BACKGROUND BRIEF

CARBON FINANCE & MARKET SYSTEMS DEVELOPMENT

Green Avengers

THE CANOPY LAB

This briefing note provides a short overview of agricultural terms. It assumes that the reader is familiar with MSD. It was prepared by Andrew Panton, Senior Consultant at the Canopy Lab, for the Green Avengers Community of Practice. If you would like to join the Green Avengers, please complete this survey.

Overview of carbon finance and carbon markets

As explained in the presentation prepared by CrossBoundary for the Green Avengers, the term **carbon finance** refers to the funding of projects that either *remove* and store greenhouse gases (GHG) through biological or geological processes, or *avoid* or *reduce* GHG emissions that would occur if the project did not exist.[1] These projects are often referred to as **carbon offset projects** – or, simply, carbon projects – because they can generate carbon credits that can be purchased by businesses and other organizations seeking to offset the level of GHG emissions from their internal or external operations in order to meet their sustainability commitments or obligations. Many projects achieve other positive impacts (referred to as **co-benefits**) such as improving community livelihoods, improving food security and protecting biodiversity.

Carbon markets are trading systems that enable the issuance and sale of carbon credits, which create incentives for actions to address climate change by converting them into monetary value. A **carbon credit** represents the removal, avoidance or reduction of one metric ton of carbon dioxide or its equivalent in other GHGs, expressed as tCO2eq. Every carbon credit is *certified* by independent recognized standards or by a government or intergovernmental organization; *traceable* via international registries; and *finite*, which means that, once used to offset emissions, it is "retired" permanently and cannot be sold again. Broadly, there are two different types of carbon markets[2]:

Compliance carbon markets (CCM)	Voluntary carbon market (VCM)
Established by regulators to limit GHG emissions in a particular jurisdiction (e.g. California, Japan or the EU) or industry (e.g. aerospace). Businesses or other entities operating in the jurisdiction or industry are obliged to comply with the requirements to limit their GHG emissions – which may or may not allow purchasing credits to offset emissions. Compliance markets are the largest type of carbon market at present (around USD 100 billion annually) but primarily exist in industrialized economies and make limited use of carbon credits. As such, they represent a limited opportunity for projects in developing or emerging economies.[3]	Businesses, governments, NGOs and other organizations or individuals participate on a voluntary basis, rather than being required to by regulations – for example, to meet sustainability goals. Although considerably smaller than compliance markets today, standing at around at around USD 2 billion annually, voluntary carbon markets are expected to grow rapidly in the coming decade and represent the most significant opportunity for projects in developing or emerging economies at present.

[1] Carbon finance is a subset of *climate finance*, which is "local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change" (citing from https://unfccc.int/topics/introduction-to-climate-finance).

2 In addition, Article 6 of the Paris Agreement creates mechanisms to enable countries to trade carbon credits – either bilaterally (Article 6.2) or via a centralized mechanism under the UN Framework Convention on Climate Change, which is not yet established (Article 6.4). While Article 6 represents an emerging opportunity for increasing finance for carbon offset projects in developing countries, recourse to it is conditional on the readiness and bilateral agreements of the host government, and to date only one deal has been closed successfully.

3 Market valuation data from *World Bank. 2023. State and Trends of Carbon Pricing 2023.* At present, only two compliance markets (South Korea and Singapore) accept carbon credits issued from projects in certain African countries, while South Africa is the only country on the African continent to have a compliance market: https://africacarbonmarkets.org/carbon-markets-africa/.

Relevance of carbon finance to MSD projects

Carbon projects and MSD projects often have similar economic and environmental objectives, such as strengthening climate resilience and rural livelihoods, and can operate in the same geographies or sectors – for example, agriculture, forestry, renewable energy, and waste management. MSD projects could play an important role in facilitating access to carbon markets as a source of finance for businesses and practices that avoid or remove GHG emissions in these contexts.[4] Table 1 presents a typology of carbon projects, as a reference to guide MSD practitioners in identifying entry points to integrate carbon finance into their projects.

Table 1 Typology of carbon projects[5]

Emissions removal	Emissions avoidance
Afforestation, Reforestation and Revegetation (ARR) – restoration of terrestrial forest ecosystems	**Reducing Emissions from Deforestation and Forest Degradation (REDD+)** – reducing forest degradation or loss; improving the protection and sustainable management of forest ecosystems
Carbon farming / regenerative agriculture – agricultural practices and systems that reduce the emission and improve the sequestration of GHGs (e.g. no/low till, crop rotation, reduced fertilizer use)	**Improved forest management (IFM)** – use of more efficient, sustainable practices in commercial forestry (e.g. reducing harvest volumes); some practices can remove emissions (e.g. lengthening forest rotation)
Biochar (biological charcoal) – conversion (burning) of biomass into biochar for soil enhancement or other uses that store GHGs	**Waste management** – use of improved technologies for waste management (e.g. food waste composting, landfill gas combustion)
Blue carbon – restoration of coastal and marine ecosystems, including mangroves, seagrass meadows, and tidal marshes	**Renewable energy** – use of renewable energy sources (solar, hydropower, tidal, wind), typically large-scale grid-based solutions
	Off-grid solutions – use of off-grid technologies that give access to clean energy sources (e.g. mini-grids) or that reduce or replace energy from polluting sources such as firewood, charcoal or diesel (e.g. cookstoves, solar irrigation, water filtration systems)

Carbon project development

Carbon projects are typically initiated and developed by organizations – referred to as **project developers** – that sell carbon credits either as a stand-alone business model (e.g. ARR, REDD+ and blue carbon ecosystem protection of restoration projects) or as one of several revenue streams available to the company (e.g. IFM, off-grid solutions, regenerative agriculture and waste management). Carbon project development and implementation is complex, uncertain and resource-intensive, making it accessible only to organizations with significant financial, operational and technical capacities. Given these barriers to entry, it is

4 In this sense, carbon markets could be considered to function as supporting market systems in relation to a project's target market system(s). For more guidance on this, refer to https://beamexchange.org/guidance/analysis/mapping/.

5 This is a generic categorization adapted from contributions to the African Carbon Markets Initiative by CrossBoundary Advisory. It is not exhaustive and the typology used for carbon projects differs between the certification methodologies.

especially important that developers ensure the equitable inclusion of, and benefit sharing with, local communities. Moreover, members of local communities may have multiple roles, interests and rights at stake in carbon projects that must be taken into account – including as legal titleholders or custodians of the land (as in ARR, REDD+ and blue carbon projects); as producers or workers (as in regenerative agriculture and waste management projects); or as end users of products or services (as in off-grid solutions).6

Table 2 presents the typical stages involved in carbon project development, although the terminology and requirements vary according to the certification methodologies and standards used.

Table 2 Carbon project development stages

Stage	Description
Feasibility	The project developer assesses the feasibility of an envisaged project to understand its potential impact (in terms of carbon avoidance/removal and co-benefits), its financial viability, the likelihood of certification, the conduciveness of the enabling environment, the risks involved, and other considerations. The developer should also initiate and carefully manage relationships with the host government, local communities, potential financiers, and other stakeholders with which it will need to negotiate formal arrangements including investment terms, benefit-sharing agreements with local communities, memoranda of understanding with government agencies, and contracts with local partners or suppliers.
Development	If the above is positive, the project developer produces the full design of the project according to the requirements of a carbon certification standard (e.g. Gold Standard, Plan Vivo or Verra) and in consultation with local communities, government entities and other operators/suppliers. The project developer submits the Project Design Document to a third party validation and verification body (VVB).
Implementation	If the VVB validates that the project complies with the certification requirements, it can be registered on the carbon standard's registry and implemented, as envisaged in the PDD. The project developer and independent third parties conduct monitoring, reporting and verification (MRV) of the project's impact, compared to pre-determined baseline or reference level. If the results are verified, the project developer can issue the corresponding carbon credits for sale to third party buyers, either directly or via intermediary brokers.

Typical constraints and MSD intervention ideas

Project developers face multiple constraints in designing and implementing carbon projects, some of which are unique to carbon finance, while others will be familiar to MSD practitioners as systemic constraints occurring in many developing and emerging economy contexts. Table 3 presents some typical constraints and intervention ideas to address them for MSD projects to consider and adapt to their specific context – with an appropriate level of facilitation, experimentation and right-sizing.7

6 Various startups and other initiatives, such as Rabobank's Acorn service, are developing technological solutions to smaller organizations and local communities to participate directly in carbon markets.

7 For more guidance on facilitation in MSD projects, refer to https://beamexchange.org/guidance/vision/facilitation-role/.

Table 3 Typical constraints faced by carbon projects and potential interventions

Constraints	Interventions
Limited information/understanding on local carbon project opportunities and operating context (including social inclusion and political economy dynamics)	Produce market research and investment guidance (e.g. investment catalogues/atlases); fund/provide advisory services for project developers and investors; build capacity of local public and private service providers; facilitate links to grassroots organisations and specialist expertise to support the equitable negotiation of benefit sharing agreements
Limited access to finance or insurance for project development (feasibility, design) and implementation – especially in contexts of high price and regulatory uncertainties	Provide funding or guarantees to de-risk project development; build capacity of financial institutions to appraise carbon projects and develop appropriate finance/insurance products, structures and terms
Limited local expertise in carbon project development, certification and MRV	Facilitate partnerships between international and local service providers; de-risk market entry for international providers
Limited local ecological and socio-economic data for carbon project development, certification and MRV	Build capacity of local data collection systems and services (e.g. national baselines, remote sensing systems, socio-economic surveys); fund data collection to fill critical gaps
Limited coordination/trust between potential project developers, financiers and other stakeholders	Support networking platforms and events (e.g. carbon finance trade shows and exposure visits); facilitate public-private sector dialogue
Absent or nascent regulatory environment	Facilitate regulatory reform processes (e.g. fund legal and policy analysis, public-private sector dialogue)

Recommendations for further reading

Carbon finance and carbon markets

- USAID (2023). Carbon Finance Playbook, prepared by CrossBoundary Advisory
- UNDP (2022). What are carbon markets and why are they important (blog post)
- University of California, Berkeley Carbon Trading Project, Voluntary Registry Offsets Database

Market systems development

- BEAM Exchange (online knowledge sharing platform)
- The Springfield Centre (2015). The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC & DFID