NATURAL CLIMATE SOLUTIONS & CARBON MARKETS PRIMER

A Companion to the Carbon Markets Resource Guide

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INTRODUCTION

Not only are natural climate solutions (NCS) critical for limiting global temperature rise to below 1.5°C, they also deliver invaluable environmental and social co-benefits. In many countries, NCS such as the protection, improved management, and restoration of forests, agricultural lands, and coastal ecosystems could mitigate half to all of these countries’ greenhouse gas (GHG) emissions. NCS can also improve food security, erosion control, coastal protection, disaster risk reduction, and biodiversity protection, effectively linking climate change mitigation with the United Nations’ sustainable development goals.

While NCS could deliver up to one-third of the climate change mitigation required by 2030 to stay on track with the Paris Agreement, the value of natural ecosystems to climate change is generally undervalued economically, and NCS are severely underfunded. Carbon markets, which are economic mechanisms that facilitate the exchange of carbon credits, can incentivize and finance NCS and decarbonization of supply chains and production processes. Various mechanisms exist to finance NCS. Carbon markets are a tool within the broader landscape of financing options; other examples of NCS finance include payment for ecosystem services, debt-for-nature swaps, green bonds and loans, premium pricing for sustainable agriculture and forestry products, result-based payments, and more, each with advantages and disadvantages related to the speed, scale, and conditions of delivery. While this primer focuses on one form of NCS finance — carbon markets — decisions about participation in carbon markets should be considered within this broader finance context.

The purpose of this primer is to help USAID missions effectively navigate the evolving and complex NCS carbon market space and evaluate options for potential engagement in carbon markets that can deliver meaningful climate action and sustainable development. Keywords throughout this document link to the NCS Carbon Markets Resource Guide, which showcases additional knowledge products and tools. It is recommended that mission staff use this primer in conjunction with the resource guide. Missions are similarly encouraged to contact USAID/Washington staff and appropriate implementing partners for further support. Find a glossary of key carbon offset terminology and a more comprehensive primer on the fundamentals of carbon markets that covers key concepts such as leakage, permanence, additionality, and more.

Annex 1 of this document contains a list of potential carbon market “plays” that will complement the material in this primer to help guide mission programming in the carbon market space.

CARBON CREDIT MARKETS AND NATURAL CLIMATE SOLUTIONS

There are several market-based mechanisms intended to reduce GHG emissions. Carbon markets, which include the voluntary carbon market (VCM), compliance markets, and Article 6 markets (described in more detail below), are mechanisms to buy and sell carbon credits or allowances. A carbon credit represents one ton of carbon dioxide equivalent GHG emissions avoided, reduced, or sequestered, whereas allowances are tradeable permits that authorize the holder to emit a certain quantity of GHG emissions in the future. There are many ways to produce carbon credits, including by transitioning from fossil fuels to clean energy systems; however, this primer focuses on credits created...
通过NCS，例如避免森林砍伐、重新造林和改善农业实践。有三种主要类型的碳市场，其中碳信用被购买和出售：

**合规市场**由政府监管。在某些合规市场中，企业必须遵守法规来减少排放。这些市场通过配额来限制某个行业部门的碳排放。例如，**欧盟**就有28个**排放交易系统**，包括欧盟各国、中国、日本、墨西哥和加利福尼亚，覆盖约17%的全球排放。一些合规市场，如新加坡，允许部分碳交易在这些市场内发生，并产生碳信用，而这些信用通过独立的**核证可持续发展（ITMOs）**机制来核证。2022年，市场价值**约950亿美元**。

**自愿碳市场**由非政府机构和组织管理，并允许政府、公司和个人购买碳信用，或者出售，以满足其自愿承诺。2022年，**VCM价值190亿美元**。

**巴黎协定第六条市场**允许国家间合作并同意在**国际转移的缓解成果（ITMOs）**在不同国家之间交易，以实现**国家自主决定贡献（NDCs）**目标。**转让的缓解成果**有利于促进更清洁的能源过渡，但其发展和运行规则对他们也创建了非政府机构执行非国家行为的框架，以在国界内交易碳信用。**自愿碳市场（VCM）**正在发展，预计在2030年每增长100亿美元，但谈判正在逐步在联合国气候变化框架公约（UNFCCC）会议上重新定义。2023年，瑞士和泰国完成了**第一个已知的第六条贸易**，并在2024年1月以一笔20亿美元的交易。2023年，**世界气候行动网**的贸易预计增长6%。

对所有类型的碳市场的需求正在增长，由**国际能源署**和**联合国气候变化框架公约**推动，目前有28个**排放交易系统**，包括欧盟各国、中国、日本、墨西哥和加利福尼亚，覆盖约17%的全球排放。一些合规市场，如新加坡，允许部分碳交易在这些市场内发生，并产生碳信用，而这些信用通过独立的**核证可持续发展（ITMOs）**机制来核证。2022年，市场价值**约950亿美元**。

利益相关方包括**政府**、**公司**和**个人**，他们购买碳信用，或者出售，以满足其自愿承诺。2022年，**VCM价值190亿美元**。

碳信用产生的**环境和社会效益**，以及这些市场**的碳价格**。这些**碳信用**有时被批评，因为它们不能准确地反映碳信用的**气候效益**，并且可以迅速逆转（例如，树木可以被砍伐，田野可以被焚烧，湿地可以被排水）。NCS碳信用是企业面临的一个挑战，特别是围绕这些市场确定**额外性**的问题。NCS衍生的碳信用目前代表了**VCM的46%的美元价值**；许多政府正在将NCS碳信用与**NDC融资**计划**链接**，使NCS成为气候变化和开发**政府**和**私人部门**条件**的一个**重要方面。一些国家有

**考虑事项**

关键考虑事项包括：**财务和**和**保存**的**碳市场**，**do no harm**原则，以及**治理**和**私人部门**条件**的**实施或搁置。一些国家有
advanced carbon markets infrastructure and receive comprehensive financial and technical assistance from other development partners; for others, the political environment may not currently be conducive to the long time horizon of NCS carbon investment. Before engagement, USAID missions should consider the following questions, not all of which can be answered without further research and analysis:

1. **Impact:** Is there significant mitigation impact potential for emission reductions and carbon removals, as well as development impact through meaningful socioecological benefits? Are conditions favorable to absorb additional investment, with upside potential for poverty reduction, NDC, or national adaptation plan achievement? Does evidence point to the potential impact that carbon revenues can have on meaningful conservation and mitigation efforts?

2. **Readiness:** What sort of carbon markets policy or regulation currently exists or is under development? Does the country have a domestic carbon compliance market and well-defined plans to engage in carbon markets under Article 6? Are local government bodies eager to engage (evidenced by early rollout of carbon market strategies or frameworks)? Are regulations conducive to a dynamic and fair carbon market where all stakeholders are engaged?

3. **Governance:** Is local governance conducive to the successful establishment or growth of carbon markets? Are land rights and land tenure clearly established? Can it be established who owns the rights to NCS-generated carbon credits? Are Indigenous peoples and local communities (IPLCs) actively engaged, and what accountability and grievance mechanisms are in place?

4. **Capacity:** Does the mission have the capacity and funding to meaningfully engage? What competencies may need to be acquired? What is the in-country capacity within government, private sector, and civil society to engage in and capitalize on carbon market opportunities?

5. **Alignment:** Would investing in the NCS carbon market align with USAID’s Country Development Cooperation Strategy? How are agriculture, forestry, and other land use (AFOLU) categories included in the host country’s NDC?

6. **Comparative advantage:** What are other international bodies and development partners already doing to support the host government, project developers, and IPLCs in accessing carbon markets? What role could USAID play relative to other donors? If USAID steps in, is there a risk of redundancy? What additional impact might USAID’s engagement in the NCS carbon space spur that would otherwise not happen?

While these questions may not be answered immediately, they can guide missions in making informed and strategic decisions for engagement and optimizing time and effort. The information shared in the following sections will further contextualize these considerations. USAID missions are encouraged to contact their USAID NCS or climate finance colleagues for assistance with research and analysis. Additionally, ongoing programming, including CFDA, C3F, CACCI, SWAMP, SilvaCarbon, ATI, and other USAID activities, can provide avenues for USAID mission engagement. Please note that State Department engagement under the ETA, CORSIA, LEAF Coalition, NDC Partnership, and Partnerships for Forests can also provide technical support on carbon markets.

**HISTORY AND CURRENT STATE OF PLAY OF CARBON MARKETS**

Carbon markets have existed for decades. As the interactive timeline below shows, the regulatory environment, key players, and sophistication of the market mechanisms have evolved significantly over time. Click on the ⬤ icons in the timeline on the following page to learn more about key milestones that have shaped the evolution of carbon markets.
What started as a patchwork of private and donor-funded carbon projects when carbon market mechanisms were first created has since grown into a complex market architecture that includes both compliance and VCMs, as seen in the figure below. As these markets evolve, they continue to influence and affect each other. In recent years, lessons learned and innovations in the VCM have influenced rulebook-making around Article 6 and national compliance markets. Governments seek to build regulatory frameworks that will enable their countries to benefit from all three markets transparently at the same time.

### Broad Landscape of Carbon Market Instruments

<table>
<thead>
<tr>
<th>DOMESTIC</th>
<th>INTERNATIONAL</th>
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<tr>
<td><strong>DOMESTIC</strong></td>
<td><strong>INTERNATIONAL</strong></td>
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<tr>
<td>Domestic compliance instruments (e.g., ETS, carbon taxes)</td>
<td>UNFCCC (NDC)</td>
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<td>Domestic crediting mechanisms (e.g., Australia ERF, California compliance offset program)</td>
<td>CORSIA</td>
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<tr>
<td>Independent mechanisms (e.g., Verra, Gold Standard)</td>
<td>International crediting mechanisms (e.g., CDM, Article 6)</td>
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<tr>
<td>Voluntary credit purchases (e.g., corporate offsetting)</td>
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Demand for carbon credits increased significantly between 2019 and 2022 due to corporate net-zero pledges and compliance obligations. The VCM reached an annual total value of $2 billion in both 2021 and 2022. Since 2022, concerns related primarily to NCS carbon credits, especially Reduction of Emissions from Degradation and Deforestation (REDD) programs, have resulted in a notable downturn in the VCM’s reputation and demand. Several reputable publications questioned the integrity of some high-profile carbon credit projects, claiming they didn’t achieve the reported avoided emissions and questioning the quantity of carbon credits subsequently issued. Since then, several initiatives at national
and global scales have emerged to advance the science, strengthen governance, and ensure the environmental, social, and climate integrity of carbon projects. Clarifying regulatory processes during annual COPs and addressing concerns about NCS is necessary to maintain and increase this type of climate financing and grow the market to its full potential for developing countries and emerging economies. Although the Taskforce on Scaling Voluntary Carbon Markets, which transitioned into the Integrity Council for the Voluntary Carbon Market (ICVCM), predicts that the VCM could reach $30 to $50 billion by 2030, the voluntary market is currently dwarfed by compliance markets, which in 2022 reached nearly $95 billion.

Size and Historical Trends of the Various Markets

![Chart showing the size and historical trends of various markets](chart)

**KEY CONSIDERATIONS FOR NCS CARBON MARKET ENGAGEMENT**

Carbon markets can be divided into four domains: carbon credit production, enabling policy environment, carbon markets infrastructure, and carbon credit demand. The following sections, which provide key background and link to the Carbon Markets Resource Guide for additional information, are meant to inform missions and guide decision-making.

**NCS CARBON CREDIT PRODUCTION**

NCS carbon credits are generated through projects and programs that either take carbon out of the atmosphere using biological processes or prevent GHG emissions that would have occurred under a

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1 Examples include the ICVCM-issued Core Carbon Principles Assessment Framework and Assessment Procedure and the Voluntary Carbon Markets Integrity Initiative-issued Claims Code of Practice.
business-as-usual scenario. There are dozens of project- and program-scale methodologies, ranging from small activities to jurisdictional REDD (government-lead GHG reduction programs at the national or subnational scale) to produce NCS carbon credits from a *wide range of nature-based activities*. New methods and practices to sequester more carbon are being developed continuously.

As a common example, an NGO can receive a climate investment or grant from an environmental, social, and governance (ESG) investor. The NGO works with communities to change agricultural practices on their farmland to sequester more carbon in soils and trees. These additional tons of carbon removed from the atmosphere are, after verification, issued as carbon credits according to a scientific methodology. Revenue from the sale of these credits flows through the project, distributed between farmers, private landowners, the NGO supporting the farmers, the government via taxes and fees, and investors according to *benefit-sharing agreements*. Jurisdictional REDD credits can also be produced by governments under jurisdictional-scale programs, such as taking policy and enforcement actions across entire states to ensure that carbon emissions are avoided or more carbon is sequestered. The carbon credits generated can be sold based on bilateral or multilateral agreements, including eventually as ITMOs under Article 6; revenues flow through governments and are distributed through government services. A typical NCS carbon project development would include the steps and stakeholders shown in the figure below.

**Key Players USAID Might Encounter in a Local Market**

![Workflow diagram](image_url)
USAID can influence the production of NCS carbon credits at four interlinked levels. First, it can support the improvement of the reputation and quality of carbon supply from a certain country, region, or jurisdiction by ensuring equity and integrity in carbon projects and ventures, whether serving compliance or voluntary markets. USAID can work in host countries to support the adoption of ICVCM core carbon principles across projects and actors, especially with regard to no double counting; additionality; leakage; permanence; quality monitoring, reporting and verification (MRV); and independent verification. Simultaneously, USAID can promote development criteria such as “do no harm”; free, prior, and informed consent; and rights-based approaches; and insist that IPLC inclusion and leadership is front and center. USAID can also amplify jurisdiction or project quality and success once achieved.

Second, USAID can help incubate and catalyze promising projects from emerging high-quality geographies to get to market, including by providing grants or pre-financing discrete but critical steps in the development of carbon projects in the VCM, such as feasibility studies; additionality and biodiversity assessments; free, prior, and informed consent protocol and grievance mechanism design; business skills training; benefit-sharing mechanisms development; and more. For more information on integrity, transparency, and equity within the NCS carbon market space, please see USAID’s NCS Resource Guide section on Carbon Credit Production.

Most NCS projects, especially those generating credits through carbon removal, such as afforestation, take a long time to generate positive cash flow through the trade of carbon credits (where initial credits are often not issued until after five years or more) and have high up-front costs that reduce financial viability. The long-term prospects for these projects may be improved through technical assistance; grant funding for immediate co-benefits, like agriculture training or savings and loans mechanisms; and prefinancing support through buyer advances or forward market sales, which USAID can facilitate directly through investment in projects and activities or by investing in funds and entities that do so already. Third, USAID can facilitate the success of high-integrity carbon projects and programs by facilitating the linkage of developers — whether host government, private sector, or NGOs — to reliable buyers in the market for quality carbon credits for legitimate purposes, such as regulatory offsets or voluntary claims. These can be the global coalitions of buyers referenced in the following section. While private sector demand is growing, USAID may be positioned to serve as a convener or facilitator between private demand and high-quality host-country supply.

Finally, USAID can consider accepting the production of carbon markets in new and ongoing activities and country development cooperation strategies. NCS carbon activities can be mainstreamed in future USAID contracts, such as RFAs and RFPs for agriculture value chain development, resilience and food security, Feed the Future, biodiversity (marine and terrestrial), and sustainable landscape activities. This mainstreaming can be limited and specific, such as providing local communities engaged in resilience and food security activities with the opportunity to opt into the carbon market by adopting climate-smart agriculture and agroforestry techniques and linking them to reputable buyers, such as ACORN. It may also be broad, leveraging standalone activities such as a USAID-funded activity to bring private sector investment into a climate-smart value chain project (such as cacao, coffee, or spices) where financial viability for the company is achieved through the carbon value chain. Finally, where feasible, USAID could consider partnering with other U.S. government investments, such as USDA Foreign Agricultural Service Food for Progress, to integrate carbon in supported commodity value chains, or Millennium Challenge Corporation, where compacts have significant upside nature-based solutions potential. An example is blue carbon (nature-based solutions in coastal and marine ecosystems, including mangrove forests, seagrass meadows, and salt marshes).
**ENABLING POLICY ENVIRONMENT**

The quality and impact of carbon market activity in any given country will depend on the development (or revision) and implementation of robust policy and legal frameworks. These frameworks include strategies for utilizing carbon credits to support NDC achievement, national Article 6 frameworks, and domestic carbon pricing policies, fees, and taxes, and legal rights and protections.

At an international level, the Paris Agreement sets out a guiding framework for both voluntary and compliance carbon markets and recognizes that carbon markets are an important tool to reach global climate goals. Specifically, Article 6 recognizes that countries may choose to cooperate in meeting their NDCs and sets out both market and non-market pathways to do so. The market-based avenues for international cooperation under Article 6 include trading of ITMOs — a type of carbon credit specific to

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**RaboBank’s ACORN Fund**

**Intervention Activity:** Contribution to de-risk climate-smart agriculture and agroforestry investment fund

**USAID Investment:** $2.5 million

**Description:** The Dutch cooperative bank Rabobank established the ACORN carbon fund to actively contribute to the global fight against climate change. ACORN collaborates with NGOs in developing countries and emerging economies worldwide to promote sustainable agroforestry and climate-smart agricultural practices among smallholder farmers. ACORN then converts carbon extracted from the atmosphere through these practices into certified carbon removal units (CRUs), following the Plan Vivo standard. These CRUs are successfully marketed at a premium to companies such as Microsoft, Standard Chartered Bank, Lavazza, and Bain & Company, all of which have well-documented science-based targets initiative (SBTi) commitments.

ACORN stands out for the cost efficiency of its model, allocating only 10% of carbon revenue sales to cover its own operational costs and 10% to project-implementing NGOs, while 80% of the CRU value is channeled back to the farmers responsible for generating the CRUs through agroforestry activities on their lands. The fund also seeks to leverage the existing network of NGO technical assistance providers rather than replicating their role and gives them both an additional selling point in promoting agroforestry with farmers and an additional revenue stream to support their technical assistance. Given its high-quality, low-cost model, ACORN CRUs are marketed for a minimum of €20 per CRU — more than double the average value of an NCS-type credit in 2022. Yet to scale a reliable supply of CRUs at the same low 10% production cost for partner NGOs may be a challenge.

To further accelerate and scale the impact of ACORN, Rabobank began developing a smallholder agroforestry finance fund to accelerate project development. USAID, through its Enterprises for Development, Growth, and Empowerment (EDGE) Fund, provided a grant to Acorn which would accelerate project development. Due to this support, the organization was able to build out its first-loss tranche, helping the fund meet its target of catalyzing $110 million for its first close to support smallholder farmers’ transition to climate-smart and resilient agriculture.

**Lessons for Replication:** USAID can invest in emerging or existing successful supply-side models or assist in de-risking models and amplify its impact through comparatively limited USAID investment. Specialization, such as in agroforestry adoption by smallholder farmers, makes it possible to support and improve a scalable approach to a particular challenge or opportunity.

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2 Article 6.8 promotes non-market international cooperation through climate finance, technology transfer, and capacity building, where no trading of credits is involved.
the Paris Agreement — and a new UNFCCC-governed credit issuance mechanism that facilitates international investment in climate change mitigation projects in exchange for carbon credits. Article 6 specifically includes NCS, further linking NCS and carbon markets.

Article 6 rules do not govern the VCM but have implications for it. For example, host countries may decide to apply a corresponding adjustment to credits traded in the VCM, meaning that the country selling carbon credits cannot count the emissions reductions in its NDC reporting to avoid double counting. Although Paris Agreement carbon trade provisions were finalized in 2021, COP28 failed to operationalize them and many countries are still determining how they will respond and implement the provisions. These policy decisions are paramount to the future development of NCS carbon markets. One role USAID could play is to facilitate carbon markets activation and Article 6 readiness in high-potential countries, as described in the Kenya case study below.

Domestic carbon pricing policies (e.g., emissions trading systems and carbon taxes), commonly referred to as compliance markets, also support domestic climate action. Emissions trading systems set a cap on emissions, usually for high-emitting sectors, and institute a system allowing companies to trade excess emissions. Carbon tax systems establish a price or tax on carbon emissions and may allow for use of carbon credits to reduce companies’ tax burdens. As of March 2023, there are 73 carbon pricing initiatives worldwide (including both emissions trading systems and carbon tax regimes), covering national and subnational jurisdictions.

As a subset of domestic policies, clear and transparent land rights, including informal systems, are essential to ensure local communities have a predictable stake in forest and land-use benefits, including carbon projects, and that land grabs are avoided. This is especially pertinent when taking into consideration Indigenous peoples, gender (women may not formally be allowed to own land), and internally displaced persons and refugees. USAID staff should consider if land tenure rights are protected under domestic policies and what grievance and redress mechanisms exist for IPLCs, and whether that is a potential area for USAID support.

Lastly, without the right capacities in place, even the best policies and strategies risk falling short. As with many USAID interventions, for countries to effectively participate in carbon markets, governments must ensure adequate staff capacity and sufficient budgets. Relevant ministries must be empowered to make decisions and be surrounded by capable technical and administrative teams to provide sound, sector-specific advice and ensure the processes for assessing, reviewing, and approving carbon project applications run smoothly. Many international donors and partners engage with host countries to increase climate change mitigation and adaptation expertise, including for carbon markets. USAID has opportunities, however, to strengthen local capacity and leadership.

### USAID Support for Kenya’s Carbon Market Activation Plan

**Intervention Activity:** Article 6 preparedness and operationalization

**USAID Investment:** $1.5 million

**Description:** The investment, which included participation by the Swedish International Development Cooperation Agency, enabled the development of Kenya’s Carbon Market Activation Plan (CMAP), called for under the Africa Carbon Markets Initiative. CMAP enabled the government of Kenya to identify specific policy options for VCM and Article 6 engagement, along with related benefits and challenges. The plan includes considerations for the legal and regulatory framework, MRV details, reporting and implementation steps for benefit sharing, and an approach for addressing jurisdictional credits and legacy projects, as well as potential new fiscal policies to incentivize the
The CMAP development was a foundational step for facilitating Kenya's participation in carbon markets. The government is currently finalizing implementation frameworks for its carbon markets policy and establishing relevant roles and institutional arrangements. Other next steps, which are not yet funded, include planned technical support and capacity building for counties, communities, and project developers.

**Lessons for Replication:** Broader market considerations were key to ensuring that the VCM was part of a larger carbon market plan for Kenya. For example, strong donor coordination was important to ensure common objectives and avoid duplication. Preliminary engagement with the private sector operating in the VCM space allowed for excellent cross-sectoral learning.

Despite both, the new policy concentrates authority over the VCMs within one ministry, whereas the carbon market functions often straddle multiple ministries and departments (e.g., the Kenya Revenue Authority, Ministry of Agriculture and Livestock Development, Ministry of Environment and Forestry). Close collaboration during design stages is critical to ensure clarity around the mandate and role of each department and ministry.

**CARBON MARKETS INFRASTRUCTURE**

Carbon markets infrastructure refers to national systems for inventorying emissions, registering credit transactions, and associated MRV processes, as well as data collection and modeling capabilities, and the networks, partnerships, and capacity-building initiatives that form connective tissue for the market. Countries with more complete carbon markets infrastructure are better positioned to achieve and sustain high-integrity NCS sector outcomes.

Carbon projects are developed based on specific scientific methodologies and standards, most of which are produced by a handful of private entities, including Verra, Gold Standard, and PlanVivo. While project developers in most USAID-presentation countries rely on these global standards, some countries have local methodology and standard-setting entities — for example, the BioCarbon Registry and the Cercarbono Standard in Colombia. Increasingly, the aforementioned standards enable the integration of sustainable development or biodiversity co-benefits into their methodologies to promote quality and improve their market differentiation and value potential.

Ensuring that REDD+ projects in the VCM are aligned with jurisdictional programs and national planning processes is critical and requires careful consideration of how the market infrastructure is developed (and revised). For example, in countries where VCM projects pre-date national carbon planning, emissions baselines set at the project level using VCM project methodologies rarely match those established later by governments at the jurisdictional level. Developing a nested system is a fundamental aspect of national carbon markets infrastructure; nesting harmonizes land-use activities implemented at different scales, integrates the accounting frameworks for different REDD+ activities, helps manage leakage, and enforces environmental safeguards across programs and projects. Nested systems are likely to play a major role in the design and implementation of REDD+ in the future.

UN processes also guide important components of carbon markets infrastructure; other components develop at the national and subnational levels in response to country-specific contexts. For example, to engage in jurisdictional programs that rely on NCS, such as LEAF and the Green Climate Fund's REDD+ Results Based Payments program, countries must meet the UNFCCC’s REDD+ Warsaw Framework requirements for including forests in their overall NDC targets and have a National Forest Monitoring System that complies with relevant accounting requirements: a Safeguards Information System (SIS) and both Forest Reference Level data and Forest Reference Emissions Level data. This infrastructure is
likewise fundamental to enabling forest-based Article 6 transactions, which are at the forefront of USAID host-country governments’ current considerations.

There are a number of points of entry for USAID to support host-country governments in developing and enhancing carbon markets infrastructure. Aside from policies, rules, and regulations, USAID can support countries in building out the human resources capacity and infrastructure needed to comply with the abovementioned international frameworks and strengthening national systems for inventory emissions and carbon registries. USAID can facilitate regional and global learning to ensure national carbon market development reflects current best practices and is future proof.

**SilvaCarbon: Providing Capacity Building for Host-Country Forest Monitoring Systems**

**Intervention Activity:** Capacity building for carbon MRV frameworks

**Description:** Forest monitoring systems, which integrate remote sensing and satellite data with on-the-ground forest measurements to provide accurate, transparent information about landscape changes such as deforestation and forest degradation, are a key aspect of many forest carbon market mechanisms, such as REDD+ programs, as well as forest-based VCM projects. While many tropical forest countries have committed to developing national forest monitoring systems that would support such mechanisms, many lack the technical assistance to accomplish their goals. SilvaCarbon is a U.S. technical cooperation program to enhance capacity worldwide in monitoring and managing forest and terrestrial carbon. Working with selected tropical countries, the program provides targeted technical support to countries in the process of developing and implementing national forest and landscape monitoring systems to support management decisions. SilvaCarbon is currently working with 30 tropical forest countries to build these essential monitoring capacities, promote South-South collaboration, and facilitate technical coordination globally. It assists countries in developing accurate and sustainable national forest inventory methods — for example, helping Bangladesh establish its first national forest inventory and Peru finalize its first large-area forest change map and first phase of its national inventory. SilvaCarbon identifies and sources leading technical experts from across the U.S. Forest Service, NASA, and other parts of the U.S. government to provide detailed training and build the capacity building of host-country partners.

**Lessons for Replication:** Several aspects of the program have worked well over the past decade. SilvaCarbon is a flexible mechanism, which allows it to be particularly responsive to the needs of host-country governments. SilvaCarbon works closely with other donors working on MRV frameworks, including with the UN Food and Agriculture Organization on the Global Forest Observations Initiative.

**NCS CARBON CREDIT DEMAND**

Market demand for carbon credits is driven in large part by end buyers. While the types of buyers can be quite diverse, there are three main categories of carbon credit end buyers, as shown in the figure on the following page: international donors and funds, private sector actors, and public sector actors. End buyers may purchase carbon credits to retire (meaning the credit is removed permanently from the market), as well as for compliance purposes, as offsets, and to signal social responsibility. In the public sector Article 6.2 trading, ITMOs are put toward offsetting carbon emissions and contributing to the buyer country’s NDC targets, while triggering corresponding adjustments in the buying and selling country to avoid double counting. In compliance markets, demand typically comes from private corporations that are legally mandated to purchase allowances to emit carbon. The international buyer
landscape has diverse objectives, in which coalitions of buyers comprising both public and private entities may come together to enhance their purchasing power and market influence (e.g., LEAF Coalition or Business Alliance to Scale Climate Solutions) or make commercial investments with ESG co-objectives.

### Type of Buyers

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<th>INTERNATIONAL</th>
<th>PRIVATE SECTOR</th>
<th>PUBLIC SECTOR</th>
</tr>
</thead>
</table>
| • Specialized carbon funds  
  (e.g., Forest Carbon Partnership Facility)  
• Sovereign wealth funds | • Domestic corporations  
• International corporations  
• Private sector coalitions  
• Financial institutions  
• Individuals | • National governments  
• Municipal-local governments |

The criteria for companies for inclusion in compliance markets vary between countries, though often heavy-emitting sectors such as energy, transportation, heavy industry, and extractives must participate. Companies mandated to participate are restricted in the type and volume of credits they are allowed to purchase. Compliance markets thus drive significant demand for credits, but only certain credits are eligible to meet that demand. Some types of NCS carbon credits fall outside compliance market eligibility criteria. There is, however, a push for high-integrity credits generated under typical VCM standards and mechanisms to be eligible for trade under compliance markets and possibly Article 6.

**Demand for most types of carbon credits** has been characterized by swings driven by speculation about future regulatory markets as well as the strength of voluntary net zero commitments. [Lack of progress on the Article 6 rulebook during COP28](#) may further exacerbate market uncertainty and is now set for resolution during future COPs. Overall demand for credits declined in 2023 compared to 2022. In the VCM, demand fell significantly in 2022 compared to 2021, but buyers were willing to pay a considerably higher price for high-quality credits, with the total market value remaining steady at approximately $2 billion. [Voluntary demand from corporates](#) is a significant driver of carbon market demand, with nearly 90% of surveyed medium and large U.S. and European businesses considering carbon credits for compensating their existing unabated emissions. But without regulatory clarity offered through UNFCCC, all markets will struggle to create stable demand and supply, hampering price discovery, even if the VCM and several Article 6.2 trades are forging ahead.

Numerous initiatives to improve the integrity of how companies use carbon credits in the VCM have emerged in recent years, including the [Voluntary Carbon Markets Integrity (VCMI)](#) and [SBTi](#) initiatives. VCMI focuses on what actions corporates should take to be eligible to make certain VCMI-endorsed claims to the market; SBTi focuses on establishing validated decarbonization pathways for corporates and prioritizes direct emission reductions within the value chain of companies while encouraging near-term use for carbon credits only for beyond value chain mitigation, with eventual ability to offset residual emissions through removals credits once companies can no longer directly decarbonize. These initiatives set minimum quality standards for who can utilize carbon credits and when and help enhance VCM transparency and quality. Ahead of COP28, several organizations, including VCMI and SBTi, collaborated on an end-to-end initiative to support corporate climate transitions. To maximize the potential of these markets, there is a pressing need for more coordination among donors, funds, and other actors. Harmonizing tools, creating common standards, and establishing shared avenues for countries can streamline processes, reduce redundancies, and amplify impact.

To contribute to donor coordination, USAID missions could identify opportunities to participate in regional and national level donor convenings to align priorities and processes with host governments, civil society, and other stakeholders and fund actors. USAID involvement in coordinated efforts can minimize risks of duplication and effectively leverage USAID efforts to maximize impact.
USAID Catalyzing Demand for NCS Carbon in Colombia

**Intervention Activity:** Facilitating investment in NCS carbon markets and projects

**USAID Investment:** Approximately $23 million

**Description:** Colombia hosts an exceptional variety of carbon-rich ecosystems, including high mountain peatlands, tropical rainforests, savannas, and wetlands. These critical ecosystems are threatened by the expansion of the agricultural frontier, mismanagement of natural resources, illegal resource extraction, and the absence of environmental planning tools. Over the past decade, USAID/Colombia has supported the protection of these vital ecosystems through the development of innovative results-based conservation payment schemes, including the promotion of private sector investment in carbon market projects to incentivize and compensate community-managed conservation efforts.

Building on experience developing eight forest carbon projects with 19 Afro-Colombian and Indigenous communities under USAID BioREDD+, the USAID Páramos & Forests Activity Innovative Conservation Models task order (2018-2023) played a decisive role as trusted carbon market facilitator, catalyzing carbon market investment in ethnic community-led carbon projects. The activity carried out pre-feasibility assessments for potential REDD+ projects in five communities. The assessments were presented at an activity-hosted international investor conference to drive demand attended by over 50 key carbon market actors, including investors, project developers, large carbon credit purchasers, and NGOs. The event resulted in 16 project developers making carbon project proposal pitches directly to informed communities trained on REDD+ fundamentals and empowered to engage with project developers and buyers on a fair and balanced playing field.

USAID’s Natural Wealth activity (2017-2022) supported the Cataruben Foundation — a local Colombian biodiversity conservation and carbon project developer — in its innovative nature-based carbon credit program, CO2Bio, for conserving tropical dry forests and flooded savannas. Natural Wealth played a key role in facilitating a 30-year carbon credit purchase agreement between LATAM Airlines and Cataruben, aimed at offsetting 50% of LATAM’s domestic routes by 2030 through the purchase of carbon credits that compensate the conservation efforts of local cattle ranchers engaged in CO2Bio. Natural Wealth played a crucial role in the agreement negotiations, facilitating LATAM’s due diligence process by connecting key local actors and playing the role of trusted intermediary. By activity end, LATAM purchased over $250,000 worth of carbon credits, funding the conservation of over 60,000 hectares of forests and flooded savannas, and providing additional income for local cattle ranchers to shift to sustainable rural development and conservation as an alternative to agricultural expansion. This corporate action inspired more than 100 other ranchers to join the conservation effort, which is projected to sequester four million tons of carbon by 2030.

**Lessons for Replication:** With deep connections to both local communities and the local private sector, USAID programs play key roles as convener and “honest broker” for these often-complex arrangements and negotiation processes. Key factors in USAID’s successful interventions in Colombia include 1) having earned the trust of the parties involved; 2) having the right partners and connections in place; and 3) creating transparent processes and communications.
ANNEX 1. TABLE OF ‘PLAYS’ MISSIONS CAN ADOPT AND ADAPT

Before engaging in any of the interventions listed below, it is important to fully understand the carbon market landscape, including identifying opportunities and barriers to scaling the carbon market. Missions can conduct such analyses themselves, often building on existing materials, or reference work that other donors or market players have done. Typically, such landscape analyses would include elements of the four domains mentioned above, such as:

- National policy and regulatory landscape
- Mitigation opportunity, including sector mitigation potential
- History of carbon market activities in the country (including USAID)
- Assessment of current carbon market capacities in the country (including USAID)
- Stakeholder, donor, and investor mapping
- Assessment of current national carbon accounting system
- Private sector presence and capacity in the carbon market

<table>
<thead>
<tr>
<th>Category</th>
<th>Intervention</th>
<th>Description</th>
<th>Cost</th>
<th>Indicative Timeframe</th>
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<tbody>
<tr>
<td>Enabling environment</td>
<td>Fund technical assistance for the development of a carbon markets action plan to support NDC achievement.</td>
<td>Support the creation of carbon markets activation plans that include strategies for leveraging carbon markets for NDC achievement. Within this carbon market activation plan, USAID could help countries determine strategies for when to authorize credits for international transfer to ensure that any ITMO exports deliver financing for further domestic mitigation. For an example of this work, see USAID/Kenya’s carbon market activation activity.</td>
<td>Low: &lt;$2 million  Medium: $2–$10 million  High: &gt;$10 million</td>
<td>1-3 years</td>
</tr>
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<td>Category</td>
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<td>Indicative Timeframe</td>
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<tr>
<td>Enabling environment</td>
<td>Fund studies on land tenure and carbon rights determination to eliminate doubts concerning rights to participate and benefit from carbon finance.</td>
<td>Support governments in gaining insight into how domestic land tenure systems (formal, traditional, and customary) affect decision-making around NCS-based carbon benefits sharing and demonstrate the value of providing clarity to all stakeholders. USAID missions can facilitate these processes where relevant by organizing convenings, authoring gap reports and political economy analyses, and providing technical assistance to marginalized stakeholders, such as IPLCs, internally displaced persons, and refugees. Navigating these complex, politically sensitive issues is a gradual process, with host government long-term efforts required for tangible carbon market improvements.</td>
<td>Low</td>
<td>2-4 years</td>
</tr>
<tr>
<td>Enabling environment</td>
<td>Article 6 preparedness and operationalization</td>
<td>USAID could collaborate with countries in drafting and implementing national policies and procedures to operationalize ITMO transfers. Specifically, collaborate with governmental bodies to design procedures for mitigation outcome authorization and corresponding adjustments, and provide relevant training and documentation to public and private stakeholders to improve transparency to all participants in the transfer processes. For an example of this work, see the ongoing VCM activity in Pakistan, which is slated to publish a learning brief in mid-2024.</td>
<td>Low</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Market Infrastructure</td>
<td>Advocate for clarity on rules for jurisdictional programming.</td>
<td>Develop and implement comprehensive training and support programs to strengthen jurisdictional carbon market initiatives, with the goal of meeting the requirements for governments to enter into Emissions Reductions Purchase Agreements.</td>
<td>Medium</td>
<td>3-5 years</td>
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<tr>
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<tr>
<td>Market infrastructure</td>
<td>Capacity building</td>
<td>Conduct workshops with host-country government entities, private sector carbon market participants, and IPLCs to increase capacity in the carbon market landscape. Notably, it is important to have an implementation plan with tailored solutions for each type of carbon market participant, with an aim to permanently embed carbon market expertise within the country. For an example of this work, see USAID’s Páramos &amp; Forests Activity in Colombia.</td>
<td>Medium</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Market infrastructure</td>
<td>Monitoring, reporting, and verification (MRV)</td>
<td>Setting up MRV and registry infrastructure is an important first step in any coherent national carbon market strategy, as an MRV system tracks economy-wide emissions and integrates carbon markets into national emissions accounting practices. While the process to establish an MRV system is costly, there are many ongoing efforts to provide these services in USAID-presence countries. USAID should coordinate with other donors and existing initiatives before designing an activity in this space. For an example, see USAID’s work with SilvaCarbon.</td>
<td>Medium</td>
<td>3-5 years</td>
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<tr>
<td>Market infrastructure</td>
<td>Nesting REDD+ projects</td>
<td>Help countries develop REDD+ nesting frameworks, including the processes and technical decisions needed to align REDD+ accounting and incentives at all scales. Assist in the operationalization of the nesting framework, including, as appropriate, tracking existing REDD+ projects within the country.</td>
<td>Medium</td>
<td>3-5 years</td>
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<tr>
<td>Demand side</td>
<td>Coordinate buyer engagement.</td>
<td>Coordinate and harmonize tools and standards among international donors and buyers in a country, such as Amazon Bioeconomy Fund, FCPF Carbon Fund, and IKI, to avoid duplication, double selling, or counting. Encourage the coalition of buyers to streamline processes and maximize collective impact.</td>
<td>Low</td>
<td>2-4 years</td>
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<tr>
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<tr>
<td>Supply side</td>
<td>Scale investment in carbon projects or carbon funds with high transparency, equity, or integrity.</td>
<td>Partner with private sector entities to create a project accelerator or incubator that would provide seed funding or technical support for carbon projects to incentivize carbon project development. For an example of this work, see USAID’s support for RaboBank’s ACORN Fund.</td>
<td>Medium</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Supply side</td>
<td>Enable new high-potential project types led by IPLCs, civil society, and the private sector through short-term grants and concessional, catalytic funding.</td>
<td>USAID can support the development and test the viability of emerging carbon typologies, including oceanic carbon; soil carbon; community, climate, and biodiversity add-ons; and more by funding pre-feasibility studies, research, and pilot phases. For an example of this work, see the Northern Rangeland Trust project in Kenya, which USAID supported and helped to scale a new soil carbon methodology.</td>
<td>High</td>
<td>5 years</td>
</tr>
<tr>
<td>Supply side</td>
<td>Support development of projects that integrate or “stack” non-carbon ecosystem services compensation alongside carbon credits.</td>
<td>USAID can support the development of projects built on carbon revenue that also enable payments for ecosystem services to show NCS co-benefits and monetary value. These additional benefits may include watershed and hydrological resources management, coastal protection, food provision, disaster risk management and adaptation, and biodiversity.</td>
<td>High</td>
<td>5+ years</td>
</tr>
<tr>
<td>Supply side</td>
<td>Integrate carbon value chain approaches into ongoing or new USAID humanitarian, resilience, and development strategies and activities.</td>
<td>USAID can apply an NCS lens to ongoing and planned strategies, programs, and activities related to agriculture; afforestation, reforestation, revegetation, and agroforestry; wetlands; and other value chain activities. Where feasible, promote or support linkage to carbon markets, unlocking new revenue streams for target populations, especially IPLCs.</td>
<td>Low/medium/high</td>
<td>1-5 years</td>
</tr>
<tr>
<td>Supply side</td>
<td>Support high-quality, high-integrity supplier countries, project developers, and products to become more attractive for</td>
<td>USAID can assist high-quality, high-integrity supply countries, jurisdictions, projects, and products by fostering their reputation and promoting their products, thereby supporting buyer demand (e.g., ACORN).</td>
<td>Low</td>
<td>1-5 years</td>
</tr>
<tr>
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<td></td>
<td>international carbon investment.</td>
<td>USAID can <strong>build local capacities</strong>, especially among private sector organizations and NGOs, to help reduce information asymmetries so that local stakeholders can engage productively in a new market where valuable commodities (carbon credits) are exchanged.</td>
<td>Low</td>
<td>1-5 years</td>
</tr>
<tr>
<td>Supply side</td>
<td>Foster roles of local private organizations and NGOs in the technical aspects of carbon projects to develop a robust domestic industry that creates highly skilled jobs and localizes expertise.</td>
<td>USAID can <strong>build local capacities</strong>, especially among private sector organizations and NGOs, to help reduce information asymmetries so that local stakeholders can engage productively in a new market where valuable commodities (carbon credits) are exchanged.</td>
<td>Low</td>
<td>1-5 years</td>
</tr>
</tbody>
</table>