



Policy Brief

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An overview of carbon markets as an effective policy tool for mitigating climate change

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Glossary of terms

Additionality

Is a principle that ensures that emissions reductions or carbon sequestration activities would not have happened without the incentive provided by the carbon credit mechanism. In other words, a project must demonstrate that the emissions reductions it achieves are *additional* to what would have occurred under a "business-as-usual" scenario. This ensures that carbon credits represent genuine reductions, not activities that would have happened anyway.

Authorisation

This refers to the formal approval by a host country (the country where an emissions reduction project is implemented) for the transfer of Internationally Transferred Mitigation Outcomes (ITMOs). Authorisation ensures compliance with the rules of Article 6 of the Paris Agreement and prevent **double counting**. When a host country authorizes the transfer, it must make a corresponding adjustment to its greenhouse gas inventory to avoid counting the same emissions reduction for both the host and purchasing countries.

Double counting

Double counting occurs when the same greenhouse gas (GHG) emission reduction is counted more than once. This can happen when both the country that generates the emission

reduction and the country (or entity) that purchases or benefits from it count the same reduction towards their climate goals. Double counting undermines the integrity of the carbon market and global mitigation efforts, making it appear as though more progress is being made in reducing emissions than is actually the case.

To avoid double counting, the Paris Agreement requires countries to follow the principle of "**corresponding adjustments**". This means that when a country transfers emissions reduction (through mechanisms like Internationally Transferred Mitigation Outcomes or ITMOs), it must adjust its own emission inventories downward, while the receiving country adjusts its inventories upward. This ensures that the same reduction is not counted by both countries.

Carbon credit

A carbon credit represents the right to emit one metric ton of carbon dioxide (CO₂) or the equivalent amount of another greenhouse gas. It is a tradable certificate generated through activities that reduce, avoid, or remove emissions, such as reforestation projects, renewable energy installations, or methane capture projects.

Companies, countries, or organizations purchase carbon credits to offset their own emissions. For instance, if a company emits 1,000 tons of CO₂, it can buy 1,000 carbon credits from an emissions reduction project to balance out its emissions and claim carbon neutrality.

Carbon market

A carbon market is a trading system through which carbon credits or allowances (permits to emit a certain amount of CO₂ or other GHGs) can be bought and sold. There are two main types of carbon markets:

- **Compliance markets** These are created by national or regional governments to meet legally binding emissions reduction targets. For example, the European Union Emissions Trading System (EU ETS) is a compliance market where companies trade emissions allowances to meet their regulatory obligations.
- **Voluntary markets** In voluntary carbon markets, companies, organizations, or individuals buy carbon credits to voluntarily offset their emissions without regulatory requirements. These credits often come from projects such as reforestation, renewable energy, or sustainable agriculture.

Carbon Registry

A carbon registry is a system or database where carbon credits or carbon emission reduction units are tracked. Carbon credits can be generated from various projects (e.g., reforestation, renewable energy, energy efficiency) and can be sold in carbon markets. The registry ensures transparency and prevents issues like **double counting**, ensuring that each carbon credit is only used or sold once.

Clean Development Mechanism (CDM)

A mechanism defined under Article 12 of the Kyoto Protocol through which investors (governments or companies) from developed (Annex B) countries may finance greenhouse gas (GHG) emission reduction or removal projects in developing countries (Non-Annex B) and receive Certified Emission Reduction Units (CERs) for doing so. The CERs can be credited towards the commitments of the respective developed countries. The CDM is intended to facilitate the two objectives of

promoting sustainable development (SD) in developing countries and of helping industrialized countries to reach their emissions commitments in a cost-effective way.

Climate finance

At the international level, there is no agreed definition of climate finance. The term climate finance is applied to the financial resources devoted to addressing climate change by all public and private actors from global to local scales, including international financial flows to developing countries to assist them in addressing climate change. Climate finance aims to reduce net greenhouse gas emissions and/or to enhance adaptation and increase resilience to the impacts of current and projected climate change. Finance can come from private and public sources, channelled by various intermediaries, and is delivered by a range of instruments, including grants, concessional and non-concessional debt, and internal budget reallocations.

Conference of Parties (COP)

The COP is the supreme decision-making body of the United Nations Framework Convention on Climate Change (UNFCCC). All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts (such as the Kyoto Protocol and the Paris Agreement) and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.

Emissions trading

Emissions trading is the buying and selling of carbon equivalent credits or emissions allowances between companies, countries, or other entities. It is a market-based approach to controlling emissions by creating a financial incentive to reduce carbon emissions.

Internationally Transferred Mitigation Outcomes (ITMOs)

ITMOs are reductions in greenhouse gas emissions that can be transferred from one country to another to help meet Nationally Determined Contributions (NDCs). The ITMOs can also be used for other international mitigation purposes such as Carbon Offsetting and Sustainability in Aviation (COSIA) purposes. Since international aviation is not directly covered by NDCs, the aviation sector, through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), can use ITMOs to offset emissions. By purchasing ITMOs, airlines can compensate for their emissions by supporting emission reduction projects in other sectors or countries, contributing to global mitigation efforts while meeting their sustainability goals.

Joint Implementation (JI)

The mechanism known as "joint implementation", defined in Article 6 of the Kyoto Protocol, allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO₂, which can be counted towards meeting its Kyoto target.

Joint implementation offers Parties a flexible and cost-efficient means of fulfilling a part of their Kyoto commitments, while the host Party benefits from foreign investment and technology transfer.

Leakage

Leakage refers to the unintended increase in greenhouse gas (GHG) emissions outside of a project as a result of mitigation activities. For example, if a country implements policies to reduce deforestation in one area, it might unintentionally push deforestation to another region, which offsets the gains made in reducing emissions. Leakage can occur in carbon offset projects where actions that reduce emissions in one area indirectly cause an increase in emissions elsewhere.

Monitoring, reporting and verification (MRV)

MRV is the process of ensuring transparency and accountability in climate actions. It is an essential component for tracking progress towards climate goals, including emissions reductions and compliance with international commitments. Countries should have national MRV to be able to track its climate actions.

Nationally Determined Contributions (NDC)

NDCs are the climate action plans that countries voluntarily submit under the Paris Agreement. Each country outlines its targets for reducing GHG emissions and how it plans to adapt to the impacts of climate change. The key feature of NDCs is that they are "nationally determined," meaning each country sets its own goals based on its capacities, circumstances, and priorities. The collective aim of NDCs is to limit global warming to well below 2°C, with efforts to stay within 1.5°C.

Share of proceeds

This refers to a mechanism under the Paris Agreement's Article 6.4 Mechanism (PACM) and in the CDM of the Kyoto protocol, which involves taking a portion of the proceeds from carbon market transactions to support adaptation efforts, especially in developing countries. This share was 2% under the CDM and now 5% under the PACM

Summary

There has been growing interest in carbon trading as a solution for both climate mitigation and adaptation. In Africa, this interest has been driven largely by the limited availability of public finance for climate change adaptation at the same time as the costs of weather and climate change are increasing exponentially. This policy brief outlines the role of carbon trading in supporting climate change mitigation policies while promoting sustainable development in Africa, the challenges associated with carbon markets and makes policy recommendations for decision makers.

Carbon markets offer a platform for trading carbon credits, allowing entities and countries to offset their emissions by investing in projects that reduce or remove greenhouse gases. For Africa, carbon trading presents an opportunity to drive green investment, support conservation efforts, and generate revenues and economic benefits. Despite its vast potential for carbon sequestration, Africa's participation in carbon trading remains limited due to regulatory, capacity, and financial challenges.

What are Carbon markets?

Carbon markets are platforms that allow entities to buy and sell carbon credits, which represent the right to emit a certain quantity of greenhouse gases.

Carbon markets in the Kyoto Protocol and the Paris Agreement

The Kyoto Protocol established three flexible mechanisms to help developed countries (Annex A countries) which were the only ones with quantified emission reductions or limitations commitments, to meet their greenhouse gas (GHG) reduction targets.

These mechanisms include the allowance market or emission trading, the Clean Development Mechanism (CDM) and the Joint Implementation (JI) mechanism.

1). Emission trading this mechanism allows countries to trade GHG emission allowances. Each country is allocated an emissions quota, and if it emits less GHGs than the allocated quota, it can sell its surplus quotas to another country that needs them.

2). Clean Development Mechanism (CDM) this mechanism allows developed countries to invest in projects to reduce GHG emissions in developing countries. The emissions reductions achieved through these projects are converted into carbon credits, which can be used by developed countries to offset their own emissions.

3). Joint Implementation (JI) this mechanism allows developed countries to work together to meet their GHG emission reduction targets. Countries can

engage in joint emission reduction projects and share the carbon credits generated.

Article 6 of the Paris Agreement, which was adopted in 2015 and entered into force in 2016 with commitments by all Parties taking effect from 2020, provides for mechanisms similar to those of the Kyoto Protocol “ Parties recognize that some Parties choose to pursue **voluntary cooperation** in the implementation of their Nationally Determined Contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity”. It also establishes three mechanisms and approaches

1). Article 6.2 Voluntary Approaches: This mechanism allows countries to engage on a voluntary basis in cooperative approaches that involve the use of Internationally Transferred Mitigation Outcomes towards their nationally determined contributions; promote sustainable development and ensure environmental integrity and transparency, including in governance; and apply robust accounting to ensure, *inter alia*, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties (COP) serving as the meeting of the Parties to the Paris Agreement (CMA).

2). Article 6.4 (Paris Agreement Crediting Mechanism): This mechanism, is established under the authority and guidance of the COP serving as the meeting of the CMA for use by Parties on a voluntary basis. It shall be supervised by a body designated by the COP serving as the meeting of the CMA, and shall aim to:

- a. Promote the mitigation of greenhouse gas emissions while fostering sustainable development.
- b. Incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party.
- c. Contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another

Party to fulfil its nationally determined contribution; and

- d. Deliver an overall mitigation in global emissions.

The emission reductions resulting from this mechanism **shall not be used** to demonstrate achievement of the host Party's NDC used by another Party to demonstrate achievement of its NDC. 6. A share of the proceeds from activities under this mechanism 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.

3). Article 6.8 (Framework for non-market approaches): A framework for non-market approaches to sustainable development is defined to promote the non-market approaches. It exists to assist Parties in the implementation of their NDCs in a coordinated and effective manner, including through *inter alia*, mitigation, adaptation, finance, technology transfer and capacity-building, as appropriate. Non-market approaches aim to

- a. Boost mitigation and adaptation ambition.
- b. Increase public and private sector participation in the implementation of NDCs; and
- c. Engender opportunities for coordination across instruments and relevant institutional arrangements.

The potential role of carbon markets in mitigating climate change

Complementing command-and-control regulations

Carbon markets can complement command-and-control regulations by providing a negative financial incentive to reduce emissions. This approach can be particularly effective in sectors where it is difficult to reduce emissions through regulation alone, such as in construction, transport and agriculture.

Encouraging investment in low-carbon technologies

Carbon markets can encourage investment in low-carbon technologies by providing a financial incentive for companies to develop and deploy clean energy solutions. This can help stimulate innovation and reduce the cost of clean energy over time.

Promoting international cooperation

Carbon markets can promote international cooperation on climate change by allowing countries to trade emissions reductions across borders. This can help reduce the overall cost of mitigating climate change, as countries can leverage their respective comparative advantages in reducing emissions.

Benefits of carbon markets for Africa

While the focus of carbon trading as intended in article 6 is emissions reduction, carbon markets can also generate significant co-benefits, especially in developing countries. When carbon trading is properly transparent and properly, with appropriate governance instruments in place, the price of carbon can function to disincentivise emissions while also generating revenues. It should be noted, however, that the principal objective of Article 6 is emissions reduction.

Reducing greenhouse gas emissions

Carbon markets provide a financial incentive to reduce emissions. This can help African countries meet especially their conditional climate change mitigation targets.

Promotion of sustainable development

By providing financial incentives to reduce emissions, carbon markets can support African

countries to adopt sustainable technologies such as renewable energy and sustainable agriculture.

Improving access to clean energy

Carbon markets can help mobilize finance for clean energy projects, such as wind and solar power, which can improve access to energy in African countries.

Access to climate finance

Carbon markets can be an additional source of finance for climate change mitigation and adaptation projects. By participating in carbon markets, African countries can attract investment in renewable energy, energy efficiency and other low-carbon initiatives.

Technology transfer

Carbon markets can facilitate the transfer of low-carbon technologies, knowledge and expertise from developed to developing countries. This can help African countries to leapfrog traditional high-emission development pathways and thus avoid emissions.

Economic growth

Carbon markets can stimulate green economic growth by creating new industries and job opportunities in areas such as renewable energy, energy efficiency and sustainable agriculture.

Challenges of carbon markets

Carbon markets can be complex and difficult to understand, making it difficult for countries to participate. A major requirement for properly functioning carbon markets is a strong regulatory framework to ensure the integrity of carbon markets and prevent the misuse of carbon credits. The general challenges of carbon markets include the following

Additionality

Ensuring that carbon credits represent genuine emissions reductions can be difficult, as it must be demonstrated that the reduction would not have occurred without the carbon credit.

Determining the baseline

Determining a baseline in carbon markets is a critical step in project development, as it defines the reference scenario against which emissions reductions are measured. The baseline represents the amount of greenhouse gases (GHGs) that would have been emitted if the carbon reduction project had not been implemented. The host country has an important role in determining the baseline to ensuring that carbon projects contribute to national climate goals while maintaining credibility in international carbon markets. The host country provides the data, frameworks, and approval processes needed for effective baseline development.

Carbon leakage

Leakage occurs when emissions are reduced in one place but increase in another due to carbon market activities. This can undermine the efficiency and efficacy of carbon markets.

Monitoring, reporting and verification

Robust monitoring, reporting and verification mechanisms are essential to ensure the integrity and transparency of carbon markets.

Relocation of emissions intensive industries

Policymakers must address concerns about carbon leakage and competitiveness to prevent the relocation of emissions-intensive industries to countries with weaker climate policies.

Double counting

Double counting occurs when two or more parties claim ownership of the same emissions reduction, which can lead to a loss of confidence in the market.

Many other concepts and principles such as how to address permanence, reversals, ambition over time, benefit sharing between participating Parties and entities, encouraging broad participation, alignment with the host country's NDC, the PA long

term goal, etc. must be considered when finalizing the rules of the market-based mechanisms.

Challenges of carbon markets for African decision-makers

Limited access to carbon markets

Many African countries do not have access to carbon markets due to barriers associated with absence of necessary regulatory framework. This barrier limits the potential for African countries to engage effectively in carbon trading and realize the associated benefits.

Limited institutional capacity

African countries may lack the institutional capacity to participate in carbon markets, particularly regarding regulation, emissions monitoring and reporting.

Limited access to finance

Initiating carbon projects requires substantial upfront investment. The costs associated with setting up projects and getting them validated and verified are high. This is partly due to the technical complexity of carbon markets, as well as the need for detailed data collection, monitoring, and reporting. Many project developers in Africa struggle to secure financing due to the perceived risk associated with carbon projects, particularly because they lack collateral or a proven track record. The financial barriers, compounded by the region's unique socioeconomic and environmental contexts, create challenges that hinder the continent's ability to fully harness its carbon market potential.

Over reliance on International Intermediaries

Most intermediaries operating in Africa are international players with limited local competition. This allows them to set high brokerage fees due to their control over the market. Their dominance also means local project developers have fewer alternatives, making them dependent on these intermediaries to access

carbon markets. These high fees and lack of transparency reduce financing coming to Africa and, more importantly, reduce revenues to local communities.

Risk of carbon leakage

This can be a challenge for African countries, as they do not always have the regulatory frameworks in place to prevent carbon leakage.

Corresponding adjustments

Countries' emissions levels, as reported when they track the progress towards achieving the NDC, should be adjusted to reflect the transfer (export) or receipt (import) of mitigation outcomes. All authorized ITMOs are subject to corresponding adjustment to avoid double counting. They cannot be used by the Host Party to meet its NDC.

Recommendations for African decision-makers

Develop a national carbon market strategy

African governments should develop a comprehensive national strategy for carbon markets. The strategy must define the roles and responsibilities of different stakeholders, set clear objectives; and identify potential challenges and opportunities.

Establish clear policy frameworks

Decision-makers should put in place a stable and predictable policy framework derived from the strategy and designed to encourage long-term investment in emission reduction projects, define priorities for investment of revenues from carbon trading, and establish performance monitoring parameters.

Invest in institutional capacity

African countries should invest in institutional capacity building, including the development of MRV systems, baseline methodologies and leakage prevention strategies.

Establish clear and transparent institutional arrangements for the authorisation of ITMOs

It is essential to establish a robust and transparent *authorisation* process for the carbon emission reduction units that will be traded on the carbon markets. This will ensure the environmental integrity of the transactions and prevent any fraud or double counting.

Building the capacity of the institutions responsible for authorising ITMOs

It is important to provide the relevant institutions with the necessary resources and skills to assess and authorise ITMOs. This includes staff training, access to technical experts and clear and efficient procedures.

Put in place a robust MRV (Measurement, Reporting and Verification) infrastructure

A robust MRV system is essential to ensure the transparency and credibility of carbon market transactions. It is recommended that a centralised and secure carbon transaction and accounting registry be set up, which will allow emission reductions to be reliably tracked and verified.

Encourage the participation of non-state actors

Policymakers should encourage the participation of non-state actors, such as the private sector and civil society organisations, in carbon markets. This includes providing incentives, streamlining regulatory processes and setting national emission reduction targets. This will broaden the base of emission reductions and encourage innovation and efficiency in the implementation of climate actions.

Promoting transparency and stakeholder engagement

African decision-makers should ensure transparency and stakeholder engagement

throughout the carbon project development and implementation process, ensuring compliance with ESG standards.

Establish African Carbon Exchanges

African countries can establish regional or national carbon exchanges to reduce reliance on international intermediaries. By creating local platforms, project developers can directly trade carbon credits, minimizing brokerage fees and improving transparency.

Leverage international partnerships

African countries should take advantage of international partnerships and cooperation to access technical assistance, capacity building and financing opportunities related to carbon markets.

Promote South-South collaboration

African countries should collaborate with each other to share experiences, lessons learned and best practices in participating in carbon markets.

Conclusion

Carbon markets offer African decision-makers a unique opportunity to tackle climate change, promote sustainable development and unlock economic opportunities.

By embracing carbon markets, African countries can attract investment, transfer clean technologies and contribute to global emission reduction targets.

However, filling capacity gaps, putting in place supportive policies and ensuring access to finance are essential to realise the full potential of carbon markets for Africa's sustainable future.

About the African Climate Policy Centre

The African Climate Policy Centre is a hub for demanded knowledge on climate change in Africa. It addresses the need for improved climate information and the strengthened use of such information for decision-making in Africa by improving analytical capacity, knowledge management and dissemination activities.

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