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Best Practices for Implementation of Carbon Market

Case Study: South Africa

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Climate change has been referred to by economists as the greatest market failure. They contend that putting a price on carbon is the most cost-effective way to reduce GHG emissions and address climate change. The prospect of trading carbon emerges if it is priced.[1] The largest emitter of greenhouse gases (GHGs) in Africa is **South Africa**. Between 1990 and 2019, its overall greenhouse gas emissions—which do not include forestry and other land use—rose by more than 67% (**Figure 1 below**)

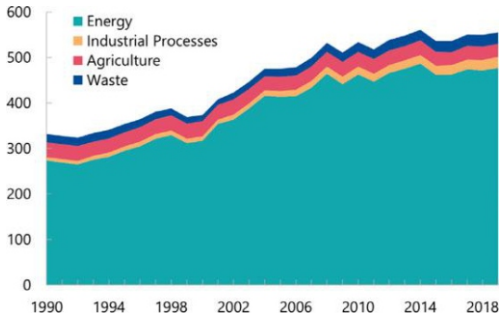

Figure 1[2]

History of South Africa GHG Emissions
(In million tons of CO2e)

Source: WRI (2022).

Note: GHG emissions exclude land-use change, forestry (LUCF), and bunker fuel emissions.

Over 86 percent of 2019 emissions and over 91 percent of the rise in GHG emissions over the previous three decades were attributable to the energy industry. The country's carbon-intensive electricity generation, which primarily comes from coal-fired power plants, is reflected in the emission profile. The nation's National Development Plan 2030 includes a transition to a green and climate resilient economy.

South Africa pledged to achieve carbon neutrality by the middle of the century and reduce its greenhouse gas emissions to 350–420 MtCO2e by 2030 in its revised Nationally Determined Contribution (NDC). Policies to mitigate climate change will therefore be necessary to achieve these goals.

OBJECTIVE OF STUDY

The primary objective of this research is to understand the developed carbon market instruments that reduce greenhouse gas (GHG) emissions in South Africa and consequently

[1] GOLDBLATT, M. (2010, January). Comparison of emissions trading and carbon taxation in South Africa *Climate Policy*, *10*(5), 511–526. https://doi.org/10.3763/cpol.2010.0111
[2] IMF Staff Country Reports 2023, 195 available at www.elibrary.imf.org/view/journals/002/2023/195/002.2023.issue-195

foster sustainable development. It will identify ways that Clean Technology Hub can support the implementation of successive Nationally Determined Contributions (NDCs) and enable understanding of South Africa's current path to Net-Zero. This will be undertaken by assessing significant industry/sectors for reducing greenhouse gas emissions, particularly taking into account institutional, legal, regulatory, social, and economic frameworks to ensure that South Africa's National Determined Contribution is implemented as effectively as possible. The specific objectives consist of:

- To analyse the existing carbon market strategy already in place in the country.
- To identify potential opportunities for various carbon monitoring, reporting, and verification activities based on the country's circumstances and context.
- To assess the existing legal and policy framework in the country with respect to carbon markets.
- To provide an overall assessment of the feasibility and readiness of the carbon market for the country.
- To explore how carbon market approaches could support involvement in cooperative climate action, as foreseen under Article 6 of the Paris Agreement.

The result of the analysis is aimed at providing the Nigerian eco-system with conversational directions, mitigation, and adaptation measures they should consider while implementing the carbon market in Nigeria.

INTRODUCTION

A carbon market is a specialised type of financial market through which carbon credits can be bought and sold. Carbon credits are essentially permits that allow the purchaser to emit a certain amount of carbon dioxide or other greenhouse gases, similar to any other commodity market.[3] Within a carbon market, an entity's emissions are capped or limited according to the country's or region's overall emission reduction commitment. If an entity emits less than its allotted allowance, the unused allowance is converted into an equivalent amount of profitable allowances or credits. Carbon markets are divided into compliance and voluntary markets, depending on the types of standards and methodologies used in their verification.

Carbon emissions can be reduced through the introduction of a hard emissions cap, an absolute emissions reduction goal, an emissions intensity benchmark, or carbon budgets, depending on the policy design. Imposing limits on carbon emissions makes it a scarce

[3] Reichle, D. E. (2020). Carbon, climate change, and public policy. *The Global Carbon Cycle and Climate Change*, 253–287. https://doi.org/10.1016/b978-0-12-820244-9.00012-3

resource that can be sold like any other commodity.[4] Entities that emit less than their cap, benchmark, or allotted carbon budget may exchange their unused carbon allowances or credits ('carbon space') with other entities that emit more than their emissions allowance.[5]

Since 2005, South Africa has had a carbon market, but, in the beginning, it did not expand as quickly as many had anticipated. Nevertheless, South Africa's carbon tax act was ultimately signed into law in May 2019, after nearly 14 years of due diligence, and went into effect a month later. As corporations are working to reduce the amount of carbon tax on their books, an unintended outcome of this new regulation is the rebirth of the country's faltering domestic carbon offset market.[6]

THE LANDSCAPE OF CARBON MARKET IN SOUTH AFRICA

In response to calls for greater flexibility in how corporations handle their carbon tax liabilities, the South African government agreed to provide companies with new mechanisms. The carbon trade and carbon offsets were put forward as flexible approaches. These methods were not required by definition for the carbon budget system, nor are offsets required for the South African tax system.

As a result, the intention was to reduce emissions while reducing the negative socio-economic impacts of carbon budgets or taxes.[7] On one hand, some economists believe that carbon trading is a more cost-effective and economically efficient mitigation tool than other policy instruments, achieving higher emissions reductions across the economy at the lowest cost to society (per unit of CO2e).[8] On the other hand, this might not be the case because a trading system might only include industries with easily accessible prospects for mitigation.

Furthermore, the South African Treasury proposed the existence of a carbon offset allowance. The allowance enables one to lower the amount of taxable emissions by using qualified carbon offsets. With business entities allowed to utilise carbon credits to offset 5-10% of their taxable emissions, South Africa's dormant carbon market was rapidly

[4] Vivid Economics, DNA Economics, & Tyler, E., 2016. *Integrating the carbon tax and carbon budgets in South Africa* Available at: https://www.caia.co.za/wp-content/uploads/2016/09/14-july-2016-alignment.pdf.
[5] Haites, E., 2018. Carbon taxes and greenhouse gas emissions trading systems: what have we learned? *Climate Policy*, 18(8): 955–966 accessed October 2023
[6] Elston, L. (2022, September 28). *Why South Africa's carbon offset market is looking to expand.* Energy Monitor. Accessed September 2023
[7] Liebhold, A. M. (2022, December 14). *Surprisingly, it's not just about South Africa. Biological Invasions*, *25*(5), 1679–1681. https://doi.org/10.1007/s10530-022-02980-7
[8] n.1 above

revitalised. The demand for offsets was projected to be almost three times greater than the supply for the first round of carbon tax return submissions in October 2020. It can be said that one of the advantages of this system is that there must be one offsetting system.[9]

This must, however, be rationalised throughout both the mitigation system and the implementation of the carbon tax to avoid double-crediting of the same emissions reductions. Offset certificates cannot be used both against a company's or organization's carbon budget (which reduces tax obligations) and as a rebate against tax payable.[10]

SOUTH AFRICA'S INTERNATIONAL PARTNERSHIP

Emission Trading Schemes (ETS) and offset mechanisms are two important carbon trading systems that have been used to reduce carbon emissions. While multiple types of regional and national ETS are under operation, the Clean Development Mechanism (CDM) was the major offset mechanism designed under the United Nations Framework Convention on Climate Change (UNFCCC). The CDM is a project-based mechanism that allows a developed country to implement an emission-reduction project in a developing country.

Given its emissions per person and carbon intensity, South Africa, a developing country, was a sought-after candidate for CDM projects as it was the only African nation among the top 20 CDM host countries.[11] In comparison to other African nations, the nation maintained a more advanced industrial and financial infrastructure, as well as a less problematic investment environment.

Notwithstanding, the CDM had little impact on developing African countries, including South Africa.[12] During the first five-year commitment term under the Kyoto Protocol, the EU ETS provided the most demand for Certified Emission Reductions.[13] Since the first commitment term of the EU ETS expired in 2012, the CDM market has diminished considerably.[14] For example, 4,214 registered projects were deemed dormant since they had not been in

[9] Elston, L. (2022, September 28). *Why South Africa's carbon offsetmarket is looking to expand*. Energy Monitor. https://www.energymonitor.ai/policy/carbon-markets/why-south-africas-carbon-offset-market-is-looking-to-expand/ accessed November 2023
[10] GOLDBLATT, M. (2010, January). Comparison of emissions trading and carbon taxation in South Africa. *Climate Policy*, *10*(5), 511–526. https://doi.org/10.3763/cpol.2010.0111 accessed October 2023
[11] South Africa. (2023, June). *IMF Staff Country Reports*, *2023*(195), 1. https://doi.org/10.5089/9798400245350.002
[12] Kreibich, N., Hermwille, L., Warnecke, C., & Arens, C. (2016, April 15). An update on the Clean Development Mechanism in Africa in times of market crisis. *Climate and Development*, *9*(2), 178–190. https://doi.org/10.1080/17565529.2016.1145102
[13] Certified Emission Reductions:What developing countries supplied through the CDM under the Kyoto Protocol
[14] UNFCCC, 2017. CDM value clear, future cloudy. UN Climate Change News Available at: https://unfccc.int/news/cdm-value-clear-future-cloudy.

communication with the UNFCCC Secretariat since 2013.[15] The importance of the CDM and its relevance under the Paris Agreement is declining. However, the experience obtained from its operation should be used to develop future mechanisms involving developing countries, thereby reducing their exposure to volatility by affluent countries.

SOUTH AFRICA'S CARBON MARKET MITIGATION UPDATE

- South Africa has high ambitions for climate mitigation. The country is Africa's top emitter of greenhouse gases (GHG). Between 1990 and 2019, its total GHG emissions (excluding forestry and other land use) increased by more than 67%.[16] The emission pattern indicates the country's carbon-intensive electrical generation, which is mostly based on coal-fired power stations. Transitioning to a green and climate-resilient economy is already part of the country's National Development Plan 2030.[17]
- The project 'Low-carbon development frameworks in South Africa' aims to improve understanding of and identify opportunities for transitions to a low-carbon economy. It enables and develops contributions at the intersection of climate change mitigation, economic development, and socioeconomic factors over the short, medium, and long term
- To facilitate the transition, a gradual implementation of the carbon tax regime was implemented. To address concerns about the carbon tax's competitiveness and impact on low-income households, transitional tax-free thresholds, allowances, and carbon offsets were implemented during the transition period.
- The Johannesburg Stock Exchange (JSE) has developed a new carbon market in conjunction with Xpansiv, the foremost infrastructure supplier for global environmental markets, through a separate legal organisation called JSE Ventures. Local participants would be able to buy and trade carbon credits and renewable energy certificates stored in either local or worldwide registries under this ground-breaking sustainability programme.[18]

[15] UNEP DTU, 2018.
[16] WRI (2022)
[17] Black, S., J. Chateau, F. Jaumotte, I. WH Parry, G. Schwerhoff, S. D. Thube, and K. Zhunussova. 2022. "Getting on Track to Net Zero: Accelerating a Global Just Transition in This Decade." *Staff Climate Notes* 2022, no. 010.
[18] JSE (2023, October 12). *JSE collaborates with Xpansiv to launch voluntary carbon market to advance South Africa's carbon credit capabilities*. JSE Chatbot. https://www.jse.co.za/news/news/jse-collaborates-xpansiv-launch-voluntary-carbon-market-advance-south-africas-carbon

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KEY TAKEAWAYS FOR NIGERIA AND RECOMMENDATIONS

1. For Nigeria, it is worth noting that, in theory, imposing an emissions cap is supposed to give emissions certainty. However, if emissions caps (or carbon budgets in the domestic context) are made variable, there will be little advancement in achieving total emissions reduction goals. While carbon budgets are fixed in the short term (around five years), they can be changed in the medium to long term. This is demonstrated by South Africa's Mitigation System's ability to alter carbon budgets higher or lower after each five-year rolling period. While it is suggested that carbon budgets be reduced in accordance with science-based targets, it is strongly advised that they not be increased.
2. A carbon trading scheme that combines baseline and credit or cap and trade would always be flawed due to its overambition. Entities can continue to emit with little need to reduce emissions or desire for carbon credits if the cap or baseline allows for a significant volume of emissions that does not represent the ambitious emissions reductions required. In South Africa, it may appear that company-level carbon budgets will be set excessively generously to absorb prior high emissions. One aspect Nigeria should be considering is that this will be a major constraint if the total of all budgets exceeds the country's predetermined emissions cap.
3. The way the South African economy is structured, carbon trading may not be a viable option. Treasury has stated that carbon trading is unsuitable for the oligopolistic nature of the economy, especially when a few large emitters can manipulate the carbon market to their advantage. Given the robust economy in Nigeria and its nature, the right implementation coupled with strict regulations may lead to a successful market.
4. The majority of carbon emissions in South Africa originate from a small group of organisations. This creates supply and demand concerns, and speculation is possible. Nigeria should note that because emissions reductions at scale can largely be achieved by the top polluters with inertia in their business models, who are unlikely to set less than their carbon budget as their own objective for mitigation activities, there may be a limited supply of credits.