Carbon markets – an opportunity to finance climate action and sustainable development

TECHNICAL NOTE

THEMATIC SUPPORT UNIT

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Carbon markets can be an important tool to reach global climate goals, in the short and medium term. The use of carbon markets is of interest to many actors as a means to address climate change and reduce global greenhouse gas emissions in line with the Paris Agreement. They present an additional opportunity for low- and lower-middle income countries to attract and increase financing for climate action and development.

INTRODUCTION

This Technical Note provides an introduction to carbon markets and explains Sida's approach according to our mandate. The aim is to help programme officers and partners build an understanding of the topic and key priorities. The Note does not aim to provide detailed guidelines for support to carbon markets. Such guidance is developed separately as part of Sida´s regular contribution management processes, learning and method support.

The first part of the document gives an introduction to the fundamental idea of carbon markets, their potential, key terminology and current trends. The second part further explains Sida's role in relation to international development cooperation and in creating better living conditions for people living in poverty. The second part also provides specific recommendations for how Sida can engage in carbon markets.

▸ Part 1. The concept of carbon markets, terminology and trends

▸ Part 2. Sida's role in carbon markets

NDCs and AGENDA 2030

Carbon markets play a role in accelerating the transition to a net-zero economy, aligning with the goals of Agenda 2030. Many countries plan to use carbon markets to meet their Nationally Determined Contributions (NDCs)[1]. Trading in carbon credits have the potential to reduce costs of NDC implementation by up to $250 billion by 2030.[2,3] Some examples of countries that are building digital infrastructure to accurately verify, account and track emissions to enable participation on international carbon markets include Chile, Ghana, Jordan, Singapore and Vanuatu.[4]

Sida's climate work contributes to the three main goals of the Paris Agreement through strategic investments in emissions reductions, climate change adaptation and financial flows. Sida does not have a formal role in carbon trading, but sees engagement in carbon markets as relevant for delivering on our mandate in the context of international development cooperation. Well-functioning carbon markets can have positive effects for global emission reductions, but also contribute to climate adaptation, resilience and wider sustainable development goals. However, there are uncertainties around the significance of these mechanisms and there are a number of considerations that Sida and partners need to take into account to contribute responsibly.

The interest to leverage carbon markets is high among governments, companies and organisations in many of Sida's partner countries. As Sida is increasingly exposed to and engaged in carbon markets, there is a need to reduce potential risks and increase positive impact to make sure people living in poverty can benefit from the anticipated increase in financing. A starting point is that Indigenous People and Local Communities (IPLCs) must benefit from projects either directly through the sales of carbon credits or through other benefit sharing agreements that can create better livelihoods for communities.

Many of the world's natural carbon sinks are located in developing countries on land belonging to IPLCs. Therefore, land tenure and a human-rights based approach[5] are important aspects to be considered when engaging in carbon markets in order to not cause harm and to realise the potential benefits for communities. Monetary benefits generated by carbon credits alone are in many cases not sufficient, or predictable enough, to sustain livelihoods, but can rather be seen as an additional advantage. Well-designed project activities are what creates the long lasting changes and preconditions needed for poverty reduction, for which contextual knowledge and inclusive project design is central.

KEY CONSIDERATIONS FOR SIDA'S INVOLVEMENT IN CARBON MARKETS ARE:

- Strive to **increase capacity at all levels,** from IPLCs to local, regional and central governments, to enable informed decisions around engaging in carbon projects and carbon trading.
- Emphasise a **human rights-based approach and build safeguards** and added value for people living in poverty.
- Support is guided by principles for **high-integrity carbon markets**. The general position is that carbon credits should be real, additional and verifiable, while avoiding negative development impacts and making positive contributions to SDGs in the host country.
- Contribute to partner **countries' abilities to implement and report on national sustainability commitments** and leverage the opportunity to access climate finance.
- Consider that revenue from **carbon credits can help stimulate enhanced results** and provide incentives for additional investment in sectors relevant to Sida´s target groups. Additional revenue from carbon credits can enable businesses to grow and expand to markets that are harder to reach.

IN SUMMARY, THERE ARE PRIMARILY TWO WAYS THAT SIDA FORESEE TO ENGAGE IN CARBON MARKETS.

- Firstly, to support partner countries in building institutions and systems which will allow them to participate in carbon trading and attract funding to implement their national climate commitments and goals for sustainable development.
- Secondly, through support connected to carbon projects and the supply of carbon credits. This could include de-risking through use of Sida's innovative financing tools to enable inclusive participation and development of projects that meet principles for high integrity.[6]

In addition to these two entry points, our role in international development cooperation and physical presence in partner countries makes Sida well suited to help identify synergies and facilitate meaningful connections between actors in carbon markets. This may apply at global, regional or country level.

PART 1. THE CONCEPT OF CARBON MARKETS, TERMINOLOGY AND TRENDS

POTENTIAL TO COMPLEMENT CLIMATE FINANCE

To avoid the worst effects of climate change, projections show that emissions need to be reduced by 45 percent by 2030 and reach net zero[7] by 2050.[8] Countries, regions, cities and companies are responding to this challenge by making net zero commitments. Estimations of the funding needed to deliver on net zero varies. The Climate Policy Initiative estimates that $6.2 trillion of climate finance is required annually between now and 2030, increasing to $7.3 trillion by 2050 and totalling almost $200 trillion.[9] WRI outlines developing countries' needs for funding to implement national climate goals to $4.3 trillion, or roughly $430 billion per year, which is four times the $100 billion pledge made by developed countries' annual contributions.[10] The International Energy Agency (IEA) estimates that $4 trillion of low-carbon investment in the energy sector alone is required annually by 2030, meaning that investment needs to more than triple from current levels.[11]

It is clear that countries are facing a huge challenge to raise the finance needed to reach net zero commitments, particularly in the Global South. There are also challenges in finding human and financial resources required to develop and implement new finance initiatives. To solve such challenges, multiple actions and tools need to be explored and used in tandem to allow countries to channel finance towards ambitious climate targets. Carbon markets offer one opportunity in a landscape of multiple finance mechanisms available for both carbon pricing and climate financing. Their potential should be considered within a broad financial context as described in the box below.

Box 1. Climate finance and carbon finance – what is the difference?

Financing countries' climate targets will require governments to use a variety of financial, fiscal and policy instruments aimed at aligning public finance with national climate targets; to increase public finance for climate action; and to shift and mobilise private finance. Countries would benefit to develop a financing strategy, implementing relevant finance instruments and monitoring progress.[12]

The following distinction is made between climate finance and finance generated from emission trading, called carbon finance:

Climate finance refers to 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.[13]

Carbon finance refers to international payments for emission reductions or so called mitigation outcomes that are internationally transferred from one country to another under, for example Article 6 of the Paris Agreement. Sales of mitigation outcomes create the necessity of corresponding adjustments[14] for the host country selling

mitigation outcomes, to reduce the risk of double counting. The buyer country can then use the mitigation outcomes for compliance with its own NDC or to contribute to additional mitigation outcomes raising the ambition for global climate targets.[15] Carbon finance is generated by trade in carbon markets and is further explained in the section on different markets and mechanisms below.

For the purpose of this report, climate finance is viewed as aid where mitigation outcomes stay with the host country, while carbon finance is generated through trade where mitigation outcomes are transferred to the buyer or acquiring party.

Carbon markets and the trading of carbon credits is a mechanism to deliver funding and provide cost effective ways to reduce emissions in line with a net zero pathway. The effectiveness of carbon markets to contribute to global emission reductions and additional finance is contested and varies widely. So called compliance markets are much larger in size and currently show greater potential for reducing emissions than voluntary markets. The next section further explains the difference between these markets and mechanisms available. Compliance carbon markets and revenues from carbon taxes reached a record high of approximately $95 billion in 2023.[16] Predictions show that voluntary carbon markets have the potential to reach anywhere between $5-50 billion by 2030.[17] [18] [19] This is still a small part of all investment needed, but nevertheless seen as a promising tool to mobilise public and private capital for climate action.

THE CONCEPT OF CARBON MARKETS

Carbon markets provide a carbon pricing mechanism, whereby a value is placed on reductions of carbon emissions – generating carbon credits that can be sold and bought.[20] The definition of a unit of a carbon credit is one metric ton of carbon dioxide or the equivalent amount of a different greenhouse gas (GHG) that is reduced, avoided or removed from the atmosphere. Carbon markets provide a mechanism for actors such as companies and governments to pay for actions outside of their area of operations to meet climate commitments. The primary purpose of a carbon market is to incentivize the reductions of GHG emissions. By putting a price on emissions, they create an economic incentive for businesses and countries to reduce their carbon footprint and invest in cleaner technologies.

How are carbon credits created?

Organisations, governments and businesses can create and sell carbon credits by reducing, avoiding and removing emissions from the atmosphere through carbon projects in different sectors. Examples of relevant sectors are the energy sector and agriculture, forestry and other land use (AFOLU) sectors. Common projects include renewables and energy efficiency, improved cookstoves and nature-based solutions (NBS).[21] Key terminology and project types are presented in Box 1.

Box 2. Key terminology

Carbon market: A trading system that provides financial incentives for climate change mitigation in which countries, companies and other entities can buy and sell carbon credits to meet their emission reduction goals.

Carbon credit: A permit or certificate representing one metric ton of carbon dioxide, or an equivalent GHG reduced, avoided or removed from the atmosphere. Carbon credits are traded in carbon markets.

Carbon project: An initiative aimed at reducing, avoiding, or removing GHG emissions from the atmosphere. These projects generate carbon credits which can be sold in carbon markets. Carbon projects are commonly divided into three types:

- *Reduction projects:* reduce emissions by implementing cleaner technologies or practices. Examples include renewable energy projects like wind-, solar-, or hydroelectric power plants to replace fossil fuel-based sources, or energy efficiency projects like upgrading industrial processes, improving building insulation, or using efficient appliances to reduce energy consumption and emissions.
- *Avoidance projects:* prevent emissions that would have occurred under a business-as-usual scenario. Examples include protecting forest that would otherwise have been cut down, releasing carbon dioxide or capturing methane emissions from landfills or livestock operations that would otherwise have been released into the atmosphere.
- *Removal projects:* capturing and storing carbon emissions from the atmosphere. Examples include reforestation projects, restoration of coastal ecosystems and agricultural projects that increase the amount of carbon stored in soil, such as no-till farming, cover cropping and agroforestry.

Who is the buyer?

Carbon markets provide a mechanism to compensate for the emissions an actor is directly responsible for within their operations. The demand for credits stems from the opportunity to count reduced GHG emissions, represented by the carbon credits, towards the end-buyer´s own emission reduction targets. A responsible approach to using carbon credits in meeting goals is that purchasing of credits should be additional to direct emissions reductions and carbon credits used in parallel with sound decarbonization strategies within the buyer´s own system and operations.

A mechanism for carbon trading was first created under the Kyoto Protocol that became operational in 2006, namely the Clean Development Mechanism (CDM)[22]. This mechanism enabled trading between countries where governments and to some extent private sector actors, voluntarily participated. Since then, markets have evolved organically and expanded to a variety of actors who participate as both sellers and buyers. Some buyers are covered by compliance regulation and others buy credits for self-imposed climate targets and goodwill, including building customer loyalty, brand reputation and public trust. Incentives for participation differ between markets, as further detailed in the table below, but the key motivation for the buyer is to reach their own climate commitments. Carbon credits should be used to complement, not substitute real emission reductions targets in the buyers operations and own value chain. Buyers are increasingly talking about using carbon credits as a way to contribute to climate goals, rather than a way of offsetting own emissions. Efforts are also being made to counter the issue of greenwashing[23] through harmonising the way buyers make claims. This issue is a hinder for creating functioning and meaningful markets.

Different markets and mechanisms

There are several mechanisms of pricing GHG emissions. This Note focuses on carbon markets and will not address for example carbon taxation, which is an effective tool, nevertheless.

As previously mentioned, carbon markets are broadly divided into compliance and voluntary markets.

There are different types of *compliance markets*, so called cap-and-trade schemes and baseline-and-crediting schemes, with the latter referring to the UN system for international emissions trading and Article 6 of the Paris Agreement.[24] Compliance markets have in common that they are created and regulated by mandatory national, regional or international carbon-reduction regimes. Typically, compliance markets have stricter regulated oversight and universal rules and guidelines for what kind of claims a buyer can make.

Voluntary Carbon Markets (VCM) function in parallel with compliance markets and enable governments, companies and individuals to purchase carbon credits on a voluntary basis. The VCM work in a similar way as international emissions trading under Article 6 of the Paris Agreement, whereby credits are issued through baseline-and-crediting schemes. The main differences are that the VCM are self-regulated and primarily used by private companies. The VCM are overseen by independent crediting standards instead of the UN and they are more fragmented in oversight and guidelines for both the supply and demand side.

Credits issued under *Article 6 of the Paris Agreement* can in theory be sold both in VCM and other compliance markets, if a compliance scheme allows for these mechanisms to be used. Countries choose voluntarily to participate in trading under Article 6, but are then required to put in place necessary frameworks, institutions and systems in line with guidelines and control mechanisms set by the UN. An important difference between Article 6 and its predecessor CDM under the Kyoto Protocol is that under CDM only developing countries could host CDM projects and developed countries acted as buyers to meet their targets. Article 6 cooperation is based on the Paris Agreement where all signatory countries have their own national targets, opening up for flexibility for all to participate as sellers or buyers. Since all countries now have their own targets, it also means that informed planning and choice of authorisation for transfer of mitigation outcomes is important to avoid risk of overselling and for countries to not meet own commitments.

Different markets and mechanisms influence each other. There is growing interest to align voluntary markets with Article 6 rules to ensure that credits bought voluntarily are not double counted between countries. Credits issued in the VCM can be sold under Article 6 if they meet the UN requirements and the host country is willing to authorise them.

Table 1. Different mechanisms and markets for carbon trading

This table is not exhaustive of all systems for carbon pricing that exists, it lists relevant mechanisms for the purpose of this document.

Type of system	Compliance markets		Voluntary markets
	Cap-and-trade	**Baseline-and-crediting** *Refers to Article 6 of the Paris Agreement*	**Baseline-and-crediting**
Summary	Cap-and-trade systems limits the total amount of emissions within a system and allows trade between actors in the system. An emissions cap is set, often by governments and emission allowances are issued consistent with that cap. Emitters must hold allowances for every ton of GHG they emit. Companies may buy and sell allowances and this market establishes an emissions price. Companies that can reduce emissions at a lower cost can sell any excess allowances for companies facing higher costs to buy. Involves for example government-mandated emissions trading schemes (ETSs) for the purpose of achieving mandatory emission reduction targets.[25]	Baseline and crediting is used to describe schemes where a baseline is set and activities implemented to enable issuing credits for the difference achieved from the baseline. No credits will be issued if the projects does not achieve any change from the baseline. There are large similarities with results based payments, only that the results of carbon projects are measured in a very detailed manner. The compliance baseline-and-crediting scheme refers to the establishment of international compliance carbon markets governed by the rules of the Paris Agreement allowing for voluntary cooperation between countries to reach their respective mitigation targets, in alignment with NDCs.[26] The Article 6 mechanism replaces the Clean Development Mechanism under the Kyoto Protocol.[27] Credits issued through this system can in theory be sold in both voluntary markets and other compliance markets, if a compliance scheme allows for Article 6 mechanisms.	The VCM functions similarly to the UN Article 6 baseline-and-crediting system. Open for anyone to participate. Consists of buyers, often corporations, purchasing carbon credits to meet self-imposed climate targets and net zero commitments, for goodwill and CSR purposes.
Incentive	Entities operating in sectors covered by these mandates are obligated to comply emission reduction goals. Emission allowances allocated to participants are gradually reduced to create an incentive for decarbonisation of operations.[28]	Countries choose voluntarily to engage, with the motive to find and unlock cost effective ways to implement actions for emission reductions in line with the Paris Agreement. Seller countries can benefit from investment in activities and green technologies that otherwise would not have been implemented or accessible. Buyer countries can create the same level of emission reduction at a reduced cost. The idea is that both parties can increase their emission reduction ambition and contribute to overall mitigation in global emissions.	Operates based on the willingness of companies to participate and invest in emission reduction projects to meet self-imposed emission reduction commitments.
Traded unit	Emission allowance	Internationally Transferrable Mitigation Outcome (ITMO).[29]	Carbon credit
Regulation	Based on legally binding regulation within a closed system.	Regulated under Article 6 of Paris Agreement with the basis of country commitments under the Paris Agreement (NDCs). The Article 6 Rulebook was concluded at COP26 in 2021. Negotiations on the details of rules governing these mechanisms and how they function is still under development.	Self-regulated. Guidelines set by private carbon crediting programmes, called standards, such as Verra and Gold Standard. In addition, the Integrity Council for the Voluntary Carbon Market (ICVCM) has established the Core Carbon Principles (CCPs), setting a global benchmark for high-integrity carbon credits. The ICVCM in turn assess the carbon crediting standards for adherence to the CCP criteria.
Oversight	Oversight by the mandated institution, often a government agency at national or sub-national level.	Oversight by the Article 6.4 Supervisory Body.	Oversights by independent carbon crediting standards.
Buyer's claim	Clear and universal guidelines for what kind of claims a buyer can make.	Clear and universal guidelines for what kind of claims a buyer can make.	No universal guidelines for what kind of claims a buyer of credits can make. Efforts are done to counter this issue in connection to greenwashing.
Market value	The compliance market value is around $86 billion per year and is projected to reach over $300 billion by 2030s.[30]	Projections show that the implementation of Article 6 mechanisms could deliver financial flows that exceed 20% of required investments in clean energy by 2030 (USD 225-245 billion) and reach roughly 30% by 2050 (nearly$2 trillion).[31]	The VCM was valued at around $2 billion in 2022 and expected to grow to just under $50 billion by 2030.[32]

QUALITY ASSURANCE IN THE VCM

Carbon markets have been around for decades with various degree of success.[33] Criticism regularly occurs, especially of the VCM, around lack of regulative oversight, transparency, trustworthiness of claims, verifiable climate impact and adverse effects for local communities.

In the VCM, regulative oversight is scattered leading to limitations in transparency. The lack of standardized quality criteria, in the early stages of the VCM, generated concern from the wider offset market. In response, carbon market actors launched several efforts to create standards and protocols to improve the quality and credibility of voluntary offsets.[34] These standards and protocols differ in their goals and the services provided. Commonly, they set out methodologies, principles and eligibility criteria. Most standards also include requirements of third party verification and may have their own registries for accurate and transparent accounting of credits. Today there are several different standards and there is no regulation for what can be called a quality standard. Even though the largest standards follow a certain structure and are being reviewed, this is not the case for the whole VCM. It is therefore important to understand key elements that make up high quality[35] and differences in terms of country-, sector- and wider development focus.[36] Standards aim to provide a control mechanism for that emissions reductions are additional (i.e. project would not happen without credit sales), permanent, measured robustly and counted only once. Box 3 describes key consideration in developing carbon projects.[37] These guidelines exist to ensure credibility and environmental impact.

Box 3. Key requirements for carbon credit development

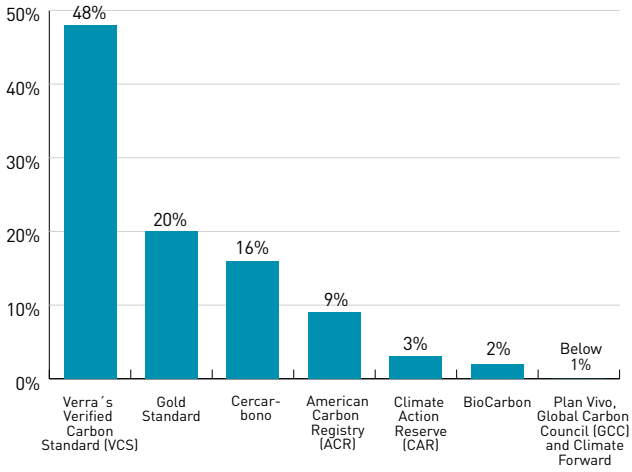
Additionality is an essential aspect of carbon credit development. Additionality of projects must exceed the likeliest business-as-usual (BAU) scenario and demonstrate that GHG emission reductions or removals would not occur without revenue from the sale of credits. Actors that strive to contribute to good quality markets should not only require the likeliest BAU scenario, but use conservative baselines in order to allow for some margin of error. Additionality is fundamental to environmental integrity of carbon projects but can be difficult to prove.

Permanence refers to how long the carbon dioxide removed will remain out of the atmosphere. It's about ensuring lasting benefits to the environment. When evaluating carbon credit projects, the degree of confidence that a specific project will keep the carbon out of the atmosphere for a given period of time is considered. Typically, a project is considered 'permanent' if it assures that the carbon it sequesters or avoids will remain out of the atmosphere for at least 100 years, but this may differ.

Verification and measurability refers to rigorous methods for quantification of emission reductions and verification audits, including how baselines are constructed and results followed-up. Carbon projects require a robust system for Monitoring, Reporting and Verification.

Double counting and double claiming refers to when a carbon credit (and the climate impact it represents) is counted and claimed by more than one entity. In other words, double counting occurs when a single emissions reduction credit is counted towards more than one goal, target, or pledge. Double counting can result in that the overall levels of GHG emissions in the atmosphere are not stabilising or reducing, further undermining the credibility of carbon trading systems. There are differing views on whether for example double claiming - or "co-claiming" - by private sector entities and one government should be allowed. This is a polarizing issue in the carbon market sphere. Efforts are being made to clarify the issue of how to make responsible claims, for example by VCMI Claims Code of Practice and the EU Green Claims Code.

Some of the most renowned standards are Verra, Gold Standard, Plan Vivo, Global Carbon Council (GCC) and the Architecture for REDD+ Transactions (ART). The diagram presents the share of credits issued from VCM standards in 2023.



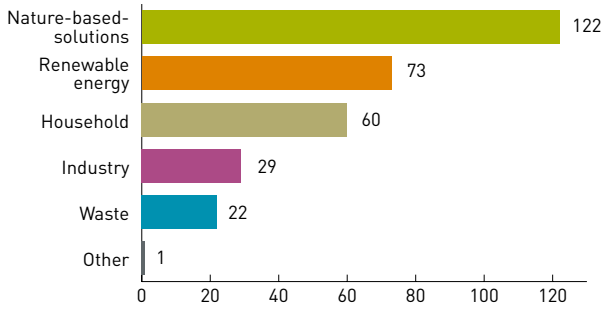
The proportion of carbon credits certified under different standards of total credits issued in the VCM in 2023. Data derived from Climate Focus.[38]

CURRENT TRENDS

Global trends in project activities

Global trends seen in the VCM is a growing role of NBS in the overall supply of carbon credits.[39] These types of projects have large potential to reduce emissions and if designed well, can also contribute to many positive social and environmental benefits.[40] On the other hand, NBS and land based projects often involve additional complicating factors, such as the issue of land rights and consideration of ecosystems and biodiversity impact. NBS projects offer the most cost effective credits for removals, in comparison to technological solutions like Direct Air Carbon Capture and Storage. An important consideration is that NBS does not address the primary cause of increasing GHG

emissions. Investment in sectors like renewable energy is also needed to lower dependance on fossil energy sources.



Number of carbon credits issues in the VCM in 2023, measured in million metric tonne reduced CO_2 equivalent ($MtCO_2e$). Data consolidated from carbon standards VCS, GS, ACR, CAR, Plan Vivo, GCC, Climate Forward, BioCarbon, Cercabono and ART.[41]

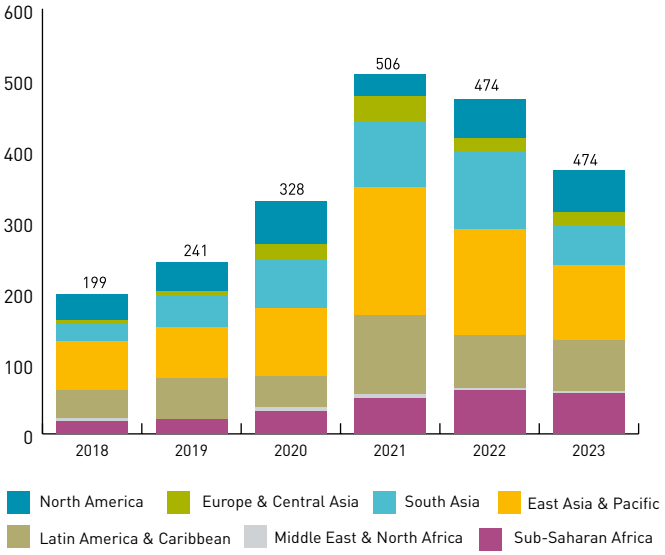
The number of total credits issued in 2023 was 308 million, which was a decline from 353 million in 2022. NBS credits dominated the overall supply in 2023 at 122 Mt, followed by renewable energy at 73 Mt. NBS credits can be divided into avoidance credits[42] and removal credits[43], where the market saw slight increase in the share of removal credits and a decline in avoidance credits in 2023. One explanation for the decline in the avoidance category could be recent criticism towards the environmental integrity of forestry projects and particularly REDD+ methodologies[44], leading to buyers pulling back to reduce the risk of reputational implications. The margin of error of the climate impact from NBS projects tends to be high, other concerns relates to issues of permanence.

Issuances of credits from the renewable energy sector declined by around 25 percent in 2023.

In contrast, household and community-level credits increased significantly from the previous year and are for the first time getting close to exceed the renewable energy sector for annual issuances. In 2023, these programmes reached 20% of total issuances, more than doubling from the year before. Two thirds of the household credit category originates from cookstove projects.

Geographical regions

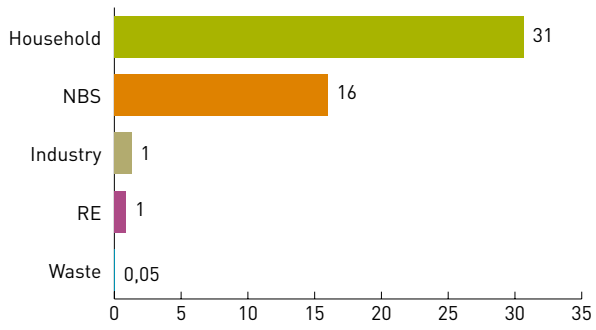
Trends in credits issued by geographical region show that since 2021 most credits have been issued in East Asia and the Pacific, Latin America, South Asia and Sub-Saharan Africa in falling order. Between 2018 to 2023 a majority of credits were issued from countries in upper- and lower middle income categories. For the same period, only between 2-8% of credits where issued from low income countries.



Carbon credits issued by host country region between 2018 to 2023 ($MtCO_2e$ per year).[45] The numbers include issuances from International, Independent and Governmental mechanisms as defined by the World Bank.[46]

Least Developed Countries

The number of tot1al issued credits in Least Developed Countries (LDCs) was 49 million in 2023, around 15% of credits issued globally. Credits issued from household projects make up the largest project type in 2023, taking the lead from NBS projects in 2022. Household projects increased significantly from 25% of the total share in 2022 to 63% in 2023. Just under 90% or household credits issued come from cookstove projects, with large issuances originating from projects in sub-Saharan Africa, indicating that projects in this sector are increasing. The share of NBS projects in turn declined from around half of the total share in 2022 to one third in 2023. The majority of NBS credits belong to the avoidance category, even if the same trend described above also applied to LDC issuances (avoidance credits are on the decline while removal credits increased in 2023).



Number of carbon credits issued from LDCs in the VCM in 2023 ($MtCO_2e$). Data consolidated from carbon standards VCS, GS, ACR, CAR, Plan Vivo, GCC, Climate Forward, BioCarbon, Cercabono and ART.[47]

Raising ambition through high-integrity markets

Buyer and investor interest is also focused on wider issues than emission reductions and there is a market opportunity for shifting toward high-quality credits with additional co-benefits, emphasizing environmental and social impact.[48, 49] However, supply of high quality credits need to grow in order to meet the demand and trust is needed between actors to build functional markets.

The development of compliance carbon markets has from the start included demands for sustainable development and safeguards for example regarding human rights. This approach has been adopted by many of the standards in the VMC. However, critique of the carbon market related to its shortfalls, has given rise to increased focus on not only the integrity of emission reductions but also additional efforts to strengthen quality, credibility and effectiveness to deliver on real and lasting impact for emission reductions and sustainable development.

As a result, global dialogue is focused on the concept of high-integrity carbon markets. The aim is to create high quality credits and ensure that market participants on both the supply and the demand side conform to core principles for authenticity—that credits genuinely contribute to a net zero pathway.[50] New approaches aim to go further by requiring projects to ensure credits come from activities with robust social and environmental safeguards that deliver positive sustainable development impacts.

A number of integrity initiatives exist, both at overarching level[51,52,53,54,55,56] and sector specific initiatives[57,58]. The most widely adopted initiative in the VCM is the Core Carbon Principles (CCPs)[59], which represents ten key, science-based principles for identifying quality carbon credits that create real and verifiable climate impact. They were developed with input from hundreds of organisations and establish a global benchmark for high integrity to raise it to a consistent level of quality and ensure it accelerates progress towards the 1.5°C target. Organisations are increasingly using the principles to guide support on carbon markets and adapt them to their context.[60] The table below presents the CCPs on high integrity. Carbon Crediting Standards in the VCM can since 2024 receive a CCP label of approval if they meet the core principles, providing an additional assurance of high-integrity for market participants.[61]

Worth noting is that the detail of what constitutes high integrity is dependent on the context and will vary between for example sector, geography, activity type and scale.[62]

Table 2. Core Carbon Principles for high integrity

Developed by the Integrity Council for the Voluntary Carbon Market (ICVCM).

A. Governance	B. Emissions Impact	C. Sustainable Development
1. Effective governance 2. Tracking 3. Transparency 4. Robust independent third-party validation and verification	5. Additionality 6. Permanence 7. Robust quantification of emission reductions and removals 8. No double counting	9. Sustainable development benefits and safeguards 10. Contribution toward net zero transition

PART 2. SIDA'S ROLE IN CARBON MARKETS

DEVELOPMENT COOPERATION AND POVERTY REDUCTION

There is high interest in partner countries and among organisations that Sida work with to explore how they can benefit from participation in carbon markets. Equally, there are concerns for the effectiveness and potential adverse effects that these mechanisms could cause for people and the environment. The point of departure for Sida to engage in and explore carbon markets is to build capacity among actors in partner countries to make informed decision on potential participation and to maximise benefits for people living poverty. Engagement could provide a tool to achieve increased finance for climate action and sustainable development. However, to achieve the long lasting changes and preconditions needed for poverty reduction it is important that monetary benefits from carbon credits are seen as an additional advantage to projects providing wider benefits to people, improving lives and building resilience.

Sida's role in relation to other actors

The Swedish Government assigns responsibilities and mandates for how Sweden as a country engages in carbon markets as described in Box 4. Sida does not have a formal role in carbon trading with other countries, but sees engagement in carbon markets as relevant for delivering on Sida's mandate and wider goals for sustainable development. Carbon markets connects to several areas of Sida's work and is in line with the Swedish Government's reform agenda for development assistance[63], Sida's operational strategy

for 2024-2026[64] and in particular the goal to increase and make climate aid more effective, both in terms of emission reductions and climate adaptation measures.

In general, Sida's climate aid contributes to the three main goals of the Paris Agreement through strategic investments in emissions reduction, climate change adaptation and financial flows. Additionally, Sida systematically ensures that climate aspects permeate all of its operations, creating co-benefits in development cooperation. Sida has, over many years, provided support for partner countries to strengthen institutional capacity at the national, sub-national and local levels for implementing the Paris Agreement. This support is based on the countries' own commitments, as described in their NDCs and National Adaptation Plans (NAPs). It involves activities such as identifying and analysing vulnerabilities and risks, prioritising climate measures, developing statistical systems for geographic, meteorological and hydrological data and supporting the creation of institutional structures for climate measures, including planning, budgeting, implementation, monitoring and communication. Such interventions go in line with how Sida sees a role to engage in carbon markets as described in further detail in the following section.

Box 4. Different mandates among Government Agencies

On a country level, Sweden participates in emissions trading through the compliance market EU ETS and through UN flexible mechanisms under Article 6 of the Paris Agreement. Relevant mandates include:

The Swedish Environmental Protection Agency is in charge of Sweden's commitment linked to the EU compliance market.

The Swedish Energy Agency (SEA) is in charge of Sweden's participation in Article 6 and responsible for entering into bilateral agreements with other countries for emissions trading. Sweden is one of few countries actively looking to purchase ITMOs ("carbon credits" sold under Article 6 that conforms to applicable UN rules). SEA's primary focus is currently energy related projects, not land-use and forestry.

Sida engages with international emissions trading via the VCM, for example through projects in the clean cooking sector, small-scale agriculture projects and forestry programmes. With the development of Article 6, Sida and the SEA are also exploring further collaboration on these mechanisms where country- and sector focus align. Sida has no role in purchasing ITMOs but our mission aligns with the overall sustainable development contribution of projects and the potential for positive outcomes for our partner countries and people living in poverty.

There are many actors involved in carbon markets, ranging from communities, project developers, certifiers, investors and buyers. Governments show increasing interest as Article 6 of the Paris Agreement comes into operation. Within this complex web of actors Sida needs to manoeuvre to make sure we are using our role in development cooperation to support development in partner countries and contribute to poverty reduction with the tools we have at hand.

FOCUS AREAS FOR SIDA'S ENGAGEMENT

In accordance with Sida's mandate two overarching areas of focus have been identified for possible engagement. The first is to support partner countries at *national and institutional level* to set up regulation, institutions and systems needed for NDC implementation and reporting and enable governments to prioritise activities suitable for carbon trading in relation to national development goals. The second area is to provide support at *project and supply level* to help increase the volume of credits that meet high-integrity principles. Sida can use innovative financing tools for up-front capital and de-risk investment to drive inclusive participation in projects. A key role for Sida is to build capacity among relevant actors at both national and local level.

In addition to the two overarching areas for engagement Sida can play a role in finding *synergies and facilitating connections* between actors in carbon markets in alignment with Sida´s priorities. This role can apply in global and regional forums and particularly important in countries where Sida has physical presence.

National and institutional level

Building institutions, frameworks and infrastructure

Interest to leverage carbon markets for additional financing is increasing among governments, not the least in relation to development of the Article 6 trading mechanism of the Paris Agreement. In order to participate in emissions trading and attract project developers, buyers and investors, countries need to set in place institutions and administrative arrangements, develop frameworks and infrastructure. They also need to have the capacity to provide actors with clarity on regulation and eligible activities.

Where interests and priorities align, Sida can support governments in the development of these capacities to enable countries to participate in carbon trading. Sida can for example support the set-up of institutional arrangements and build capacity among appointed agencies or support in the development of systems for Monitoring Reporting and Verification (MRV).[65] A priority for Sida is that carbon trading is viewed as one opportunity among a spectrum of financing tools. Sida can support the capacity for countries to assess and strategically prioritise which activities are suitable for carbon trading. Such support is envisioned to have wider benefits than participation in carbon trading since described institutions and systems are also needed for NDC implementation and reporting towards the Paris Agreement and could contribute to countries' opportunities to access

additional climate finance. In relation to frameworks for carbon trading, priority issues for Sida is that regulation is developed through a consultative process, takes into account adequate safeguards that protect the rights of IPLCs and opens up for inclusive markets and transparent benefit sharing.

Box 5. Example– National level engagement in Mocambique

The Swedish Embassy in Maputo has been working closely with the donor community as well as the Government of Mozambique to support the latter in the execution of their Carbon Market Activation Plan. The Government is currently finalising its new carbon market regulation where the Embassy has been instrumental in facilitating the dialogue and consultative processes ensuring not only the Swedish interests and priorities in environment, integrity of credits and right of IPLC's – but also that civil society, academia and the private sector are all involved in the same consultative process.

Part of the new regulation has been the establishment of a Climate Finance Unit and the Ministry of Finance in Mozambique. The Embassy is considering targeted support to this unit to ensure that long-term staffing and capacity is in place for the country to engage in carbon markets in a sustainable way, ensuring the understanding and monitoring of project developers and the credits that they claim.

Read more about Sida's engagement in Mozambique here

Bringing stakeholders together to protect forests

Another area of relevance at national and institutional level is REDD+, a framework within the UNFCCC Conference of the Parties including activities in the forest sector that reduces emissions from deforestation and conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.[66] REDD+ became part of the international climate agenda in 2007 and was adopted at COP19 in Warsaw 2013 as the Warsaw Framework for REDD+ (WFR).[67] The WFR provides complete methodological and financing guidelines, including a requirement for Safeguard Information System (SIS) for the implementation of REDD+ activities at the national level. Carbon credits issued from REDD+ activities are included in the category of NBS projects. As described in the section on current trends above, NBS credits dominated the overall supply of carbon credits in the VCM in 2023 and there is indication of a growing role in the overall supply. NBS are also seen as a bridging element between the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework[68], since biodiversity loss and climate change have several drivers in common and therefore also have shared solutions.[69]

Many initiatives, organisations and donors have over the years provided funding for REDD+ activities. In the WFR, countries agreed that results-based payments for REDD+ may come in the form of non-market- or market-based finance. For market-based finance, emissions are avoided or removed from the atmosphere through REDD+ activities and carbon credits can be issued. To date, most credits have been issued through individual REDD+ projects for sale mostly in the VCM.[70] Another approach to REDD+ is jurisdictional approaches, which are increasingly applied by national governments to reduce risk of GHG emissions from land-use change. By increasing integrated landscape management and comprehensive governance of forest and land use across entire political territories, an opportunity has been created to connect these actions with forest carbon finance[71]. Credits issued from jurisdictional approaches have so far rarely been issued on the VCM, but rather used as a basis for results-based finance (RBF) agreements, either between countries or with multilateral organizations such as the World Bank[72] and the Green Climate Fund (GCF).[73] Several national and subnational governments are advancing jurisdictional approaches to REDD+ and low emissions development. To verify carbon credits generated from these REDD+ projects, the Architecture for REDD+ Transactions (ART) has developed the TREES standard of excellence.[74] Box 6 provides an example of how Sida supports large scale forest protection efforts through jurisdictional REDD+.

Box 6. Example - Strategic support for forest protection through a jurisdictional approach in Bolivia

The Swedish Embassy in La Paz has through a strategic approach, civil society partnerships and some small grant funding been key to Bolivia's successful application and admittance to the LEAF Coalition.[75] LEAF works with a so called jurisdictional approach using results-based payments to provide economic incentives for local governments to reduce deforestation. LEAF aims to channel funds to forest governments by purchasing high-integrity jurisdictional REDD+ credits. Funding from Sida to local environmental groups has contributed to building a strong MRV system and establishing social safeguards for local communities. Apart from increasing the economic value of preserving the Amazon forest, the approach has contributed to improving cooperation between Bolivian government authorities and civil society organisations, as evident in joint actions and new platforms for interaction related to the initiative. The next step will be to explore the use of the ART TREES Standard for the quantification, monitoring, reporting and verification of GHG reductions and removals from REDD+. As the Bolivian case demonstrates, there are many potential benefits in a strategic involvement by Sida in carbon markets with several co-benefits arising.
Read more about Sida's engagement in Bolivia here.

Project and supply level

There is a lack of supply of quality credits that meet principles for high integrity. There is also a lack of finance and up-front capital needed for developing and

Photo by Jan Wärnbäck

implementing such projects. Sida can ensure that any support to carbon projects adhere to principles for high integrity, with an extra focus on safeguards for IPLCs, co-benefits and wider contribution to SDGs. An implication of such focus is that some sectors will likely be more relevant for Sida to support. For instance where it is clear that projects go beyond emission reductions and can provide additional benefits to Sida's target groups and low-income households. This could for example be in the clean cooking sector and small-scale projects for sustainable land use and improved livelihoods at large.

Overall, Sida´s support to carbon projects will be considered as per Sida's general requirements and need to ensure that opportunities for positive environmental impact are assessed along potential negative impacts and risks. Requirements are described in Sida´s approach for how partners conduct an environmental assessment.[76] Sida's contribution management processes already prioritises issues that are central for any support considered to carbon markets. This includes the partner's capacity to manage identified opportunities and risks, requirement for an understanding of target groups' needs in the specific social and environmental context and different perspectives on possible injustices and conflicts.

Financial additionality and de-risking

So far, there are not many cases where Sida has provided support that directly targets carbon finance flows in projects. Rather, Sida has supported organisations overall work that may also include carbon project development. There is an opportunity to explore more targeted support, which could include grants for project development and capacity building, but also use of financial tools such as RBF, challenge funds and loan guarantees.[77] Carbon finance is generated based on activities and the results of issued credits. A big challenge for project developers is finding support at the early stage of project development to cover the costs of setting up the project, including high cost of certification and adhering to requirements of a carbon standard. Sida can utilise innovative financing tools to support project development with up-front capital. For instance, Sida's guarantee instrument could help mitigate the risk of under-delivery or non-issuance of carbon credits and provide financial compensation to the investor or buyer if the project fails to deliver the agreed-upon number of credits. Such failure might occur due to factors such as climate-related disasters or regulatory changes. A guarantee could help de-risk such projects and mobilise finance for the earlier stages of development (particularly during the planning stage), making it possible to raise financing from sale of future carbon credits. When projects enter the implementation phase, a guarantee could help reduce the risk for financial investment, enabling the projects to reach financial closing.

Box 7. Example - Carbon finance central in the clean cooking sector

As described above, 20 percent of issued carbon credits in the VCM in 2023 was created through projects in the clean cooking sector, more than doubling from the year before. This sector is of particular interest to Sida as it has the potential to not only reduce emissions, but also to contribute to co-benefits such as improved health, gender equality[78] and reduced deforestation.

The sales of carbon credits provide additional revenue streams that make it easier and cheaper to bring clean cooking methods to more people. Carbon credits are vital for maintaining business models of companies as they provide a continuous income stream that helps them keep operating and expanding. Access to carbon finance can also attract more funding. Investors are more willing to put money into projects that can make a profit while also contributing to positive SDG impact.

There are many efforts in the sector aimed to address the issue of high integrity. In 2024, front-runner Clean Cooking Alliance launched the Principles for Responsible Carbon Finance in Clean Cooking[79] to help improve market norms, instill confidence in clean cooking carbon markets and incentivize investment. Over 100 organisations have endorsed the principles.

An illustrative example of how Sida-supported initiatives connects to carbon finance is Emerging Cooking Solutions (ECS)[80], a company committed to providing modern clean cooking solutions in Zambia. It exemplifies the power of innovation, collaboration and strategic financing. ECS has over the years successfully secured catalytic finance from various sources, including both challenge funds and RBF which have been important to the company´s development and in raising commercial debt and equity. They have also accessed technical assistance, including support related to carbon finance.

By the end of 2023, ECS secured a contract under the Modern Cooking Facility for Africa (MCFA)[81], a multi-donor RBF programme established and managed by Nefco, co-created with Sida, with the aim to provide access to clean cooking for up to 4 million people.The growth journey and contract with MCFA has led to ECS being selected by the Government of Zambia, to develop a platform for clean cooking companies to access carbon financing under article 6.2 of the Paris Agreement. The programme is supported by the SPAR6C initiative.[82]

Photo by Adam Öjdahl

Project development and benefits for people and the environment

As mentioned, a priority for Sida is that carbon markets can benefit target groups and contribute to improved livelihoods for people living in poverty. Issues around benefit sharing and understanding the real potential for people and communities to benefit is therefore central. Benefits would apply to monetary and non-monetary advantages gained from a carbon project and they go beyond just emissions avoidance, reduction and removal. This also applies to additional environmental benefits, such as contribution to climate adaptation, positive biodiversity impact and resilience.

An observation from small-scale projects with individual landowners is that revenues or payments from carbon credits alone are most likely not sufficient, or predictable enough, to sustain livelihoods and should rather be seen as an additional advantage, whereas the project activities themselves will contribute to livelihood development and diversified income opportunities. Development of locally based value chains, increased agricultural productivity, gender transformation and entrepreneurship should be areas to integrate in carbon projects.

For projects to be successful it is important to understand the context and what challenges a project aims to address apart from generating carbon credits. This requires a participatory approach of both landowners and other stakeholders in the early stages of project development, during implementation and follow-up. In many situations, the carbon component will not be the most important aspect for local communities and the surrounding actions of the project is the main incentive to participate, for example access to stable electricity, capacity development, infrastructure and land fertility. If carbon credits is the only incentive for a person to participate, the project might not work longer term, which poses a risk both for the benefit of the participant and for delivery of agreed number of credits.

As described in Box 8, Sida is working with experienced partners to gain insights and also share knowledge more widely on inclusive small-scale project development in AFOLU sectors.

Box 8. Example - Expert Desk for inclusive projects and sustainable land use practices

Sida is supporting the establishment of an Expert Desk and knowledge platform with Vi-Agroforestry[83 84]. Supporting the Expert Desk is in line with Sida's priority to support inclusive carbon markets that have the potential to not only reduce emission, but also contribute to additional benefits such as increased climate adaptation, improved biodiversity and livelihood opportunities for marginalised groups.

Vi-Agroforestry has long-standing practical experience of developing carbon projects with small-scale land owners in East Africa and is in a position to share knowledge of good practice, challenges and wider issues around sustainable land use management and livelihood development. The aim of this initiative is to create an open knowledge platform that can contribute to increased understanding of small-scale and local projects that can enable more actors to develop projects that deliver positive outcomes for the environment and climate, as well as benefitting local communities and contribute to poverty reduction. By partnering with experienced actors in different sectors, Sida can also build internal and practical knowledge on several topics related to carbon projects.

Inclusive and informed participation

There are many challenges connected to particularly small-scale AFOLU carbon projects. Challenges include limited capacity and knowledge of the opportunity, high cost of adhering to standards and systems for MRV and lack of benefit sharing and inclusive engagement at local level. Furthermore, the scale of these types of projects are often small, scattered and deemed too risky for investors to be interested. These kinds of projects can in contrast have the most positive impact for IPLCs and marginalised communities in directly contributing to enhanced livelihoods through for example improving yields and agricultural productivity.

Sida sees an opportunity to support participation of local communities and project developers by supporting initiatives with inclusive business models and transparent benefit sharing mechanisms. There is also an opportunity to work towards efficiency and lowering cost for MRV and support initiatives and platforms that aim to aggregate smaller projects of good quality to reach viable scale for investment. A core area for Sida to engage in is also to support organisations that build capacity at local level around carbon markets to enable people to make conscious decisions of whether to participate or not, and most importantly – on what terms.

Synergies and facilitating connections

Carbon markets will not function as intended and contribute to a net zero pathway, if there is a lack of demand for high-integrity credits from responsible buyers. Sida has a limited role to influence demand and issues around greenwashing and responsible claims of buyers, but can help facilitate connections between actors involved in carbon trading looking to drive development of high-integrity markets.

Facilitate international collaboration to achieve climate goals

Sweden, through the SEA, is active in the development of Article 6 mechanisms under the Paris Agreement and is one of relatively few countries looking to purchase ITMOs (Box 4). There is an opportunity for collaboration and alignment between SEA's work in international climate cooperation and Sida's climate finance support and capacity building support to institutions in partner countries.[85] Through country presence and existing collaborations with partner organisations, Sida can contribute with contextual knowledge and networks to help facilitate contacts in a Team Sweden approach. Sida's interest aligns with the SEA in wanting to raise the ambition for international emission trading, facilitate capacity building for and support projects that contribute to wider SDG fulfilment.[86]

Article 6 collaborations should result in raised ambition for global emission reduction. The aim is for national agreements with Sweden and supported projects to not only contribute to Sweden's mitigation outcomes, but also contribute to the host country's GHG mitigation efforts and finance for development in the host country. A priority for Swedish development cooperation is that agreements and collaboration is based on informed decisions and fair terms and conditions. This includes careful selection and dialogue around the type of interventions to include in trade of emission reductions, how they fit with the host country´s own priorities and NDC commitments and whether additional external resources are needed for the implementation. Both parties should benefit from the collaboration and resulting investment.

Connecting Article 6 and the VCM

Sida already supports interesting initiatives, for instance regarding energy efficient lighting and appliances, energy efficient industries and the clean cooking sector. In the future, such initiatives could generate ITMOs for sale through the Article 6 mechanism as described above in relation to the clean cooking sector (Box 7). Sida sees an opportunity to explore how these kinds of initiatives could contribute to a pipeline of quality assured projects to be connected to buyers, such as Sweden. To foster connections, Sida could for example explore support to digital solutions and platforms that enable greater value chain transparency and connections between the demand side and verified high quality projects.

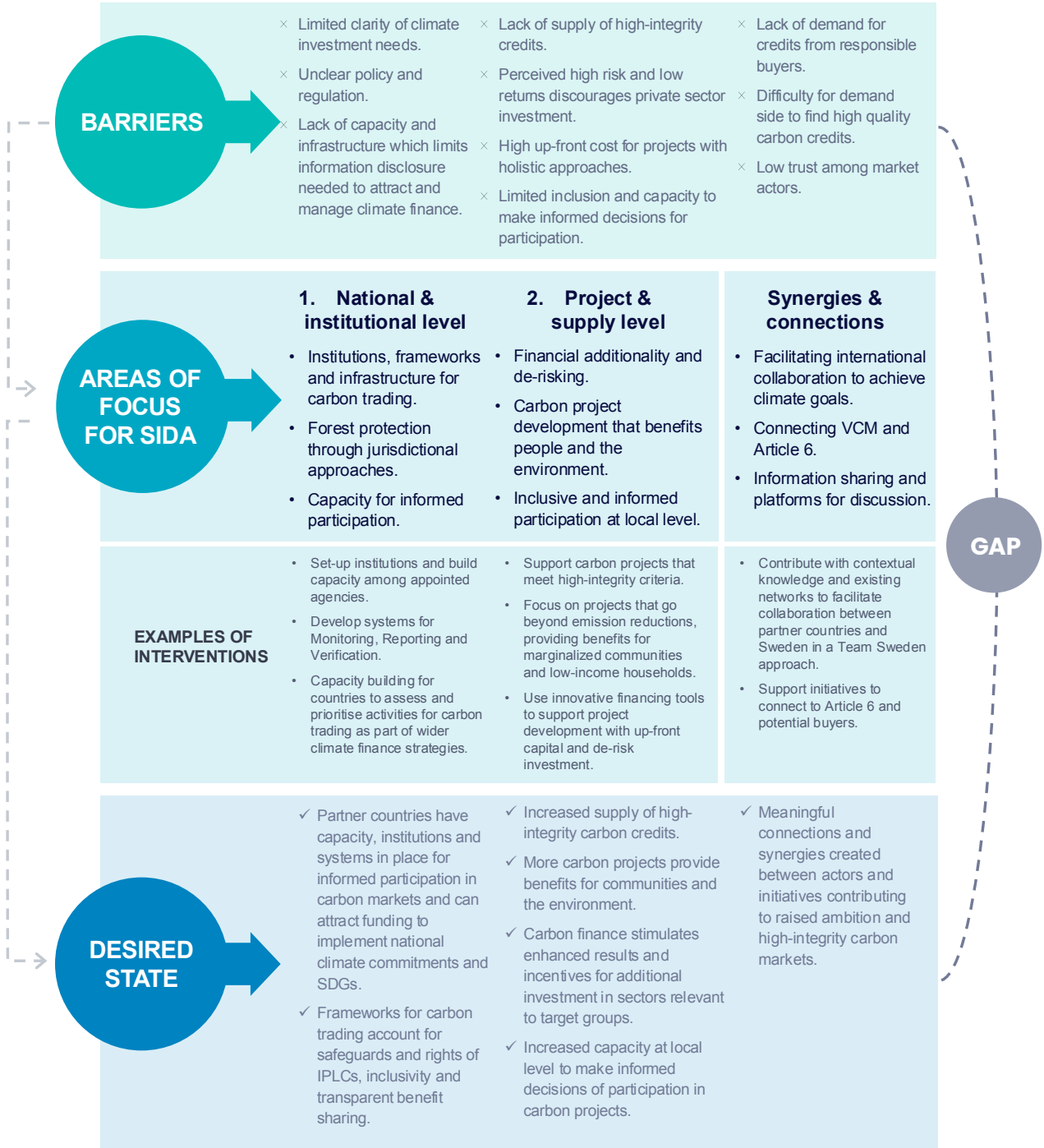
Information sharing and new platforms

Sida can contribute to accurate information and knowledge sharing to governments, national and international actors on the opportunities and prerequisite for international carbon trading. As demonstrated by the examples from Mozambique and Bolivia above, Sida can play a role in bringing stakeholders at different levels together for consultations on how to approach carbon trading at national level. In the case of Bolivia, the successful application to join the LEAF Coalition has contributed to a new platform for engagement between the government, CSOs and communities on issues related to land use planning and conservation in the Amazonas.

Another area for support is initiatives that aim to bring stakeholders together to harmonise efforts for high integrity in the VCM, that contribute to functioning markets. Such support may include research programmes relevant for Sida target groups[87] and practitioner networks in different sectors[88], while also supporting initiatives that independently oversee and assess carbon market initiatives.

SUMMARY OF FOCUS AREAS FOR SIDA'S ENGAGEMENT IN CARBON MARKETS

The areas of focus are described in relation to key barriers. They aim to address the gaps for achieving high-integrity carbon markets that can benefit people living in poverty. The identified focus is based on Sida's role in international development cooperation.



Moving forward, Sida will continue working with experienced partners in different sectors to contribute to best practice for building high-integrity markets. Sida also continues to explore how different financial tools can be utilised in connection to carbon finance, including the guarantee instrument. We follow the development of the Article 6 within the negotiations of the UNFCCC, how it connects to developments in the VCM and how partner countries approach participation through national frameworks and regulation. The upcoming revisions to NDCs also presents an opportunity for countries to clearly articulate the role they see for international carbon markets.[89]

References and further reading

Allen & Overy, Climate Policy Initiative (2023). How big is the Net Zero financing gap?. Available at: https://www.climatepolicyinitiative.org/wp-content/uploads/2023/09/How-big-is-the-Net-Zero-financing-gap-2023.pdf.

Architecture for REDD+ Transactions (ART). TREES – The REDD+ Environmental Excellence Standard. Available at: https://www.artredd.org/trees/.

Blaufelder, C; Levy, C; Mannion, P; Pinner, D. McKinsey Sustainability (2021). A blueprint for scaling voluntary carbon markets to meet the climate challenge. Available at: https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge.

Calyx Global. Independent carbon credit ratings, research and market insight. Available at: https://calyxglobal.com/.

Carbon Credit Quality Initiative. Transparent Scores for Carbon Credit Quality. Available at: https://www.carboncreditquality.org/.

Carbon Direct (2023). 2023 Edition: The State of the Voluntary Carbon Market. Available at: https://www.carbon-direct.com/research-and-reports/state-of-the-voluntary-carbon-market.

Carbon Limits AS (2021). Attribution: A practical guide to navigating the blending climate finance and carbon markets. Available at: https://www.energimyndigheten.se/4aacfb/globalassets/webb-en/cooperation/attribution-report.pdf.

Center for International Forestry Research and World Agroforestry (2020). Jurisdictional REDD+ - CIFOR's Global Comparative Study on REDD+. Available at: https://www.sylvera.com/blog/an-introduction-to-jurisdictional-redd.

Climate Focus. The Voluntary Carbon Market Dashboard (accessed in September 2024). Available at: https://climatefocus.com/initiatives/voluntary-carbon-market-dashboard/.

Clean Cooking Alliance (2024). Principles for Responsible Carbon Finance in Clean Cooking. Available at: https://cleancooking.org/news/cca-launches-principles-for-responsible-carbon-finance-in-clean-cooking/.

Clean Cooking Alliance (2023). Gender and Clean Cooking. Available at: https://cleancooking.org/wp-content/uploads/2023/07/Gender-and-Clean-Cooking.pdf.

Clean Cooking Alliance. Responsible Carbon Finance: Principles for Responsible Carbon Finance in Clean Cooking. Available at: https://cleancooking.org/industry-development/catalytic-finance-accelerator/responsible-carbon-finance/.

Conservation International; Coordinators of indigenous organizations of the Amazon basin; Environment Defense Fund; IPAM Amazonia; The Nature Conservancy; Wildlife Conservation Society; World Resources Institute; WWF (20222). Tropical forest credit integrity guide. Available at: https://tfciguide.org/.

Ecosystem Marketplace (2023). 2023 State of the Voluntary Carbon Markets Report. Available at: https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-market-report-2023/.

Ek, G and Eriksson, H. Sida's Helpdesk for Environment and Climate Change (2024). Overview and benchmarking of Carbon Crediting Standards. Internal assessment.

Emerging Cooking Solutions. Website. Available at: https://emerging.se/.

Government of Sweden (2023). Development assistance for a new era – freedom, empowerment and sustainable growth. Available at: https://www.government.se/reports/2024/02/development-assistance-for-a-new-era--freedom-empowerment-and-sustainable-growth/.

30. International Energy Agency (2023). World Energy Outlook Special Report: Financing Clean Energy in Africa. Available at: https://www.iea.org/reports/financing-clean-energy-in-africa.

IETA (2024). Guidelines for high integrity use of carbon credits. Available at: https://www.ieta.org/resources/reports/guidelines-for-high-integrity-use-of-carbon-credits/.

Integrity Council for the Voluntary Carbon Market (2023). Integrity Council launches global benchmark for high-integrity carbon credits. Available at: https://icvcm.org/integrity-council-launches-global-benchmark-for-high-integrity-carbon-credits/.

Integrity Council for the Voluntary Carbon Market (2023). The Core Carbon Principles. Available at: https://icvcm.org/core-carbon-principles/.

Integrity Council for the Voluntary Carbon Market. The assessment of carbon-crediting programs for CCP eligibility is one part of the ICVCM's two tick process. Available at: https://icvcm.org/how-we-assess-carbon-crediting-programs/.

The Lowering Emissions by Accelerating Forest finance (LEAF) Coalition. LEAF website. Available here: https://www.leafcoalition.org/.

MSCI (2021). Future Size of the Voluntary Carbon Market. Available at: https://www.msci.com/www/research-report/future-size-of-the-voluntary/04584977488.

OECD (2021). Net Zero by 2050: A Roadmap for the Global Energy Sector. Available at: https://www.oecd-ilibrary.org/energy/net-zero-by-2050_c8328405-en.

Openaid. Modern Cooking Facility for Africa. Available at: https://openaid.se/en/contributions/SE-0-SE-6-15042.

Openaid. Vi-skogen Expert Desk Agroforestry and carbon credits. Available at: https://openaid.se/en/contributions/SE-0-SE-6-16818.

Openaid. Environment for Development EfD 2021-2024 (+2025-2028). Available at: https://openaid.se/en/contributions/SE-0-SE-6-61050402#description.

Pablo Avila, J; Comstock, M; de Goeij, N; Martin, M; McGrath-Horn, M; Parsons, S; Saines, R. U.S. Agency for International Development (2024). Natural Climate Solutions and Carbon Markets Primer: A Companion to the Carbon Markets Resource Guide. Available at: https://www.climatelinks.org/resources/natural-climate-solutions-carbon-markets-primer.

Porsborg-Smith, A; Nielsen, J; Owolabi, B; Clayton, C. Boston Consulting Group (2023). Available at: https://www.bcg.com/publications/2023/why-the-voluntary-carbon-market-is-thriving.

Schaefer, J. Respira-International (2022). Carbon integrity: What makes a "good" carbon credit?. Available at: https://www.respira-international.com/carbon-integrity-what-makes-a-good-carbon-credit/.

Seddon, N. (2022). Harnessing the potential of nature-based solutions for mitigating and adapting to climate change. Science 376, 1410-1416 (2022). Available at: https://www.science.org/doi/10.1126/science.abn9668.

Supporting Preparedness for Article 6 Cooperation (SPAR6C). Website. Available at: https://www.spar6c.org/.

Swedish Energy Agency (2023). How compliance and voluntary carbon markets interact. Avaliable at: https://www.energimyndigheten.se/en/news/2023/how-compliance-and-voluntary-carbon-markets-interact/.

Swedish International Development Agency. Toolbox on how to apply the human rights-based approach. Available at: https://www.sida.se/en/for-partners/methods-materials/human-rights-based-approach.

Swedish International Development Agency (2024). Definition of nature based solutions as per Sida Technical Note: Nature-Based Solutions - Optimising benefits and avoiding risks. Available at: https://cdn.sida.se/app/uploads/2024/10/17083603/62725_Technical-Note_Nature-Based-Solutions_webb.pdf.

Swedish International Development Agency (2024). Technical Note: Nature-Based Solutions - Optimising benefits and avoiding risks. Available at: https://cdn.sida.se/app/uploads/2024/10/17083603/62725_Technical-Note_Nature-Based-Solutions_webb.pdf.

Swedish International Development Agency. Operational Strategy 2024-2026. Available at: https://cdn.sida.se/app/uploads/2024/06/03145103/62687-Verksamhetsstrategi-2024-2026_ENG_WEB.pdf.

Swedish International Development Agency (2022). Step-by-step guide: Environmental integration into Sida's operations. Available at: https://cdn.sida.se/app/uploads/2022/02/21150523/10205793_Environmental_integration_into_Sidas_operations_webb.pdf.

Swedish International Development Agency. Sida's guarantee instrument. Available at: https://www.sida.se/en/for-partners/private-sector/sidas-guarantee-instrument.

Swedish Energy Agency (2024). Article 6 of the Paris Agreement. Available at: https://www.energimyndigheten.se/en/cooperation/swedens-program-for-international-climate-initiatives/paris-agreement/article-6-of-the-paris-agreement/.

Sylvera (2024). Compliance vs Voluntary: How Carbon Credit Market Convergence Creates New Opportunities. Available at: https://www.sylvera.com/resources/convergence-compliance-voluntary-carbon-markets.

Thompson, P; Alvarez Campo, C; Rattenbury, B. Sylvera (2022). Market insight: An introduction to jurisdictional REDD+. Available at: https://www.sylvera.com/blog/an-introduction-to-jurisdictional-redd.

Truitt, N. Article sponsored by American Forest Foundation (2022). Choose high integrity as the standard for carbon credits. Available at: https://trellis.net/article/choose-high-integrity-standard-carbon-credits/.41.

United Nations Environment Programme (2022). Emissions Gap Report 2022: The Closing Window — Climate crisis calls for rapid transformation of societies. Available at: https://www.unep.org/emissions-gap-report-2022.

United Nation Climate Change (UNFCCC). Introduction to Climate Finance. Available at: https://unfccc.int/topics/introduction-to-climate-finance.

United Nation Climate Change (UNFCCC). The Clean Development Mechanism. Available at: https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism.

United Nations Development Programme (2023). UNDP's High-Integrity Carbon Markets Initiative. Available at: https://www.undp.org/publications/undps-high-integrity-carbon-markets-initiative.

United Nations Climate Change (UNFCCC). What is REDD+?. Available at: https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd.

United Nations Climate Change (UNFCCC). Fact sheets: Warsaw Framework for REDD+. Available at: https://redd.unfccc.int/fact-sheets/warsaw-framework-for-redd.html.

United Nations Climate Change (2022). Work programme for the Marrakech partnership for Global climate action for 2022. Available at: https://unfccc.int/sites/default/files/resource/MP_Work%20Programme_2022_final.pdf.

University of Gotherburg and Environment for Development (EfD). Research Project exploring the potential and challenges of Voluntary Carbon Markets in the Global South. Available at: https://www.gu.se/en/news/efd-project-features-voluntary-carbon-markets-in-the-global-south.

Vi Agroforestry. Website: Expert Desk. Available at: https://viskogen.se/expert-desk/.

World Bank Group (2022). Climate Stories - Countries on the Cusp of Carbon Markets. Available at: https://www.worldbank.org/en/news/feature/2022/05/24/countries-on-the-cusp-of-carbon-markets.

World Bank Group (2022). Climate Explainer - What You Need to Know About Article 6 of the Paris Agreement. Available at: https://www.worldbank.org/en/news/feature/2022/05/17/what-you-need-to-know-about-article-6-of-the-paris-agreement.

World Bank Group (2023). State and Trends of Carbon Pricing 2023. Available at: https://openknowledge.worldbank.org/handle/10986/39796.

World Economic Forum (2022). Climate Action - Countries set to join carbon markets as the world demands a green economic transition. Available at: https://www.weforum.org/agenda/2022/07/countries-on-the-cusp-of-carbon-markets/.

World Resources Institute (2022). Paying for the Paris Agreement: A Primer on Government Options for Financing Nationally Determined Contributions. Available at: https://www.wri.org/research/paying-paris-agreement-primer-government-options-financing-nationally-determined.

World Bank Group. State and Trends of Carbon Pricing Dashboard. Carbon Credit Market: Issuance (accessed in October 2024). Available at:https://carbonpricingdashboard.worldbank.org/credits/instrument-detail.

World Bank Group. State and Trends of Carbon Pricing Dashboard. Carbon Credit Market: Instrument Detail. Available at: https://carbonpricingdashboard.worldbank.org/credits/instrument-detail.

World Bank Group. Forest Carbon Partnership Facility. More information available at: https://www.forestcarbonpartnership.org/.

World Bank (2024). State and Trends of Carbon Pricing: International Carbon Markets 2024. Available at: https://openknowledge.worldbank.org/entities/publication/abf9c34f-14a6-4c4f-ac97-f07f4ebd67ff.

Wyburd, I and Dufrasne, G. Carbon Market Watch (2023). Exposing the methodological failures of REDD+ forestry projects. Available at: https://carbonmarketwatch.org/wp-content/uploads/2023/09/Error-log-Exposing-the-methodological-failures-of-REDD-forestry-projects.pdf.

Endnotes

1 Climate action plans that countries develop to reach the commitments of the Paris Agreement. NDCs are submitted every five years to the UNFCCC secretariat but may at any time be adjusted with a view to enhance ambition.
2 World Bank Group, 2022.
3 World Bank Group, 2022.
4 World Economic Forum, 2022.
5 Sida, Toolbox human rights-based approach.
6 Details of what constitutes high integrity is dependent on context and varies between sector, geography, activity type and scale. Guidance for how Sida assess high integrity in projects is part of regular contribution management processes and method support.
7 Net zero refers to a state in which the GHG going into the atmosphere are balanced by removal out of the atmosphere and the state at which global warming is expected to halt. The Paris Agreement underlines the need for net zero and requires states to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHG in the second half of this century.
8 UNEP, 2022.
9 Climate Policy Initiative, 2023.
10 The $100 billion commitment was made at the 15th Conference of Parties of the UNFCCC in Copenhagen in 2009. It expires in 2025 and is to be replaced. There is pressure to increase the amount to better reflect actual needs in developing countries.
11 OECD, 2021.
12 WRI, 2022.
13 Definition by UNFCCC.
14 Corresponding adjustments refers to an accounting mechanism designed to avoid double counting of emission reductions and removals that are transferred between countries under Article 6 of the Paris Agreement.
15 Carbon Limits, 2021.
16 World Bank Group, 2023.
17 McKinsey Sustainability, 2021.
18 Boston Consultancy Group, 2023.
19 MSCI, 2021.
20 Like any market commodity, the price of a tonne of CO2 fluctuates as the market is influenced by supply and demand. Climate policies are important for giving price signals, particularly for the power sector. For example, if a more stringent emissions reduction policy is in place, it will likely lead to year-on-year increases in the price of CO2.
21 Sida, 2024.
22 UNFCCC, The Clean Development Mechanism.
23 For example by VCMI Claims Code of Practice and the EU Green Claims Code.
24 Swedish Energy Agency, 2023.
25 For example the EU emissions trading system (EU ETS).
26 WBG, 2022.
27 UNFCCC, The Clean Development Mechanism.
28 Refers to Emission Trading Systems (ETS), such as the EU ETS.
29 For a buyer country to use ITMOs to meet their emission reduction targets, they need authorization from the seller/ host country. This authorization process is crucial because it determines when emission reductions achieved in one country can be transferred to another country. A Mitigation Outcome Purchase Agreement (MOPA) is the legal contract between entities that governs a transaction for the purchase and sale of Mitigation Outcomes (MOs) and sets out the terms for the use of ITMOs.
30 Sylvera, 2024.
31 International Energy Agency, 2023.
32 McKinsey Sustainability, 2021.
33 USAID, 2024.
34 Sida's Helpdesk for Environment and Climate Change, 2024.
35 Sida is working with partners to develop guidance for programme officers to assess the quality of carbon projects.
36 Sida's Helpdesk for Environment and Climate Change, 2024.
37 The key considerations apply across baseline-and-crediting schemes described in Table 1 and are not specific to the VCM.
38 Climate Focus, 2024.
39 Climate Focus, 2024.
40 Sida, 2024.
41 Climate Focus, 2024.
42 Including avoided deforestation and avoided conversion. Programmes such as REDD+ are included in this category.
43 Including afforestation, reforestation, revegetation, wetland restoration and carbon sequestration in agriculture.
44 Carbon Market Watch, 2023.
45 World Bank Dashboard, 2024.
46 World Bank Dashboard, Instrument Detail, 2024.
47 Climate Focus, 2024.
48 Ecosystem Marketplace, 2023.
49 Carbon Direct, 2023.
50 Truitt, 2022.
51 IETA, 2024.
52 The Integrity Council for the Voluntary Carbon Market, 2023.
53 Calyx Global.
54 Carbon Credit Quality Initiative.
55 Conservation International et. al, 2022.
56 Respira-International, 2022.
57 Clean Cooking Alliance, 2024.
58 Conservation International et. al, 2022.
59 The ICVCM, 2023.
60 UNDP, 2023.
61 The ICVCM.
62 Guidance for how Sida assess high integrity in projects is developed as part of regular contribution management processes and method support.
63 The Government of Sweden, 2023.
64 Sida, Operational Strategy 2024-2026.
65 Sida has supported establishment tools and methods to measure, follow up and verify emission of GHG gases, but also indicators for sustainable development. Two examples are the multi-country and multi-stake-holder initiative Strengthened Institutions for a Sustainable Climate and the bilateral support to MRV set-up in Burkina Faso 2019-2022.
66 UNFCCC. What is REDD+?.
67 UNFCCC. Warsaw Framework for REDD+.
68 Seddon, 2022.
69 UNFCCC, 2022.
70 Sylvera, 2022.
71 The Center for International Forestry Research and World Agroforestry, 2020.
72 World Bank Group. Forest Carbon Partnership Facility.
73 The GCF started to pilot REDD+ results-based payments in 2017, consistent with the Warsaw Framework for REDD+ and other REDD+ decisions under UNFCCC.
74 ART. TREES – The REDD+ Environmental Excellence Standard.
75 LEAF Coalition.
76 Sida. Step-by-step guide for environmental integration.
77 Sida. The guarantee instrument.
78 CCA (2023).
79 CCA. Responsible Carbon Finance.
80 Emerging Cooking Solutions
81 Openaid. MCFA.
82 SPAR6C.
83 Openaid. Vi-skogen Expert Desk.
84 Vi Agroforestry. Expert Desk.
85 SEA and Sida aim to strengthen collaboration further in Swedish efforts abroad connected to the clean energy transition. An agreement on collaboration was signed in June 2024 were one area to be explore relates to Article 6 of the Paris Agreement.
86 Swedish Energy Agency, 2024.
87 Such as the Environment for Development (EfD) research programme on Voluntary Carbon Markets in the Global South.
88 Such as the Clean Cooking Alliance and the Vi Agroforestry knowledge platform.
89 WBG, 2024.

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