA submissions (within LDC group), Ritika stressed that Ethiopia has expressed support for the development of new modalities and procedures under Article 6.4, but also possible replication of certain existing rules. With regards to Art. 6.2, she said that Ethiopian submissions stressed the need for clarity and harmonisation of NDCs as a prerequisite for ITMO generation. This could be achieved i.a. by agreeing on the quantifiability of ITMOs in GHG terms, developing clear trajectories for long-term NDC targets, etc. Ethiopia also supported setting a net mitigation contribution from both Art. 6.2 and 6.4 approaches.

Against this background, Ritika presented an evaluation matrix for domestic capacities and readiness for Art. 6. She added that the criteria underpinning the matrix were based on previous project research and could be grouped into three categories: enabling, scalability, and effectiveness factors (see below). She then presented the preliminary results for Ethiopia's case according to the suggested criteria. She stated that regarding enabling factors, Ethiopia had been ambitious in setting up structures and institutions and had created a legal framework in the form of the CRGE strategy which was being coordinated by the highest political office. She also stressed that the country had been proactive in developing CDM pilots in sectors relevant for the NDC, and NAMAs. She also drew attention to the

strong political will, presence of climate champions in key ministries and high interest among stakeholders, remarking that private sector interest existed but had not been a major driver so far.

Table 1: Exemplary criteria for country selection

Factors	Description	Examples
Enabling factors	Creating an enabling environment for uptake of mitigation activities	• Prior experience • Overall political will and oversight • Interest among stakeholders • Actual mitigation potential in the country/sector
Scalability factors	Translating the initial understanding/experience of mitigation action into institutionalised and scalable implementation	• Domestic administrative and regulatory capacity • Implementation capacity of stakeholders (primarily private sector)
Effectiveness factors	Ensuring that the achieved outcomes follow the desired standards, esp. with regards to environmental integrity	• Quantifiability and transferability of reductions (clarity in the NDC) • Feasibility of maintaining robust domestic accounting (including measures to avoid double counting) • Domestic structures and capacity to MRV

Source: Authors

She went on to give an estimate of the scalability factors. She confirmed that detailed coordination protocols and intra-ministerial technical structures were currently evolving, especially at the subnational level, and sector-specific challenges continued to exist. Regarding effectiveness, she specified that the CRGE defined clear, quantifiable targets and actions, and that the development of the MRV framework was in progress. She identified the lack of formalisation and standardisation of emissions data reporting, monitoring and storage, as well as limited accounting capacities in a few sectors as key remaining challenges for national emissions accounting. She concluded that both scalability and effectiveness factors were a "work in progress", with capacities evolving (esp. at subnational level) and critical challenges in certain sectors. She stressed that capacities were disaggregated but not inexistent. In her conclusion, she said that Ethiopia was on the right track and that the most feasible options for Ethiopia under Art. 6 in the foreseeable future could potentially be project- and programme-based mechanisms while national capacities were being developed for economy wide emission accounting and MRV.

3 Q&A and discussion with the participants

The presentations were followed by a discussion of selected key themes:

- Potential recommendations to the case study countries;
- Understanding of conditionality in NDCs;
- Understanding of the purpose of Art. 6;
- Preliminary recommendations on potential next generation of support programmes under Article 6.

Summary of the discussion

Potential recommendations to the case study countries

One participant wondered if the project team already could give some broader insights into what markets could look like after 2020 and deliver any concrete recommendations for the case study countries. One project team member provided a short background to the case study process, explaining that the case studies built on previous research work undertaken in the project with some publications already available to the public. She added that the theoretical understanding set forth in those publications guided the research team's understanding of markets. In its response the team suggested that for Vietnam, preliminary recommendations could include e.g. focusing on the development of an ETS in the iron and steel sector, which could potentially be linked with other ETSs under Art. 6.2. It was also suggested that Vietnam could focus on developing further NAMAs, which could potentially generate credits under Art. 6.4. In addition, the team described the case study process as the process of "real-time tracking" of Paris and post-Paris discussions, bringing them back to the country level and assessing potential pathways for progress. He remarked that the countries had different capacities and were at different stages of readiness, and examining readiness could help give recommendations as to what kind of support could best be provided at the current stage. Also the team still needs additional input before finalising the case studies and develop the recommendations. Finally, it was noted that looking at domestic challenges and highlighting previous experience with market mechanisms could also potentially help improve the design of the new mechanisms.

Understanding of conditionality in NDCs

One participant wanted to know whether the understanding of the term "conditional" in the NDC context was the same for both Ethiopia and Vietnam. A member of the project team explained that the term "conditional" means that the implementation of an NDC is dependent on the provision of international support and that the understanding of conditionality is roughly the same in both countries.

Understanding of the purpose of Art. 6

Another question was whether the three countries had a similar understanding of the purpose of Art. 6. The project team replied that whereas everybody was on the same page in terms of Art. 6 having the purpose of incentivising mitigation action, not everyone had the same understanding when it came to the question how this was supposed to happen.

Preliminary recommendations on potential next generation of support programmes under Art. 6

One participant asked if the project team had suggestions to donor countries regarding the best way to set up a "new generation" of support programmes to implement Art. 6, and the potential design of such programmes. She mentioned that currently, the PMR and other support programmes helped build the countries' capacities but that it was worthwhile thinking about the next generation of support programmes on Art. 6. A project team member confirmed that one of the ultimate objectives of the case studies was indeed to identify the needs of the countries and make recommendations on how the upcoming support programmes could look like. She added that some of these recommendations were going to be overarching, while some case-specific.

Another presenter said that it was necessary to look at commonalities between countries for broader support programmes to be developed, as well as identify differences, to design country-specific programmes. He also remarked that the suggestions on immediate actions and support would potentially differ from longer-term recommendations. Finally, another project team member stressed that, prior to designing new support programmes, clarity on the design of the new mechanisms under Art. 6 was required.

4 Panel discussion: Countries' possible options in the context of Article 6 and prospects for international collaboration

During the panel discussion, the panellists primarily focused on the following aspects:

- Participation options under Art. 6 according to country context;
- Assessment of country needs for the implementation of Art. 6;
- Major challenges in the past and glance into the future;
- Prospects for international and bilateral support.

Taras Bebeshko (Carbon market negotiator and advisor to the Minister of Ecology and Natural Resources, Ukraine)

Taras Bebeshko pointed out that it was interesting that the discussions on Art. 6 extended beyond the UNFCCC negotiations. At the same time, he emphasised that it was extremely challenging to evaluate the readiness of various countries to implement Art. 6 as long as there were no agreed international rules to make it operational. In the following, he confirmed that Ukraine was eager to work with potential instruments under Art. 6. He stressed that the key words for the processes that were going on in Ukraine in the area of market mechanisms were innovation and dynamics. He confirmed that Ukraine had had a lot of experience with market mechanisms and had been involved in many projects like JI and the GIS, including a variety of project types, e.g. 'hard' and 'soft' greening. He mentioned that the private sector in Ukraine had developed a taste for these projects. He said that the key questions that the Ministry and the private sector were asking themselves at the moment were market-related questions, e.g. regarding the creation of a liquid national product, how (whether artificially or manually) to maintain the market deficit to generate liquidity in the long term, which innovative instruments to use, etc. He said that the questions of what was going to be traded and how were the first questions to be answered, and added that those questions were, unfortunately, not always addressed at UNFCCC negotiations. He also stressed that for Ukraine, environmental integrity was of great importance.

Against this background, he then noted that Ukraine was actively working on its MRV system and that, owing to the PMR project, many previous gaps could be addressed. He assured that Ukraine was going to establish a strong MRV system both for emissions sources and sinks. He added that for the establishment of an ETS, the country was considering the coverage of various sectors, with a mixture of obligatory or voluntary involvement. He mentioned that in the development of market instruments Ukraine was looking at experiences of different countries and regions including Japan, Canada or the Western Climate Initiative (WCI). Moreover, he highlighted that Art. 6 was one unified article, which was why Art. 6.2, 6.4 and 6.8 had to be regarded in a holistic approach. He stressed that nonmarket approaches under Art. 6.8 were of great importance and could include fiscal instruments, general economic instruments, etc. Finally, he concluded that Ukraine was eager to implement markets and was supporting robust accounting and pushing for environmental integrity. He emphasised that there were diverging definitions of environmental integrity in the international debate and that, in the view of Ukraine, it was a sum of environmental and economic soundness, which were two components of sustainable development. At the same time, he said Ukraine was striving to contribute to the creation of a strong, robust and liquid international market.

Nguyen Thi Dieu Trinh (Ministry of Planning and Investment, Vietnam)

Nguyen Thi Dieu Trinh thanked the project team for providing an external point of view on the in-country work. She stressed that she was responsible for policy implementation on the ground and that in developed countries, people had a different level of education and knowledge, with many people on the ground unaware of issues like NAMAs, MRV or Art. 6. She said the challenge was to help them understand those issues. She confirmed that Vietnam already had strong climate policy commitments and had translated them into legal documents, 70% of which were evaluated to be of high quality by a recent review from the business community. However, she regarded the enforcement of legal docu-

ments as well as their implementation at grass-roots level as much more challenging. She said that what was to be traded had to be attractive to the people on the ground.

Furthermore, she stressed that for Vietnam, it was crucial to find a balance between defining reduction targets and maintaining economic growth. She said that the Ministry of Planning and Investment, while working out possible carbon pricing approaches, was trying to find the best solutions that would not harm the economy. Currently, she said that there were no sufficient reliable financial and technical resources at local level for the country to be up to international standards. She said that international technical guidelines as well as case studies from developed countries on how to establish market mechanisms could be extremely helpful for Vietnam to learn from this experience. She also mentioned the time challenge: While MRV had to be developed in the short term, there were not enough technical resources for that. She insisted that it was crucial to involve the private sector and that easy ways – stick and carrots approaches – ought to be found to engage private stakeholders from the start, because the state budget could not cover all necessary resources. She mentioned that developed countries had experience with and tools for mobilising private finance, which Vietnam could learn from. She remarked that Vietnam had an unconditional and a much more ambitious conditional NDC target and needed financial flows and technologies to implement it. She said that Vietnam was ready for complicated procedures to attract international donors. She concluded that Vietnam had a strong commitment but needed strategic support.

Moreover, with regard to next steps and recommendations, she suggested having overarching support programmes focused on different articles of the Paris Agreement including Art. 6. She also recommended the project team to go further in the study and assess not only the institutional setup but also financial as well as technology needs for implementing Art. 6. She added that the mechanism under Art. 6.4 should contribute to the implementation of Sustainable Development Goals. She concluded that Vietnam was willing to be ready for the implementation of Art. 6 with international support. She added that Vietnam was working with UN agencies, the German government, was part of various international and regional fora, but that the greatest remaining challenge was explaining the interconnections between climate policy processes and showing benefits of climate action at the implementation level. She said that the Ministry intended to foster regular effective dialogues with stakeholders. Finally, she mentioned that Vietnam was piloting MRV in cities, which could potentially lay the groundwork for Art. 6 implementation.

Ambachew Admassie (Carbon market expert and negotiator, Ethiopia)

Ambachew Admassie found it interesting that case study countries represented various stages of carbon market experience and readiness. He remarked that sustainable development was, in his view, not only relevant for Art. 6.4, but also equally relevant for Art. 6.2. He explained that with regard to Art. 6, Ethiopia was in the "wait-and-see while participating" mode. He stressed that in Ethiopia's view, future mechanisms had to enable participation of all countries, ensure the highest environmental integrity standards and be based on robust international infrastructure. At the same time, Ethiopia was willing to use markets, although international rules were to be agreed on first.

He mentioned that, being an LDC, Ethiopia has pressing developmental priorities which often make it difficult to allocate resources specifically to climate issues. He stressed that Ethiopia's focus was on low-emission development in consideration of its national circumstances rather that raising ambition of mitigation action. On capacities, he confirmed that the work on development of an MRV system (both for national emissions and the CRGE strategy implementation) is underway but it was unclear so far what kind of MRV would be required to implement Art. 6. In the absence of clear rules, Ambachew clarified that Ethiopia did not have a specific attachment to any market mechanism option. He said that the country had an aspiration to use markets (also mirrored in its NDC) and highlighted that markets were regarded as one avenue for climate finance to support low-carbon development. He clarified a

clear interest of Ethiopian private sector in future markets, mentioning that the first standardised baseline for the cement sector in the world was proposed by Ethiopia.

He went on to outline some key priorities that underlay Ethiopia's position on future markets. First and foremost, he stated that the concepts of environmental integrity and overall net mitigation were crucial. He emphasised that the rules of the new mechanisms had to consider the context of every country, as well as the lessons learnt from previous mechanisms like the CDM. He stressed that adequate representation of experts from all countries in international governance structures and equal access to the mechanism by all willing participants was key. He offered an example of the CDM where the access opportunities for African countries were low and it was more complicated to take part in the verification procedures, and said that this ought to be improved in the future. He also stressed the importance of highest ethical standards to avoid inconsistent decisions, e.g. accepting one project and rejecting another one for the same reasons. He added that it should be identified whether new mechanisms would be market or bailout mechanisms. He finally concluded that once the design of the new mechanisms began to take shape, forms of support will have to be identified to support country's readiness to participate.

5 Wrap-up of the discussions and concluding remarks

Dr. Karsten Karschunke thanked the participants and summarised the key points of the discussion. He emphasised the importance and urgency to gain more clarity on the rules for the new mechanisms, which lied in the hands of the negotiators. He said that based on the rules, one could develop a framework for various market-based instruments, ranging from ETSs to microscale projects in developing countries. He highlighted the role of the LDC perspective and their previous experience (e.g. with CDM or NAMAs). He said that once the rules existed, options for using the mechanisms had to be showcased on the ground. He stressed the role of capacity building and providing support for piloting. Finally, he said that the question of how the instruments were politically embedded was of great importance.

6 Workshop Agenda

Time frame	Programme
18:00 – 18:15	Welcome and introduction to the project *Dr. Karsten Karschunke, Emissions Reduction Projects – CDM (DNA)/JI (DFP), German Environment Agency (UBA/DEHSt)* *Dennis Tänzler, Director International Climate Policy, adelphi*
18:15 – 19:30	Are countries ready for Article 6? Preliminary results from case study research: Presentation & Discussion *adelphi, NewClimate Institute, Öko-Institut* • Domestic and international carbon market activities in case study countries Ethiopia, Ukraine and Vietnam • Country positions and capabilities for implementing Art. 6 – preliminary observations
19:30 – 19:45	Break
19:45 – 20:45	Panel and plenary discussion: Countries' possible options in the context of Art. 6 and prospects for international collaboration *Taras Bebeshko (Carbon market negotiator and advisor to the Minister of Ecology and Natural Resources, Ukraine)* *Ambachew Admassie (Carbon market expert and negotiator, Ethiopia)* *Nguyen Thi Dieu Trinh (Ministry of Planning and Investment, Vietnam)* • Participation options under Art. 6 according to country context • Assessment of country needs for the implementation of Art. 6 • Major challenges in the past and glance into the future • Prospects for international and bilateral support
20:45 – 21:00	Concluding remarks and closing *Dr. Karsten Karschunke, UBA/DEHSt* *Dennis Tänzler, adelphi*

7 List of participants

Last Name	First Name	Organisation
Admassie	Ambachew Fekadeneh	Carbon market expert and negotiator, Ethiopia
Ahlberg	Malin	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Bebeshko	Taras	Carbon market negotiator and advisor to the Minister of Ecology and Natural Resources, Ukraine
Braden	Sven	Office of Environment, Lichtenstein (EIG negotiator)
Chagas	Thiago	Climate Focus
Croad	Todd	Ministry for the Environment, New Zealand (Umbrella Group Negotiator)
Fee	Eric	German Environment Agency (UBA)
Friedrich	Angela	Federal Ministry of Agriculture, Forestry, Environment and Water (BMLFUW), Austria
Gebreyes	Binyam Yakob	Ministry of Environment, Forest and Climate Change and negotiator, Ethiopia
Guiance	Sila	Department for Business, Energy & Industrial Strategy, UK Government
Hancock	Kate	Department of Foreign Affairs and Trade, Australia (Umbrella Group negotiator)
Hausotter	Tobias	GIZ
Healy	Sean	Öko-Institut e.V.
Hone	David	Shell
Thompson	Bill	BP
Yukhymchuk	Olga	Ministry of Ecology and Natural Resources, Ukraine
Kachi	Aki	Carbon Market Watch
Karschunke	Karsten	German Environment Agency (UBA)
Koakutsu	Kazuhisa	Ministry of the Environment, Japan
Kurdziel	Marie-Jeanne	NewClimate Institute
Lamp	Hannu	Environmental Investment Centre, Estonia
Li	Lina	adelphi
Melnikova	Julia	adelphi
Mortier	Laurence	Federal Office for the Environment, Switzerland (EIG negotiator)

Last Name	First Name	Organisation
Nguyen	Thi Dieu Trinh	Ministry of Planning and Investment, Vietnam
Pabón Restrepo	Giovanni Andrés	Ministry of Environment, Colombia (AILAC negotiator)
Stavchuk	Irina	National Ecological Centre, Ukraine
Swartz	Jeff	IETA
Tänzler	Dennis	adelphi
Tewari	Ritika	NewClimate Institute
Warnecke	Carsten	NewClimate Institute

Environmental Research of the
Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Project number: 3714 41 506 0

Are countries ready for Article 6? Is Article 6 ready for the countries? Final results of a research project against COP23 outcomes

Workshop minutes, 7 December 2017, Berlin

By

Julia Groß and Dennis Tänzler

adelphi consult GmbH

With contributions from

Carsten Warnecke, Marie-Jeanne Kurdziel, Ritika Tewari

NewClimate Institute

Sean Healy

Öko-Institut e.V.

On behalf of the German Environment Agency

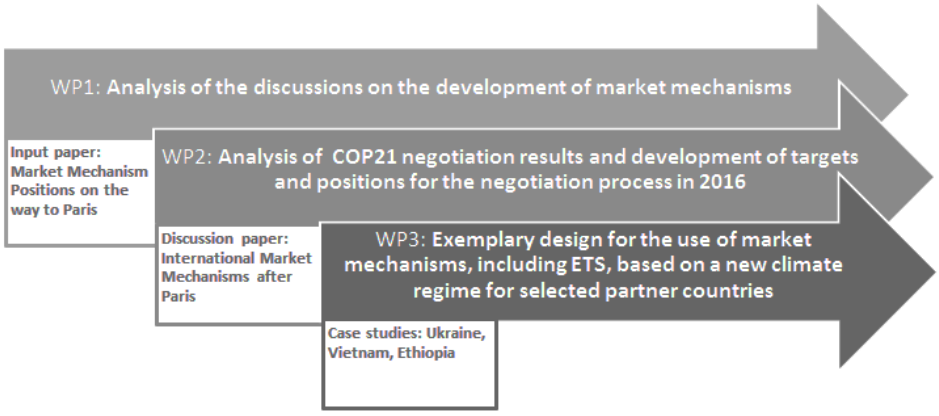
December 2017

1 Introduction and overview of the research project

Dr. Karsten Karschunke from the German Environment Agency (UBA) welcomed the participants and said that the workshop was a concluding part of the research project "Analysis of interactions between new market mechanisms and emissions trading systems" (FKZ: 3714 41 506 0), which was conducted by adelphi, Öko-Institut and NewClimate Institute for the German Environment Agency from 2015 to 2017, and had been following the developments around market mechanisms from before the Paris Agreement until the COP23. He noted that whereas in 2016, Article 6 negotiations made only limited progress, in 2017 discussions on the substance of future market mechanisms were held for the first time, and considerable progress had been made in the months leading to the COP23 in Bonn, with a clear mandate to finalise the rulebook for Article 6 in 2018.

Julia Groß from adelphi said that the project had not only witnessed but also reflected all major milestones in the international climate change policy in the last two years. While first focusing on country positions merging into what is now Article 6 and analysing its provisions, the project then went down from the negotiation level to the in-country level, which is less prominent in the negotiation context, and focused on domestic capacities for Article 6 and means to enhance country readiness through international support. As the Paris Agreement rulebook is not yet finalised, it would be valuable to reassess project results as soon as the rules are agreed upon.

Figure 1: Project Design



Source: Authors

2 Are countries ready for Article 6? Presentation of the final case study results

Ritika Tewari, NewClimate Institute, summarised the results of the project with regard to the capacities of countries to engage in Article 6 and potential ways to support them through enhanced international collaboration:

- How ready are countries to generate high-quality mitigation outcomes?
- Are countries ready to be able to transfer outcomes in a way to avoid double counting?

While the readiness will to a large extent depend on the guidance and rules to be agreed upon multilaterally, three key elements have been identified for analysing the countries' capacity to engage with Article 6:

- **Enabling conditions:** the elements that play a facilitative role in the uptake of instruments that would generate mitigation outcomes;

- **Feasibility of maintaining robust MRV and accounting:** the strength of domestic systems to ensure the generation of high-quality ITMOs, track transfers and undertake corresponding adjustments;
- **Compatibility of NDC:** the type and content of NDC obligations, which affect the transparency of what is considered an ITMO and its quality.

The project team has conducted specific case studies, to analyse these key elements for three countries: Ukraine, Vietnam and Ethiopia.

2.1 Enabling conditions

While all three countries have expressed their willingness to participate in the post-2020 markets in their NDCs, the starting points to engage in market instruments vary and motivations to participate differ substantially (see graph below).

Figure 2: Enabling factors

Source: Authors

2.2 Feasibility of maintaining robust MRV and accounting

With regard to accounting, MRV systems, implementation capabilities, and registry experience, various levels of capacities have been observed:

- Ukraine is at a relatively advanced stage considering the infrastructure it has created being a Kyoto Protocol Annex B Party (with more substantive experience with MRV procedures, accounting and national registry), although implementation capacities at the installation level still need to be improved.
- Although the MRV and accounting capacities of Vietnam and Ethiopia are rather limited, they are being developed in a few priority sectors covered by the NDCs with the support from international donors. Kyoto Protocol activities and Nationally Appropriate Mitigation Actions (NAMAs) have been the major catalysers of these developments. Main barriers for these countries are the financial, technical and institutional resource constraints that limit the capacity to independently develop inventories and the full scale MRV system. There is limited discussion on how single-standing sectoral MRV structures fit in the overall policy and institutional framework required for the NDC.
- In all three countries a need for broadening and deepening institutional capacities to implement market mechanisms has been identified. Currently, they are limited to a few champions or institutional bodies, while the subnational and private sector capacities (especially for the installation-level MRV) tend to be limited.

2.3 Compatibility of NDC

There are some similarities and differences in NDCs put forward by the three countries:

- All three countries have economy-wide, absolute emission reduction targets. And all have single-year targets with the target year 2030.

- Ethiopia's target is conditional; Vietnam's target includes conditional elements; and Ukraine has an unconditional target.

Last but not least, it is necessary to address the interlinkages between Article 6 and other Paris Agreement provisions:

- Article 13.7 (b): information necessary to track progress towards NDC implementation;, which would include information on ITMO transfers;
- Article 9: Distinction between support for conditional NDCs through market mechanisms and climate finance commitments under Article 9;
- Article 13.10: reporting on support needed and provided.

Key takeaways

As we will enter into an international market mechanism regime without a strict distinction between buyer and seller countries, and all Parties have to take adequate effort towards global mitigation, the approach on markets also needs to be modified:

1) Differing readiness may present countries with different entry-points for participation in Article 6 options (see Table 1 below).
2) Countries interested in Article 6 need to realise what role market mechanisms are going to play in their NDC achievement.
3) Readiness for using markets is closely linked to the readiness for implementing the NDC.
4) Unpacking NDC targets will be important to facilitate environmental integrity objectives of Article 6:
   - Single year targets increase the risk of hot air – to avoid it, it is recommended to define trajectories leading to the target year.
   - Conditional NDC elements have a risk of double counting of mitigation outcomes (and support) and lowering global mitigation ambition – it is important to address this issue through specific reporting and accounting requirements.
5) Operationalising environmental integrity principles under Article 6 would benefit from a discussion across agenda items [Art. 13.7(b), Art. 13.10 and Art. 9].

2.4 Role of international support in Article 6 readiness

Ritika Tewari also addressed the question of how international cooperation can support Parties in their engagement with Article 6. She said that immediate support for NDC implementation readiness would benefit respective countries' readiness for engaging in market mechanisms. Raising awareness and mobilising the engagement of the private sector and subnational actors as well as providing support for strengthening institutional capacities are of great importance. Moreover, supporting or developing platforms for learning and sharing experience, and piloting market instruments could also be beneficial. Progress can also be achieved by simply enhancing the understanding of what future markets would look like and what capacities are required to participate in them. It is necessary to distinguish between country-specific and overarching support needs.

Table 1: Different entry-points for participation in Article 6 options

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)			
	Ukraine (advanced)	Vietnam (medium)	Ethiopia (early)
ITMO transfers as a result of linked Emission Trading Schemes	x	x	

Options for ITMO transfers under Article 6.2 (x) and Article 6.4 (xx)			
Direct transfers of ITMOs between countries	x		
Transfers of ITMOs generated from bilateral baseline and crediting instruments (e.g. JCM)	x	x	x
Transfers of ITMOs generated from international baseline and crediting instruments	xx	xx	xx

Source: Authors

3 Brief summary of specific outcomes from case study countries

3.1 Ethiopia (presented by Ritika Tewari, NewClimate Institute)

Options for use of Article 6 market mechanisms

There is better readiness for generating transfers via less complexly structured instruments in the immediate future (approaches based on baseline and crediting instruments developed at project/programmatic scales are the most immediate entry-point). It is necessary to carefully consider the role of carbon markets (and climate finance) in NDC achievement and risks of overlaps.

Entry-points for international support

1) Focussed technical support on linkages between Article 6 and NDC implementation:
   - Developing a multi-level MRV system to administer mitigation activities at the national, sectoral and intervention levels.
2) Furthering in-country sectoral MRV capacities for market mechanisms:
   - Supporting technical readiness of public, private and sub-national actors in key sectors;
   - Awareness raising on Article 6 developments.
3) Access to platforms for sharing experiences and lessons learnt, especially by developed countries.

3.2 Vietnam (presented by Sean Healy, Öko-Institut)

Options for use of Article 6 market mechanisms

Crediting instruments seem to be the most feasible in the short term. In the longer term, the linking of the proposed small scale emissions trading systems (ETS) for the iron and steel sector may be a future option for Vietnam. Allocating more personnel resources to the development of market mechanisms could support the country's engagement with Article 6 options. Raising the level of NDC ambition is crucial to avoid the risks of potential restrictions from the use of market mechanisms (in case there are any).

Entry-points for international support

1) Furthering in-country MRV capacities for market mechanisms:
   - International support necessary to develop tools for streamlined, common emissions reporting and training for actors reporting and administering MRV systems.
2) Technical support on linkages between Article 6 and NDC implementation:

- If Vietnam's current participation in the JCM is to evolve into a cooperative approach with Japan, will be necessary to agree upon how the ITMOs generated would be distributed amongst the two countries.
- Technical support for the design of a future ETS and possible linkage with other countries.

3) Sharing experiences and learning lessons:
   - International technical guidelines as well as case studies from developed countries on how to establish market mechanisms could be extremely helpful for Vietnam to learn from this experience.

3.3 Ukraine (presented by Julia Groß, adelphi)

Options for use of Article 6 market mechanisms

In the future, the whole range of preliminary options could be used. As ETS establishment and linking are time-consuming and effort-intensive processes, crediting instruments and direct transfers are more feasible in the near future.

Entry-points for international support

1) Ensuring compatibility of MRV system with Article 6 requirements as soon as they are set (effective legislation, piloting, trained operators, increased transparency, high-quality verification, additionality assessments, etc.);
2) Raising awareness of more actors and engaging them in the dialogue on potential incentives for using Article 6 (e.g. other relevant ministries and the private sector; cooperation with Ukrainian NGOs);
3) Providing support for the creation of a separate national authority on climate policy issues, which could bring multiple co-benefits (e.g. enhance institutional coordination);
4) Conducting studies on the opportunities for raising NDC ambition;
5) Organising demand-driven technical dialogues (e.g. on specific ETS design/ linking issues).

4 Q&A

The presentations were followed by a discussion of selected key themes:

4.1 Risks of regarding NDCs as "emissions budgets"/using NDCs for baseline setting

INDCs were put forward in a different context (fulfilled mainly a signal function before the Paris Agreement) and the targets as well as the conditional and unconditional shares were often not based on scientific data. For this reason, taking the NDC targets for baseline setting might be misleading. This could, however, change in the context of the future NDCs, if those are based on careful scientific assessments. Some of the current NDCs might also be too ambitious for the same reason of lacking/limited initial scientific basis. One way of dealing with the issue of hot air is supporting the development of the sound data basis the NDCs should be based on.

4.2 Integration of market mechanisms in NDC implementation and long-term climate strategies

Many developing countries still think from an offsetting perspective without taking into consideration the new context of the Paris Agreement (the value of reductions for every country). Ideally, to understand how ITMOs should be used, it is very important to consider this question in the context of an

NDC implementation strategy and in an even longer-term perspective, because every NDC should be embedded in a long-term climate strategy.

At the current stage, many developing states would welcome any kind of support to implement their NDCs. At the same time, is important to be realistic what the country can achieve with national efforts and what is really wants to achieve. International cooperation cannot support all efforts without judging about how realistic they are.

4.3 Other issues

- Developing countries face domestic pressures and need to balance support for measures against climate change against other national priorities.
- It is important to closely coordinate international donor activities (e.g. Vietnam is already working closely with the Japanese government) to avoid the duplication of effort.
- Should climate finance be considered as a means of raising NDC ambition? What is raising ambition? A unified international view on ambition raising is needed.
- The definitions of "economy-wide NDC" differ across countries (e.g. Vietnam does not include industry in its NDC but refers to it as "economy-wide"). One participant assumed that putting certain sectors outside of the NDC scope might sometimes even be a strategy to benefit from the market.
- Risks of double-counting from conditional NDCs as compared to unconditional NDCs should be further clarified.

5 Prospects for German international cooperation on carbon markets against the backdrop of COP 23 outcomes: Input statements

Ambachew Admassie (Crabon market expert and negotiator, Ethiopia)

The readiness assessment should take into consideration whether the analysed countries fall under Article 4.2 or 4.6 of the Paris Agreement (e.g. least developed countries (LDCs) and small island developing States (SIDS) "may prepare and communicate strategies, plans and actions for low greenhouse gas emissions development reflecting their special circumstances"). This distinction has an impact on double counting issues and the technical side of Article 6.

In particular, LDCs in general have very insignificant overall emissions. Most of them include high-emission sectors in their NDCs. The sectors not included in the scope of their NDCs would be too insignificant to pose a threat to environmental integrity. Ethiopia's NDC includes all IPCC sectors and all major economic sectors. The emissions from the sub sectors not included in the scope of the NDC are too insignificant compared to the total national and global emissions. Therefore, the debate on the scope of Article 6 (only the scope of NDC or also beyond the scope of NDC) is not really relevant in the LDC context.

Although Ethiopia has communicated a single year target, in reality, the target is linear from the base year to the target year. Simple mathematics can thus deliver the interpolated annual target for Ethiopia.

All LDCs, against the backdrop of their special circumstances, focus on low emission development plans through various support / financing options and combinations. For Ethiopia, it will be easier to identify specific areas for potential support for the engagement with Article 6 once the Paris rulebook is finalised. Currently, Ethiopia goes beyond its Paris Agreement commitment and undertakes unsupported mitigation action from large hydropower plants connected to the grid.

Malin Ahlberg(BMUB)

Malin Ahlberg summarised the areas, which are of special relevance for the international and German support activities related to market instruments in the near future:

1) There are certain technical issues where support is required (MRV, avoiding double counting).
2) Overarching issues such as NDC implementation should be supported; countries should be brought in a position to put forward clearer, more thought through NDCs in the future.
3) Linking market instruments with long-term climate strategies:
   - Providing support for the development of long-term low-emission development strategies;
   - Defining the role of domestic carbon pricing instruments in the long-term perspective.
4) Enabling countries to raise their ambition: Although all countries have to comply with Article 6, the question remains how they interpret ambition raising. The use of cost-effective instruments per se does not automatically lead to raising ambition. Possible ways forward could be:
   - Establishing an international dialogue on ambition raising;
   - Reaching agreement on the rules for promoting or at least not preventing ambition raising.
5) Supporting countries if they want to coordinate carbon market efforts regionally: This does not necessarily mean linking ETS. In the first place, it is good when the global carbon market gradually emerges through numerous spots worldwide. Linking carbon pricing instruments with NDC implementation is crucial.

Currently, the second phase of the Partnership for Market Readiness (PMR) is being discussed. It is supposed to be different from the first phase, which was mainly aimed at very preliminary work to explore and occasionally test various carbon pricing instruments. This time, the focus should primarily be on implementation. Stronger commitment from the countries is required. The name of the initiative might need to be changed to reflect the new circumstances.

6 Prospects for German international cooperation on carbon markets against the backdrop of COP 23 outcomes: Plenary discussion

During the plenary discussion, the following selected questions were discussed:

Whom to support?

While a political framework for climate action is established in some countries (like Vietnam), major gaps include private sector engagement and financial support. In the case of scarcity of financial support, how should the countries be prioritised (providing more support to major emitters or countries that are more ambitious)? On the one hand, special support needs of LDCs and SIDS have to be considered. On the other hand, middle-income countries are also short of resources to finance climate action. An ultimate goal should be to enable all countries to make a contribution to the global mitigation efforts.

How to link carbon pricing instruments and NDC implementation? How to incorporate Article 6 activities within current and future NDCs with the possibility of raising ambition?

One of the outcomes of the case studies was that all support provided for NDC implementation could indirectly also strengthen the readiness of the countries to use market mechanisms. Future support should thus focus on embedding Article 6 and domestic carbon pricing instruments in the broader context of NDC implementation. While previous support was mainly targeted at the development of domestic carbon pricing instruments, now the main area would be to help develop these instruments in the NDC context to make them contribute to NDC implementation and integrate them in the low-

emission development strategies. One participant noted that a similarly broad-based approach is taken by some climate finance institutions, which support "transformational change" in the countries (building an investment framework, supporting policy reforms, developing legislation on energy efficiency and renewable energy, etc.). Putting money in policy reforms (e.g. MRV) alone does not work unless there is a clear goal and vision (e.g. ETS establishment).

To clearly understand the role of Article 6 within the long-term mitigation strategy in a country, there should be sufficient information on which parts of the NDCs can be realised through own country effort. If certain project or policy types are not possible to realise with domestic effort ("high-hanging fruit"), these need to be supported.

Currently, a certain fragmentation between the debate on Article 6 and the discussions on NDC implementation can be observed (e.g. the NDC Partnership is almost not involved in Article 6 discussions). Ideally, initiatives like the NDC Partnership should be increasingly utilised to support market mechanisms. Another participant responded that little engagement of the NDC Partnership with market mechanisms so far had to do with the absence of the rulebook for market mechanisms and the resulting lack of clarity regarding their usage to implement NDCs.

Finally, one participant wondered how market mechanisms could be integrated in a long-term climate strategy in light of the diversity of NDCs (e.g. what do intensity-based NDC targets mean for the use of market mechanisms under Article 6). Further research needs to be conducted on this issue.

Where will the demand for market mechanisms come from?

The EU will have no demand for international mitigation outcomes until 2030 and probably also beyond. There are very few countries that intend to buy mitigation outcomes according to the current (I)NDCs (Japan, New Zealand, Switzerland, and South Korea); a certain demand from CORSIA is expected. The demand thus seems to be very low, also given that some countries will be struggling to prolong the CDM. At the same time, a certain demand at a lower level (subnational or even private actors and institutions) and also regional demand hotspots (e.g. in Latin America or Asia) can be observed. Moreover, additional potential demand (though not explicitly mentioned in the NDCs) could come from the Northern countries that have climate neutrality targets (e.g. Sweden, Norway). Other neutrality targets might follow from other countries shortly. In the second round of NDCs countries should strengthen their targets, which could mean additional demand.

Why to support?

One participant wondered why Germany was putting so much effort on supporting markets. Another participant mentioned that the EU has long-term experience with emissions trading, and it is important to share the accumulated knowledge with other countries to help them avoid the same mistakes at the beginning of the ETS establishment. Moreover, while there is currently a rise of political willingness towards climate neutrality, market mechanisms could help support these efforts (e.g. through voluntary compensations).

How to effectively use support? Are there certain limits to support?

In many cases, market instruments recommended by external actors are too complicated for countries to implement and effectively manage. Careful consideration is required to decide whether market mechanisms should be substituted with alternative measures in certain countries (results-based finance; regulatory measures; promotion of energy efficiency and renewable energy). On the other hand, carbon pricing instruments are cost-effective, which makes them a needed solution. Carbon taxes are easier to implement than ETS.

One participant wondered if focusing on domestic market instruments (e.g. with PMR support) should be complemented with specific Article 6 related support. Other participants regarded this as not necessarily required.

One participant expressed an opinion that the Paris Agreement has certain limits in terms of the ability to set up rules to ensure environmental integrity (there are no visible viable solutions for single-year targets, environmental integrity of units, etc.).

7 Concluding remarks

Frank Wolke from the German Environment Agency summarised the results of the discussion. The readiness of the countries for Article 6 varies a lot because the countries have different circumstances and infrastructure. However, it is clear that many countries face a lot of challenges, which can be classified as the project team suggested (enabling factors; technical capacities e.g. MRV and accounting; compatibility of NDCs).

How can the countries be supported and how can their readiness be enhanced? First, it is necessary to reduce the uncertainty: Many countries do not have substantial understanding why Article 6 could be valuable for them. Second, technical support plays a key role. Establishing robust in-country systems based on data and scientific information that can guarantee robust accounting, and sharing technical expertise on the ground would enable the countries to use all kinds of market mechanisms in the future. Third, focusing the efforts on further developing NDCs is crucial: While they were initially developed politically and not always have a sound scientific basis, it is highly important to identify the real mitigation potential to understand how to utilise it with the help of market mechanisms or results-based finance. Market mechanisms should support the countries in activities that they are not capable of implementing on their own. It is thus key to have clarity regarding the question where exactly the mitigation potential lies.

Dr. Karsten Karschunke from the German Environment Agency and **Carsten Warnecke** from NewClimate Institute thanked the participants and formally closed the workshop.

8 Workshop Agenda

Time frame	Programme
9:45-10:00	Registration and welcome
10:00-10:15	Introduction and overview of the research project *Dr Karsten Karschunke, German Environment Agency (UBA/DEHSt)* *Ms Julia Groß, adelphi*
10:15-11:30	Are countries ready for Article 6? Presentation of the final case study results *Ms Ritika Tewari, NewClimate Institute* *Mr Sean Healy, Öko-Institut e.V.* *Ms Julia Groß, adelphi* Q&A
11:30-11:45	Coffee break
11:45-13:00	Prospects for German international cooperation on carbon markets against the back-drop of COP 23 outcomes: Plenary discussion Moderated by *Dr Constanze Haug, adelphi* Input Statement by *Mr Ambachew Fekadeneh Admassie, Ethiopia* Input Statement by *Ms Malin Ahlberg, BMUB* • How can German international cooperation support the uptake of market mechanisms under Article 6? • How to ensure high quality of the future market mechanisms?
13:00-13:15	Concluding remarks *Mr Frank Wolke, German Environment Agency (UBA/DEHSt)* *Dr Karsten Karschunke, German Environment Agency (UBA/DEHSt)* *Mr Carsten Warnecke, NewClimate Institute*
13:15-14:00	Lunch

9 List of participants

Last Name	First Name	Organisation
Admassie	Ambachew Fekadeneh	Carbon Market Negotiator for Ethiopia
Ahlberg	Malin	BMUB
de Grandpré	Juliette	WWF
Groß	Julia	adelphi
Haug	Constanze	adelphi
Healy	Sean	Öko-Institut e.V.
Karschunke	Karsten	German Environment Agency (UBA/DEHSt)
Kollmuss	Anja	SEI Associate
Tewari	Ritika	NewClimate Institute
van de Ven	Jan-Willem	EBRD
Warnecke	Carsten	NewClimate Institute
Wolke	Frank	German Environment Agency (UBA/DEHSt)