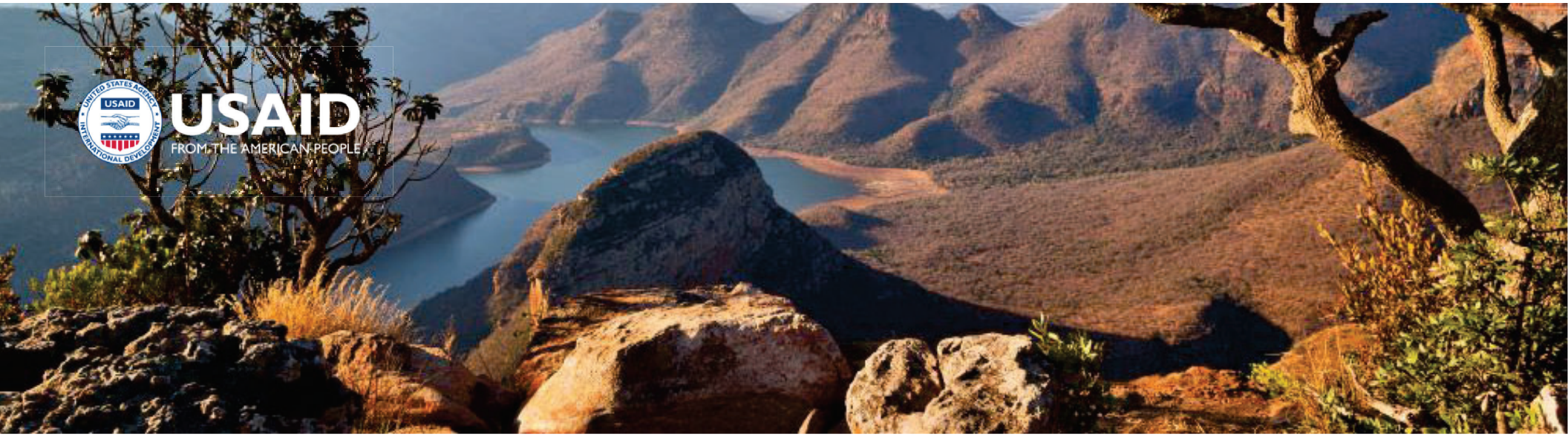

Southern Africa Carbon Markets Assessment

USAID Climate Finance for Development Accelerator: Natural Climate Solutions Activity

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Scope: Our assessment covered six countries to assess the state of the carbon markets in Southern Africa

The first phase assessed carbon markets regulations and nature-based carbon project development in six countries

- Desk research covered **Angola, Botswana, Eswatini, Lesotho, Namibia, and South Africa,** and included:
  - Conducting high-level research on carbon markets, regulations, policies, and priorities across all countries
  - Reviewing international carbon registries (Verra, Gold Standard, Plan Vivo) for these countries, analyzing the number, scale, types, and proponents of projects

The second phase focused on understanding the challenges and opportunities for nature-based carbon project development in four priority countries

- The deep dive into challenges and opportunities covered **Angola, Botswana, Namibia, and South Africa,** and included:
  - Identifying and validating the interview targets before commencement of the interviews with CFDA and USAID
  - Conducting 15 interviews with key stakeholders, including but not limited to carbon project developers, conservation NGOs, governments, international organizations, and investors/buyers

Map of countries included in the assessment

Key carbon markets concepts and frameworks referenced throughout this report

Paris Agreement	• This international treaty was ratified by nearly all partis to the climate convention in 2015 to combat climate change and keep global temperature rise below 2°C by reducing greenhouse gas (GHG) emissions
Nationally Determined Contributions	• Under the Paris Agreement, each country must develop, communicate, and maintain a plan called a Nationally Determined Contribution (NDC), which outlines the steps the country will take to reduce its GHG emissions • Countries must update their NDCs every five years, aiming to increase their ambition over time to reflect the highest possible effort to combat climate change
Article 6 of the Paris Agreement	• This article provides a mechanism for countries to cooperate to meet their NDC targets by trading emissions reductions/removals • To date, the most relevant portion of Article 6 has been Article 6.2, which allows voluntary bilateral trading of emissions reductions between countries. Emissions reductions traded in this way are known as Internationally Transferred Mitigation Outcomes (ITMOs) • Once a credit is traded under Article 6.2 of the Paris Agreement, the buying country will then count that credit towards their NDC achievement. To avoid double counting, the host country for the project must make a **corresponding adjustment** (CA) to ensure that they are no longer counting that credit toward their own NDC. • Early-stage carbon projects (e.g., pre-issuance projects) seek assurances from host country governments that they will receive corresponding adjustments for credits that they issue in the future. These assurances are commonly referred to as "**letters of authorization**" or LoAs
Compliance Carbon Markets	• Compliance carbon markets are created by countries, regions, or industries and set legal limits on emissions or taxes on emissions • Many compliance markets allow companies to purchase carbon credits to offset their own emissions so that they can stay within legal limits or avoid taxes, which creates a market for carbon credits

We created eight project categories to represent all project types across the Verra and Gold Standard registries

Category	*Definition and project types*
Agriculture Forestry and Other Land Use *(AFOLU)*	Projects that focus on managing land and forests to reduce or remove emissions (e.g., Afforestation, Reforestation, and Regeneration (ARR) and Reducing Emissions from Deforestation and Forest Degradation (REDD+))
Energy Efficiency/Fuel Switching – Domestic *(EE/FS – Domestic)*	Projects that reduce household emissions through upgrading household appliances and systems to improve energy efficiency or switch to cleaner fuels (e.g., efficient cookstove projects, solar home systems, etc.)
Energy Efficiency/Fuel Switching - Industrial and Other *(EE/FS – Industrial/Other)*	Projects that enhance energy efficiency in commercial buildings and manufacturing processes though upgrading systems or using cleaner fuels (e.g., energy efficient lighting, waste to heat processes, waste gas recovery, etc.)
Industrial Processes and Manufacturing *(IP&M)*	Projects that reduce emissions from industrial processes by changing production methods or implementing carbon capture and storage (CCS)
Renewable Energy *(RE)*	Projects that generate clean energy from sustainable sources (e.g., solar power through photovoltaic (PV) and solar thermal systems, wind energy from turbines, small-scale hydropower from water flow, etc.)
Transport	Projects that reduce emissions from vehicles and improve fuel efficiency of transportation systems (e.g., expanded public transport infrastructure, development of electric vehicle infrastructure, etc.)
Waste Management *(WM)*	Projects that reduce emissions from waste handling and disposal (e.g., landfill gas capture, composting, and waste to energy projects, etc.)
Other	Projects that do not fit neatly into other categories (e.g., fugitive emissions reduction projects that prevent methane leaks from oil and gas operations)

For this report, we used AFOLU represent NCS with EE/FS – Domestic representing NCS-adjacent projects

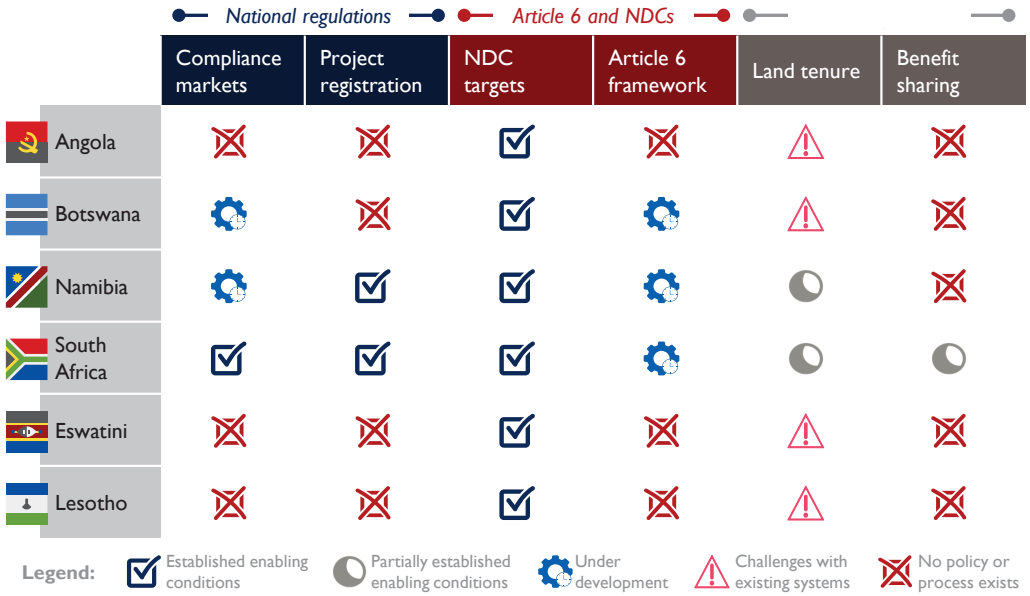
Table of Contents

- **Desk research on the state of carbon markets**
- Key insights from interviews with stakeholders

South Africa leads in a region where most countries have not enacted any carbon markets regulations (1/2)

Overview

- South Africa is the most advanced country in the region with respect to carbon markets regulations with a functional domestic compliance market
- Namibia follows with regulations enabling registration and trading of carbon credits
- Botswana and Angola are showing early signs of progress but do not have any regulations currently in place
- Eswatini, and Lesotho have yet to commence any significant efforts to establish regulations



South Africa leads in a region where most countries have not enacted any carbon markets regulations (2/2)

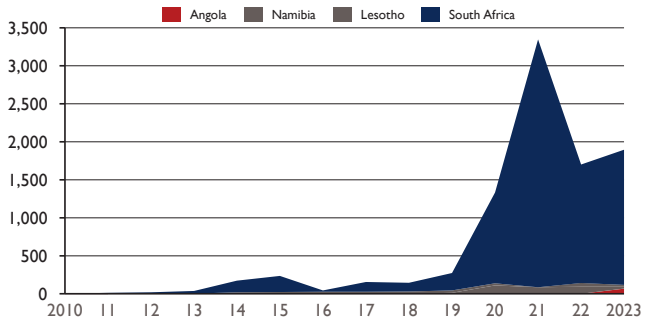
		State of Policy and Regulations
1 **National carbon markets regulation**	Compliance markets	• South Africa has a robust compliance market and recently launched a voluntary market on the Johannesburg Stock Exchange. Namibia has a draft Carbon Market Framework awaiting Cabinet approval. Botswana plans to develop a legal framework for emission trading. Angola faces delays due to governmental changes. Lesotho and Eswatini lag, though Eswatini recently signed an emissions trading MoU with the Taiwan Stock Exchange
	Carbon project licensing and registration	• South Africa and Namibia are the only countries with active registries. South Africa's Compliance market registry is managed by the Carbon Offset Administration System (COAS), with no registration required for the voluntary market. Namibia's registry is hosted by the National Statistical Agency in partnership with MEFT. Other countries do not have active registries, though Botswana shows early signs of progress
2 **Article 6 and NDCs**	NDC targets	• All countries have submitted their NDCs, but prioritization of NCS varies. The energy sector drives 86% of emissions in South Africa, pushing a focus on renewable energy and efficiency, similar to Botswana. In Angola and Namibia, AFOLU represents 70-80% of emissions, requiring significant mitigation activities. Eswatini and Lesotho, with minimal global emissions, focus more on adaptation efforts
	Article 6 frameworks	• South Africa and Namibia have draft frameworks pending approval, but none of the countries studied have signed any bilateral agreements. Botswana shows potential progress as government officials participate in CooPSA workshops on Article 6.2. Other countries remain far behind in developing Article 6 frameworks
3 **Other relevant legislation**	Property rights and land tenure	• Property rights and land tenure laws can be complex, varying by the number of land management authorities, community-owned land percentage, and private ownership or leasing rights. Eswatini and Lesotho may be challenging for private carbon projects as land is held in trust by the kings and managed by traditional authorities
	Benefit sharing & FPIC process	• No specific regulations exist across these countries. There is precedent for such regulation in South Africa, notably with a 2019 industry-wide agreement with the Khoikhoi and San peoples for the rooibos industry

Note: Sources hyperlinked in each country profile

Carbon project development in the studied region lags behind other countries in the broader region

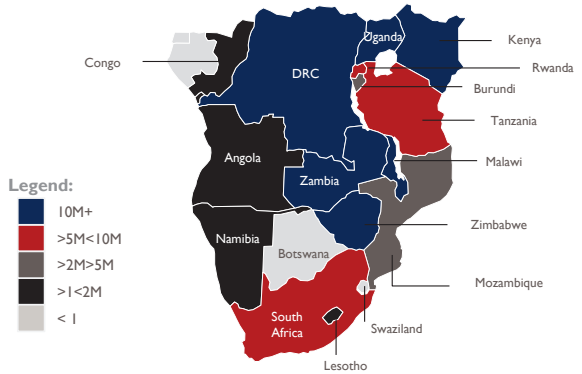
Credits issued across Southern Africa over time[1]

tCO2e, '000



Credits issued across the broader region[1]

tCO2e



Overview of project development in Southern Africa

- South Africa dominates with 93% of the region's credits, showcasing its market maturity since the first major issuance in 2011. Namibia follows with 4% of the credits, starting its issuances in 2019
- Lesotho contributes 3%, having begun in 2013. Angola entered the market in 2023, accounting for less than 1% of the total 9.2M credits issued. This highlights South Africa's leadership and the emerging markets in Namibia, Lesotho, and Angola

Comparisons against select countries[2]

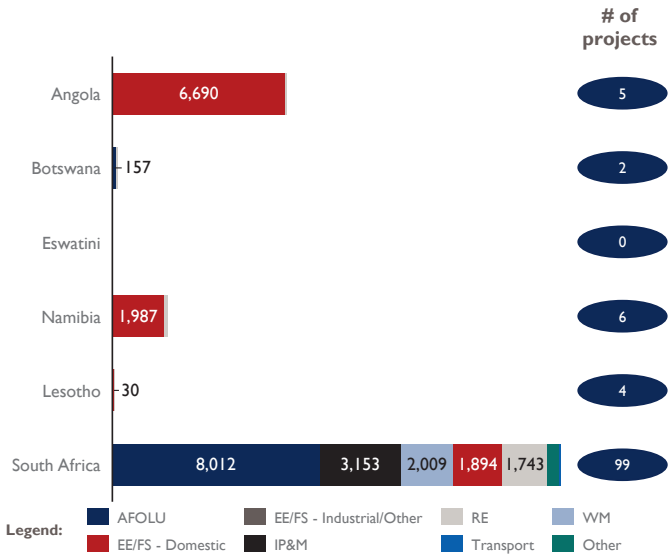
- Southern Africa's performance falls short relative to other regions for reasons discussed later in this presentation
- Zambia, Uganda, and Malawi have each issued more than 15M credits despite only recently enacting regulations
- The outliers are DRC, Kenya, and Zimbabwe with 32M, 50M, and 27M issuances respectively. Many of these credits are from REDD+ projects, in contrast with the countries studied in this report

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) See Appendix 1 for detailed breakdown of credits issued

The few AFOLU projects registered in Southern Africa are located in South Africa and Namibia

Estimated annual credits across project types[1]

tCO2e per annum, '000



Southern Africa carbon project development

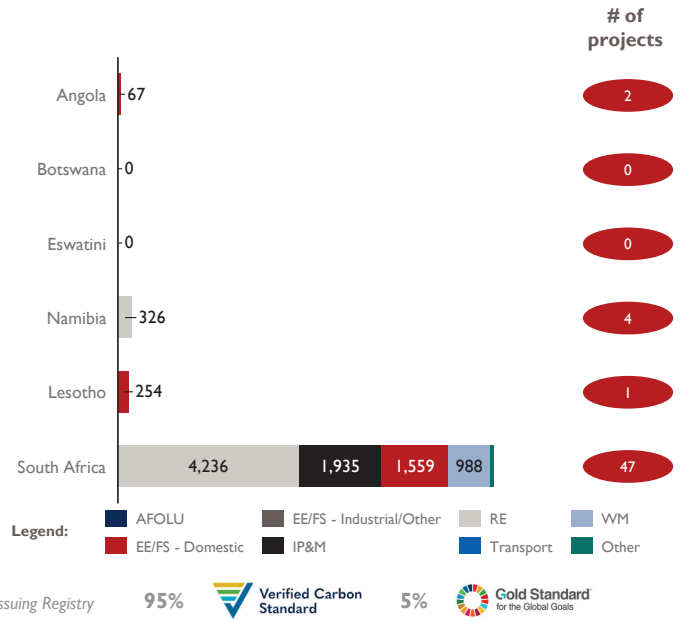
- South Africa stands out as the most advanced market, with the highest number of projects and estimated annual credits, exhibiting significant diversity across project types. There are less than 20 projects registered across the rest of the region
- South Africa's expected AFOLU credits are largely driven by TERRAGRN's two agroforestry projects, which account for 75% of AFOLU credits and are projected to generate 6 million credits. Additional projects focus on grassland management and thicket restoration using spekboom. In Botswana, Gazelle Ecosolutions is developing a single AFOLU project aimed at restoring grasslands in the Kalahari
- Although there are significant estimated credits from AFOLU projects, the disproportionate contribution of TERRAGRN's large projects overstates the size of the ecosystem. Overall there are only 21 registered AFOLU projects (17 in South Africa) out of 116 total projects

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries

There is a strong focus on renewable energy in Southern Africa, with no AFOLU credits issued to date

Credits issued across project types[1]

tCO2e, '000



Issuing Registry 95% Verified Carbon Standard 5% Gold Standard for the Global Goals

Southern Africa carbon project development

- South Africa leads once again with the highest number of projects and issued credits, exhibiting significant diversity across project types with 47 projects issuing credits compared to only seven across the rest of the region (less than 1M credits issued)
- Renewable energy and energy efficiency (primarily through cookstoves) dominate the issuances to date, accounting for approximately 70% of all credits issued from the region. This emphasis reflects the region's urgent need to address energy access and efficiency challenges, leveraging readily implementable technologies to achieve immediate emissions reductions
- AFOLU projects in these countries are critically underdeveloped, as none of the 21 registered AFOLU projects have started issuing credits. The underdevelopment of the AFOLU sector is due to financial, methodological, regulatory, and market barriers that are discussed further throughout this report

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries

We have identified key enabling environment challenges and potential solutions through USAID interventions

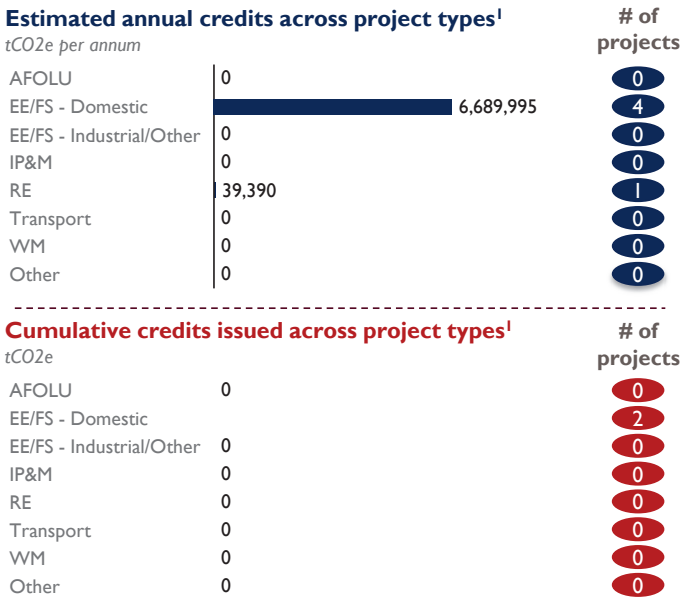
Country	Key enabling environment challenge	Potential solution/USAID intervention
Angola	Lack of technical capacity and clear objectives/direction in the government's efforts to develop a carbon market regulation	Support the government in aligning on their objectives for the new carbon markets regulation and how that regulation will support them in meeting their broader climate mitigation goals
Botswana	Existing carbon project methodologies are not well suited to Botswana's ecosystems, leading to inefficiencies and straining project financials	Support the development of new carbon methodologies (e.g., grassland methodologies) to better fit the ecological realities in the country
Namibia	The existing carbon market framework is not facilitating development of nature-based projects	Support the implementation of the new carbon registry to ensure that the outcomes align with private sector (e.g., investor) needs in the NCS space
South Africa	Project developers cannot sell credits through Article 6 or into other international compliance markets because there is no framework for corresponding adjustments	Support the government in developing a framework for issuing letters of authorization for corresponding adjustments under Article 6
Eswatini	There are no active carbon projects in the country and there seems to be a lack of understanding of the opportunities presented by carbon markets	Support the government in understanding the potential for carbon markets to help the country meet it's NDC commitments and drive foreign direct investment
Lesotho	There is very limited carbon project development in the country and there seems to be a lack of understanding of the opportunities presented by carbon markets	Support the government in understanding the potential for carbon markets to help the country meet it's NDC commitments and drive foreign direct investment

Angola plans to develop carbon market regulations, but progress has been slow

	State of Policy and Regulations	*Implications*
1 National carbon markets regulation[1]	• **Compliance markets:** No national compliance market. Although plans exist to define and regulate national markets, changes in government have slowed the process, with stakeholders not expecting progress until next year at the earliest • **Carbon project licensing/registration**: No existing requirements for registration or licensing of projects. The government plans to assign the National Monitoring, Reporting and Verification System the responsibility to prepare a national registry	• The lack of regulation creates risks for the country as well as for project developers and investors that enter into long-term financial agreements with investors and buyers
2 Article 6 and NDCs[2]	• **NDC targets**: 14% unconditional and 10% conditional reduction below BAU (2015 - 99.9 M tons) by 2025 equivalent to 26.5M tons; Aims to achieve this mitigation through Energy, Industry, Waste, and AFOLU – through restoration of degraded lands and forests; 227K ha unconditionally and 416K ha conditionally • **Article 6 frameworks:** Explicitly stated intention to participate in Article 6 in the updated NDC, however, there are no active pilots or bilateral agreements in place	• The absence of a framework currently prevents developers from securing CAs for internationally transferred credits, effectively preventing any Article 6 participation
3 Other relevant legislation[3]	• **Property rights and land tenure:** Property rights enforcement in Angola is challenging due to outdated legislation, land grabbing, unreliable records, and unresolved traditional land tenure; however, private land ownership and/or leasing is allowed so there is a path to private carbon project development alongside PPPs • **Benefit sharing and FPIC requirements with local communities:** Angola lacks a benefit sharing framework for carbon projects and also lacks general Access and Benefit Sharing legislation but has a draft pending approval	• Private land ownership offers opportunities for commercial developers in Angola, but property rights enforcement challenges creates additional risks and uncertainty

Source: (1) Clean Air Task Force, 2021; Government of Angola, 2024; IMF,2022 (2) Nationally Determined Contribution of Angola, 2021; UNEPCCC: Article 6 Pipeline, 2024 (3) US Government, 2023; USAID,: Landlinks; ABS Clearing House

Angola's carbon project development is currently limited, with a focus on industrial energy efficiency



Overview of project development in Angola

- Angola's carbon market is dominated by domestic energy efficiency projects, specifically cookstove projects, under Verra. These make up 99.4% (6.7M tons) of total estimated annual emissions reductions, indicating a focus on reducing household energy consumption from woody biomass
- Despite significant potential, NCS projects are absent from Angola's carbon market portfolio. The AFOLU sector, which accounts for 70% of national emissions, remains underdeveloped, despite NDC commitments to reforest 227K ha and promote sustainable agriculture[2]
- Despite the potential for registered cookstove projects to generate significant credits, issuances have been negligible to date. The first issuances occurred just last year from C-Quest Capital SG Angola's two cookstove projects. The company has a third project currently under development

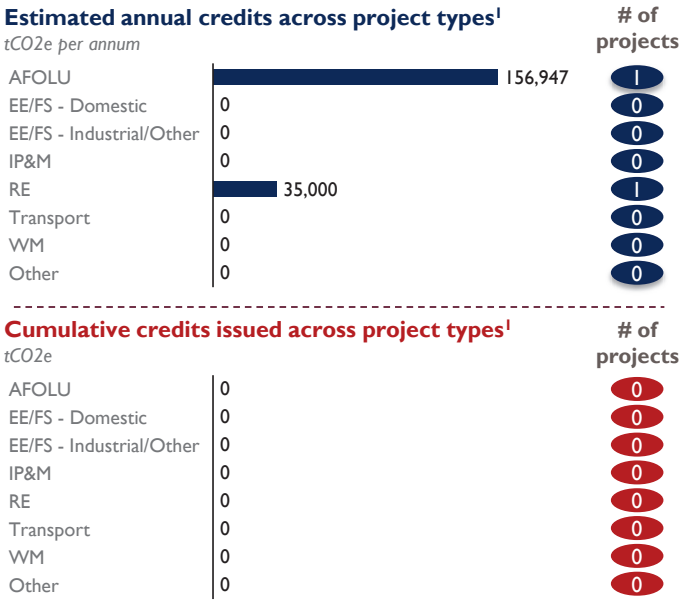
Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) Nationally Determined Contribution of Angola, 2021

There are no existing carbon market regulations in Botswana but there are signs that regulation could be on the horizon

	State of Policy and Regulations	*Implications*
1 **National carbon markets regulation**[1]	• **Compliance markets:** No active compliance market. The draft Climate Change Policy (CCP) 2017 highlights plans to develop a legal framework for emission trading and access to markets, including cap-and-trade systems and carbon offsets • **Carbon project licensing/registration**: There are currently no requirements for registering/licensing projects. Based on the plans outlined in CCP 2017, a registry is expected to be established within the next few years	• The lack of regulation creates risks for the country as well as for project developers and investors that enter into long-term financial agreements with investors and buyers
2 **Article 6 and NDCs**[2]	• **NDC targets**: 15% reduction from 2010 levels by 2030 (2010 = 8.3M tons), targeting energy, waste, and agriculture sectors • **Article 6 frameworks:** Botswana explicitly stated its intention to participate in Article 6 in its NDC but there are no active pilots or bilateral agreements. Gov't officials have discussed potential regulation in CooPSA workshops	• The absence of a framework prevents developers from securing CAs for internationally transferred credits, preventing any Article 6 participation
3 **Other relevant legislation**[3]	• **Property rights and land tenure:** 70% of land is tribal, 25% is state-owned, and 5% is privately owned. Both citizens and non-citizens can apply for common-law leases of tribal land and lease grazing lands. Private land ownership is allowed but in some cases Ministry of Agriculture approval is required • **Benefit sharing and FPIC requirements with local communities:** Botswana lacks a benefit sharing framework for carbon projects; also lacks more general Access and Benefit Sharing legislation	• Projects must navigate complex land tenure systems, which means some developers opt to try to work with single, private owners of large tracks of land

Source: (1) UNDP: Botswana Climate Change Response Policy, 2018; AfDB: Country Focus Report 2023, Botswana ; WBG: Climate Risk Profile – Botswana, 2021 (2) Government of Botswana: INDC, 2016 ; UNEPCCC: Article 6 Pipeline, 2024; RefIndustry ,2024 (3) US Government, 2023; USAID: Landlinks; ABS Clearing House

Botswana's carbon project development ecosystem is nascent and there have yet to be any issuances



Overview of project development in Botswana

- Botswana's ~192K in total potential emission reductions are driven by two projects; Namene's solar light project and Gazelle Ecosolutions' rangelands management project. The limited project development activity and the fact that both proponents are foreign entities points to an underdeveloped domestic carbon project development sector
- Both of Botswana's projects were recently registered and have yet to issue any credits. This underscores the nascency of the sector in a country that has significant potential for large scale AFOLU projects
- Botswana's heavy reliance on fuel wood and threats to savannah ecosystems through overgrazing and conversion to cropland present a major opportunity for carbon project development. This development can simultaneously help the country meet its NDC commitments[2]

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) GCF: Parliamentarians for Climate Finance, 2024

Namibia is ahead of the regulatory curve with an emerging Carbon Market Framework and project registry (1/2)

	State of Policy and Regulations	*Implications*
1 **National carbon markets regulation**[1]	• **Compliance markets:** No active compliance market. The Carbon Market Framework (CMF) and related guidelines may lay the foundation for carbon trading, supported by the Government of Japan, but is yet to be approved by the Cabinet • **Carbon project licensing/registration**: Under the CMF, Namibia has designed a National Carbon Registry system hosted by the National Statistical Agency (NSA) in partnership with the Ministry for Environment and Tourism (MEFT) (see slide 13)	• Namibia's strong framework development and stakeholder engagement efforts will support carbon project development once the CMF is approved
2 **Article 6 and NDCs**[2]	• **NDC targets**: 91% reduction below BAU by 2030; 14% unconditional, 77% conditional. Target sectors: Energy, IPPU, RAC, AFOLU, and Waste • **Article 6 frameworks:** No active Article 6 pilots or bilateral agreements exist. The CMF includes guidelines for participating in Article 6.2 and 6.4 mechanisms and enables corresponding adjustments for ITMOs per international guidance	• Active preparation for international trading under Article 6 presents an attractive environment for project development
3 **Other relevant legislation**[3]	• **Property rights and land tenure:** 39% of Namibia's land is communal, 44% is privately owned. Private individuals and entities can hold land, with the state holding communal land in trust for IPLCs. Leasehold rights in communal areas are limited to 25 ha • **Benefit sharing and FPIC requirements with local communities:** Namibia lacks a benefit sharing framework for carbon projects. The ABS Act aims to protect local communities and their resources, but lacks effective measures to enforce their rights	• Communal land held in trust for IPLCs, and government land, make up a large portion of Namibian land, indicating that PPPs and community projects could be the most effective

Source: (1) UNDP, Government of Japan; UNDP: Overview – Carbon Registry in Namibia; The Namibian,2023 (2) AfDB: Country Focus Report, Namibia, 2023; Republic of Namibia: Namibia's NDC Update, 2021; UNEPCCC: Article 6 Pipeline; RefIndustry,2024 (3) USAID: Landlinks; Hans Seidel Foundation, 2023

Namibia is ahead of the regulatory curve with an emerging Carbon Market Framework and project registry (2/2)

National registry overview

In September 2023, Namibia, with support from UNDP, designed a national registry to enhance the management and trading of carbon credits. This registry uses open-source software to track, verify, and manage carbon emissions. It will record emissions reductions, credit issuance, and transfers, hopefully allowing the country to maintain a credible future record of Internationally Transferred Mitigation Outcomes (ITMOs)

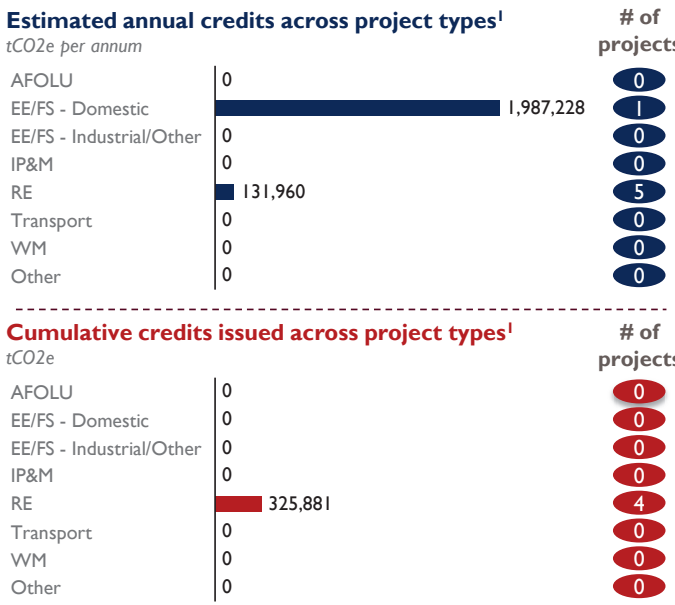
Key carbon implications

- **Article 6 frameworks:** Namibia will use a hybrid approach of Article 6.2 and Article 6.4 mechanisms, and voluntary carbon markets to achieve its NDC targets, potentially including an ETS agreement with Japan
- **Corresponding adjustments:** Namibia will make or apply corresponding adjustments for all ITMOs authorized under a cooperative approach, applying adjustments to emissions and removals

A Project development	B Project registration	C Monitoring and reporting	D Issuance and transfer
• Check the project against Namibia's positive list • Submit authorization requests and develop project design documents • Secure independent validation of activity design document from accredited bodies	• Complete evaluation and approval by the Carbon Markets Board • Officially register the project in the national carbon registry	• Implement the project and prepare detailed monitoring reports • Complete verification by independent validation and verification bodies (VVBs)	• Issue and manage the transfer of carbon credits based on verified reductions • Apply necessary adjustments to ITMOs and report transfers to UNFCCC • Handle the financial transactions related to the transfer of carbon credits

Source: UNDP, Government of Japan; UNDP: Overview – Carbon Registry in Namibia; The Namibian Economist

Despite the progress on regulatory frameworks, there still have been no AFOLU projects registered in Namibia



Overview of project development in Namibia

- Namibia's carbon market is primarily focused on renewable energy generation and energy efficiency projects under Verra, aligning with the country's efforts to improve energy efficiency and harness renewable energy
- AFOLU projects are absent from Namibia's current carbon project development ecosystem despite an urgent need to fund ecosystem conservation and restoration work. For example, invasive brush, affecting 45M hectares, presents a potential opportunity for biochar project development[2]
- Only 326K credits have been issued (Verra), accounting for 4% of the total issuance across the studied countries. AERA Group is the sole issuing developer with four RE projects in wind and solar. Their first issuances were in 2019 from the Ejuva One and Ejuva Two Solar Projects. (Note: bottom chart is cumulative issuances over time)

Source: (1). Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) AfDB: Country Focus Report 2023, Namibia

South Africa's domestic compliance market is uniquely progressive among African countries

	State of Policy and Regulations	*Implications*
1 National carbon markets regulation[1]	• **Carbon markets:** SA has an active compliance market based on the Carbon Tax Act, 2019. The Carbon Offset Administration System (COAS) enables carbon credits approved by CDM, VCS, and GS to be used to offset tax liabilities. The Johannesburg Stock Exchange also recently launched a voluntary carbon market • **Carbon project licensing/registration**: Projects must register with COAS if selling into the compliance market. No registration/licensing required if selling into VCM	• The robust regulatory environment could support a range of nature-based projects – developers can act outside of these regulations for voluntary carbon market sales
2 Article 6 and NDCs[2]	• **NDC targets**: Annual emissions from 2021-2025 will be between 398-510 Mt and from 2026-2030 will be between 350-420 Mt. Emissions reductions will focus on AFOLU, energy, industry, and waste • **Article 6 frameworks:** Draft framework prepared but not yet passed into law. Under the draft framework, projects must register with COAS and sell credits above SA's reference price to obtain LoAs for CAs. This ensures credits are not transferred out of SA at low prices to be used in other geographies	• While the international export of credits is allowed (e.g., for VCM), the lack of a framework for Article 6 transactions places practical restrictions on where credits can be sold
3 Other relevant legislation[3]	• **Property rights and land tenure:** Dual land tenure system includes freehold (87%) and communal land under traditional authorities. Communal land has overlapping rights, and tenure is not always secure. Private land ownership is allowed with some sector restrictions • **Benefit sharing and FPIC requirements with local communities:** NEMBA and BABS regulations enforce benefit sharing. In 2019, the first industry-wide agreement was made with the Khoikhoi and San peoples for the rooibos industry	• Complex interactions between regulatory authorities can slow project development. Large-scale developers must often work with many entities to secure the rights to the underlying land

Source: (1) Government of South Africa: Carbon Offset Administration System; JSE, 2023; IMF, 2023 (2) Chambers and Partners: Climate Change Regulation South Africa, 2023; UNEPCCC: Article 6 Pipeline (3) Natural Justice: The Rooibos Access and Benefit-sharing Agreement, 2019; UNCCD: Global Land Outlook, 2017

The domestic compliance market is succeeding in driving demand for carbon credits, however supply continues to lag

Overview: The five-phase carbon tax applies to entities that exceed specific capacity thresholds across various sectors including energy, manufacturing, and mining. These sectors cover 90% of the country's total GHG emissions, excluding AFOLU and waste. Companies can offset up to 10% of their carbon tax liability by investing in eligible carbon offset projects

Supply[1]

- The current supply ranges between 6.6M and 7.9M carbon tax offsets (CTOs) per year, with a significant supply-demand gap projected to peak at 16.1M CTOs per year in 2031, highlighting the need for increased offset projects to meet future demand
- As the country progresses towards its net-zero targets in 2050, supply is expected to exceed demand by 2043, although projections remain uncertain beyond 2040

Demand[1]

- Current demand is estimated at about 17M CTOs and is expected to increase to nearly 24M CTOs by 2030
- Demand is expected to peak at around 28M CTOs/year during Phase III (2030-2035), as exemptions phase out, before declining as emissions reductions take over and the country reaches net zero by 2050

Price[1]

- The carbon tax rate, which started at R120 (~$7) per tonne of CO2e in 2020, is set to increase annually by inflation plus 2% until 2022, then by inflation only, reaching R462 (~$26) per tonne by 2030
- However, projections indicate that even with a carbon tax rate of $120/ton after 2050, the carbon tax, by itself, is likely to fall short of South Africa's NDC targets

Requirements[2]

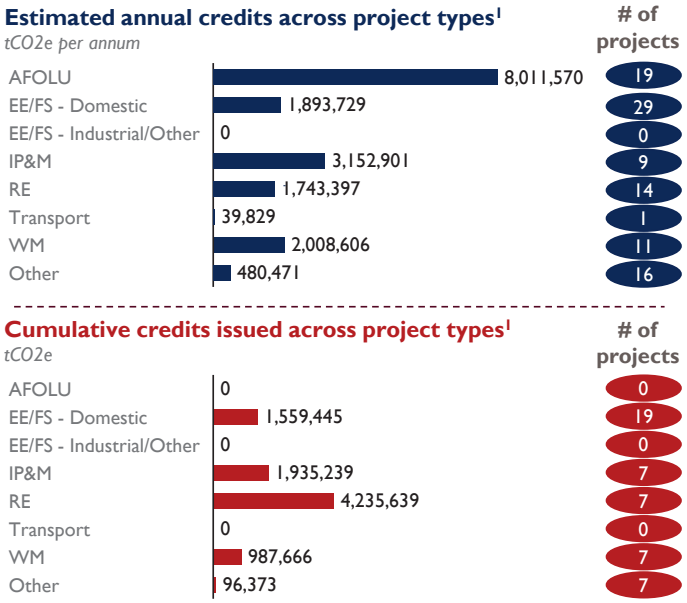
Eligibility: To be eligible, carbon offset projects must:

- Be registered with the CDM, VCS, or Gold Standard
- Be located in South Africa
- Fall outside the carbon tax net
- Not use technologies from the "negative list" in Part III Section 4.(1) of the gazette
- Obtain an Extended Letter of Approval from DMRE

The Department of Mineral Resources and Energy (DMRE), is responsible for the administration of COAS, ensuring compliance with necessary standards and regulatory requirements

Sources: (1) Brundtland: The State of the South African Carbon Market 2023; IMF: South Africa Carbon Pricing And Climate Mitigation Policy, 2023 (2) Republic of South Africa: Government Gazette No 42873, 2019; AlliedOffsets, 2024
Note: 'Falling outside the tax net' means that carbon offsets can only be generated by projects that are not directly subject to the carbon tax

There have been no AFOLU issuances in South Africa despite the existence of the domestic compliance market



Overview of project development in South Africa

- Accounting for 86% of total projects (118) registered and 92% of all credits issued (25M) across the studied countries, South Africa's carbon market is by far the most advanced, exhibiting diversity across project types
- The focus on industrial energy efficiency, renewable energy, and waste management aligns with the efforts to curb the energy sector's significant contribution to total emissions (91% increase in emissions over the past three decades[2])
- Despite the dominance of AFOLU in expected credits, no AFOLU credits have yet been issued. Of the 19 total projects, 58% are still being validated and most of the registered projects were registered in the past 4 years and are still pre-issuance
- Expected AFOLU credits are driven by TERRAGRN's two agroforestry projects, which account for 75% of these credits and have not yet been issued due to significant challenges raising capital to start large scale implementation of the projects

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) IMF: South Africa Carbon Pricing and Climate Mitigation Policy, 2023

Despite a recent MoU with Taiwan, Eswatini has no existing regulatory framework for carbon project development

	State of Policy and Regulations	*Implications*
1 **National carbon markets regulation**[1]	• **Compliance markets:** No active compliance market. No immediate plans for establishing a market in the Draft National Development Plan 2023/24 – 2027/28 or in the Swaziland National Climate Change Policy, 2016 • **Carbon project licensing/registration**: No existing requirements for licensing or registration of projects. No immediate plans for regulations despite a recent (Mar 2024) MoU with Taiwan's Stock Exchange and the Taiwan Carbon Solution Exchange	• The lack of regulation creates risks for the country as well as for project developers and investors that enter into long-term financial agreements with investors and buyers
2 **Article 6 and NDCs**[2]	• **NDC targets**: 5% unconditional and 14% conditional reduction below BAU by 2030; covering 12 sectors including agriculture, water, ecosystems, biodiversity, infrastructure, energy, waste, industry, forestry. In AFOLU, Eswatini aims to reduce land degradation through reforestation by planting 10M trees, and commits to move from Tier 1 to Tier 2 GHG inventory and improve data collection by 2030 • **Article 6 frameworks:** No active pilots or bilateral agreements	• The absence of a framework currently prevents developers from securing CAs for internationally transferred credits, effectively preventing any Article 6 participation
3 **Other relevant legislation**[3]	• **Property rights and land tenure:** Dual tenure system split into Swazi Nation Land (SNL) and Title Deed Land (TDL). SNL, 54% of the land, is controlled by the King and allocated by chiefs, while TDL, 46%, can be privately owned. Non-citizens can't own land post-2006, but can lease TDL for up to 99 years • **Benefit sharing and FPIC requirements with local communities:** Eswatini lacks a benefit sharing framework for carbon projects	• Eswatini's land tenure system, where most usable land is held by the King "in trust for the Swati nation," could require PPPs for land-based carbon projects

Source: (1) World Bank Group, 2021; Central Bank of Eswatini, 2024; The Kingdom of Swaziland: National Climate Change Policy, 2016; National Development Plan 2023/24 – 2027/28, 2022 (2) Kingdom of Eswatini: Update of the Nationally Determined Contributions, 2021; UNEPCCC: Article 6 Pipeline; (3) US Department of State, 2018

Despite a recent MoU with Taiwan, there is no carbon project development activity in Eswatini

Estimated annual credits across project types[1]
tCO2e per annum

		# of projects
AFOLU	0	0
EE/FS - Domestic	0	0
EE/FS - Industrial/Other	0	0
IP&M	0	0
RE	0	0
Transport	0	0
WM	0	0
Other	0	0

Cumulative credits issued across project types[1]
tCO2e

		# of projects
AFOLU	0	0
EE/FS - Domestic	0	0
EE/FS - Industrial/Other	0	0
IP&M	0	0
RE	0	0
Transport	0	0
WM	0	0
Other	0	0

Overview of project development in Eswatini

- Eswatini's carbon market currently lacks any active projects across all sectors. Both Gold Standard and Verra registries show no registered projects in AFOLU, energy efficiency, fuel switching, waste management, or renewable energy
- This situation suggests foundational challenges, such as lack of awareness, infrastructure, available land, regulatory frameworks, and financial support for carbon market development
- Eswatini, through its Environmental Authority, engages in the UNFCCC REDD+ framework as part of its climate action plan under the Paris Agreement. However, the country's small size ~1.7M ha, limits the feasibility of large-scale carbon projects like REDD+, compounded by a lack of enabling conditions for such development[2]

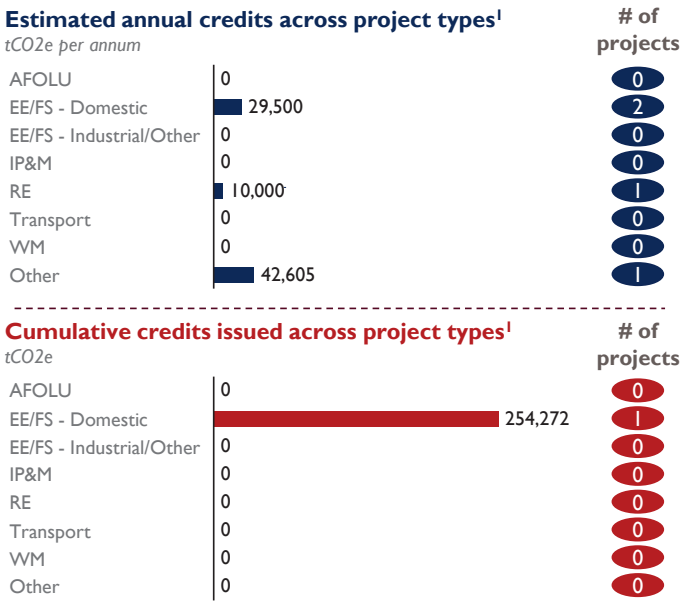
Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) Coalition for Rainforest Nations: Eswatini submits first Deforestation & Emissions Targets

Lesotho has no existing carbon markets regulations and no immediate plans to develop or implement regulations

	State of Policy and Regulations	*Implications*
1 **National carbon markets regulation**[1]	• **Compliance markets:** No active compliance market currently exists. No mention of any immediate plans to establish this in the National Climate Change Policy 2017 • **Carbon project licensing/registration**: No requirements for registering or licensing projects. No mention of any immediate plans to establish regulations in the National Climate Change Policy 2017	• Despite the lack of regulatory frameworks, carbon project development has proceeded in the energy sector, with four projects currently registered
2 **Article 6 and NDCs**[2]	• **NDC targets**: 10% unconditional and 25% conditional reduction below BAU of 5.7M tons by 2030; total 35% reduction. Core sectors: energy efficiency, renewable energy, waste management, and sustainable agriculture and forestry, aiming to improve resource management, forest management and reforestation • **Article 6 frameworks:** No active pilots or bilateral agreements under Article 6	• The absence of a framework prevents developers from securing CAs for internationally transferred credits, preventing any Article 6 participation
3 **Other relevant legislation**[3]	• **Property rights and land tenure:** Governed by the Land Act 2010. All land is vested in the Basotho Nation and held in trust by the King. Leases may be granted for various purposes. Private enterprises can hold title if 20% is Basotho-owned • **Benefit sharing and FPIC requirements with local communities:** The National Environmental Policy promotes community management and benefit sharing from natural resource utilization, but challenges remain in practical implementation	• Private sector developers would likely need to partner with local communities or the government to implement any large-scale, land-based carbon projects

Source: (1) UNCCD: Country Profile Lesotho, 2018; MEM: Lesotho's National Climate Change Policy, 2017 (2) MEM: Lesotho's Nationally Determined Contribution, 2017; UNEPCCC: Article 6 Pipeline (3) FAOLEX Database: Land Act 2010 (Act No. 8 of 2010), Lesotho; Kingdom of Lesotho: National Environmental Policy for Lesotho, 1998

Despite a lack of regulatory frameworks, small-scale project development is proceeding in Lesotho across energy sectors



Overview of project development in Lesotho

- Lesotho's carbon market primarily focuses on domestic energy efficiency and renewable energy, well aligned to their NDC targets to improve energy efficiency by 20% by 2020, to distribute efficient stoves to reach a penetration rate of 30% in 2030, and to increase access to clean energy by 40% in 2020 and 50% by 2030[2]
- Cookstove developer atmosfair gGmbH is responsible for all credits issued from Lesotho. Their Gold Standard project began issuing credits in 2013, which explains the large difference between annual estimated credits (top chart) and cumulative credit issuances (bottom chart)
- AFOLU remains sidelined with no projects registered or issuing despite commitment by Lesotho to REDD+ frameworks. This dissonance points to a potential lack of capacity or interest in carbon markets for a government that primarily drives the development strategy in the country[3]

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries (2) Lesotho's NDC, 2017 (3) UNCCD: Country Profile Lesotho, 2018; AfDB: Country Focus Report, 2023

Table of Contents

- Desk research on the state of carbon markets
- **Key insights from interviews with stakeholders**

Stakeholder interviews yielded several challenges and potential solutions/USAID interventions

Macro level constraints	• The lack of regulatory frameworks prevents projects from securing legal authority to implement carbon projects • The lack of regulatory frameworks prevents projects from receiving LoAs for corresponding adjustment under Article 6 • Existing land laws complicate project development and sometimes prevent developers from securing land tenure	• Provide technical assistance to governments to develop clear guidelines for project registration and processes for receiving LoAs for CAs under Article 6 • Provide technical assistance to governments to refine land laws to promote long-term permanence of emissions outcomes and clarity of land and carbon rights
Sector-level constraints	• Lack of demand in global carbon markets suppresses prices and hurts project economics • Low carbon stocks in Southern African ecosystems limit credit generation and harm project economics • A lack of technical capacity within local organizations limits carbon project development to well-resourced foreign entities	• Provide technical assistance to project developers to help them develop and position projects to maximize integrity, quality, and price • Support registries in developing new carbon project methodologies tailored to the ecology of Southern Africa (e.g., grasslands and semi-arid landscapes)
Organization- or transaction level constraints	• A lack of early-stage funding prevents scale up of carbon project development • Limited funding options reduce projects' negotiating power and lead to a high cost of capital	• Provide technical assistance to project developers to build capacity, support fundraising efforts, reduce information asymmetries with financiers, and negotiate agreements that are beneficial to project developers and ultimately communities on the ground

We interviewed a diverse set of stakeholders in the Southern African carbon ecosystem to supplement our assessment

	Category	Definition	Country
3T Business Fusion/Ezemvelo	Service provider	Develops tourism and nature conservation sectors, managing wildlife conservation areas in KwaZulu-Natal Province	South Africa
Cirrus	Project developer	Supports farmers in carbon revenue generation focused on the AFOLU sector, through regenerative agriculture	South Africa
Gazelle Ecosolutions	Project developer	Develops ecosystem monitoring and analysis solutions using AI and remote sensing. Engaged in sustainable land management projects	Botswana
Inspired Evolution	Investor	Specialized climate finance private equity firm dedicated to investing in clean energy infrastructure, energy access, and resource efficiency projects across Africa	South Africa
Nature for Justice	Conservation NGO	Non-profit focusing on social justice and climate resilience. Developing community-based carbon projects in Southern Africa	Regional
Peace Parks Foundation	Conservation NGO	Re-establishes and preserves large ecosystems, including Simalaha Community Conservancy within the Kavango Zambezi Transfrontier Conservation Area	South Africa
Promethium Carbon	Service provider	Provides climate change and carbon management services, including carbon footprinting, trading, offsets, and policy advisory	South Africa
Rabobank ACORN	Project developer	Supports smallholder farmers in agroforestry projects, helping them earn carbon credits through the ACORN platform	Regional

We interviewed a diverse set of stakeholders in the Southern African carbon ecosystem to supplement our assessment

	Category	Definition	Country
Rand Merchant Bank	Investor	The Carbon Finance team at RMB seeks to deploy debt into carbon projects across the region	South Africa
TASC	Project developer	Global carbon project developer focused on delivering impactful environmental solutions locally. Projects include improved cookstoves and water filters in countries like Uganda and South Africa	South Africa
Sayari Earth	Project developer	Sayari Earth is a nature-based carbon project developer focused on large-scale environmental solutions, specializing in earth observation, carbon science, and sustainable finance	South Africa
Systemic	Service provider	Sustainability consulting firm focused on transformative projects that aim to positively impact people and the world through carbon accounting, sustainability strategy development, and policy advisory	Portugal
TERRAGRN	Project developer	Develops large-scale agroforests in Africa, transforming degraded land into sustainable agroforests. Flagship project in Mpumalanga	South Africa
UNDP	Investor	Focuses on sustainable development and climate resilience, funding projects related to land restoration and sustainable agriculture in Angola	Angola
UNFCCC LDC Group	Service provider	Giza Gaspar Martins has worked in the climate space in Angola for quite some time, primarily within various UN agencies including the UNFCCC	Angola
WeGrow Africa	Project developer	Agricultural technology startup focused on developing a proprietary cultivar and integrated value chain model for Kiri. Engaged in community-based soil carbon projects	South Africa

The lack of regulations prevents gov'ts, communities, and investors from securing official authorizations for projects

Challenges faced

- Most of the countries studied lack any framework to register and license carbon projects. While this may initially seem like a benefit for private sector development, it can present several major challenges and raise risks for investors and buyers
- Political risk (e.g., expropriation, non-transferability, etc.) and the financial risks associated with changes in tax regimes are key challenges for carbon projects and can impact the economic viability of projects

- The best mitigation strategy is to obtain a legal contract or license from the government. A contract/license could likely be covered by typical political risk insurance such as that issued by MIGA
- Many investors and buyers of carbon credits are wary of jurisdictions where the project has no legal standing with the government or no legally issued carbon rights. While some of the countries are working towards regulations, it's unclear what the timelines will be for implementation

> *"I think most investors, even if they realize some potential, take a step back and wait to get more clarity. A null regulatory framework for carbon markets is probably the biggest hurdle."* —Investor

Potential solutions

- Conduct a comprehensive mapping of existing support initiatives and coordinate with other active donors to ensure complementary efforts
- Support the creation of carbon market activation plans that help governments meet NDC commitments and enable the development of high quality, high integrity markets that benefit the country and local communities (e.g., streamlined approval processes, strong legal contracts, long term licenses, etc.)

> *"There are capacity constraints on government to put together a regulatory framework that would suit objectives, and that's what probably needs the most help."* — Investor

The lack of regulatory frameworks prevents projects from receiving LoAs for corresponding adjustment under Article 6

Challenges faced

- None of the countries studied have a system in place for authorizing corresponding adjustments (CAs) under Article 6 of the Paris Agreement nor have they signed any bilateral agreements with other countries to trade credits under Article 6
- This prevents project developers in these countries from accessing the potentially lucrative markets for correspondingly adjusted credits including article 6 markets, national compliance markets, and industry compliance markets like CORSIA. Prices could be significantly higher in these compliance markets than in the global VCM
- While in principle this only impacts Article 6/compliance markets, many buyers in the voluntary carbon markets are also requesting or requiring CAs, so this situation may suppress prices across all international markets

> *"Without this Article 6 clarity and regulations really being put in place in the various countries, I don't see our firm having significant appetite."* —Investor

Potential solutions

- Help establish and build capacity within the relevant regulatory bodies to accelerate the drafting and implementation of Article 6 frameworks and processes
- Help countries to design procedures for authorization and corresponding adjustments so that they meet their NDC commitments and benefit financially from carbon markets (including benefits for communities)
- Provide training and documentation to stakeholders to enhance transparency

> *"To grow the carbon market, more revenue must be brought in. Therefore, the ERPA for the ITMO should be signed at a higher price than the reference carbon price."* — Service Provider

Existing land laws complicate project development and sometimes prevent developers from securing land tenure

Challenges faced

- Most methodologies require that carbon project developers secure land rights in addition to carbon rights. In many of the countries studied this can present a challenge due to the complexity of existing land laws
- In some cases, multiple regulatory authorities have jurisdiction over the project area (e.g., local community, national park authority, provincial government)
- These authorities often each require their own approvals for a project to proceed, significantly complicating and increasing the cost of the project development process
- In some countries (e.g., Lesotho, Eswatini) there are restrictions on private entities holding land title, which can impact the non-permanence risk of privately developed projects, increasing the required buffer and/or reducing the perceived quality of the credits

> "*Land is such a hot topic in South Africa, as it is in most places in the world, but specifically in South Africa the sovereignty and ownership and rights to the land is extremely sensitive and complicated.*" — Conservation NGO

Potential solutions

- Provide technical assistance to governments to develop land laws that enable high quality and high integrity carbon project development and enable benefit sharing with land stewards and resource owners (often IPLCs)
- Provide assistance to project proponents (including IPLCs) in securing long-term, legal land tenure to the project area

> *"At the end you can't do anything without people - without the local communities. It is necessary to not just focus on the environmental aspects but also the social aspects."* — Service Provider

Lack of demand in global carbon markets suppresses prices and hurts project economics

Challenges faced

- The voluntary carbon markets have seen average price declines over the past two years since a high in 2022, impacting the economics and cash flows of many existing carbon projects, especially REDD+ projects
- New projects are also impacted by lower prices through worse terms on pre-purchases and streaming agreements. This, in turn, increases the cost of capital, reduces the amount of money available for project activities, and can reduce project quality and integrity
- Through this mechanism, downward price pressure has the potential to spiral into lower quality, further supressing demand and prices
- Despite the decline in average prices, high quality projects have continued to receive high prices as buyers become more discerning on quality
- SA's current compliance market trades at ~$6/ton, lower than many high-quality voluntary market projects, but this will increase over time and provides a price floor for South African projects

> *"A lot of the investors that we're talking to, they understand the carbon markets. They don't tend to understand agricultural, agroforestry markets. I think the discomfort level, goes up with investors who then have to bank on the price of coffee or cocoa."* — Conservation NGO

Potential solutions

- Ecosystem restoration credits still sell significantly above average, often 2-7 times higher, with some exceeding $40
- USAID can enable higher prices by:
- Educating developers on creating high-quality projects and obtaining additional certifications (e.g., CCB, CCP, SD Vista, etc.)
- Enabling access to Article 6 and other compliance markets (e.g., CORSIA, Japan, Singapore, etc.)
- Harmonizing tools and standards among developers and donors/buyers

> *"We're proposing to set up a transparent system where the country has a facility to control the price range to retain the maximize the amount of money."* — Investor

Low carbon stocks in Southern African ecosystems limit credit generation and harm project economics

Challenges faced

- Most profitable carbon projects are in high-carbon-density ecosystems like Central Africa, South America, and Southeast Asia rainforests
- South African ecosystems pose challenges for nature-based carbon projects due to limited carbon removal or avoidance potential per hectare, reducing revenues. While the revenues are lower, often the costs are not much lower, which strains project economics

- This issue is particularly acute for rapidly degrading grassland and savannah ecosystems across the region where the problem is compounded by a lack of suitable carbon methodologies
- Viability in arid Southern African ecosystems requires enormous scale with large upfront investment and longer carbon yield timelines, leading to high operational complexity

> *"Breaking down data across big registries by grasslands shows a small percentage of total AFOLU, making the category underrepresented. The only methodology that is applicable is VM009, which still tries to apply static baseline logic where AGB varies significantly."* — Project Developer

Potential solutions

- Support the development of new methodologies and adaptation of existing methodologies to the specific ecological conditions of Southern Africa through funding research and pilot phases
- Provide concessional funding alongside commercial funding to improve project economics
- Help projects incorporate other payments for ecosystem services models to stack revenue streams and improve project economics

> *"I think everyone really is trying to find ways of adapting what's already there… trying to repackage the same outcomes through different tools is worth looking at."* — Project Developer

A lack of technical capacity across gov't institutions and the broader ecosystem has hindered carbon market development

Challenges faced

- **Developers:** There has been very limited nature-based carbon project development in southern Africa, but the few projects that are under development have all been implemented by well-resourced, foreign entities
- First-time developers are struggling to get off the ground, and local project developers are nearly entirely absent from the space. This is primarily due to the fact that carbon project development requires specialized technical expertise and a network of carbon focused investors that are typically based in Europe and the US
- It's unlikely that this status quo will change without structural change or significant support for smaller local players
- **Government:** The government authorities empowered to enable these transactions often lack the technical capacity/experience necessary to do so in a timely and efficient manner

> *"I don't feel like there's a massive supply of companies that are well structured with strong experience in the space. There is a little bit of a shortage of that."* — Investor

Potential solutions

- Invest in national and key local government department capacity to initiate, evaluate, and support high quality, high integrity carbon projects
- Promote partnerships between international developers and local developers on projects to transfer knowledge to local entities
- Promote regional learning to ensure national carbon market development aligns with current best practices

> *"We are on an approach to how to include sustainable finance into the university curriculum, so that you can train people, so that you can have local experts."* — Service Provider

A lack of early-stage funding prevents scale up of carbon project development

Challenges faced

- Infrastructure projects are financed through well-established debt and equity markets. Despite having similar cash flow curves in many cases, carbon projects are not able to access this type of funding because these investors perceive the risk of carbon markets to be too high
- Most carbon projects lack well-established insurance and guarantee products to lower the risk and the corporate buyers of carbon credits are rarely willing to enter into long-term, fixed-price offtake agreements in the early stages of project development

- Additionally, non-fungibility of carbon credits hampers the development of dynamic spot markets for carbon credits, further impacting investor appetite towards early-stage developers
- As a result, many carbon projects (especially those implemented by first time developers) are not even able to raise the $20-200k necessary to do a feasibility study, let alone the financing necessary to take the project through the "valley of death" before first issuance

> *"Finding that upfront carbon finance to originate a pure carbon project for project establishment is one of the challenges."* — Project Developer

Potential solutions

- Provide grants and investment readiness support to early-stage projects and first-time developers to get them through feasibility stage
- Support projects in accessing guarantees to help derisk early-stage investments
- Support projects in accessing insurance products like parametric (e.g., drought, flood, fire, etc.) insurance and non-delivery insurance
- Provide TA to facilitate offtake agreements with credit-worthy corporates

> *"An incubator-accelerator mechanism is critical, and it's as much to provide the technical assistance with people that are pre-vetted, as it is about the money."* — Conservation NGO

Limited funding options reduce projects' negotiating power and lead to a high cost of capital

Challenges faced

- Some projects are able to raise capital and typically do so through a small set of risk-tolerant "carbon funds". These funds typically invest through pre-purchase agreements, brokerage agreements, or streaming agreements
- Despite often being debt-like, these investments are at a very high cost of capital (20%+) and through complex instruments that can be opaque to developers that lack finance experience

- As a result, many developers end up in unsustainable deals with investors and are unable to maintain high quality and integrity in the implementation of their projects
- The high cost of capital is further compounded by the fact that some project types, like ARR, have very long payback periods, which can mean that investors end up with a large portion of the overall project economics

> *"A lot of the investors that we're talking to, they understand the carbon markets. They don't tend to understand agricultural, agroforestry markets. I think the discomfort level, goes up with investors who then have to bank on the price of coffee or cocoa."* — Conservation NGO

Potential solutions

- Technical assistance (i.e., investment advisory assistance) to:
  - Market deals more widely and improve competition to lower the cost of capital
  - Reduce information asymmetries and reduce the perceived risk of projects
  - Help developers negotiate terms with investors
- Leverage partnerships (i.e. ACORN) to foster the reputation of high-quality, high-integrity projects, driving demand and higher prices

> *"For a well renowned company to publicly say, 'I bought this, I endorse this as a market, I endorse this as a project, I endorse this as a climate mitigation tool,' would really help."* — Project Developer

Thank You

Appendix 1: Credit issuance across countries in East and Southern Africa

Countries	Agriculture Forestry and Other Land Use	Energy Efficiency/ Fuel Switching - Domestic	Energy Efficiency/ Fuel Switching - Industrial and Other	Industrial Processes and Manufacturing	Renewable Energy	Transport	Waste Management	Other	Total
Angola	0	66,703	0	0	0	0	0	0	**66,703**
Botswana	0	0	0	0	0	0	0	0	**0**
Eswatini	0	0	0	0	0	0	0	0	**0**
Namibia	0	0	0	0	325,881	0	0	0	**325,881**
Lesotho	0	254,272	0	0	0	0	0	0	**254,272**
South Africa	0	1,559,445	0	1,935,239	4,235,639	0	987,666	96,373	**8,814,362**
Kenya	29,602,061	22,884,951	336,982	0	1,011,385	0	0	84,172	**53,919,551**
DRC	31,961,611	416,244	0	0	107,071	0	0	0	**32,484,926**
Zimbabwe	24,822,953	1,757,735	0	0	0	0	0	0	**26,580,688**
Uganda	3,475,697	17,261,453	64,529	0	1,173,500	0	15,229	0	**21,990,408**
Malawi	3,325,607	14,192,010	18,210	0	35	0	0	0	**17,535,862**
Zambia	11,639,088	4,124,536	0	0	13,559	0	0	0	**15,777,183**
Rwanda	0	7,086,701	0	0	45,930	0	0	0	**7,132,631**
Tanzania	4,311,409	350,722	1,041,714	0	187,577	0	25,200	4,509	**5,921,131**
Madagascar	1,084,903	383,820	0	0	2,897,584	0	38,868	3,300	**4,408,475**
Mozambique	5,367	2,089,003	0	0	200,824	0	0	0	**2,295,194**
Burundi	0	1,172,717	0	0	838,934	0	0	0	**2,011,651**
Mali	0	441,095	1,001,341	0	0	0	0	0	**1,442,436**
Congo	61,979	13,559	0	0	0	0	0	0	**75,538**
Congo	61,979	13,559	0	0	0	0	0	0	**75,538**

Source: (1) Analysis based on Verra, Gold Standard, Plan Vivo, and Social Carbon registries