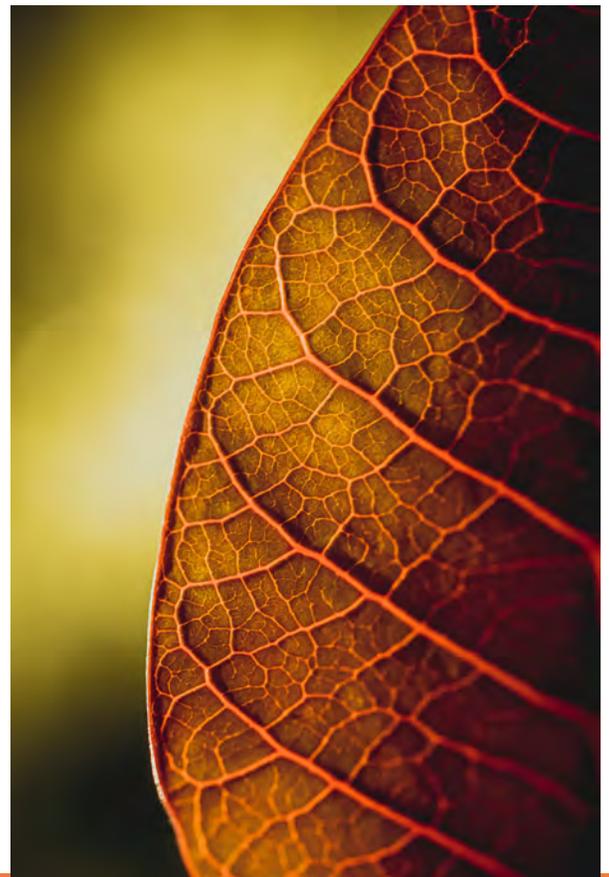


# The Voluntary Carbon Market Explained

Introduction



Introduction

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Role of Governments in the VCM

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## Introduction

In the last five years, the voluntary carbon market (VCM) has seen an unprecedented growth in demand for carbon credits from voluntary climate change mitigation activities. This growth is driven by corporate climate commitments, consumer interest in climate change mitigation, investor appetite for carbon credits, and mandatory emissions disclosures and reductions. Issuances of VCM credits reached an all-time high in 2021, with 352 million credits issued. 2022 was second largest year for the VCM, with 279 million issuances. The VCM's growth is expected to continue, given the increasing demand for credits and the proliferation of new methodologies for different types of climate change mitigation activities.

A defining feature of the VCM is that it is not regulated by governments. Private activity developers design and implement mitigation activities that are certified by carbon standards that issue carbon credits. VCM activity developers may be for-profit or not-for-profit organizations, private landowners, Indigenous Peoples or local communities (IPs&LCs), and subnational or national governments. Corporations and investors acquire carbon credits to offset emissions or contribute to beyond value chain mitigation.

The relative distance of the VCM from governments has resulted in a lack of understanding of the VCM by governments and public sector actors—particularly in developing countries, even though most VCM projects are in developing countries. This lack of understanding limits opportunities for the VCM to complement government action on climate change. Used strategically, VCM activities can channel investment into sectors that are not covered by Nationally Determined Contributions (NDCs) under the Paris Agreement or other public policies, support Sustainable Development Goals (SDGs) and climate targets in host countries, and accelerate climate action in jurisdictions where legal frameworks are not fully developed. However, the VCM cannot provide a solution to climate change on its own. Offsetting is a supplementary measure and other public and private action will be required to reduce emissions overall.

It is essential that governments and other public sector actors understand how the VCM works and how they can engage with the VCM. The purpose of this VCM Primer is to provide an overview of the VCM to the governments of countries that are or are likely to be hosting VCM projects. The Primer increases government understanding of and strategic engagement with the VCM. The

target audiences of this Primer are policymakers in host countries, advisors to policymakers, and other public sector actors engaging with the VCM.

Each chapter of the Primer explains one aspect of the VCM. The chapters can be read as standalone factsheets or be read together as part of a larger summary of the VCM.

### **Chapter 1: What is the VCM?**

provides a general introduction to the VCM, its history, how it operates, current trends in supply and demand of credits, and its key benefits and limitations.

### **Chapter 2: What is the role of governments in the VCM?**

describes the regulation of the VCM, how governments can engage strategically to access VCM-based finance, and the roles governments can play in the VCM.

### **Chapter 3: How does the VCM link to the Paris Agreement and Article 6?**

discusses the links between the VCM and Article 6 of the Paris Agreement, and how the VCM can support countries' commitments under the international climate regime.

### **Chapter 4: How are greenhouse gas reductions and removals accounted for in the VCM?**

details how GHG emissions are accounted for in the VCM and how this is influenced by the Paris Agreement, the three types of double counting, the risks of double claiming, and how governments can address double claiming in the VCM.

### **Chapter 5: What are carbon credits?**

explains what a carbon credit represents, the legal basis of carbon credits, how carbon credits are generated, how the two main types of carbon crediting systems are structured, and how public policy relates to the generation of carbon credits.

### **Chapter 6: What makes a carbon credit high quality?**

characterizes the high quality carbon credits, VCM activities that lead to the generation of high quality credits, and public policy that can facilitate the increased supply of high quality credits.

### **Chapter 7: What is the role of carbon standards in the VCM?**

clarifies the role of carbon standards, the largest standards in the VCM, and how governments and carbon standards interact.

### **Chapter 8: How is the voluntary carbon market structured?**

outlines the main actors in the VCM, the VCM activity cycle, and the criteria under which carbon credit prices are determined.

### **Chapter 9: How are carbon credits used?**

examines carbon offsetting, corporate climate targets, carbon neutrality, and non-offset uses of carbon credits.

### **Chapter 10: How are carbon rights considered in the VCM?**

explores the basics of carbon rights, including how they are legally determined, how they are established in the VCM, and how governments can act to clarify

them and therefore support VCM activities in their jurisdictions.

### **Chapter 11: Why and how do IPs&LCs engage with the VCM?**

discusses the rights and roles of IPs&LCs in the VCM, and how to avoid risks and increase benefits to IPs&LCs from VCM activities.

**Chapter 12: How are VCM benefits shared?** defines benefit sharing and the best practices for benefit sharing arrangements.

### **Chapter 13: How does the VCM support nature-based solutions?**

summarizes the role and main classes of nature-based solutions (NbS), the carbon standards that certify credits from NbS projects and the current state of NbS in the VCM.

**Chapter 14: How can the VCM support REDD+?** reviews the international framework of Reducing Emissions from Deforestation and Degradation plus conservation, sustainable management, and enhancement of forest stocks (REDD+), the Warsaw Framework for REDD+ (WFR), how REDD+ is integrated in the VCM, and how government implementation of REDD+ and the WFR can be made compatible with engagement in the VCM.

**Chapter 15: How does REDD+ nesting work?** delves into what REDD+ nesting is in the context of the VCM, how nesting should be designed and implemented, and why governments engage in nesting.

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## Acknowledgments

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Date of publication: October 2023

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# The Voluntary Carbon Market Explained

## Chapter 1



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## Chapter 1: What is the voluntary carbon market?

The voluntary carbon market (VCM) is where private individuals and organizations issue, buy, and sell carbon credits outside of regulated or mandatory carbon pricing instruments. **Carbon credits** are tradable instruments transacted in the VCM. They are generated by activities that remove greenhouse gases (GHGs) from or prevent GHGs from being emitted to the atmosphere. Each credit in the VCM represents one ton of carbon dioxide equivalents (CO<sub>2</sub>e) that is sequestered or has not been emitted. Carbon dioxide equivalents are a measurement unit that converts the global warming potential of any GHG into the reference GHG potential of carbon dioxide.

The VCM aims to mitigate climate change by creating space for private actors to finance activities that remove GHG emissions from the atmosphere or reduce GHG emissions associated with industry, transportation, energy, buildings, agriculture, deforestation, or any other aspect of human life.

Companies, governments, non-governmental organizations (NGOs), and other public and private stakeholders **participate** in the VCM. Companies participate in the VCM to invest in activities that generate tradable GHG credits, to acquire credits to voluntarily offset GHG emissions, or to otherwise support climate change mitigation

through financing activities that reduce GHG emissions or remove GHGs from the atmosphere. Companies participate in the VCM to contribute to their climate goals, to differentiate from competitors, to build brand recognition and consumer loyalty, and to define and market “carbon neutral” products.

Local communities, private landowners, subnational governments, and other stakeholders engage in the VCM through **activity development** and **as beneficiaries** of climate change mitigation activities. For NGOs, communities, and private activity developers, the VCM offers the opportunity to access finance—often in hard currency—to implement projects that reduce GHG emissions or enhance GHG removals. **Governments** can use the VCM to attract foreign direct investments and achieve additional climate change mitigation through VCM finance. A number of governments have developed programs that generate verified emission reductions and removals in the context of Reducing Emissions from Deforestation and Degradation plus (**REDD+**), and government agencies have sponsored VCM project activities in a range of other sectors. The instruments formulated under **Article 6 of the Paris Agreement** offer additional opportunities for governments to access finance for climate action.

### How does the VCM work?

Carbon credits transacted in the VCM are issued and certified according to requirements set by carbon crediting programs or “carbon standards.” **Carbon standards** are rules and requirements set by private standard organizations—typically international NGOs—that establish the methodologies and verification, validation, and monitoring procedures that VCM activity developers must follow to certify that the activities measurably sequester or avoid GHG emissions.

The Verified Carbon Standard (VCS) is by far the largest standard. As of June 2023, VCS has issued 71.3 percent of the carbon credits in the VCM. The Gold Standard (GS) is the second largest, having issued 16.7 percent of credits. The third, fourth, and fifth largest standards are ACR (6.3% of credits), Climate Action Reserve (CAR – 5.1%), and Plan Vivo (PV – 0.5%).

Carbon credits that are traded in the VCM are generated by projects, bundles of projects, programs, or public policies. A **project** is a specific activity that removes or reduces GHG emissions in a specific sector following a standard-approved methodology. VCM activities are implemented at the project level and, in the case of **REDD+**, at the jurisdictional level. Projects and jurisdictional programs are defined in a geographic location over a period of time and approved, validated,

monitored, and verified by a **carbon standard**.

Some carbon standards allow the aggregation of projects in grouped projects or in programs of activities. ‘**Grouped projects**’ or bundles of activities under the **VCS** aggregate multiple projects engaged in the same activity into a single project. This enables programs that involve a high number of small projects to grow in scale without seeking full new validations from carbon standards for each expansion. A program of activities – as **defined by the Clean Development Mechanism (CDM)** and applied **by the GS** – is a set of multiple project activities registered as a single project activity in a defined geographic area with shared methodologies for project design and monitoring. **Jurisdictional programs**—often developed in the **context of REDD+**—are government-led GHG reduction programs and account for emissions reductions and removals at the national or subnational scale.

In general, projects, programs, and groups of projects or programs can be referred to as “VCM activities” or “climate change mitigation activities.”

Credits generated by VCM activities may be **sold** by project developers or government agencies directly to buyers or sold to intermediaries who then market carbon credits to final users. To **transact carbon credits**, activities need to be designed, developed, and certified; GHG emission reductions and

removals need to be monitored, reported, and verified; and carbon credits need to be issued and transferred. In parallel, VCM activity developers need to attract and structure investment into the activities that reduce or remove emissions. The VCM may be segmented by sector or type of activity (e.g., forestry, land use, agriculture, renewable energy, waste), by the **crediting standard** (e.g., VCS or GS), by the **credit quality** (e.g., credits with community or other benefits), or by the year in which a credit was produced (i.e., the credit vintage).

the American Carbon Registry and now simply ACR), which was the first private registry for voluntary offsets in the United States.

Carbon offsetting under compliance mechanisms then took off with the Kyoto Protocol’s flexible mechanisms— particularly the CDM, which registered its first project in 2004. In parallel, but at a slower pace, the VCM grew. The private **carbon standards** that dominate the VCM today—VCS, GS, ACR, and CAR—emerged in the 2000s. The evolution of the VCM and of the four leading standards is depicted in Figure 1.1.

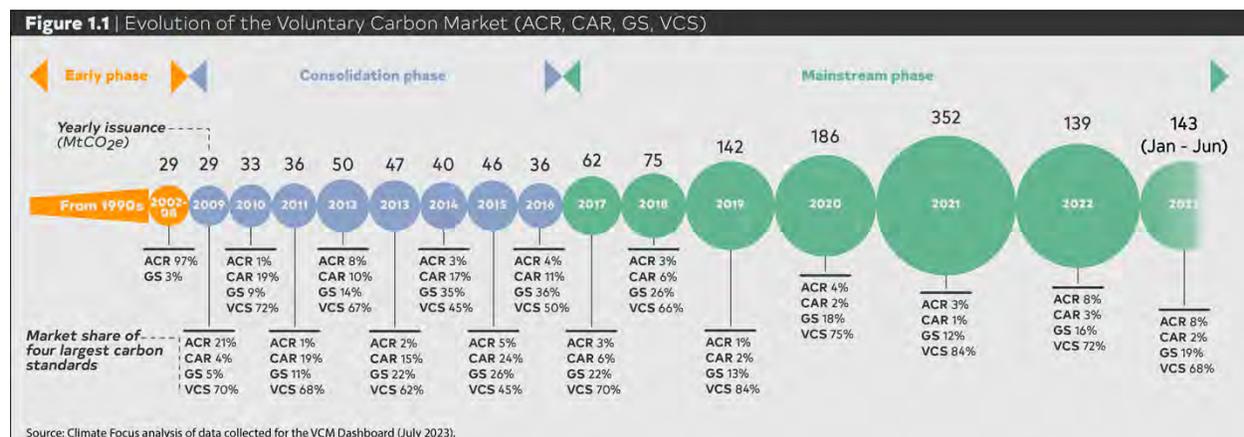
## How did the VCM start?

The idea of private companies offsetting GHG emissions with carbon credits emerged in the late 1980s. The **first known carbon offset deal** was an investment by the American energy company AES in a project run by the NGO CARE in Guatemala, in which AES provided finance for farmers to plant trees. This was followed in the mid-1990s by the launch of the Environmental Resources Trust (later rebranded

## What is the status of the VCM?

The status of the VCM can be understood in terms of growth of the market (Figure 1.1), geography and sector (Figures 1.2 and 1.3), and the volumes of carbon credits transacted and retired (Figure 1.4).

The VCM is growing rapidly in both demand and supply. Growth in supply is evidenced by increases in the issuance of carbon credits and



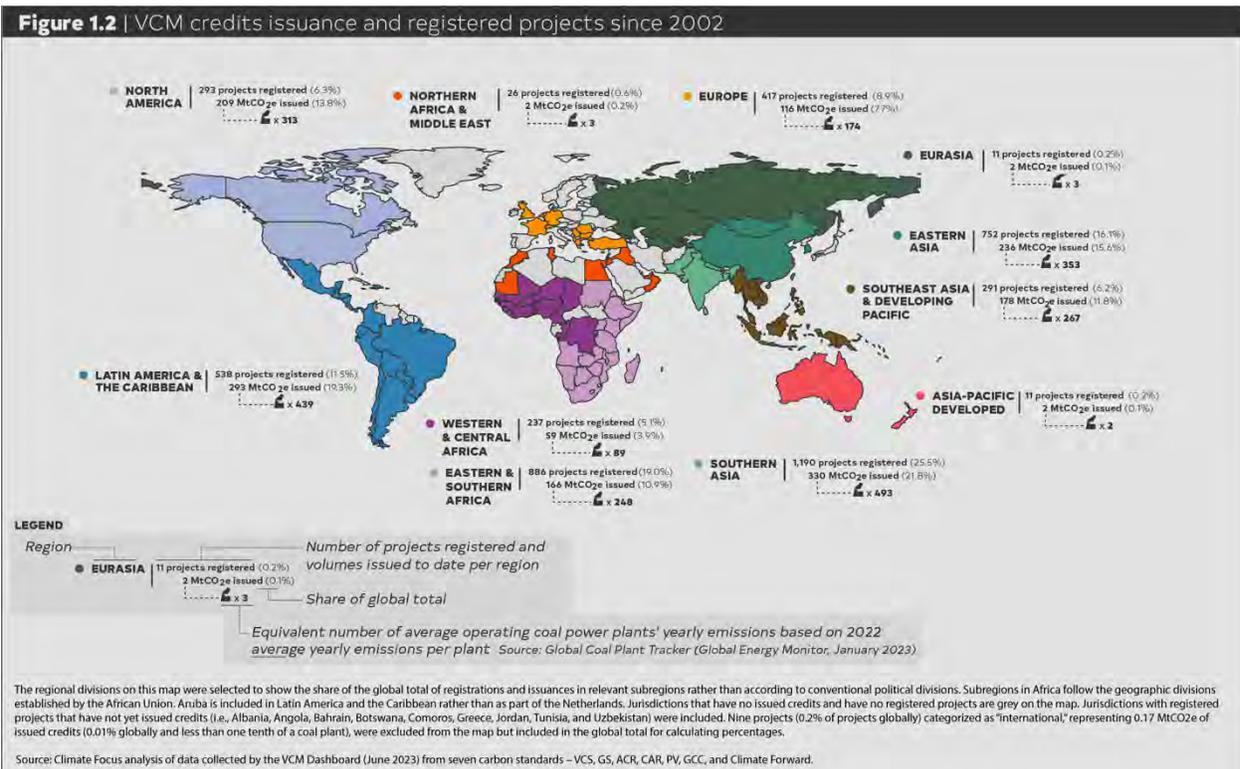
numbers of projects. Growth in demand is evidenced by increases in purchases and retirements (i.e., the use) of carbon credits. Most of the supply of carbon credits is generated in developing countries and most of the demand for carbon credits is in developed countries.

### Supply

VCM issuances reached an all-time high in 2021 with 352 million credits issued. VCM volumes were lower in 2022, with 279 million credits issued, although 2022 was still the second largest year on record for the VCM. The slight decline in 2022 of the supply of VCM credits has been attributed to delays in issuances as carbon standards and auditors were overwhelmed with requests as well as to some governments pausing or halting VCM activities in their countries

while they determine how they will apply **Paris Agreement Article 6 rules**. Concerns relating to the quality of carbon credits, the transparency of the market, and spurious carbon neutral claims have also made potential new market participants reluctant to engage in the VCM at a large scale. However, issuances remain high relative to historical levels and the overall volume of the VCM is expected to continue to grow.

Globally, across all sectors, there are 4,661 VCM activities (projects and programs) that have generated 1,594 MtCO<sub>2</sub>e of GHG emission reductions and removals, which is equivalent to the average yearly emissions produced by about 2,384 coal plants (see Figure 1.2). Much of the supply of carbon credits comes



from low- and middle-income countries.

At the regional level, Southern Asia is the top supplier of carbon credits overall, with many historic credits coming from renewable energy projects. Latin America and the Caribbean is the top supplier of nature-based solutions (NbS) credits. Africa accounts for most of the energy efficiency credits, the majority of which are generated by small-scale cookstove projects. Europe and North America contribute most of the credits from coal mine methane, industrial gases, and carbon capture and storage projects. At the country level, India, China, Brazil, the United States, and Indonesia are the top suppliers of carbon credits.

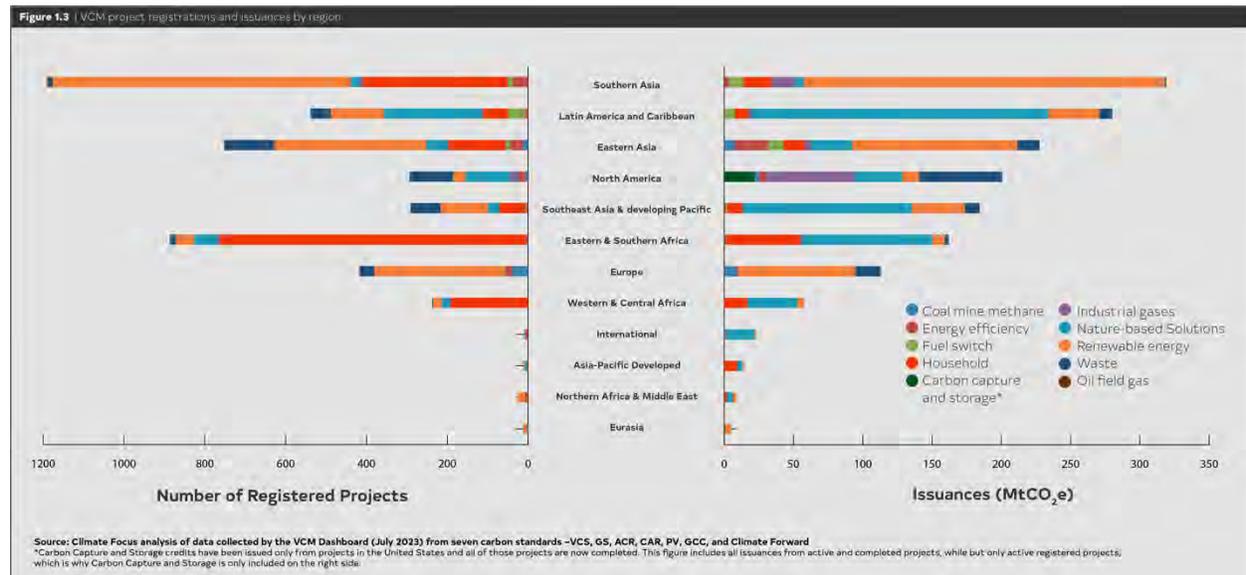
Greater numbers of projects does not necessarily equate to larger issuances of credits. This is shown in Figure 1.3. Southern Asia leads globally in number of projects and volume of credits, but in other regions the number of projects and

volume of credits are not directly correlated. Community forestry, cook stove, or biodigester projects often result in many small projects because these activities are relatively quick to develop and can be added onto existing projects or groups of projects. These projects are often grouped in bundles or programs that are treated as single projects in Figure 1.3 but which could be further divided into individual projects. In contrast, REDD+ projects are often large, and single projects can be responsible for the issuance of large volumes of carbon credits.

The most extreme case is Southeast Asia, where only 5.3 percent of projects are NbS but those deliver 73 percent of the issuances.

### Demand

While the issuance of VCM carbon credits is increasing rapidly, it may not be sufficient to meet demand, especially for increasingly popular credits associated with agriculture,



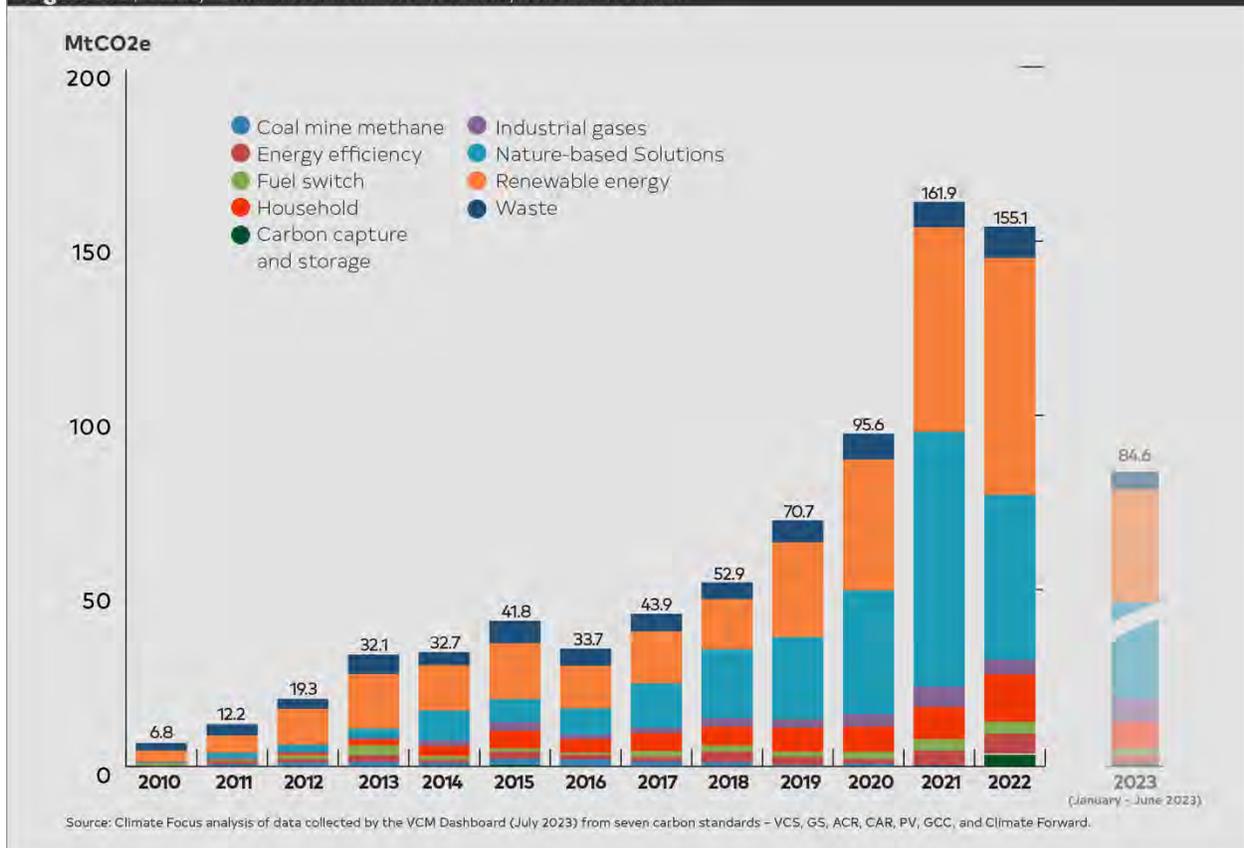
forestry, and other NbS. As the VCM continues to grow, it is likely that more credits from all types of projects will be generated to meet demand and carbon standards will continue to develop more robust methodologies for different types of projects.

The largest share of demand in the VCM comes from private companies that use carbon credits to contribute to their voluntary climate targets or market climate neutral products by offsetting the GHGs emitted by their production and activities. Consumers and public agencies acquire carbon credits to “neutralize” polluting activities such as travel or events. Further demand comes from regulations that allow liable entities

to use VCM credits as compliance assets. Some governments allow companies to use carbon credits to meet obligations under carbon tax or emission trading systems.

One way to show the growing demand for carbon credits in the VCM is through credit retirements. Credits are retired when they are acquired by an end user and put towards offsetting carbon emissions or towards non-offsetting goals. If more credits are retired over time, then it is clear that there is a growing demand for that type of credit. Figure 1.4 shows that the volume of retirements has increased steadily since 2016. VCM retirements reached an all-time high in 2021, with 161.9 million retired.

Figure 1.4 | Yearly volumes of retired voluntary carbon credits



The retirements of credits in the VCM shrunk slightly in 2022 relative to 2021. This has been **attributed** to an overall slowing of the global economy and to uncertainties associated with countries making decisions about Article 6 rules. However, 2022 set the record for second largest volume of retirements in any year, with 155.1 million credits retired. Demand for carbon credits is **expected** to remain high and continue growing.

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### **What are the benefits and limitations of the VCM?**

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The VCM can mobilize foreign direct investment for climate change mitigation and sustainable development that is not provided through regulation. The VCM provides financing for climate mitigation projects that are complementary to governments' efforts to mitigate climate change, and, in the case of jurisdictional REDD+ programs, to government mitigation initiatives. Today, almost all developing countries are seeing increased interest in VCM activities from project developers and carbon credit buyers. If **used strategically**, VCM finance can free up public funds to be re-directed into climate change mitigation goals that are not sufficiently incentivized by carbon finance.

There are two notable limitations of the VCM. First, the robustness of the VCM depends on the rigor that **carbon standards** apply when certifying real and additional

emission reductions and removals. The **quality of credits** varies by the conservativeness of project quantification methods, the extent to which projects address uncertainty, and the inclusion of co-benefits such as contributions to Sustainable Development Goals. The methods applied to appropriately measure and monitor GHG reductions and removals are frequently revised and debated. As methodologies continue to improve, this limitation may be addressed.

The second limitation is that offsetting through the VCM is a supplementary measure that nets out emissions. It does not reduce emissions overall. As long as carbon credits are used solely to offset emissions, the VCM cannot provide a solution to climate change on its own. **Non-offsetting uses** for credits can help to shift the role of the VCM to a mechanism that drives emissions abatement.

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## Acknowledgments

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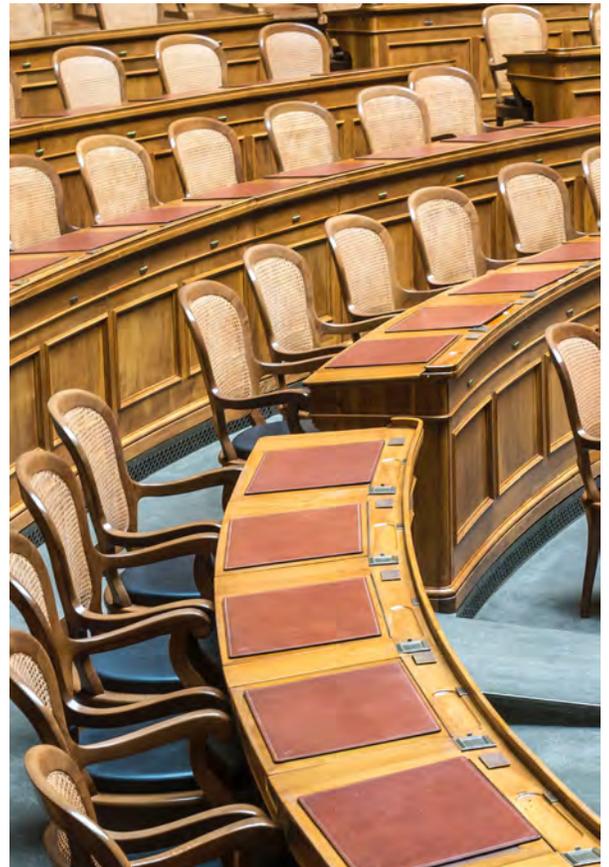
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Date of publication: October 2023

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# The Voluntary Carbon Market Explained

## Chapter 2



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## Chapter 2: What is the role of governments in the VCM?

Governments engage with the voluntary carbon market (VCM) by instituting policies, regulations, and safeguards that influence VCM activities, create enabling environments that facilitate VCM projects or programs, and sponsor VCM projects or programs within their territories.

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### Who regulates the VCM?

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The VCM is governed by private carbon standards that define the rules for the generation, monitoring, and certification of greenhouse gas (GHG) reductions and removals. The private and voluntary characteristics of the VCM distinguish it from regulated carbon crediting programs like the Clean Development Mechanism (CDM), which requires project developers to obtain a letter of approval from a country's Designated National Authority to register a CDM project.

The private character of the VCM makes it nimble and flexible. It allows the VCM to support climate mitigation, biodiversity protection, or sustainable development goals by providing finance for new technologies, **nature-based solutions** (NbS), and other important climate change mitigation activities that are not or not fully covered by public policy. However, like any other investment,

VCM projects can also violate public policies, particularly where activities disregard the rights of local communities, ignore principles of good governance, or fail to align with and complement public sector goals and regulations.

Companies engage in the VCM to reduce and remove GHG emissions beyond public requirements. However, that does not mean that governments do not have a role to play in accelerating, channeling, or regulating VCM investments. Governments can institute policies, regulations, and safeguards to guide the development of VCM projects in their territories and attract beneficial VCM finance. They can create an enabling environment for VCM investments and actively encourage investments in projects or programs that generate carbon credits. They can also directly engage in the development of projects and programs.

Although the VCM is governed by private standards, governments can engage with and benefit from the VCM. Governments engage with the VCM in two main ways: as regulatory authorities in “host countries” where VCM activities take place and as investors in VCM activities. In all cases, governments can provide regulatory and political certainty to VCM transactions by

clarifying the rules of engagement for the VCM.

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## How can governments proactively and strategically engage with the VCM?

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Host countries can **develop strategies** to proactively engage with the VCM. Strategic engagement can attract carbon finance to support national policy priorities and minimize risks from poorly-designed VCM activities. When developing strategies for VCM engagement, host countries should consider their specific finance needs for implementing Nationally Determined Contributions (NDCs) and other national priorities. Once host country governments have clarified their NDC financing needs, they can determine the role for the VCM in delivering this finance. Deciding on the role the VCM can play in financing NDC goals involves identifying climate change mitigation areas that are not or insufficiently covered by public policy and making decisions about offering **corresponding adjustments under Article 6**.

Governments can provide regulatory and political certainty to VCM transactions by specifying the rules of engagement for the VCM in their countries, explicitly stating that they are ready to attract and support project developers and investors, and clarifying relevant rules, regulations, and safeguards. Host country governments can

establish legal and regulatory frameworks to ensure that the VCM is operating in legal certainty and is aligned with public policies.

The VCM also influences public policy and compliance markets, and in some cases, voluntary carbon crediting programs directly interact with government carbon pricing schemes. The carbon pricing policies of **California, Colombia, Germany, South Africa, Thailand**, or the **United Kingdom** are examples of governments harnessing VCM activities to achieve climate goals. In Colombia and South Africa, for example, companies can meet some obligations under national carbon taxes by acquiring carbon credits from domestic VCM projects.

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## What are the roles for governments in the VCM?

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Governments can leverage VCM finance by engaging in the VCM as program regulators, program proponents or facilitators:



**As regulators**, governments can define environmental and social performance standards or safeguards that bind project developers. Stable and predictable policy environments reduce

investment risks and help private investors align their plans with public policies. Efforts to combat corruption, promote the rule of law, recognize the rights of Indigenous Peoples and Local Communities ([IPs&LCs](#)), and clarify land rights and titles facilitate private investment into VCM projects. When governments assign and enforce land and resource rights, they help to clarify **carbon rights**—defined as who holds the right to benefit from GHG emissions reductions and removals—and facilitate **benefit sharing** arrangements.

Government regulation can influence corporate claims with respect to the **use of carbon credits**. Governments encourage the high-integrity use of carbon credits by developing policies such as mandatory sustainability disclosures, refusing advocacy proposals from or concessions to corporates that seek to undermine climate action, and clarifying and enforcing land tenure laws.

Finally, governments can provide clarity on how VCM activities will be considered under country laws and regulations, including for **corresponding adjustments under Article 6** of the Paris Agreement. While some buyers are expecting corresponding adjustments on VCM credits, the availability of corresponding adjustments depends on VCM host countries' political will and technical abilities. Governments can reduce uncertainty by making public

statements about whether, and under which circumstances, they are likely to provide corresponding adjustments for VCM transactions. These statements can be conditional upon the government's technical ability to make corresponding adjustments. Governments may also limit corresponding adjustments to the parts of the NDCs that are conditional on climate finance, more expensive mitigation options or offer corresponding adjustments on the condition that they will receive financial benefits from the sale of carbon credits in return.



**As program proponents,** governments can sponsor VCM projects and programs. In some countries, public agencies—such as national park authorities (e.g., in the case of forestry projects) or municipalities (e.g., in the case of waste management projects) — act as project proponents and use carbon finance to support public investments. For example, in Guatemala, the national park authority acts as a proponent in the **GuateCarbon project** by granting land-use rights to communities and private organizations who carry out sustainable forest harvesting and help to monitor the reserve.

The **Daegu City Municipal Waste Project** in the Republic of South Korea is an example of a municipality acting as a project proponent and the **Weatherization for Low-Income Dwellings** project in the U.S. State of Maine is an example of subnational government acting as a project proponent. Governments can also support large-scale territorial programs in the form of jurisdictional Reducing Emissions from Deforestation and Degradation Plus (**REDD+**) programs that generate GHG emission reductions or removals across landscapes. If such programs are accredited under a VCM **carbon standard**, then governments can generate and sell program-level credits in the VCM. Jurisdictional programs allow governments to align public policies with REDD+ goals and access carbon finance directly. **REDD+** also offers jurisdictional crediting options that require governments to be the proponents of such programs. Governments can adopt **nesting rules** that allow the integration of projects and subnational programs into national REDD+ programs.



**As facilitators**, governments can attract and direct VCM finance. The way that governments communicate about the VCM and engage with VCM actors influences overall confidence in the VCM, and encourages or discourages the development of VCM projects. By encouraging the development of domestic VCM projects, governments can use the VCM to drive investment in climate change mitigation activities that are underfinanced, such as clean cooking, developing decentralized energy supplies, or agroforestry and other **NbS**.

Governments can direct financial flows from the VCM to the sectors or policy priorities where finance is needed most by defining criteria for engagement and by recognizing VCM standards, methodologies, or protocols for particular sectors. This, together with publication of information and data, enhances the transparency and efficiency of the market. In addition, governments can maintain registries to track and monitor carbon credits and projects, simultaneously demonstrating their support for the VCM and increasing transparency of VCM-related activities in their countries.

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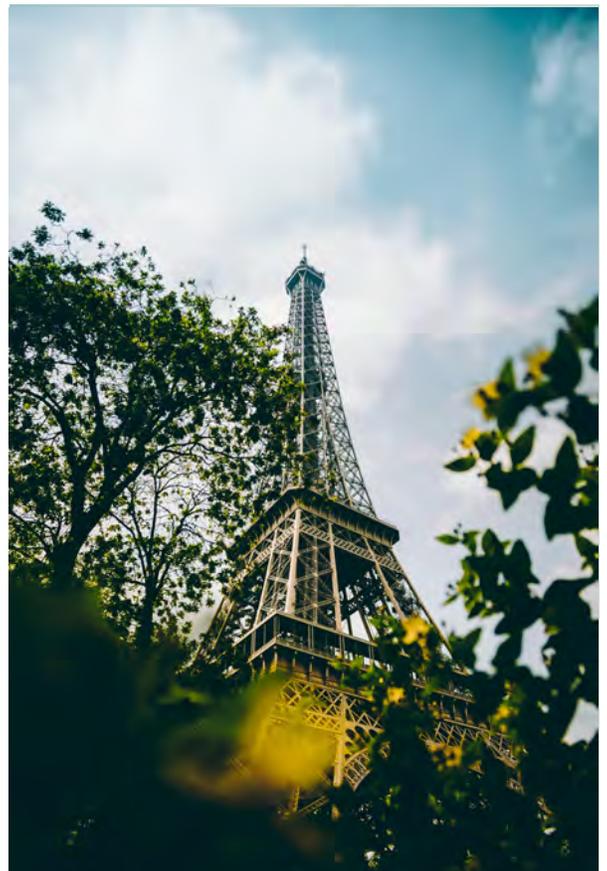
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# The Voluntary Carbon Market Explained

**Chapter 3**



## Chapter 3: How does the voluntary carbon market link to the Paris Agreement and Article 6?

The crediting of greenhouse gas (GHG) emission reductions and removals in the voluntary carbon market (VCM) is governed by private **carbon standards**. National regulatory bodies can define rules for VCM activities, but they are not involved in the certification of GHG emission reductions and removals or the issuance of **carbon credits**. VCM activities can support countries in achieving their commitments under the Paris Agreement.

To avoid double claiming of GHG emission reductions and removals, some market actors seek approval of VCM activities under Article 6 of the Paris Agreement. In that case, VCM activities need to comply with the Paris Agreement Article 6 rules that are being developed by the United Nations Framework Convention on Climate Change (UNFCCC).

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### What is Article 6 of the Paris Agreement?

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Article 6 of the Paris Agreement provides flexibility to governments to engage in voluntary cooperation in the implementation of Nationally Determined Contributions (NDCs) “to allow for higher ambition in their mitigation and adaptation actions” (**Article 6.1**

**Paris Agreement**). This includes engaging with the VCM. The rules that govern this voluntary cooperation open the door to carbon market transactions under the Paris Agreement that may overlap, integrate, or, in the case of Article 6.4, compete with VCM activities. Article 6.2 of the Paris Agreement provides modalities and guidance to ensure that activities that transfer GHG emission reductions and removals (‘mitigation outcomes’) do not result in the double counting of GHG emission reductions and removals under more than one NDC. A host country can authorize the use of GHG emission reductions and removals generated by a VCM activity towards the NDC of another country, other international mitigation, or other purposes. In this case the activity will need to comply with the Paris Agreement Article 6.2 implementation guidance. GHG emission reductions and removals can also be authorized to count towards the NDC of another country, other international mitigation commitments or other purposes. In that case, the country where the mitigation action took place (the “host country”) needs to ensure that the authorized GHG emission reductions and removals are not counted towards its own NDC.

Article 6.4 of the Paris Agreement defines a mechanism that can be understood as a revised, modified and ‘improved’ version of the Clean Development Mechanism (CDM). The rules and modalities that govern Article 6.4 mechanism are still being developed. Once they are operational, the Article 6.4 supervisory body will register projects, and countries will be able to approve and authorize activities under Article 6.4. It is unlikely that VCM activities will seek approval under Article 6.4. Instead, Article 6.4 directly competes with standards that offer the certification of VCM projects. Companies may choose to invest in activities approved under Article 6 rather than in VCM carbon credits.

The results of activities that remove or reduce GHG emissions are referred to as “mitigation outcomes” under Article 6.2 and as “emission reductions and removals” under Article 6.4 (abbreviated as Art.6.4ERs).

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### **How do the VCM and Article 6 interact?**

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There are a range of different ways that the VCM and Article 6 may interact. Host countries may choose to integrate current and future VCM activities into an Article 6.2 program. Private actors may invest in cooperative approaches that are guided by governments’ Article 6.2 programs. Governments may take an active role in defining which VCM activities will be authorized

under Article 6.2 and steering VCM investments. Or, governments may choose not to link VCM activities to Article 6 and only provide minimal guidelines that ensure VCM activities are aligned with country priorities.

The paragraph of Article 6 that is most relevant to the VCM is Article 6.2. Under Article 6.2, GHG emission reductions or removals can be transferred between countries as Internationally Transferable Mitigation Outcomes (ITMOs). Transactions under Article 6.2 are referred to as “cooperative approaches.” To be transferred, ITMOs must be authorized by the host country. A country may authorize ITMOs i) for use towards an NDC, ii) for “international mitigation purposes” other than NDC achievement (e.g., to comply with the Carbon Offsetting and Reduction Scheme for International Aviation—CORSIA, see Box 3.1), or iii) for “other purposes.” Authorization for “other purposes” is not defined, but generally understood to refer to the use of ITMOs towards corporate and other voluntary climate commitments.

Article 6.2 implementation guidelines require “corresponding adjustments” for all authorized mitigation outcomes—that is, for all ITMOs. A corresponding adjustment is applied to balance the accounting under the Paris Agreement: an emission reduction is removed from the accounts of the selling country and added to the accounts of the buying country.

Corresponding adjustments ensure that governments reporting under the Paris Agreement meet good accounting principles and that no

GHG reduction or removal is accounted for twice. Figure 3.1 shows a corresponding adjustment between two countries.

**Box 3.1: CORSIA, a special case for corresponding adjustments**

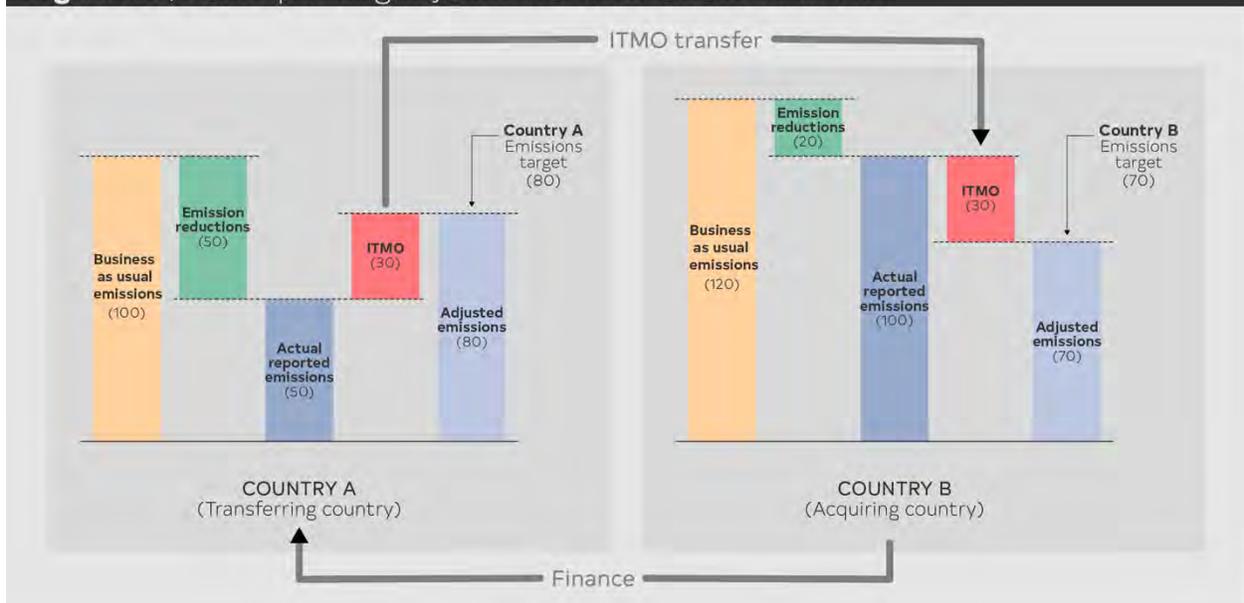
The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), adopted by the International Civil Aviation Organization (ICAO) in 2016, is a short-to-medium-term strategy (2021-2035) for the aviation industry to achieve carbon neutrality through offsetting while low-emission aviation technology is being scaled up. CORSIA is a compliance mechanism that allows the use of VCM carbon credits to meet compliance obligations. CORSIA covers flights from all countries that have volunteered to participate until 2027, at which point about 90% of flights will be covered, excepting only those from Least Developed Countries and Small Island Developing States. To ensure the environmental integrity of offsets used for compliance, CORSIA requires corresponding adjustments for VCM transactions and credits are restricted to those from GHG emission reduction or removal activities approved by the ICAO council.

**Do VCM activities need Article 6 authorization and corresponding adjustments?**

VCM activities do not require Article 6 authorization or corresponding

adjustments. A part of the VCM is likely to continue to operate without any reference to or inclusion in Article 6 mechanisms. However, governments and VCM participants may wish to include some VCM activities under Article 6.

**Figure 3.1 | Corresponding adjustment between two countries**



In some cases, buyers are indicating a preference for credits that have corresponding adjustments. This means that Article 6.2 rules are impacting the VCM.

The VCM and Article 6 will coexist in a variety of modalities (Figure 3.2). This is positive, as different countries will need different approaches depending on their context and priorities.

Host countries have control over whether the GHG emission reductions and removals that are achieved by VCM activities will be authorized as ITMOs or counted towards their NDCs. Countries can decide if all, none, or some VCM activities will be authorized as ITMOs under Article 6.2. If a host country does not authorize VCM credits to be traded as ITMOs, then it can count those VCM GHG emission reductions and removals towards its own NDCs. Mitigation outcomes and Art.6.4ERs without authorization may also be applied to results-based payment schemes,

national carbon pricing systems, or VCM transactions.

Figure 3.3 shows how VCM and Article 6 transactions work under the Article 6 rules. Transactions of mitigation outcomes under Article 6.2, Art.6.4ERs, and VCM credits may be authorized—requiring corresponding adjustments—and then be transacted as ITMOs for use toward NDCs, CORSIA compliance, and voluntary transactions. Not authorized outcomes, emission reductions, or credits do not require corresponding adjustments and may be used toward “other purposes” determined by the host country, which may include voluntary transactions, domestic schemes, and results-based finance (RBF) schemes.

Most countries have yet to decide whether and when they will transfer ITMOs. They also have yet to develop the institutional and regulatory requirements they need to host or participate in Article 6 activities. Host countries may offer to include VCM activities under

**Figure 3.2** | Different modalities of the VCM and Article 6 coexistence



Article 6.2 cooperative approaches or approve VCM activities under Article 6.4. In those cases, some of the resulting GHG emission reductions or removals may be authorized corresponding adjustments and host countries and VCM activity developers will need to ensure that activities comply with the Article 6 rules to generate ITMOs.

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### **How can the VCM support achieving and exceeding NDCs?**

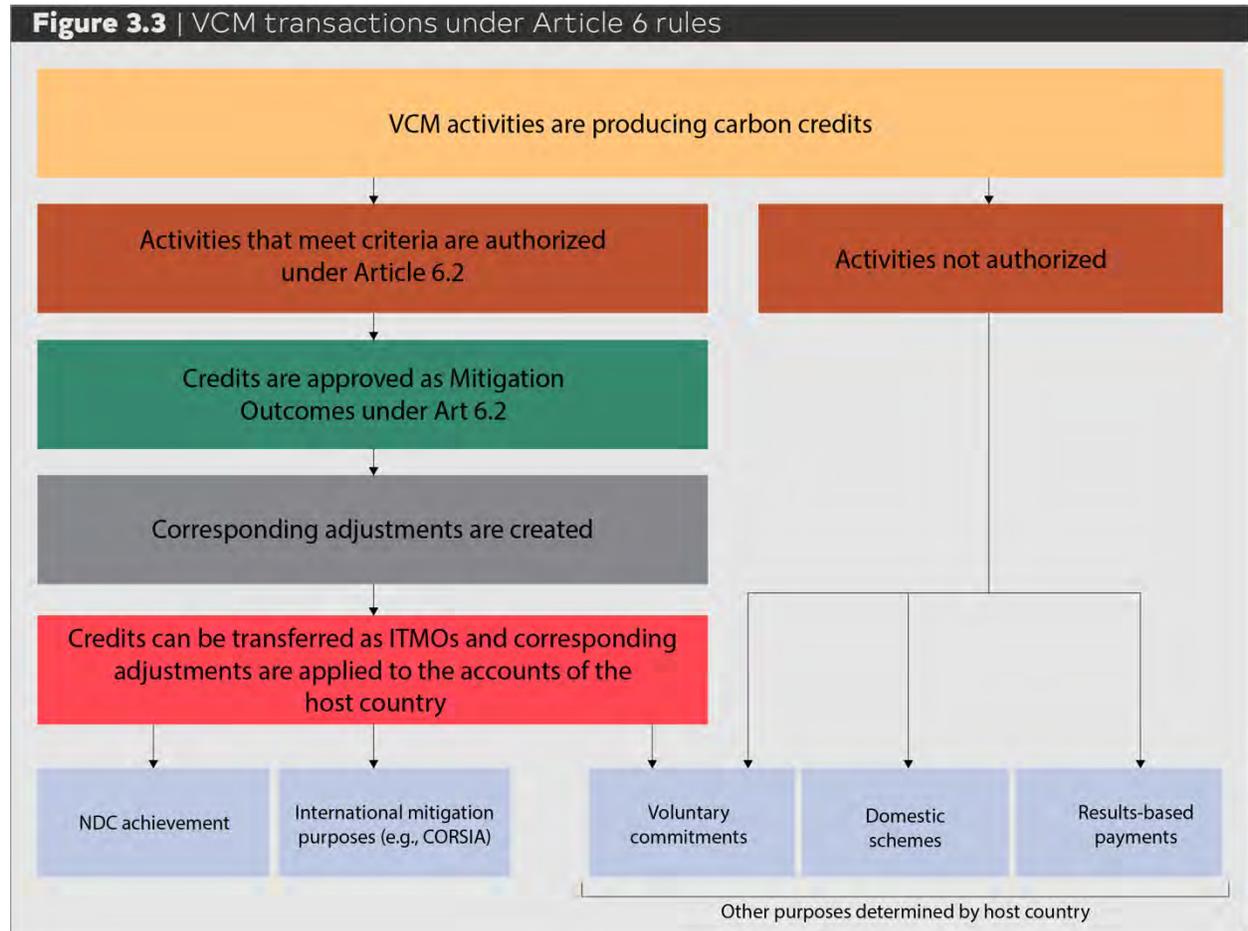
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To mobilize the full mitigation potential of the VCM, it is important to establish a common understanding of when and how VCM activities that generate carbon credits contribute to host countries' NDCs. How and to what extent VCM activities support national climate goals depends on the type of VCM activity, whether the activity is in a sector that is covered by host countries' NDC targets, whether those targets are conditional or unconditional, whether the activity is in an activity type or sector that the country is authorizing under Article 6 for corresponding adjustments, and whether the right to claim associated climate benefits is traded out of the country along with the carbon credits.

Governments can proactively encourage VCM activities that are complementary to public action. They can clarify how VCM and Article 6 activities complement

public policies and specifically identify sectors in which VCM investments are welcome. VCM activities can also continue to attract investments while governments establish the institutions and regulations necessary to operationalize Article 6 activities and authorize or approve VCM activities under Article 6.2 or 6.4. Governments can clarify how they will define "other purposes," which types of VCM activities they will authorize under Article 6 to be backed by corresponding adjustments, and which activities they will approve but not authorize under Article 6.4. Governments can encourage investments in activities in priority sectors where government regulation is not expected to be sufficient to incentivize behavior change or where mitigation benefits are expected to be technically complicated or costly to achieve.

VCM activities can complement public efforts by generating carbon finance that allows countries to meet NDC targets. The host country could offer Article 6.2 authorizations for GHG emission reductions and removals generated by VCM activities under its conditional NDC targets. When VCM activities are developed in sectors, for activities, or for types of GHGs that are either covered by the conditional NDCs or not covered by NDCs at all, the finance from the sale of these carbon credits may be able to support host countries in achieving additional mitigation benefits.



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### Acknowledgments

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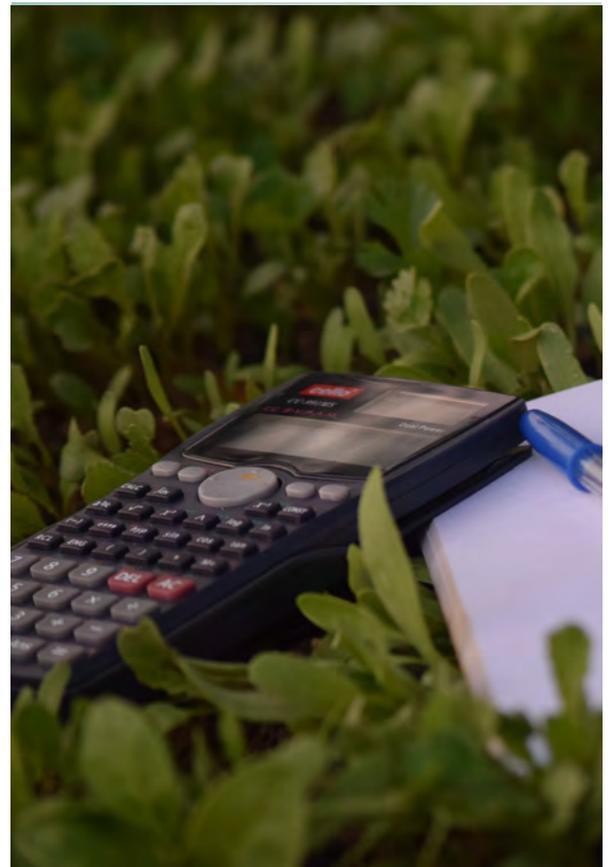
Contributors: Leo Mongendre, Laura Carolina Sepúlveda, and Theda Vetter

Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

# The Voluntary Carbon Market Explained

## Chapter 4



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## Chapter 4: How are greenhouse gas reductions and removals accounted for in the voluntary carbon market?

Transparent and conservative greenhouse gas (GHG) accounting is essential to ensure the credibility of voluntary carbon market (VCM) activities. Robust GHG accounting follows common principles and is supported by credible and robust **carbon standards**. GHG emission reductions and removals from VCM activities are accounted for at the activity level and **used** to meet climate (e.g., net zero or carbon neutrality) targets of companies. Governments that engage in jurisdictional programs in the context of Reducing Emissions from Deforestation and Degradation Plus (**REDD+**) account for GHG emission reductions and removals associated with land use change in a certain geographical area.

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### How do different actors account for greenhouse gas emissions?

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The sponsors and developers of VCM activities account for GHG emission reductions and removals achieved by VCM activities to generate tradable **carbon credits**. Corporates monitor and report their GHG emissions and account for reductions to comply with reporting requirements and meet mandatory or voluntary climate goals. Governments account for

GHG emissions and removals to monitor progress toward Nationally Determined Contributions (NDCs) under the Paris Agreement and toward national climate change mitigation goals. In alignment with their different goals, project and program managers, corporates and governments apply different accounting approaches to track GHG emissions.



**VCM activity developers account for the climate benefits at the project or program level.** They apply methodologies provided by **carbon standards** for different VCM activity types. Methodologies describe how VCM activities measure, report and verify GHG emission reductions and removals. GHG emissions, reductions, or removals from VCM activities are monitored according to GHG protocols and verified by third-party auditors. Based on verification reports, **carbon standards** or GHG crediting program managers issue carbon credits in VCM registries.



**Corporates account for the GHG emissions linked to their operations.** This includes direct emissions (Scope 1), emissions from energy consumption (Scope 2), and emissions from supply chains and consumption of products globally (Scope 3). Corporate accounting assigns responsibility for GHG emissions based on activities and actors, rather than geographical areas. When consolidating GHG emissions accounts across corporate operations that may be jointly owned or managed, emissions are allocated according to equity shares or assessments of financial or operational control. Corporates have multiple GHG reporting obligations. In addition, they often have climate targets and count emission reductions and removals against those targets. Non-governmental organizations (NGOs) support these efforts by publishing harmonized GHG accounting standards (e.g., **the GHG Protocol**) or by defining and monitoring high-quality climate targets for companies (e.g., **the Science-based Targets Initiative**).



**Governments account for GHG emissions, reductions, and removals that occur on their territory.** Governments capture emissions in GHG inventories and report these under United Nations Framework Convention on Climate Change (UNFCCC). Developed countries annually report direct GHG emissions, reductions, and removals in five sectors: energy; industrial processes and product use; agriculture; land use, land-use change and forestry; and waste. Developing countries report GHG emissions, reductions, and removals through national communications (NCs) and biennial update reports (BURs). NCs are submitted every four years and provide information about GHG inventories, mitigation and adaptation measures, and other activities that governments consider relevant to the achievement of the objectives of the UNFCCC. BURs provide updates of the information presented in national communications, particularly on GHG inventories; mitigation actions, constraints, and gaps; and support needed and received. All countries also report progress towards their NDCs under the **Enhanced Transparency Framework of the Paris Agreement**. This includes

accounting for emission reductions or removals that are transferred between countries under **Article 6 of the Paris Agreement**.

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### What is double counting?

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The risk of double counting exists:

- 1) If the same emission reduction or removal is counted at least twice under the same accounting framework
- 2) If the same GHG emission reduction and removal is counted at least twice under two different accounting frameworks

The different goals, scopes, and scales of accounting lead to overlapping GHG measurement and reporting, which can lead to the double counting of emissions reductions or removals. Double counting occurs when a single emission reduction or removal is counted towards more than one goal, target, or pledge. Double counting can occur between different accounting systems (e.g., corporate accounting overlaps with government accounting) or within a system (e.g., different GHG projects under the same GHG crediting program account for the same GHG emission reduction more than once.) Generally, **carbon standards** have protocols in place to avoid the double counting of GHG emission reductions or removals within accounting systems. Double counting between accounting systems is more complex, and

consequently, more controversial and difficult to manage.

There are three types of double counting (as depicted in Figure 4.1):

**Double issuance** occurs under the VCM when more than one credit is issued for a single ton of GHG emission reductions or removals. The risk of double issuance is addressed through robust carbon credit certification and issuance processes.

**Double use** occurs when a single, certified GHG emission reduction or removal is used more than once to meet a climate target in the same GHG accounting system. The risk of double use is addressed through **adjustment rules**, transparent disclosure, and reporting of GHG reductions and removals in GHG registries. For example, corresponding adjustments avoid double use of transferred GHG emission reductions and removals by governments to meet their NDCs under the Paris Agreement.

**Double claiming** occurs when a single carbon credit—representing one ton of GHG emission reduction or removal—is claimed against different types of climate goals in different accounting systems. This can happen, for example, when a company claims a carbon credit towards its (voluntary or binding) emission reduction goal, while the same credit is claimed towards the NDC target of a country. The risk of double claiming is currently not

managed by existing methodologies or registries.

## What are the risks of double claiming?

While other forms of double counting are managed by carbon standards' rules, double claiming of GHG emission reductions and removals between corporates and VCM host countries poses a risk. There are arguments that double claiming is a problem and arguments that it is not.

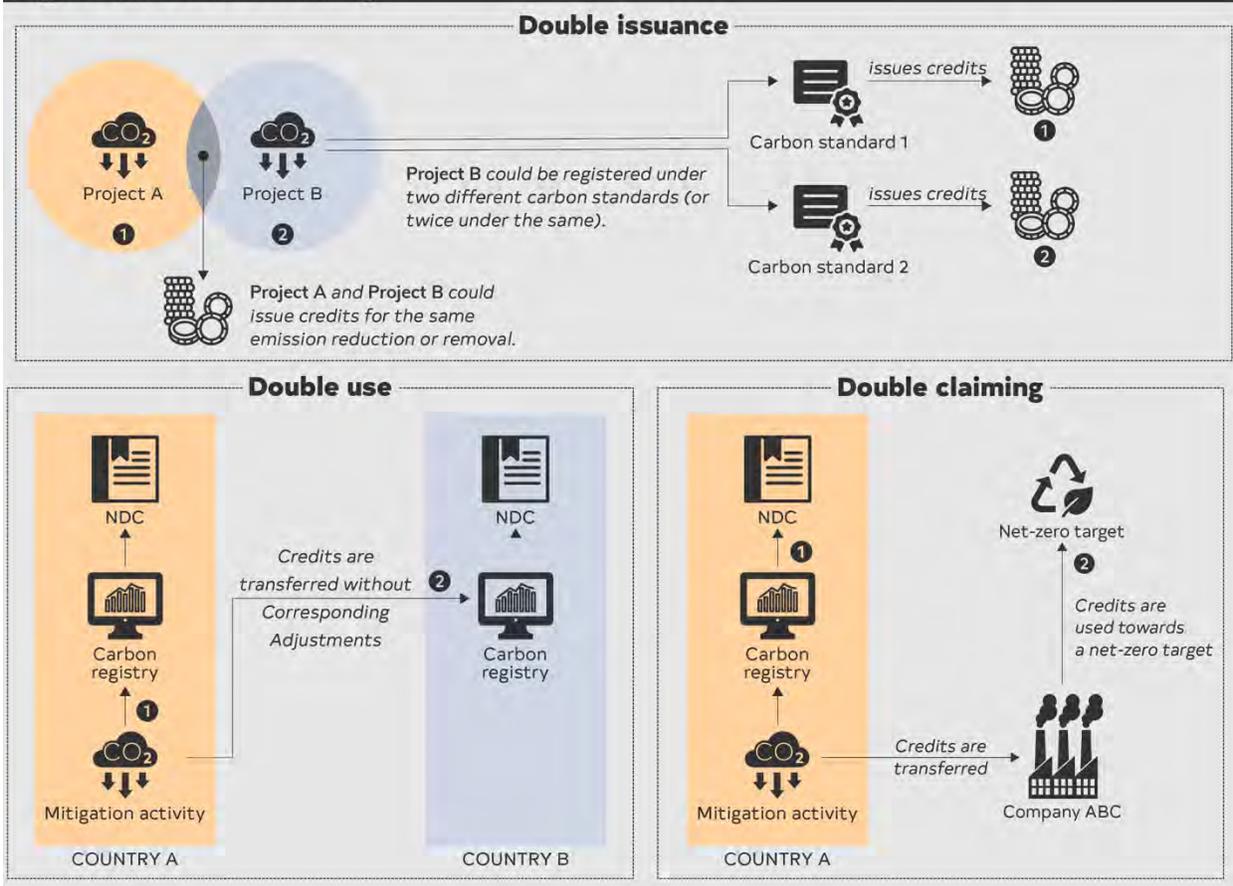
Some NGOs and governments argue that double claiming is a problem. They emphasize that double claiming may displace

corporate or government mitigation action, resulting in less mitigation than what would be expected from merely looking at the respective achievement of corporate and NDC targets.

Where carbon credits are used to offset emissions, the risk of double claiming of GHG emission reductions and removals could undermine mitigation efforts. They argue that companies should not be able to offset their emissions through carbon credits that are also claimed under the NDCs of host countries.

Other NGOs and governments, as well as other market participants, argue that double claiming is not a

**Figure 4.1** | Double counting



problem. They point out that since companies' climate targets and countries' NDCs are accounted for in separate, parallel accounting systems, double claiming does not result in the misrepresentation of the climate benefits being generated at a global level. They also argue that the VCM mobilizes additional mitigation in the Global South and that investments in the VCM are not necessarily linked to budgets that support corporate mitigation action. Voluntary action should contribute to host country NDCs in the form of climate finance and not result in adjusting the accounts of the host country. Since **corresponding adjustments** require complex accounting procedures and institutional requirements, they argue that such adjustments would disincentivize investments in mitigation action.

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### How can double claiming under the VCM be addressed?

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Proposals on how to address double claiming have been made on both the supply and the demand sides of the VCM.

Double claiming could be addressed on the supply side of the VCM if host countries authorize VCM carbon credits to be traded as Internationally Transferred Mitigation Outcomes (ITMOs) with **corresponding adjustments**. Corresponding adjustments would ensure that when VCM credits are transferred internationally, the GHG

emission reductions or removals associated with those credits would be subtracted from the NDC accounts of the host country. A drawback of applying corresponding adjustments to the VCM is the bureaucratic and technical complexity involved. Many governments may not have the capacity to offer corresponding adjustments now, although some may be willing and able to do so in the future.

Double claiming can be addressed on the demand side of the VCM by defining corporate claims that do not involve offsetting. In this case, the right to claim the climate benefit associated with a VCM activity or carbon credit does not include the right to offset company emissions. A drawback of this approach is that the business case of the **non-offset uses** of carbon credits has so far not resonated as strongly with corporate buyers as offsetting emissions, which allows companies to claim to be carbon neutral, a claim that is widely recognized by consumers. Governments can help address this drawback by working with companies to recognize the non-offset use of carbon credits and promoting public awareness of non-offset benefits. Private and public-private initiatives such as the **VCM Integrity Initiative** and the **Science-based Targets Initiative** are providing guidance on the claims corporates can make with VCM credits for offsetting and non-offsetting purposes.

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## Chapter 5



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## Chapter 5: What are carbon credits?

A carbon credit is a tradable unit that represents one ton of greenhouse gas (GHG) emission reductions or removals. Carbon credits in the voluntary carbon market (VCM) are generated by mitigation activities that are certified by [carbon standards](#). The credits are purchased by companies, individuals, and other entities to offset GHG emissions or otherwise contribute to GHG emissions abatement. The prices of carbon credits are determined by the types and [quality](#) of VCM activities and the demand for credits from those activities.

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### What does a VCM carbon credit represent?

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Each carbon credit that is generated in the VCM represents one ton of GHG emissions that was not emitted to or was removed from the atmosphere. [Carbon standards](#) issue one credit for each metric ton of GHG emissions avoided, reduced, or removed. To enable standardized accounting, GHG emission reductions and removals are measured in carbon dioxide equivalent (CO<sub>2</sub>e) units, often expressed in tons (t) of CO<sub>2</sub>e, abbreviated as tCO<sub>2</sub>e. In this way, carbon standards convert certified GHG emission reductions and removals into tradable carbon credits.

Through carbon credits, the VCM provides incentives to private and public actors to contribute to climate action. Sellers generate voluntary carbon credits to finance activities that reduce the emission of GHGs into the atmosphere or remove GHGs from the atmosphere. Buyers [use VCM carbon credits](#) to offset their GHG emissions to meet a voluntary or compliance emission reduction target, or to contribute to broader corporate or public climate goals without offsetting emissions. The [prices](#) of carbon credits are influenced by the demand from corporate buyers and the perceived quality of the credit.

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### What is a carbon credit legally?

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Carbon credits represent GHG emission reductions or removals verified and issued in accordance with the rules of a [carbon standard](#). Carbon standards are managed by non-government organizations (NGOs), which certify and track credits and the activities that generate them. Carbon standards organizations are private and operate independently from legislation. Carbon credits are sold, transferred, and purchased by private and public actors in the context of voluntary commitments—not because they are complying with regulations.

The concept of carbon rights was developed to determine who can claim a beneficial interest in a GHG emission reduction or removal. **Carbon rights** define the underlying entitlement to benefit from GHG emission reductions or removals associated with an asset (e.g., land or forest) or activity (e.g., a VCM project). Those who hold carbon rights can engage in the generation of carbon credits, transact carbon credits, and claim the proceeds from the sale of carbon credits. Holders of carbon rights also expect to be considered in **benefit sharing agreements**. Host countries can avoid disputes about carbon rights by clarifying land tenure rights, establishing rules for benefit sharing and consultation, and specifying tax and accounting requirements for carbon credits.

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### **How are carbon credits generated?**

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To generate carbon credits, VCM activity developers design and develop activities that remove or avoid the emission of GHGs according to the requirements set by **carbon standards**. Carbon standards provide methodologies and protocols for how VCM activities can account for emission reductions or removals. Carbon standards have consultation, monitoring, verification, and validation requirements to issue carbon credits. The developer may also need to consult with

governments that have jurisdiction where the activity is taking place and Indigenous Peoples or local communities (**IPs&LCs**) who could be impacted by the activity.

Once an activity is developed, the GHG emission reductions and removals, as well as other social or environmental impacts, need to be monitored and reported by the developer and verified by an independent third party accredited by a carbon standard. The carbon standard will issue carbon credits based on the resulting monitoring, validation, and verification reports. Carbon credits are issued in the GHG registry of the certifying carbon standard.

In all carbon standard methodologies, calculating baselines and demonstrating additionality are fundamental to generating carbon credits.

#### **Baselines**

Carbon standards issue carbon credits using baseline-and-credit systems (see Box 5.1 below) that compare actual GHG emissions to baseline emissions. Baseline emissions are the GHGs that would have been emitted to or not removed from the atmosphere had the VCM activity not been implemented. Baselines are expressed in tCO<sub>2</sub>e per year for a period of a number of years – the crediting period. GHG emissions, reductions, and removals in a defined results period are compared against the GHG emissions in the crediting period.

This comparison accounts for the differences between actual GHG emissions, reductions, or removals and the counterfactual emissions that would have occurred in absence of the VCM activity.

Carbon standard methodologies and protocols explain how to calculate baselines. Different types of VCM activities have distinct approaches for setting baselines. In the case of energy and landfill-gas activities, baselines may be set based on expected project performance, sampling of fixed parameters, or other monitoring over the crediting period. In the case of land and forest activities, baselines are set based on the difference in GHG emission reductions or removals achieved by the VCM activity relative to a counterfactual business-as-usual reference scenario. In the context of [jurisdictional programs](#) for reducing emissions from deforestation and forest degradation (REDD+), baselines are called ‘forest emissions reference levels’ or just ‘reference levels.’ Jurisdictional reference levels are based on business- as-usual emissions or defined as the historic level of emissions over a defined period.

### **Additionality**

To generate carbon credits, VCM activity developers must demonstrate that the activities supported by carbon finance are additional. An activity is additional if the GHG emission reductions or removals it achieves would not have occurred in the absence of the VCM activity. Carbon standards require that VCM activities pass additionality tests. Additionality tests show that laws, economic trends, or local land use or energy practices would not have led to the same GHG emissions reductions or removals that the VCM activity achieved.

In most cases, additionality is understood as financial additionality. Financial additionality means that emission reductions or removals would not have occurred without the carbon finance provided by a VCM activity. In some cases, a case for technological additionality can be made. Technological additionality means that emission reductions or removals would not have occurred without equipment or infrastructure provided by a VCM activity. In the case of jurisdictional REDD+, additionality must be linked to governance and policy reforms.

**Box 5.1: Baseline-and-credit systems vs. cap-and-trade systems**

Tradable carbon units are either carbon credits generated through baseline-and-credit systems, or emissions permits allocated under cap-and-trade systems. Most compliance GHG emission trading systems are regulated cap-and-trade systems while the VCM is organized as a baseline-and-credit system. The table below provides an overview of the most important differences between baseline-and-credit and cap-and-trade systems.

<b>Feature/ Mechanism</b>	<b>Baseline-and-credit</b>	<b>Cap-and-trade</b>
Traded commodity	Credits: climate benefits (i.e., GHG emission reductions and removals) that exceed an established baseline.	Allowances: tradable permits to emit GHGs.
Quantity of commodity available	No limit on how many climate benefits can be generated below an established baseline.	Limited and determined by the overall cap, which is set by regulators.
Emission sources covered	Those approved by standards and for which accounting methodologies are available.	Emissions from sources and installations that are identified by law.
Emissions impact	The emissions impact of baseline-and-credit systems depends on the use of carbon credits by corporates, governments, and civil society in the context of credible mitigation strategies. The emissions impact of the trade in credits is neutral when credits are used to offset emissions. Trade in credits may lead to a decrease in overall emissions if the credits are bought for non-offsetting purposes.	The emissions impact of the trade in allowances is neutral when allowances are used as permits to offset emissions. The emissions impact of the entire cap-and-trade system depends on a tightening of the emissions cap over time.

**Figure 5.1** | Example of a baseline-and-credit system

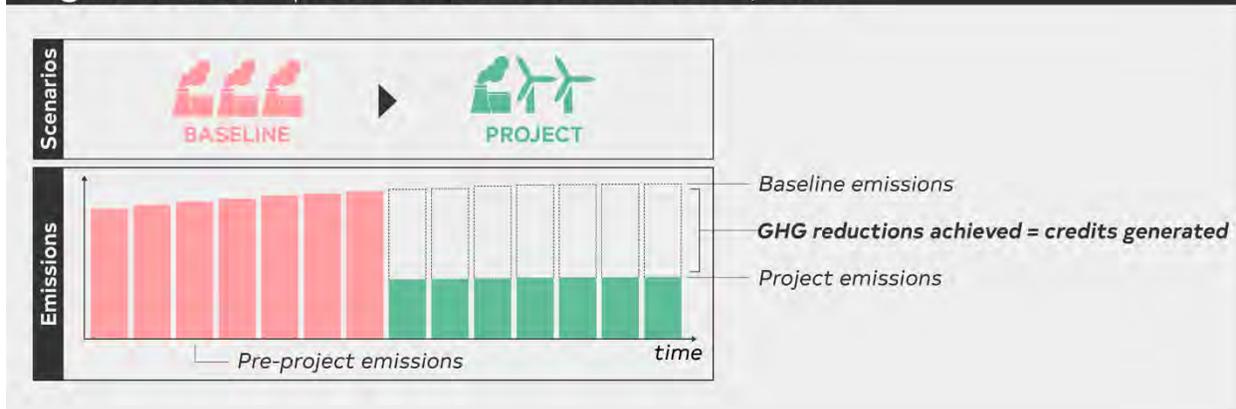


Figure 5.1 shows an example of a project in which transitioning from conventional power plant to wind power generation results in the achievement of emissions reductions relative to the baseline power plant emissions that would have occurred without the project.

## How does public policy relate to the generation of carbon credits?

National [policies, laws, and regulations](#) must be taken into account when testing additionality and developing baselines. For example, if regulation requires certain emission reductions—and there is enforcement of those regulations—then VCM activities that seek to provide incentives for those same practices would not be additional, as the regulated emission reductions would have likely taken place in the absence of the VCM activities. In the case of [jurisdictional programs](#), some standards require governments to show that ‘additional’ policies and measures have been adopted to achieve GHG emission reductions

and removals below jurisdictional reference levels.

VCM activities are filling the gap to implement mitigation activities that are not (yet) required by regulation or financially supported by the host country and do not provide competing incentives to private actors. In many countries, a large policy implementation gap exists. Policies may be announced but may not be legally formalized for a long time. Further, countries face significant enforcement challenges, and many legal requirements exist on paper only. It is often challenging to decide whether a particular VCM activity meets the requirement of (regulatory) additionality in this case.

Under the [Paris Agreement](#), all countries have the obligation to develop increasingly

comprehensive and ambitious Nationally Determined Contributions (NDCs) that inform national climate targets and plans. This presents an essential challenge for the VCM because additionality may need to consider the host country's NDC. However, NDCs are often aspirational statements that are not backed by concrete policies and implementation plans. NDCs are also often conditional on additional financing. NDCs that are not being implemented may not need to be considered in VCM baselines or additionality tests.

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## Acknowledgments

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Date of publication: October 2023

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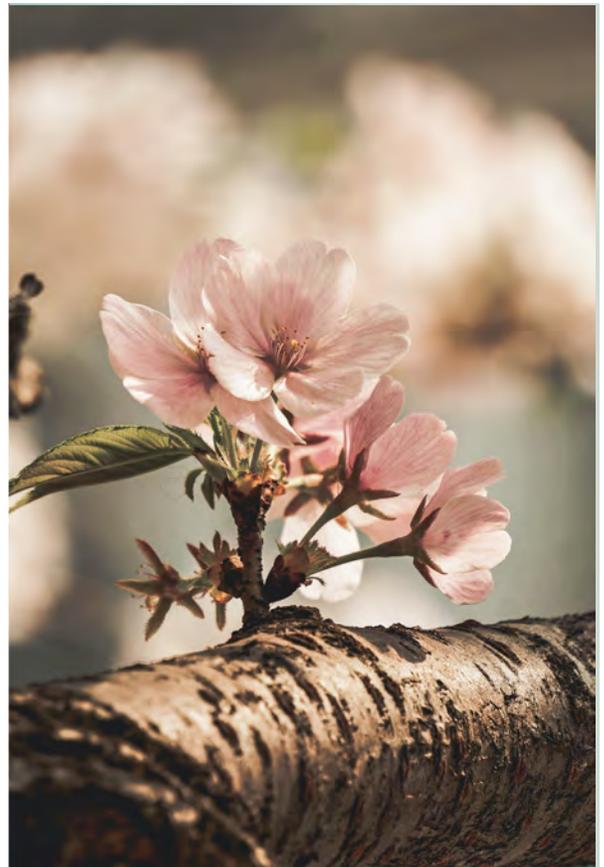
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# The Voluntary Carbon Market Explained

**Chapter 6**



## Chapter 6: What makes a carbon credit high quality?

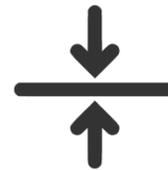
High-quality **carbon credits** accurately represent climate and other socio-environmental benefits. High-quality carbon credits are the result of well-informed decisions made during voluntary carbon market (VCM) activity design and implementation following guidance from reputable **carbon standards** and in alignment with **host country regulations**. GHG emission reductions or removals represented by high-quality carbon credits are conservatively quantified and based on credible baselines, assurance of additionality, prevention of leakage, and permanence. Higher quality credits often attract higher prices.

### What are the features of high-quality carbon credits?

The quality of a carbon credit is based on the integrity of the activity that generated the credit and, often, whether that activity provided social or environmental benefits beyond avoiding or removing greenhouse gases (GHGs).



**Conservatively quantifying** emissions means that VCM activity developers use low estimates for the number of credits or other benefits that the activity will deliver and use high estimates for possible failures or risks. Different types of VCM activities vary in levels of certainty and risk. This variation is reflected in the measurement, reporting, verification, and validation protocols set by **carbon standards**.



**Credible baselines** are conservative in estimating the tons of carbon dioxide equivalent (tCO<sub>2</sub>e) that would have been emitted or removed from the atmosphere in the absence of the VCM activity. This is to ensure that each carbon credit at least represents a ton of GHG emissions avoided or removed. Inflated baselines lead to the overestimation of climate benefits associated with VCM activities, resulting in carbon credits associated with less than one tCO<sub>2</sub>e.



**Assurance of additionality** means that there is a high degree of certainty that GHG emission reductions and removals associated with a carbon credit would not have taken place without the incentives or resources provided by the sale of certified emission reductions and removals. Demonstrating and verifying additionality is difficult because it is not possible to determine exactly how finance, technology, laws, or local practices would have changed in a counterfactual scenario where the VCM activity did not take place.

supply and demand of land, products, and services.

Leakage should be prevented by managing, quantifying, accounting for and compensating displacements, with best practices differing across VCM activity types. Primary leakage can largely be controlled through activity designs that analyze and address the proximate causes of leakage and the underlying drivers. Larger accounting areas, such as jurisdictional programs, can account for leakage from specific project areas. Secondary leakage is more complex and harder to manage. Activity developers and governments can model possible leakage and discount emission reductions or removals achieved by the activity with the assumption that some leakage will occur.



**Preventing and accounting for leakage** ensures that a VCM activity avoids and does not simply displace GHG emissions. Leakage occurs across all sectors and at all levels of implementation. Primary leakage occurs when a VCM activity causes drivers of GHG emissions to move rather than cease emitting. Secondary leakage occurs if a VCM activity inadvertently incentivizes increases in GHG emitting activities, for example by shifting



**Permanence** involves ensuring that each carbon credit generated represents a long-term climate benefit, often defined as 100 years. Permanence is primarily relevant for credits that represent carbon removals through nature-based credits or carbon storage technologies. VCM activities must mitigate the risk that GHG emission reductions or removals are reversed in the future due to natural disasters, climate changes, human

activities, or other events that cause stored carbon to be released back to the atmosphere.

The risk of impermanence is often managed through mandatory buffer accounts. VCM activities set aside a portion of the credits they generate in a buffer pool, from which credits are subtracted to compensate when reversals of carbon storage occur.

Impermanence buffers are widely used at the project level. Their success at the level of jurisdictional programs for Reducing Emissions from Deforestation and Degradation (REDD+) – where much larger amounts of reversals may occur and the insurance function of buffers is more complex and politically challenging – remains to be examined.

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### What are the features of VCM activities that generate high-quality credits?

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VCM activities that generate high-quality carbon credits maximize climate, socio-economic, and ecological benefits for people and ecosystems as appropriate to the type and sector of a VCM activity. High-quality VCM activities must be well-designed and appropriately monitored, in alignment with all [carbon standard](#) requirements and relevant policies. High-quality activities should also provide benefits to local communities. Buyers may be willing to pay higher prices for carbon credits that not only represent real and additional

emission reductions or removals, but that also exhibit benefits to host countries and local communities.



**Policy alignment** ensures that VCM activities fall within the sectoral policy priorities of a country. Carbon markets can support policy implementation and help achieve governments to meet policy goals. During activity design and implementation, VCM activities should ensure that all social and environmental requirements of the host country are complied with, even in contexts where law enforcement is weak.



**Safeguards** ensure that VCM activities do not cause social and environmental harm. VCM activities follow safeguards to ensure that VCM activities adequately address issues such as the Indigenous Peoples and local communities (IPs&LCs), social participation, and preservation of ecosystems. Safeguards are put in place by [host country regulation](#) and

complemented by [carbon standards](#).

Social safeguards typically require that VCM activities protect human rights, avoid discrimination and any illegal practices, respect local institutions, ensure consultations are inclusive, and follow a Free, Prior and Informed Consent (FPIC) process. Environmental safeguards require that activities protect intact and high conservation value ecosystems and follow all relevant environmental regulations.



**Transparent and fair benefit sharing** ensures that local populations benefit from VCM activities. Benefits can accrue to communities in the form of direct payments, improved infrastructure, community services, or other non-monetary benefits. Effective [benefit sharing](#) agreements provide incentives for IPs&LCs and other local stakeholders to participate in VCM activities as appropriate. Benefit sharing is particularly relevant for [REDD+](#) and other community-driven [VCM activity types](#) (e.g., cookstove projects), where it is often formalized through agreements between communities and activity developers or governments (in the case of jurisdictional programs).



**Lasting and transformative impact** is associated with VCM activities that shift host countries towards low emissions development paths. Larger sectoral or jurisdictional programs are more likely to generate transformative policy changes and impacts. Activities that provide transformative capacity building and technology with effects outside of project boundaries can enhance the climate ambitions of countries and provide net contributions to the [Paris Agreement](#), even if credits are [used as offsets](#). VCM activity developers can proactively pursue socio-economic and ecological impacts through activities that contribute to sustainable development. Several [carbon standards](#) provide labels or credits to certify contributions to Sustainable Development Goals or other socio-environmental benefits.

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### **How can governments increase the supply of high-quality carbon credits?**

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[Governments can support VCM actors](#) in aligning their activities with domestic policies by clarifying the rules of engagement in the VCM in their country and by

indicating where VCM finance can best complement public policy. Governments can clarify [land tenure and land ownership](#), [carbon rights](#), and [benefit sharing](#) rules, to facilitate more effective and equitable engagement with local communities. Governments can also provide stable investment environments that assure VCM activity developers, investors, and beneficiaries of the permanence of climate and socio-environmental outcomes.

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### Further reading

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Chagas, T., Galt, H., Lee, D., Neeff, T., & Streck, C. (2020). *A close look at the quality of REDD+ carbon credits*. Retrieved from <https://climatefocus.com/wp-content/uploads/2022/06/A-close-look-at-the-quality-of-REDD-carbon-credits-2020-V2.0.pdf>

Schneider, L., Healy, S., Fallasch, F., De León, F., Rambharos, M., Schallert, B., et al. (2020). *What Makes a High Quality Carbon Credit*. <https://www.worldwildlife.org/publications/what-makes-a-high-quality-carbon-credit>

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*Climate Policy*, 21(6), 843–852.  
<https://doi.org/10.1080/14693062.2021.1920363>

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### Acknowledgments

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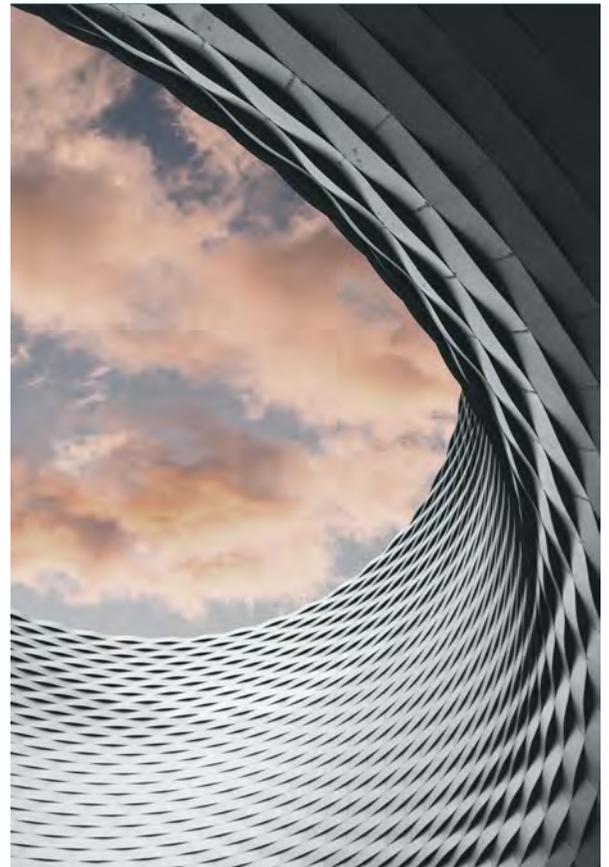
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Date of publication: October 2023

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# The Voluntary Carbon Market **Explained**

## Chapter 7



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## Chapter 7: What is the role of carbon standards in the voluntary carbon market?

Carbon standards are central to the operation of the voluntary carbon market (VCM). Carbon standards—or greenhouse gas (GHG) crediting programs—provide the methodologies, rules, and requirements that VCM activity developers must follow to certify and issue carbon credits and facilitate the trade in [carbon credits](#). Carbon standard organizations govern carbon standards and the issuance of carbon credits.

### **What are carbon standards?**

A carbon standard refers to the complete set of rules, procedures, and methodologies according to which certified [carbon credits](#) are generated and issued. Carbon standards are developed and governed by standard organizations—typically international non-governmental organizations (NGOs) that consist of a standard-setting arm, a regulatory arm, and a validation and verification system usually outsourced to third parties (See Figure 7.1). Carbon standard organizations develop carbon standards and establish the monitoring, reporting, validation, and verification procedures that VCM activities must follow for the standard to issue carbon credits. Carbon standard organizations also

contract or manage registries that track the issuance and transfer of carbon credits. Governments can also develop or support the development of VCM carbon standards, such as the [Woodland Carbon Code in the United Kingdom](#) and the [Thailand Voluntary Emission Reduction Program](#).

VCM activity developers apply the rules, procedures, and methodologies developed and administered by carbon standards. Governments apply the methodologies in the case of government-sponsored or jurisdictional programs. Developers must demonstrate compliance with the rules and methodologies through the documentation they submit to the standard and to standard-approved auditors (often called validation and verification bodies or VVBs). Developers have some flexibility to choose which methodology best aligns with the activities they are developing and will best meet the needs of beneficiaries of the activity. Some carbon standards provide the option for developers to propose new methodologies or adapt methodologies from other standards.

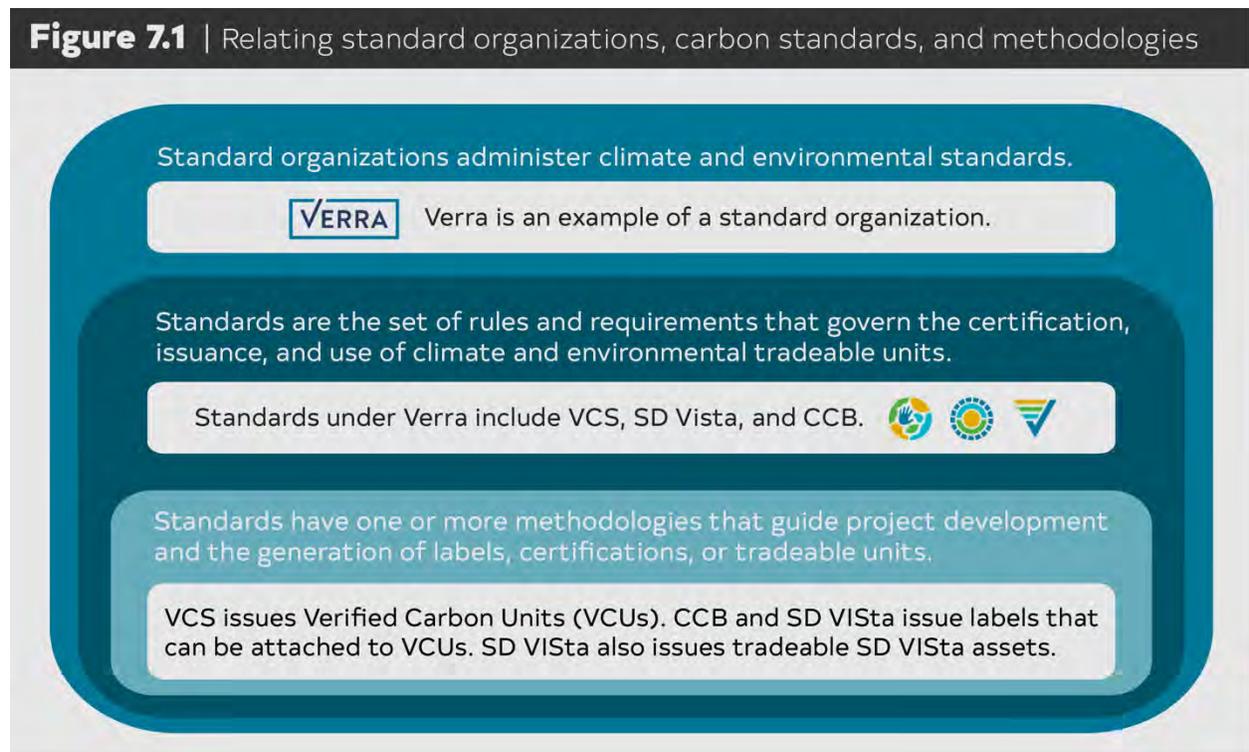
By developing and administering standardized procedures for crediting GHG emission reductions and removals, standard organizations act as the regulators of the VCM. Standard organizations safeguard the **quality** of VCM carbon credits and provide credibility to the **baseline-and-credit system** on which the VCM relies. Standard organizations with good governance have clear rules and requirements that are regularly updated, mechanisms for stakeholder consultation and grievances, specific environmental and social safeguards, robust methodologies for determining baselines and project contributions, and requirements for independent review of projects by competent, third-party auditors.

Carbon standards both certify VCM activities and facilitate the trade of carbon credits. To obtain

certification of emission reductions and removals and be **issued credits** to trade, VCM activities must: comply with carbon standards' processes, rules, requirements, and safeguards; apply methodologies approved by the standards; and provide evidence of compliance, which is generated by activity managers and reviewed by an independent third-party auditor. Carbon standards issue carbon credits into registries. Registries track all credits generated and retired, facilitate the transfer and sale of tradable credits, and trace transactions between buyers and sellers.

Figure 7.1 shows the relationship between standard organizations, standards, and methodologies. A standard organization like Verra manages one or more standards. In the case of Verra, the standards it manages include the Verified

**Figure 7.1** | Relating standard organizations, carbon standards, and methodologies



Carbon Standard (VCS), Sustainable Development Impact Standard (SD VISta), and Climate, Community, and Biodiversity (CCB) Standards. Standards govern methodologies, which determine how VCM activities are developed and how VCM carbon credits are issued.

## What are the main carbon standards in the VCM?

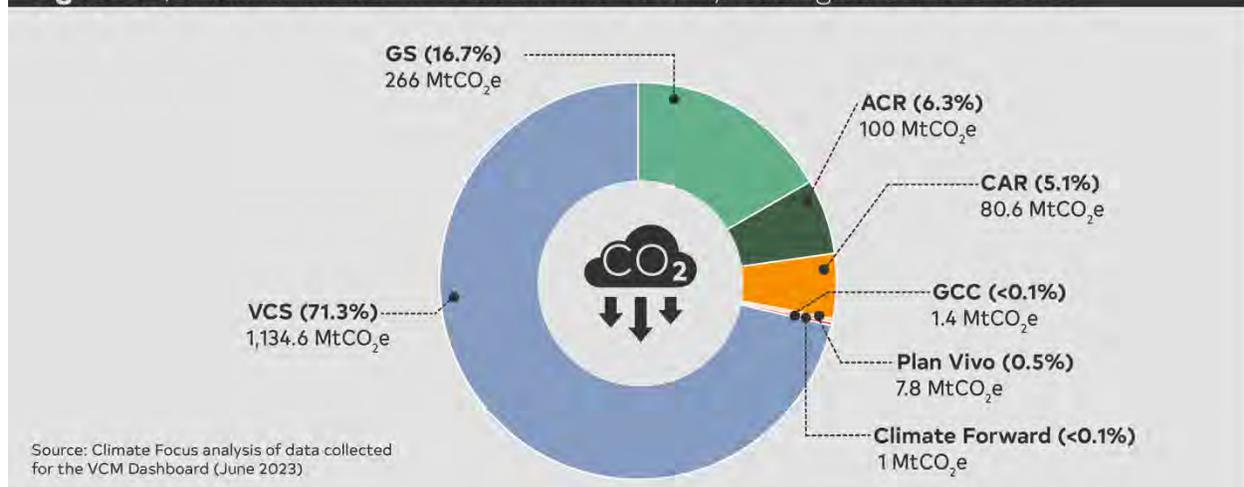
The carbon standards that have issued the most carbon credits (since 2002) are the VCS, the Gold Standard for the Global Goals (GS4GG), ACR, and the Climate Action Reserve (CAR). As shown in Figure 7.2, VCS and GS are the major standards worldwide, issuing 71.3% and 16.7% of credits, respectively. ACR (6.3% of credits) and CAR (5.1% of credits) are the third and fourth largest standards and are mainly active in North America.

There are smaller standards that issue small shares of credits in the VCM. Plan Vivo (PV, 0.5% of credits) certifies smallholder and

community projects in developing countries, with 28 projects actively issuing credits as of July 2023. Climate Forward and Global Carbon Council (GCC) have each issued less than 0.1% of credits in the VCM. There are other small and emerging standards that have issued few or no credits. In addition, there are various other context-specific crediting mechanisms, including voluntary domestic carbon standards such as those in California, Thailand, and the United Kingdom.

Certain carbon standards certify and issue carbon credits for government-sponsored national or large sub-national programs for Reducing Emissions from Deforestation and Degradation Plus (REDD+). The Architecture for REDD+ Transactions' The REDD+ Environmental Excellence Standard (ART/TREES) is a new standard, launched in 2020. ART/TREES formulates and administers standardized procedures to certify large volumes of emission reductions and removals from jurisdictional-scale REDD+. The first

**Figure 7.2** | Share of credits in issued in the VCM by leading carbon standards



Letters of Intent for transactions involving jurisdictional credits certified under ART/TREES were signed in November 2021. As of August 2023, there were 18

programs in the [ART/TREES registry](#). [Guyana](#) is the first and, so far, only jurisdiction to have been issued ART/TREES credits.

**Table 7.1: Carbon standards at a glance**

Standard organization	Standard	Market Volume (M = million)	Name of credits (Representing 1 tCO <sub>2</sub> e)	Geographical Scope	Sectoral Scope
Verra	Verified Carbon Standard (VCS)	1,134.6 M credits, 71.3% share	Verified Carbon Units (VCUs)	2,118 registered projects in 85 countries. VCS is dominant in developing countries.	Covers all project classes.
Gold Standard Foundation	Gold Standard for the Global Goals (GS4GG)	266 M credits, 16.7% share	Verified Emission Reductions (VERs)	2,195 registered projects in 76 countries. Credits are purchased especially by buyers in the European Union.	Covers most project classes but excludes project-level <a href="#">REDD+</a> . After 2025, will only cover credits backed by <a href="#">corresponding adjustments</a> .
Winrock International	ACR	100 M credits; 6.3% share	Emission Reduction Tons (ERTs)	83 registered projects, primarily in the United States, with a few projects in Brazil, Mexico, Canada, France, Nicaragua, Bolivia, and El Salvador.	Covers industrial processes; land use, land use change and forestry; carbon capture; waste.

Climate Action Reserve	Climate Action Reserve (CAR)	80.6 M credits, 5.1% share	Climate Reserve Tonnes (CRTs)	206 registered projects, primarily in the United States, with some activities in Mexico. CAR serves as the <a href="#">Offset Project Registry for California's Cap-and-Trade Program</a> . CAR is also running a pilot Emissions Trading System in Mexico from 2020-2023.	Covers agriculture and forestry; energy; waste; and non-CO2 GHG abatement.
Plan Vivo Foundation	Plan Vivo	7.8 M credits, 0.5% share	Plan Vivo Certificates (PVCs)	28 registered projects in 19 countries. Projects are primarily developed with Indigenous Peoples and smallholders in developing countries.	Covers smallholder and local-community forestry and agriculture.
Global Carbon Council (GCC)	GCC Program	1.4 M credits, <0.1% share	Approved Carbon Credits (ACCs)	22 registered projects in 3 countries. GCC emphasizes development in the Middle	Covers energy; industrial processes; construction; transport; mining/mineral production ;metal

				East and North Africa.	production; forestry, agriculture; waste; carbon capture and storage
Climate Action Reserve (CAR)	Climate Forward	1.0 M credits, <0.1% share	Forecasted Mitigation Units (FMUs)	9 registered projects in the US and Zambia.	Covers energy; industrial processes; forestry

Carbon standards vary in their approaches, methodologies, and requirements. The four largest standards (i.e., VCS, GS, ACR, and CAR) all demonstrate good governance and offer methodologies for VCM activities in a range of sectors (e.g., nature-based solutions (NbS), energy, and industry). These standards provide robust rules and requirements for developers and auditors. They impose environmental and social safeguards for activities to receive credits, including requirements that VCM activities avoid harms to biodiversity and local ecosystems; follow all national and international laws and regulations; and conduct consultations with local stakeholders, including Free, Prior and Informed Consent (FPIC) processes when working with Indigenous Peoples.

There are also standards that certify contributions of VCM activities to Sustainable Development Goals (SDGs). SDG standards complement carbon standards by adding additional certifications for projects that generate economic,

social, biodiversity or other benefits in addition to climate change mitigation. These standards establish requirements and methodologies for designing, monitoring, verifying, and validating contributions to SDGs. Some SDG standards offer sustainable development labels to attach to carbon credits that demonstrate SDG benefits, and some standards allow projects to issue sustainable development credits that can be traded independently from carbon credits. VCM standard organizations that provide labels for sustainable development benefits include Verra, which administers the CCB standard and the SD VISta label, and the Gold Standard Foundation, which administers the GS4GG. SD VISta and GS4GG also issue tradable credits that represent project contributions to the SDGs.

The certification of SDG benefits is particularly relevant for community-based and NbS VCM activities. Due to their potential to offer benefits beyond emission removals and climate change

mitigation, NbS credits are a popular project class. VCM carbon standards have approved methodologies to develop and generate credits from NbS activities under each of the main [NbS categories](#)—Forestry, Agriculture, and Wetlands. The desire to certify the additional benefits of NbS projects has played an essential role in the development of labels certifying strong social-ecological benefits and contributions to SDGs.

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### **How do governments and carbon standard organizations interact?**

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Carbon standards define the rules that lead to the generation of [carbon credits](#) in the VCM. However, as governments seek to enhance VCM impact and policy alignment, interaction between governments and standard organizations is expected to grow. [Governments](#) benefit from collaboration with private standard organizations because standards provide technical expertise for robust GHG accounting and management of carbon offset projects. Governments may benefit from such knowledge when [they define Cooperative Approaches](#) under Article 6.2 of the Paris Agreement. They may also accept, integrate, and scale VCM activities in the context of larger sectoral Cooperative Approaches.

To access VCM-based finance directly, governments can generate and market VCM carbon credits.

Governments that implement national programs, such as [REDD+ jurisdictional programs](#), sell credits generated using methodologies provided by standards. Governments can also promote the integration of VCM projects into national systems to attract investments into projects. integration can preserve and strengthen the environmental integrity of projects. For example, in the case of [REDD+](#), standards such as Verra’s Jurisdictional and Nested REDD+ (JNR) Framework or [ART/TREES](#) promote the integration of projects into larger-scale programs.

Another form of interaction is governments’ use of VCM carbon standards to support domestic climate regulations, with some governments opting for private standards in their public rules. For example, the US State of [California](#) accepted offsets generated by voluntary standards (CAR and ACR) and eventually delegated the creation of its mandatory carbon market to the governing body of the CAR. Countries such as [Colombia](#) and [South Africa](#) recognize credits from GHG carbon crediting programs (i.e., VCS) for liable entities to meet some of their carbon tax obligations and build on the architecture of private standards. The Carbon Offsetting and Reduction Scheme for International Aviation ([CORSA](#)) also allows liable entities to use VCM carbon credits that meet certain [eligibility criteria](#).

Governments may increase interactions with standards to accelerate implementation of the [Paris Agreement](#) and to encourage voluntary action. Voluntary carbon finance can be used to fill mitigation gaps for sectors not covered in Nationally Determined Contributions (NDCs) or to help countries to meet mitigation targets for sectors that are covered by NDCs. Proactive engagement with standards can attract investments into national mitigation opportunities. Governments can increase the availability of credits by permitting more types of activities and can drive the production of [high-quality credits](#) that attract higher prices. With a larger, more diversified carbon market, governments can rely on greater liquidity to attract finance that supports meeting climate goals.

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### Further reading

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*Greenhouse Gas Management Institute & Stockholm Environment Institute. (n.d.). Carbon Offset Programs. Carbon Offset Guide. Retrieved September 28, 2023, from <https://www.offsetguide.org/understanding-carbon-offsets/carbon-offset-programs/>*

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### Acknowledgments

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

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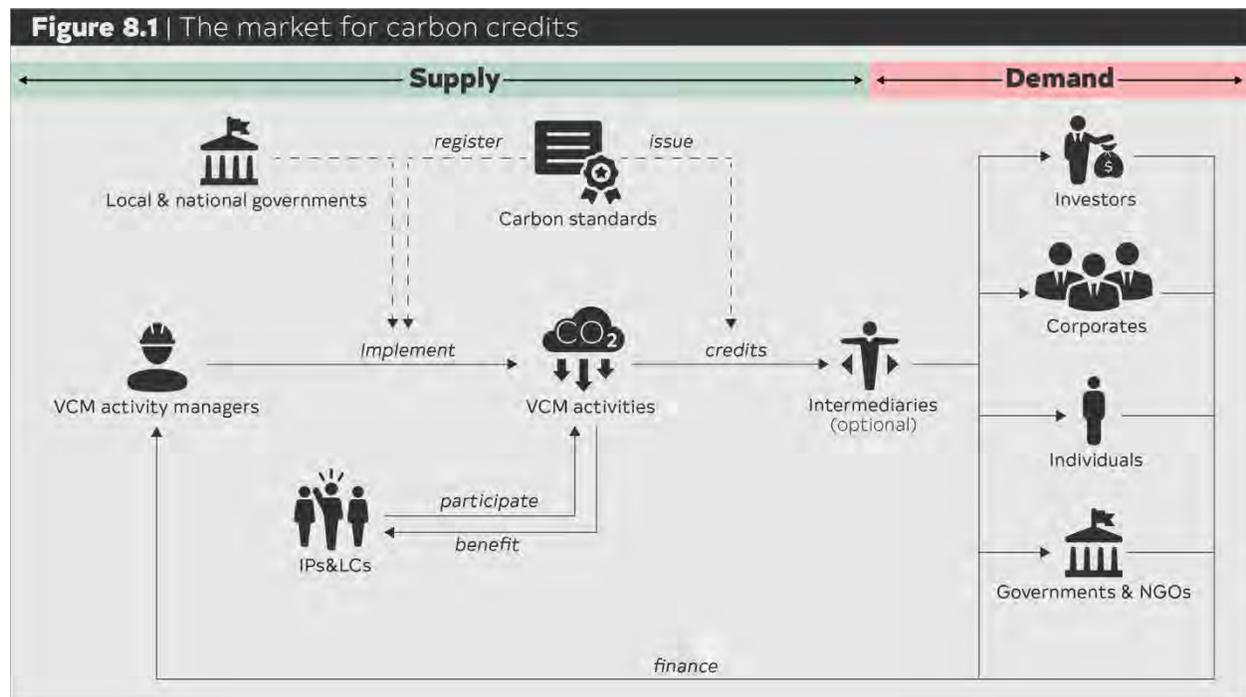
## Chapter 8: How is the voluntary carbon market structured?

Many actors participate in the voluntary carbon market (VCM). On the supply side, VCM activity developers achieve the greenhouse gas (GHG) emission reductions and removals that lead to the issuance of **carbon credits**. The process through which VCM activities are developed, certified, and issued credits is determined by **carbon standards**. **Governments** and Indigenous Peoples and local communities (**IPs&LCs**) participate in the VCM as activity developers, consulted partners, or beneficiaries. Companies, investors, private individuals, governments, and non-governmental organizations (NGOs) **buy** carbon credits and finance VCM activity development.

The prices of carbon credits are determined by vintage, **quality**, certifications, negotiating power, and risk. Figure 8.1 depicts the roles of VCM actors.

### Who are the main actors in the VCM?

To create a VCM activity, developers develop the design, consult with relevant government entities and **IPs&LCs**, comply with **carbon standard** requirements to receive certification, establish monitoring systems, and sell credits to buyers or to intermediaries. Activity developers may recruit investors to provide upfront financing, partner with local IPs&LCs or civil society



organizations, or engage other participants. **Governments** may mobilize advance finance for VCM activities from budgetary resources or donor-sponsored programs.

**VCM activity developers** are the main actors on the supply side of the VCM. Developers design and implement mitigation activities that are registered under **carbon standards** and generate **carbon credits**. Developers may be for-profit or non-for-profit private organizations, private landowners, **IP&LC groups**, municipalities, public agencies or—particularly in the case of public sector jurisdictional programs—subnational or national **governments**.

**Private companies** create most of the demand for VCM carbon credits. Private companies **use** VCM carbon credits to voluntarily offset their GHG emissions or support climate change mitigation goals beyond emissions produced in their value chain. Governments, NGOs, and individuals also buy VCM carbon credits to offset emissions from flights, events or the production of goods and services. Activities, products, or services that offset GHG emissions are often marketed as “carbon neutral.”

**Investors and intermediaries** operate on both the supply and demand sides by investing in VCM activities and purchasing carbon credits. Market intermediaries generally are for-profit companies that act as traders or fund managers that manage carbon

credit portfolios. They ensure the availability of risk capital and help market stability. Investors are private companies, foundations or individuals who work with intermediaries or activity developers to finance carbon credit-generating activities, often in exchange for a guaranteed quantity of or price for credits generated by the activities.

**Carbon standards** set the requirements that VCM activities must fulfill to generate tradable carbon credits. **Carbon standards** provide the methodologies to generate carbon credits, certify compliance with methodologies and safeguards, issue carbon credits, and maintain registries that track the transfer of credits. Carbon standard organizations are, in most cases, international NGOs.

**Governments** may impose **regulatory influence** on the VCM by formulating social or environmental standards and safeguards, defining **carbon rights** and **benefit sharing** requirements, or linking the VCM to **Paris Agreement** commitments, compliance carbon markets or other carbon pricing schemes. Governments also actively participate in VCM activities.

**IPs&LCs** may hold land, forest, or **carbon rights**, or have customary or traditional access to land where emission reduction activities take place. **IPs&LCs engage** on the supply side of the VCM as activity developers, consulted partners, and beneficiaries of VCM activities and

proceeds. In some cases, IPs&LCs are involuntarily involved in the VCM because activities are developed on land that they manage without appropriate consultation or recognition of rights. IPs&LCs should be consulted about VCM activities that could impact them so that they can participate in activity development and [benefit sharing](#) agreements, as appropriate.

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### What does the VCM activity cycle look like?

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The process through which VCM activities are designed, climate benefits are generated, and carbon credits are issued and traded is the VCM activity cycle. This activity cycle generally consists of the steps shown in Figure 8.2 and described in more detail below. The cycle for standards that certify projects (e.g., Verified Carbon Standard – [VCS](#) – and Gold Standard for the Global Goals – [GS4GG](#)) and the cycle for those that certify jurisdictional programs (e.g., Jurisdictional and Nested REDD+ – [JNR](#) – and Architecture for REDD+ Transactions/The REDD+ Environmental Excellence Standard – [ART/TREES](#)) follow comparable steps. A distinct feature of ART/TREES is that program developers – called participants – must be a national government or subnational entity with jurisdiction. JNR also requires jurisdictional-level developers and has specific

requirements for [nested](#) projects or jurisdictional programs.

**Planning:** Private or public activity developers choose a VCM [carbon standard](#) and an approved methodology with which to develop the activities. Stakeholders are identified. Feasibility studies and stakeholder consultations may be conducted or initiated during this step.

**Design:** Developers prepare the activity documentation according to the guidelines of the carbon standard under which they wish for the climate benefits from an activity to be certified. The documentation must demonstrate that the VCM activity developer has applied the chosen methodologies correctly and met the associated requirements.

**Validation:** To be registered, an activity must be validated by an independent third-party auditor, often known as a Validation/Verification Body (VVB). Validation reports are submitted following an audit of the activity design documents, which typically includes a site visit and consultation with stakeholders.

**Registration:** Prior to registration, validation reports are reviewed by the standard. An activity is registered if it meets the rules and requirements of the standard under which it is certified. VCM activities can begin implementation after registration.

**Implementation:** An activity is implemented as laid out in the

documents submitted for registration and validation.

**Monitoring:** Activities are monitored to ensure that emission reductions are generated as described in project or program documents. Activity developers prepare and follow a monitoring plan and record emissions reductions in periodic monitoring reports.

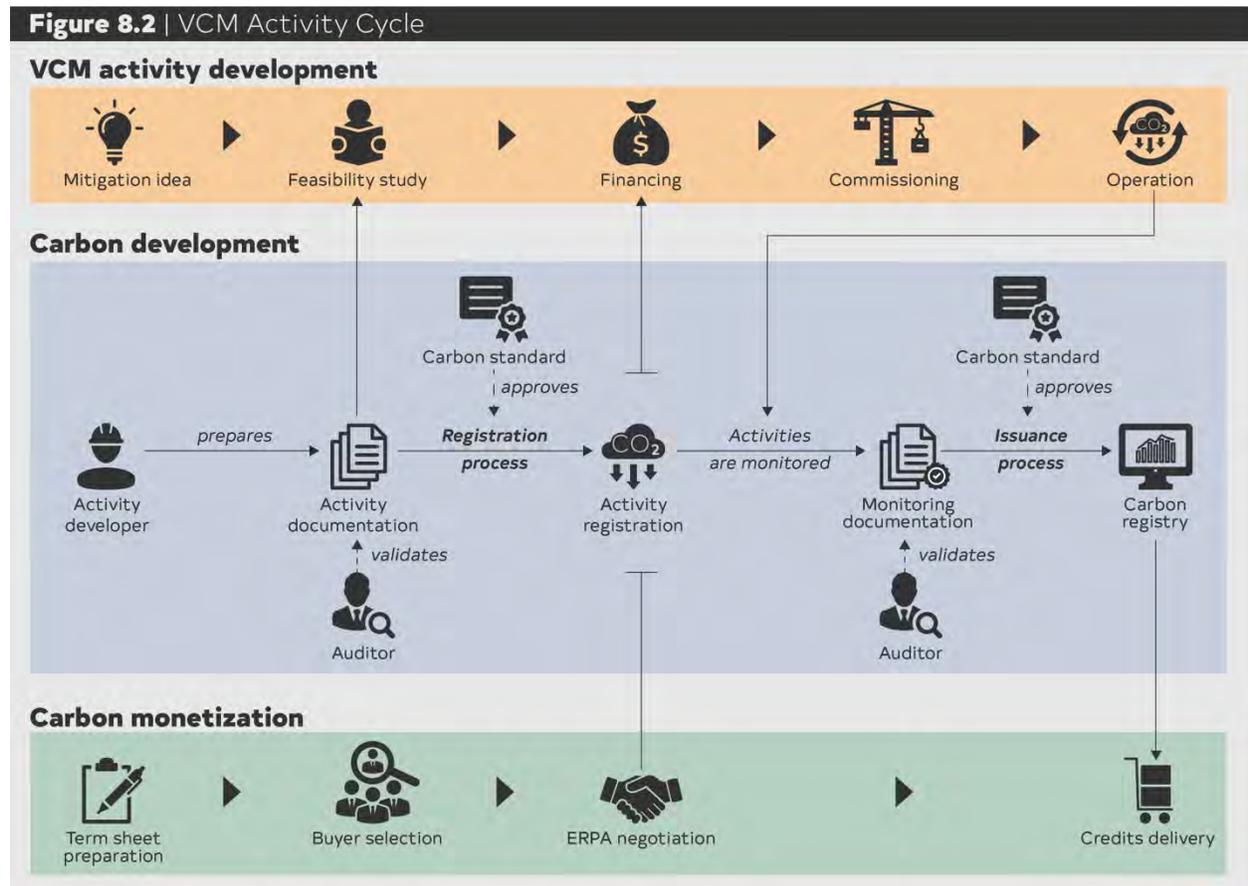
**Verification:** Project or program periodic monitoring reports are verified by a VVB and by the carbon standard under which the activity is certified. Verification is required for the issuance of carbon credits.

**Issuance:** After the regulatory body of the carbon standard approves credit issuances, carbon credits are

deposited into the activity developer's account on the registry of the carbon standard. Carbon credits can be transferred, retired, and canceled after they have been issued. The transfer of carbon credits is recorded in the registry of the carbon standard, which enables the transfer of credits between accounts and the tracing of transactions.

### How are carbon credit prices determined?

The commercial terms of carbon transactions are often established in an Emission Reductions Purchase Agreement (ERPA) between seller and buyer. The



ERPA records the relevant price per carbon credit for the relevant VCM activity.

The price for a carbon credit is an essential piece of information for both the supply and demand side of the market. On the demand side, buyers benchmark the costs of meeting corporate climate targets against the carbon price to determine what role the VCM can play in achieving those targets. On the supply side, clear price signals are important for developers to decide whether it is worth developing VCM activities and how much carbon finance can contribute to development and implementation costs.

At present, the prices in the VCM are not transparent. There is no common mechanism to set prices and enhance market transparency. However, it seems evident that carbon credits of different origin and quality have different prices. From August 2022 to August 2023, the [prices of VCM carbon credits](#) varied from a few cents to USD 13.30, with nature-based solutions (NbS) credits consistently valued most highly.

As the market gains volume and becomes more liquid, more standardized price setting methods may emerge. Exchanges, credit ratings, and price indices are expected to lead to more transparent carbon pricing. In addition, initiatives such as the [Taskforce on Scaling Voluntary Carbon Markets](#) and [Voluntary Carbon Markets Integrity Initiative](#)

(VCMi) are looking to increase harmonization, efficiency, and transparency of the VCM.

**Carbon prices in the VCM are influenced by vintage, quality, certifications, negotiating power, and risk.**

Newer credits are [valued more highly](#) than older credits. The year in which a carbon credit was issued is its vintage. Buyers may prefer credits with newer vintages because they are issued according to the more recently updated methodologies and standard requirements and may be available in sectors — like technological carbon removals — that previously were not credited in the VCM. It is also easier to determine that newer credits are financially additional, as credits from older vintages may represent GHG emission reductions or removals from activities that no longer need finance incentives from the VCM. GHG emission reductions or removals generated from 2021 on are also potentially eligible for Internationally Transferred Mitigation Outcomes (ITMOs) under [Article 6](#) of the Paris Agreement.

**The distribution of risk is reflected in carbon prices.** Carbon prices depend on the allocation of activity development, investment, and performance risk. In general, the lower the perceived risks, and the more robust the measures put towards the [quality](#) of GHG emission reductions or removals, the higher the price of the carbon credit. Where buyers act as

investors in VCM activities, they often retain the right to receive carbon credits at a discount from market prices. Similarly, buyers that agree to make upfront payments and share the risk of project or program failure pay less per carbon credit than buyers that pay for credits after implementation and certification. Prices under long-term forward sales are often lower than prices for carbon credits traded “over the counter” that no longer carry any production or delivery risks. Buyers that enter into forward contracts benefit from fixing prices for future carbon credits, which may or may not be beneficial for buyers and sellers depending on market developments.

**High-quality credits are more costly.** Often, VCM activities that generate [high-quality credits](#) have relatively higher costs for designing and implementing activities, monitoring, and verifying impacts, and building relationships with local stakeholders. High-quality credits represent real, measurable, and additional GHG emission reductions or removals that come with additional social and environmental benefits. The verification of sustainable development, biodiversity conservation, and other social or ecological benefits in addition to emission reductions and removals require significant upfront investment. Verifying these impacts necessitates increased

monitoring reliability, which comes with increased costs.

While buyers wish to support high-quality VCM activities, they do not always demonstrate a willingness to pay prices that reflect the true financial needs of those activities. Increased investment in high-quality VCM activities can be encouraged by clear and transparent [benefit sharing](#) requirements in the jurisdictions where VCM activities take place, the use of [carbon standards](#) that certify contributions to Sustainable Development Goals (SDGs), and monitoring and quantification of sustainable development benefits to demonstrate that high prices are fair.

**Additional certifications can drive higher prices.** VCM activities that achieve additional certifications of broader sustainability benefits demand higher prices. For example, the Climate, Community, and Biodiversity (CCB) Standard confirms environmental and social benefits of forest carbon projects. Under Verra’s Sustainable Development Verified Impact Standard (SD VISTa) or the GS4GG, project developers can certify SDGs. Certified sustainable development contributions give buyers the assurance that such benefits are real and likely to generate positive environmental and social impacts in addition to GHG emission reductions and removals. GS4GG and SDVISTa certify positive environmental or social attributes of VCM activities. For activity

developers that wish to go a step further, GS4GG and SD VISTa certify independently tradable sustainable development assets, which can be priced independently of carbon credits from the underlying mitigation activity.

**Prices are determined by power asymmetries and the ability of parties to negotiate.** If certain buyers or groups of buyers dominate shares of the VCM, they are often able to determine the price. This is particularly true for jurisdictional programs under Reducing Emissions from Deforestation and Degradation Plus (REDD+), where a few coordinated multilateral and bilateral buyers have dominated transactions in the past. Reference prices are set by results-based payment programs such as the Forest Carbon Partnership Facility (FCPF) or the REDD Early Movers (REM) Programme, bilateral buyers such as Norway's International Climate and Forests Initiative (NICFI), or jurisdictional-focused standards like the Lowering Emissions by Accelerating Forest finance (LEAF) Coalition. The prices set by these program-level initiatives influence project-level carbon prices in comparable project classes.

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## Acknowledgments

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

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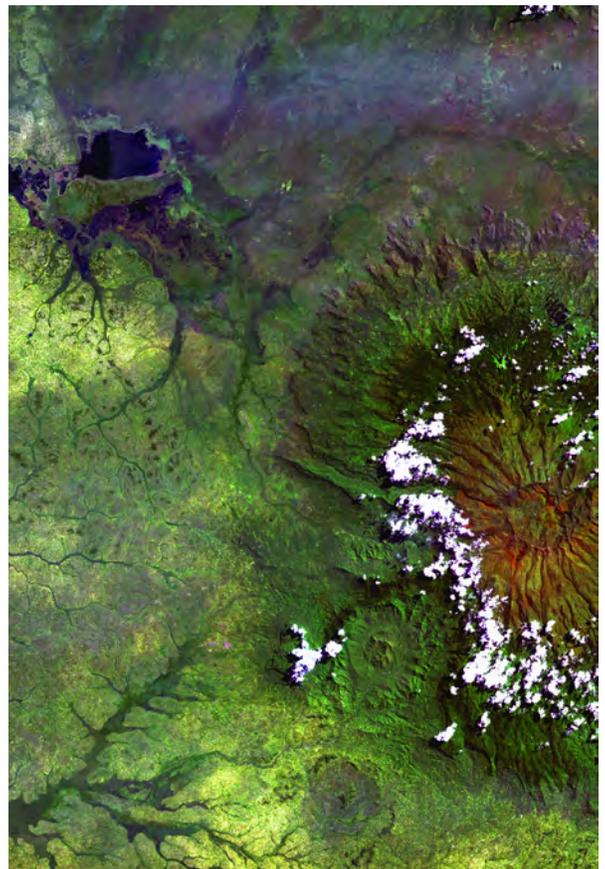
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# The Voluntary Carbon Market **Explained**

**Chapter 9**



## Chapter 9: How are carbon credits used?

Carbon credits in the voluntary carbon market (VCM) are used to meet climate goals or to offset emissions related to a particular service or product. Carbon credits may also be purchased and retired without offsetting, which drives removals and reductions in overall greenhouse gas (GHG) emissions and may enable buyers to claim other social and environmental contributions.

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### What is an offset and how are carbon credits used as offsets?

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Most [carbon credits](#) are used to offset GHG emissions that are emitted by business, governing, livelihoods, and leisure activities. “Offsetting” counteracts the harm of GHG emissions by reducing or removing GHG emissions of equal proportion. In the case of GHG offsetting, carbon credits, which represent verified emission reductions or removals, are used by emitters to compensate for GHG emissions. Carbon credits are often referred to as “offsets,” although not all carbon credits are used to offset GHG emissions (as discussed below).

Carbon offsetting can be part of regulated emissions trading systems. For example, under the [Colombian Carbon Tax](#), VCM carbon credits can be used by liable entities to offset carbon tax obligations. However, most of the

carbon credits generated in the VCM are used by companies to voluntarily offset emissions to meet corporate climate pledges or to offer ‘carbon neutral’ goods and services. As shown in Figure 9.1, corporations use carbon credits to meet net-zero and carbon neutral goals. Corporations use carbon credits as offsets to compensate for emissions that are difficult to abate under net-zero strategies or neutralize residual emissions. Corporations may also purchase and retire credits without offsetting to contribute to beyond value chain mitigation (BVCM) goals. Initiatives such as the [Science-Based Targets initiative \(SBTi\)](#) are pushing companies to set net-zero goals that are aligned with the Paris Agreement targets, and to limit offsetting with carbon credits for only the most difficult to abate emissions.

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### What are corporate climate targets?

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More and more companies are setting voluntary climate targets. Corporate climate targets are commitments to reduce some or all of a company’s emissions by a certain date in the future. As of July 2023, 9,759 companies had joined the United Nation’s [Race to Zero campaign](#). More than 5,500 companies have set science-based emission reduction targets and net-zero commitments following

the guidelines of the SBTi. Companies buy carbon credits on the VCM to offset GHGs that have been emitted above their reduction target or to be able to claim carbon neutrality.

Offsetting is often employed to compensate for those emissions that the company is not (yet) able to reduce internally. When a company has purchased enough carbon credits to offset all emissions generated over a given timeframe, it can claim to be carbon neutral for that period.

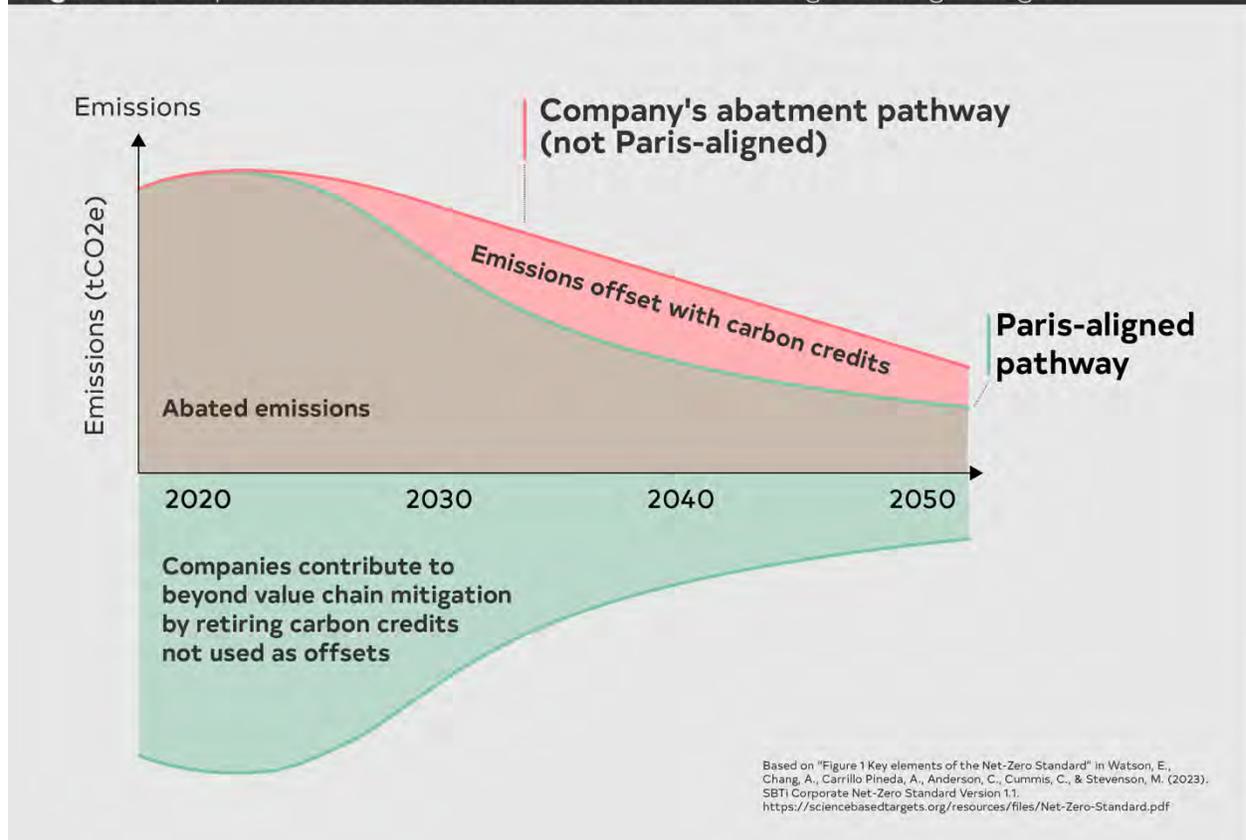
### What are 'carbon neutral' goods and services?

Corporations use 'carbon neutral' statements to market their

products and services. To market a product or service as carbon neutral, companies should comply with the requirements of a carbon neutrality standard such as the CarbonNeutral Protocol or Publicly Available Specification (PAS) 2060.

This typically involves reducing emissions as much as possible, and then buying enough carbon credits to offset the remaining emissions associated with delivering a good or service. Alternatively, companies can offer consumers the option to individually offset the emissions associated with the good or service they wish to purchase by paying a higher price. For example, airlines offer the option to buy carbon credits to offset GHG emissions from flying.

**Figure 9.1** | Corporations use carbon credits to meet Paris-aligned mitigation goals



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## How do countries use VCM credits and offsets?

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Some countries allow the use of carbon credits for compliance purposes under domestic climate regulation. Domestic carbon pricing instruments like carbon taxes and emissions trading systems create demand by allowing liable entities to use carbon credits from approved standards and sectors to meet their obligations. International compliance schemes such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSI<sup>A</sup>) also create demand. CORSI<sup>A</sup> enables the use of carbon credits by airlines to help to meet climate goals. In these cases, specific types of carbon credits generated in VCMs can be used for compliance purposes. As such, the boundaries between voluntary and compliance carbon markets blur.

In [Colombia](#), [Mexico](#), and [South Africa](#), liable entities can use carbon credits issued by certain VCM standards to fulfil obligations under those countries' carbon taxes. Emissions trading systems in [China](#), [South Korea](#), and [Mexico](#) allow for the limited use of VCM carbon credits, although emissions trading systems in other jurisdictions (e.g., [California](#), [Switzerland](#), and the [European Union](#)) exclude or restrict the use of VCM carbon credits.

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## What are the advantages and limitations of carbon offsetting?

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Offsetting offers a compelling opportunity to compensate for environmental harm done at a price that is lower than the cost of eliminating or abating the original source of harm. Where companies can invest in alternatives rather than directly reducing or removing GHG emissions in their operations or activities, they can save money and still achieve environmental targets. In the case of the VCM, carbon offsetting has the additional advantage that verified carbon credits can channel finance to communities and sectors where finance is needed, giving buyers a compelling social responsibility narrative to promote. Carbon offsetting through the VCM can [contribute](#) to the achievement of host countries' Nationally Determined Contributions (NDCs) and Sustainable Development Goals (SDGs), a benefit that is recognized by some [carbon standards](#). Governments can [engage strategically](#) with the VCM by encouraging the development of activities that align with national priorities, channel finance where it is needed, and contribute to the achievement of SDGs.

Despite these benefits, there are important drawbacks to using carbon credits as offsets. First, offsetting GHG emissions does not generate a climate benefit unless the GHG reductions and removals

generated through VCM activities are measured more conservatively than the original emissions. In the absence of strong VCM protocols and controls, the risk is that the opposite is the case and that offsets are not fully compensating for GHGs emitted.

Second, if companies can offset emissions for a cheaper price than it would cost them to reduce or remove GHG emissions in their own operations and supply chains, then companies may be disincentivized from taking climate action. In the same way, if carbon credits allow individuals to ease their guilt of doing carbon-intensive activities – such as flying – individuals may not change their behaviors.

Third, using VCM credits as offsets may come with a risk of [double claiming](#). While opinions vary on whether VCM credits are at risk of being double claimed, some see a risk of greenwashing associated with corporates claiming carbon credits that governments may have achieved anyways in the context of their NDCs. [Corresponding adjustments](#) have been proposed as one way of addressing double claiming in the context of VCM credits and their relation to NDCs. There are also non-offset uses of carbon credits that can help to mitigate this risk, which are discussed below.

---

### Are there any non-offset uses of carbon credits?

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Private actors, such as corporations, non-governmental organizations (NGOs), and foundations can avoid the pitfalls of offsetting and accelerate climate change mitigation if they do not use carbon credits as offsets.

Instead of buying carbon credits to offset emissions, companies can buy carbon credits to contribute to broader climate finance, climate action goals, or corporate social responsibility goals. Non-offsetting carbon credits are acquired and canceled without being applied against carbon pledges or for the marketing of carbon neutral products.

Non-offset uses for VCM credits move away from the idea that some environmental harms could be permitted as long as they are offset by environmental goods. Instead, non-offset uses promote the achievement of environmental benefits. In addition, carbon credits that are not used as offsets can contribute directly to the achievement or overachievement of [host countries' climate commitments](#) without any risk of double claiming. In this way, non-offset uses for carbon credits represent a paradigm shift in which the VCM delivers finance for climate change mitigation and sustainable development benefits in a way that truly reduces global emissions.

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## Acknowledgments

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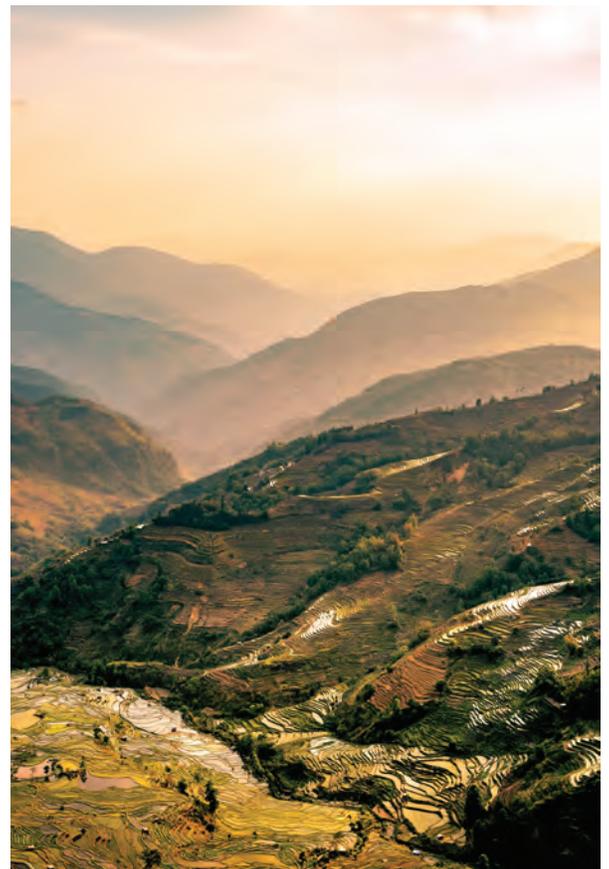
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Date of publication: October 2023

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# The Voluntary Carbon Market Explained

## Chapter 10



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## Chapter 10: How are carbon rights considered in the voluntary carbon market?

Carbon rights determine who can participate in and benefit from voluntary carbon market (VCM) activities. The holders of carbon rights are generally those who control a mitigation activity or the asset (e.g., land) underlying a mitigation activity. Carbon rights can be complicated to establish in the VCM, especially in the case of nature-based solutions (NBS) activities. Carbon rights can be clarified through national legislation or, in the absence of such legislation, through contracts.

### What are carbon rights?

Carbon rights grant the holder the right to benefit from greenhouse gas (GHG) emission reductions or removals. Carbon rights are distinct from tradable [carbon credits](#). Carbon credits represent GHG emission reductions or removals verified and issued in accordance with the rules of [carbon standards](#). Carbon rights define the underlying entitlement to benefit from GHG emission reductions or removals associated with an asset (e.g., land or forest) or activity (e.g., a VCM project). Those who hold carbon rights can engage in the generation of carbon credits as well as [transact and claim](#) the proceeds from the sale of carbon credits. Carbon rights may also entitle

holders to participate in [benefit sharing agreements](#).

### How are carbon rights determined?

Carbon rights are assigned based on the legal **control of the underlying asset** and/or on the legal **control of the emission reduction and removal activity**.

**Control of the asset** means that the holder of the carbon rights has property, management, access, usufruct or other rights to the land, infrastructure, or resource that underpins the GHG emission reduction or removal activity. Entities that control assets include private individuals, companies, non-governmental organizations (NGOs), Indigenous Peoples and local communities (IPs&LCs), and governments. How ownership rights are assigned is typically based on laws governing property ownership in the jurisdiction where the VCM activity is taking place. Holders of carbon rights based on control of an asset are entitled to benefit from the GHG emissions reductions or removals that result from activities *that use or impact that asset*.

**Control of the mitigation activity** requires an entity to demonstrate that they enable and control the GHG emission reduction or removal

activity. Rights may be claimed by those who provide services, finance, or technology (e.g., by [activity developers and financiers](#)); those who actively participate in the GHG emission reduction or removal activities (e.g., IPs&LCs); or those who have regulatory power (e.g., national or subnational governments). Holders of carbon rights based on control of an activity are entitled to benefit from the GHG emissions reductions or removals *that result from that activity*.

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### **How are carbon rights established in the VCM?**

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Activity developers are responsible for establishing carbon rights according to rules from carbon standards and any regulatory requirements from the host country. The establishment of carbon rights in the VCM can be complex.

Carbon rights can be relatively easy to establish in energy and industry-related emission reduction activities, where there are a limited number of actors with clearly defined rights and contractual arrangements. In these non-NbS activities, the number of actors involved in the implementation of the activities is limited and the entity that controls the VCM activity typically also holds the right to carbon credits. The owner can, for example, pledge this right to a buyer or engage in a forward sale of

carbon credits to secure financing for the activity.

Carbon rights can be complicated to establish in NbS activities. NbS activities take place on land (e.g., forests, farms, wetlands) and often aim to change how people use and interact with that land. The underlying land or ecosystem assets are often controlled by a different entity than the activity developer. NbS activities involve many actors and are often implemented in the context of weak or nonexistent land titles. This means that there can be tension between determining carbon rights based on control of the asset or based on control of the activity.

Land and forest rights – formal and informal – or the ability to provide ecosystem services can be a basis for claiming rights to carbon credits generated by NbS activities. IPs&LCs, land managers, and landowners may transfer carbon rights to VCM activity developers or governments in return for their consideration in benefit sharing agreements.

Secure and clear land and forest tenure facilitates the determination of carbon rights for NbS activities, but land and resource ownership are often contested. Unclear and overlapping land titles, limited recognition of customary rights, land grabbing, encroachment, and legacies of land seizure or expulsions complicate the establishment of rights. In many jurisdictions, weak land governance, corruption, and

discrimination against groups that claim unrecognized land titles exacerbates this challenge. Even where the laws and ownership are clear, activity developers may struggle to equitably calibrate the rights to benefit from VCM activities.

**Carbon standards** attempt to address these challenges by requiring VCM activity developers to demonstrate that they engaged in consultations with local stakeholders and developed **benefit sharing arrangements**. Some standards require that VCM activity developers follow Free, Prior, and Informed Consent (FPIC) processes when working with **IPs&LCs**.

Benefit sharing arrangements are a means to distribute monetary and non-monetary benefits generated by the VCM activity to those who may claim carbon rights. Beneficiaries often include **IPs&LCs**. Benefit sharing arrangements will typically consider who manages the forest or land base, who holds land titles, and who invests in GHG emission reductions and removals activities. Vulnerable communities that live in proximity to land-based mitigation activities need to be included in fair benefit sharing arrangements. Inclusivity is crucial to ensure the long-term sustainability of VCM activities.

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## Why and how can governments clarify carbon rights in the VCM?

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**Host countries** may be incentivized to clarify carbon rights by the carbon finance that legal certainty attracts. VCM activity **developers and investors** prefer to operate in regions where they are confident that they will be able to complete all of their intended activities and where agreements established with **IPs&LCs**, private individuals, or governments will be respected. NbS activities, in particular, require legal certainty, as they are often designed to be completed over several decades and involve a range of local stakeholders.

Titles to carbon and underlying assets should account for the customary and ancestral land tenure rights of **IPs&LCs**. In many ecosystems, **IPs&LCs** have been managing or sustainably using land resources for centuries but still have not obtained formal recognition of their rights. It is essential that carbon rights laws be structured equitably, with protections for all those who hold both formal and informal rights in lands and forests.

Host countries can avoid disputes about carbon rights by clarifying land tenure rights and by establishing rules for benefit sharing arrangements. Countries can go further by clarifying the precise tax, accounting, and regulatory requirements that apply to carbon credits. Host countries

can also create laws to guide benefit sharing and consultation. When engaging in such legislation, it is recommended that legislators clarify the treatment of carbon rights rather than defining new categories of rights. There is a risk of overregulating carbon rights and

markets, in particular if rules are created and not enforced, new categories of rights are created, or another layer of conflicting rights is put on an already weak system of land and property titles. See Table 10.1 for an overview of carbon rights systems in some countries.

**Table 10.1 Examples of carbon rights systems**

Land ownership	Carbon rights	Ability of non-state entities to engage in carbon offset activities	Examples
All land is owned by the government	Carbon rights follow the right to the land and are owned by the host country	Carbon rights can be transferred to private and public entities via concession or license	The Democratic Republic of Congo, Mozambique, Vietnam
Diverse land ownership, often with weak titles and limited titled land	Carbon rights (or rights to ecosystem services) are centralized and managed at the level of the national government	Private projects or transactions involving GHG emission reductions and removals are not permitted	Madagascar, Ecuador
Diverse land ownership, often with weak titles and limited titled land	Carbon rights are regulated and special rules apply	Private entities are free to participate in voluntary carbon market projects subject to restrictions	Mexico (limiting private GHG emission reductions and removals to activities resulting in carbon removals), Peru (requiring activity and tenure)
Diverse land ownership with strong private entities	Carbon rights pertain to land holders	Private entities are free to participate in voluntary carbon market projects within the limits of the law regarding land use and safeguards	Chile, Costa Rica

*Based on Streck (2020) Who owns REDD+?*

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## Further reading

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## Acknowledgments

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Date of publication: October 2023

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# The Voluntary Carbon Market Explained

**Chapter 11**



## Ch11: Why and how do IPs&LCs engage with the voluntary carbon market?

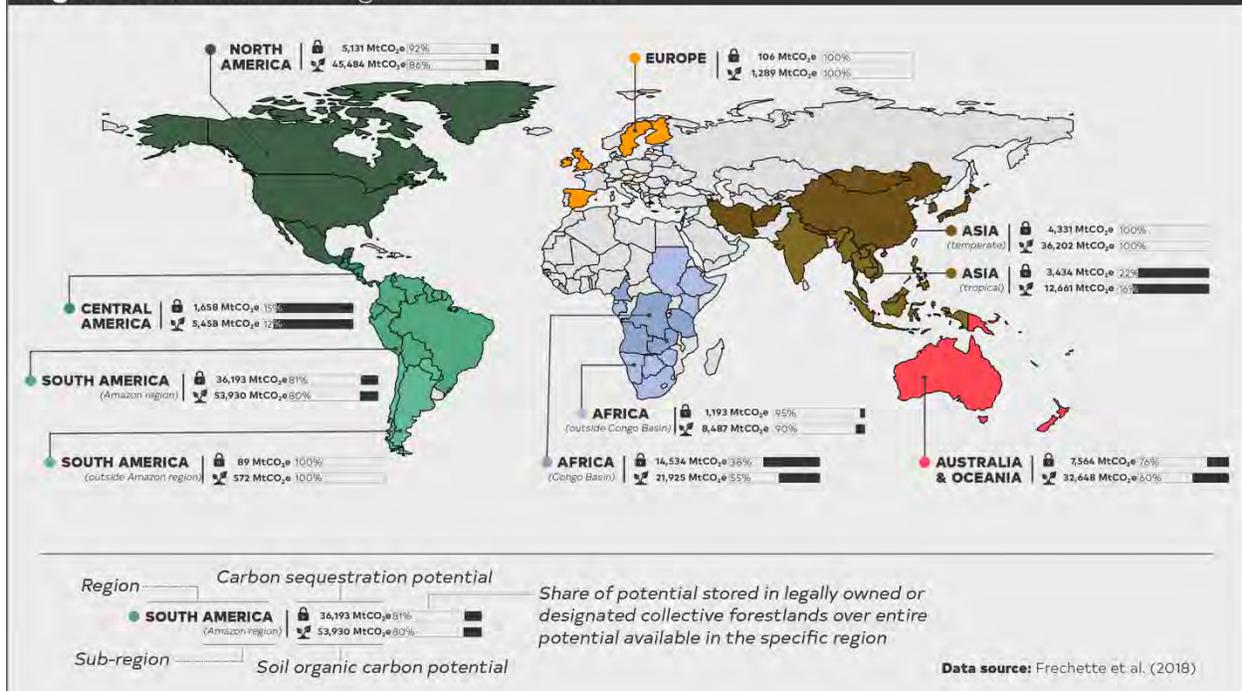
Indigenous Peoples and local communities (IPs&LCs) engage with the voluntary carbon market (VCM) primarily as the owners and custodians of lands where VCM activities are developed. IPs&LCs voluntarily participate in the VCM as project developers, consulted partners, and beneficiaries of VCM activities and proceeds. In some cases, IPs&LCs are involuntarily involved in the VCM because activities are developed on their lands without appropriate consultation or recognition of their rights. The full and equitable participation of IPs&LCs is necessary for the long-term success of VCM activities in their territories. VCM activity developers, carbon standards, governments, and buyers of carbon credits can

improve requirements and practices to promote benefits for and mitigate risks to IPs&LCs.

### Why are IPs&LCs involved in the VCM?

IPs&LCs' territories exhibit high rates of **carbon storage** and **biodiversity**, provide essential **ecosystem services**, and have significantly **less deforestation and degradation** than surrounding areas. Indigenous Peoples' lands are estimated to account for **at least 36 percent** of intact forest ecosystems globally. In 2018, IPs&LCs were estimated to manage **at least 17 percent**—or nearly 300 metric tons—of the total carbon stored in 64 countries, including in all of the major rainforest regions (Figure 11.1). This

**Figure 11.1** | Carbon storage in IPs&LCs' lands



is likely an underestimate. Globally, the carbon stored in forest lands to which IPs&LCs have legal rights may be as much as **37.7 billion tonnes** of carbon. Depending on how tenure rights are allocated, IP&LC lands have potential to sequester **8.69 to 12.93 million tonnes of carbon dioxide** between 2020 and 2050.

The climate and conservation services provided by IP&LC-managed lands attract VCM investment. Protecting or restoring IP&LC lands can generate carbon credits from nature-based solutions (NbS) that also provide sustainable development or other social benefits. Some VCM activities generate credits by supporting the rights and capacities of IPs&LCs to protect, manage, or restore ecosystems. Carbon credits can be generated through activities that strengthen land tenure rights, provide education and livelihoods, and support implementation of IPs&LCs' territorial management plans. VCM activities may also aim to change practices that degrade ecosystems by developing livelihood alternatives or supporting sustainable development.

IPs&LCs may choose to develop VCM activities themselves or be engaged by organizations seeking to develop activities on IP&LC territories. When IPs&LCs choose to develop VCM activities or enter into benefit sharing arrangements through a consultative process that follows free, prior, and informed

consent (FPIC), the VCM can support their needs and goals. There are also cases in which IPs&LCs are involuntarily involved in VCM activities due to VCM activities being developed on their land without their consent. This abridges the rights of IPs&LCs and poses risks to the long-term success of the VCM activities.

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### **How are IPs&LCs involved in the VCM?**

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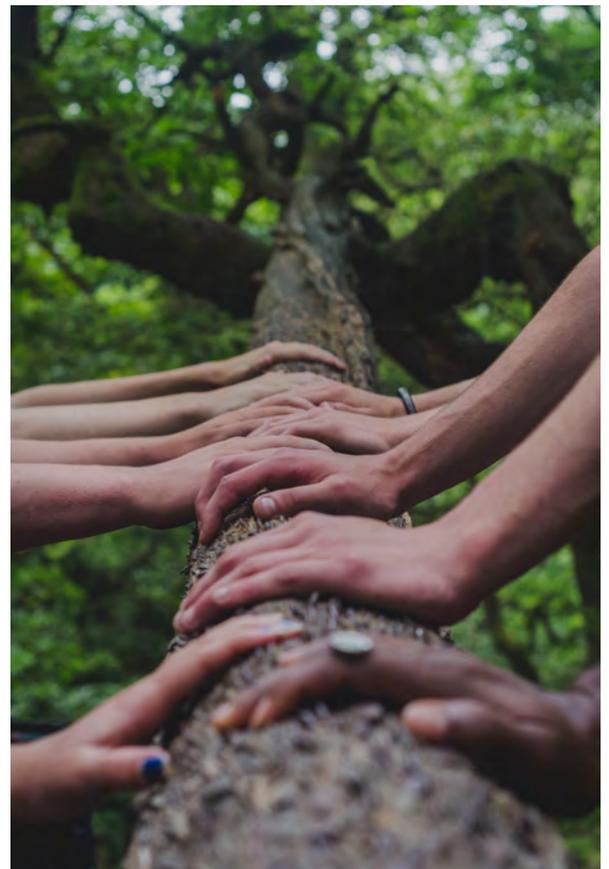
IPs&LCs engage with the VCM when activities are developed on land they manage or use. IPs&LCs are most often involved in VCM activities through consultation processes and **benefit sharing** arrangements. In some cases, IPs&LCs may be activity developers, directly involved in the design and implementation of a VCM activity. There are also cases of involuntary involvement, where a VCM activity impacts IPs&LCs who were not appropriately consulted.

#### **Consultation**

Some VCM carbon standards and methodologies require that communities be consulted in activity development. VCM activity developers should demonstrate compliance with Indigenous Peoples' right to FPIC as required by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). FPIC gives Indigenous Peoples the right to grant or withhold consent from activities that will impact them or take place on their territories. VCM

# The Voluntary Carbon Market Explained

## Chapter 12



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## Chapter 12: How are voluntary carbon market benefits shared?

High-quality voluntary carbon market (VCM) activities include transparent benefit sharing agreements with Indigenous Peoples and local communities (IPs&LCs) as well as other local landowners and stakeholders. The stakeholders who are involved in VCM activities may receive benefits directly from the sale of carbon credits or through benefit sharing arrangements. Benefit sharing arrangements identify how monetary and non-monetary benefits will be allocated to which stakeholders and how the distribution will take place. VCM activity developers need to follow benefit sharing requirements set by carbon standards and governments in host countries. Where benefit sharing requirements are not imposed, activity developers should still follow benefit sharing best practices to ensure activities are equitable and effective in the long-term.

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### What is benefit sharing?

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Benefit sharing is the allocation of the proceeds from the commercialization of carbon credits to local stakeholders involved in a VCM activity. Benefit sharing is primarily used in nature-based solutions (NbS) activities, such as avoided deforestation or

community forest projects, but also applies to other community-based carbon activities.

The goal of benefit sharing is to reward local actors for past contributions to greenhouse gas (GHG) emission reductions and removals and to incentivize future contributions to climate change mitigation activities. Benefit sharing can also be used to avoid future emissions by, for example, rewarding conservation and good stewardship of ecosystems. In addition to incentivizing relevant actors to participate in and support the implementation of VCM activities, benefit sharing aims to increase the legitimacy of carbon markets by providing tangible benefits to stakeholders that are involved or affected.

Benefit sharing arrangements are often designed to reward and incentivize the activities of IPs&LCs, forest-dependent communities, smallholder farmers, and other actors whose livelihoods intersect with forest conservation and sustainable land management activities. Benefit sharing arrangements outline who will bear costs and receive benefits, what institutional arrangements and implementation conditions are in place, and how decisions will be made and implemented in VCM activities. When agreements are

established in an inclusive, transparent, and equitable manner, actors are more likely to participate in VCM activities and the activities are more likely to achieve their climate change mitigation and other goals.

Benefit sharing is relevant to governments in two ways:

1. Governments are required to develop government-driven benefit sharing mechanisms for jurisdictional programs and project activities that they sponsor.
2. Governments can regulate private benefit sharing by creating guidelines for benefit sharing best practices.

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### **What are the best practices for benefit sharing?**

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Benefit sharing agreements should be based on the right to Free, Prior and Informed Consent (FPIC) of [IPs&LCs](#). Consequently, benefit sharing negotiations should start with a clear understanding of land and resource [rights](#), the needs and priorities of affected peoples and communities, and potential barriers to participation. Well-designed benefit sharing agreements can strengthen land tenure, support community governance, and enable [IPs&LCs](#) to manage their territories and livelihoods according to their needs and priorities.

However, benefit sharing can pose risks. Benefit sharing is an administrative process that may not be easily understood by potential beneficiaries. As a result, benefit sharing agreements may not accurately reflect the needs or priorities of [IPs&LCs](#) and confer power to activity developers. Benefit sharing agreements can also reinforce inequalities between members of [IP&LC](#) groups who are directly involved in benefits sharing negotiations or are the recipients of funds and those who are less directly involved. Following best practices for benefit sharing can avoid or mitigate these risks.

The Forest Carbon Partnership Facility ([FCPF](#)) outlined the following key elements and approaches for benefit sharing arrangements:



### **VCM activity developers and managers need to identify all relevant beneficiaries.**

Beneficiaries include those who are contributing directly to generating or sustaining emission reductions and removals, those who have historically managed land or contributed to avoided emissions in the VCM activity area, and those who require incentives to contribute to mitigation goals.

Beneficiaries may include IP&LC groups, government entities, private landowners, and any actors who engage either in behavior that should be rewarded (e.g., conservation) or behavior that should be changed (e.g., deforestation).



**Benefit sharing arrangements should be transparent.**

Arrangements should reveal risks, challenges, successes, and rewards of mitigation activities as well as how benefits are allocated between stakeholders. Existing or potential conflicting interests should be discussed openly with stakeholders. Managing expectations is essential to maintain trust and legitimacy for beneficiaries. Formal and informal, statutory, and customary land and [carbon rights](#) inform benefit sharing arrangements and facilitate effective benefit distribution. Cost-benefit analyses can help stakeholders understand and make informed decisions about their roles in VCM activities.



**Successful benefit sharing depends on effective, extensive, and frequent consultations with stakeholders.** Consultations build and maintain trust and ensure that arrangements continue to meet beneficiaries' needs. Through consultation, beneficiaries should set criteria for their participation in VCM activities to ensure that benefits reflect stakeholders' needs and priorities. Consultations should be initiated before the activity is implemented and occur regularly throughout all stages of a VCM activity so that benefit sharing arrangements can be revised based on changing conditions and activity outcomes.



**Benefit sharing should be linked to the contributions from stakeholders to mitigation activities.** Benefits can compensate transaction, implementation and opportunity costs incurred by stakeholders. Benefits can be output-based, in

which case local stakeholders are rewarded for achieving mitigation or conservation outcomes, or input-based, in which case local stakeholders receive benefits for carrying out activities that maintain ecosystems.

Benefits can be monetary or non-monetary. Non-monetary benefits may include training, capacity-building, provision of infrastructure or social services, agricultural inputs, technology, strengthened land tenure or governance, access to ecosystem services, and introduction of alternative livelihood or revenue-generating activities.



### **Benefit sharing arrangements can mitigate existing inequalities in beneficiary communities.**

This can be done by involving Indigenous Peoples, smallholders, forest communities, and other vulnerable or historically marginalized groups even if they are not agents of deforestation. Benefit sharing can help to redress socioeconomic inequality, recognize land and carbon rights, and sustain climate change mitigation outcomes. When benefit sharing does not address inequalities, it can exacerbate existing socioeconomic divisions,

land tenure insecurity, gender discrimination, and elite capture of resources. Benefits may include capacity-building needed for stakeholders to achieve or receive benefits.



Sufficient financial, administrative, and technical resources to implement and maintain benefit sharing arrangements must be budgeted. Benefit distribution is determined by differentiated beneficiary groups and the mechanisms required to share different types of benefits. Benefits may be distributed based on future or past contributions to reduced or avoided emissions, beneficiaries' level of need for incentives, and/or indicators such as Sustainable Development Goals (SDGs). VCM activity developers should be prepared to provide upfront resources to design and fully implement consultations and benefit sharing arrangements. Engaging existing institutions and payment for ecosystem services programs can reduce start up and transaction costs.

**It is important to remember that there is no one-size-fits-all for benefit sharing.** Arrangements should be developed based on the

land tenure and land use systems, governance arrangements, and historical or political conditions in the VCM activity site. Benefit sharing arrangements should not be scaled up or applied from one project to another without careful prior assessment and consultation.

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## Acknowledgments

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

activity developers may also demonstrate that they consulted with local communities and other vulnerable groups that are not protected under UNDRIP. [VCM validation and verification](#) processes review compliance with consultation requirements.

### **Benefit sharing**

VCM activity developers should establish [benefit sharing](#) agreements with IPs&LCs that are involved or impacted by VCM activities. [High-quality](#) VCM activities include benefit sharing in NbS activities and other activities that impact IPs&LCs. Benefit sharing agreements can provide direct financial payments to IPs&LCs or support needs identified by the IP&LC beneficiaries such as building infrastructure such as schools or roads, supporting education or alternative livelihood development, or strengthening rights and land tenure. Host countries governments may set benefit sharing requirements that VCM activity developers need to follow. Inclusion in benefit sharing plans set by governments does not confer carbon rights to IPs&LCs.

### **Activity development**

In cases where IPs&LCs hold formal forest and land rights, they can claim [carbon rights](#) and directly develop VCM activities in their territories. This means that IP&LC organizations, groups, or individuals can determine the VCM activity design, implementation,

and terms of carbon credit production and use. Most IP&LC-led VCM activities are focused on [NbS](#). IPs&LCs may choose to develop VCM activities to finance their own ecosystem protection efforts, support local sustainable development goals or territorial management plans, and strengthen land tenure.

IP&LC-led VCM activities have been developed under [carbon standards](#) Verra and Plan Vivo as well as under some compliance carbon market standards. The Architecture for REDD+ ([Reducing Emissions from Deforestation and Degradation Plus](#)) Transactions' The REDD+ Environmental Excellence Standard (ART/TREES) allows the registration of REDD+ programs developed across one or multiple Indigenous territories until the end of 2030. However, as of August 2023, no Indigenous jurisdictional programs have been developed under ART/TREES.

Due to the technical complexity of VCM activity development, there are few IP&LC-led VCM activities. Furthermore, most countries fail to fully recognize or formalize the carbon and [land rights](#) of IPs&LCs, which limits the ability of these groups to develop activities independently. In most cases where IPs&LCs are VCM activity developers, they work with non-governmental organizations (NGOs) that provide technical support and to facilitate credit trading.

### Box 11.1. Benefits and challenges of Indigenous-led carbon projects

Indigenous-led forest carbon projects can provide financial and tenure security to Indigenous communities. Yet, the success of Indigenous-led projects is subject to the strength of governance and legal recognition of Indigenous people in the jurisdictions where these projects take place. Examples from the United States, Colombia, and Brazil demonstrate some of these benefits and challenges.

The [Yurok tribe](#) in the lower Klamath River Basin in California (United States) sell 100-year contracts for forest offsets under [California's offset program](#). The Yurok have used the sale of these contracts to purchase and restore timberland in their ancestral territories. Carbon credits are generated based on reduced timber harvest and improved management that reduces forest fires.

[Indigenous communities](#) represented by the Regional Indigenous Council of Middle Amazonia (Colombia) have been able to receive stable income from the purchase of carbon credits generated by REDD+ projects they developed. These communities say that income from carbon credits has enabled them to conserve their forests and avoid illegal or environmentally unsustainable livelihoods. However, there are [concerns](#) now among communities that they will lose access to this income source as the Colombian government seeks to take more control over carbon market activities.

The [REDD+ Suruí Forest Carbon Project](#) in Pará, Brazil was the first Indigenous-led forest carbon project. Certified under the Verified Carbon Standard (VCS), this project generated almost 300,000 carbon credits from 2009-2014. The [credits](#) were owned by a Suruí association and credits sales were put into the Suruí Fund. The Paiter-Suruí people [used](#) proceeds from the sale of those credits to support defense of their territory, local governance, and food security. However, in 2014 and 2016, gold and diamonds were discovered in the Paiter-Suruí territory. Some community members supported allowing extractive activities, arguing that logging and mining provided more revenue than forest protection. Illegal mining also began and agricultural activities followed. Sanctioned and illegal mining and agriculture resulted in fewer credits being issued and ultimately a [suspension of the Suruí project by Verra](#). The Suruí Forest Carbon Project was [undermined](#) by internal divisions, insufficient revenues from carbon, collusion between a Suruí leader and miners, and lack of support from the Brazilian government for Paiter-Suruí rights.

These examples show how Indigenous communities can benefit directly as project developers and that stable governance environments are necessary to ensure long-term social and environmental benefits. The Yurok are in a relatively unique position with their secure, enforceable, long-term management rights. Indigenous REDD+ project developers in Colombia and Brazil face unstable governance and political conditions that can abruptly lead to the loss of access to carbon finance.

### **Involuntary involvement**

In some cases, IPs&LCs are **involuntarily involved** in VCM activities. This is most likely to occur where land ownership is unclear and governance is weak. **Much of the land** where NbS VCM activities are developed are in areas where the tenure or use rights of IPs&LCs have not been recognized or formalized. Governments may grant VCM developers the rights to land where IPs&LCs have unrecognized claims, use resources but do not inhabit the land, or are settled illegally. In other cases, **unscrupulous activity developers** establish VCM activities without following proper consultation processes or convince IPs&LCs to participate in VCM activities that result in them **losing ownership, rights, or access** to resources. Some carbon standards have safeguards in place to avoid the development of VCM activities without consultation with IPs&LCs, but there are still risks of nonconsensual involvement of IPs&LCs, especially in remote and low governance regions.

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### **How can VCM activities promote benefits for and mitigate risks to IPs&LCs?**

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Lack of legally-recognized rights can result in insufficient engagement with, weak **benefit sharing** for and disenfranchisement or displacement of IPs&LCs.

The most important measure to ensure that the VCM promotes benefits for and mitigates risks to

IPs&LCs is to develop VCM activities that are led by communities and based on local knowledge and Indigenous innovation. The Australian **National Indigenous Carbon Forum** calls for Traditional Owners of lands where carbon projects are developed to be treated as equal partners and for carbon market activities to only make claims about benefiting Indigenous people if and when IPs&LCs are the partners and beneficiaries. VCM activity developers should heed such demands from IP&LC groups and organizations to create activities that truly benefit IPs&LCs.

VCM activity developers are responsible for ensuring that VCM activities provide benefits and avoid risks. They can do this by considering and **recognizing** IPs&LCs' land, resource, and carbon rights from the beginning of VCM activity development. This includes recognizing customary and ancestral claims and uses of land and resources, which may not be formally recognized in law. In many regions, legacies of land seizures, forced expulsions, and conflict result in land that is owned or claimed by IPs&LCs being controlled by governments or other private landowners. VCM activity developers need to be responsive to these claims in determining how to allocate carbon rights and structure benefit sharing agreements. Activity developers can support IPs&LCs in accessing legal services to clarify land and carbon rights.

VCM activity developers must budget and invest sufficient time and financial resources to build trust and conduct full consultations with IPs&LCs. Conducting consultations and obtaining consent can take years.

Consultations and FPIC are necessary to develop activities and benefit sharing agreements with IPs&LCs that achieve long-term climate goals. If consultations have not been conducted appropriately, there is a much higher likelihood that the needs of IPs&LCs will not be met by a VCM activity and the goals of that activity (e.g., avoiding forest loss, changing livelihoods, securing land tenure) will not be achieved or sustained.

Consultations should be transparent about activities, outcomes, expectations, changes, and achievements. Appropriate consultation enables IPs&LCs to decline participation in or introduce changes to VCM activities.

Carbon standards can promote benefits and mitigate risks to IPs&LCs by providing specific guidance and safeguards for consultations and benefit sharing. This could include instituting requirements and procedures for human rights impact assessments for REDD+ and other NbS activities. Carbon standards can also improve the accessibility of their platforms, methodologies, and grievance procedures for IPs&LCs. This would make it easier for IPs&LCs to lead as activity developers.

Governments can promote benefits and mitigate risks to IPs&LCs by attributing to them rights to natural resources or recognizing their roles as stewards of ecosystems. Governments can also clarify how carbon rights and carbon markets will be treated in the future, which provides IPs&LCs and VCM developers the stability to develop activities. Where IPs&LCs have clear and secure ownership of land or other resources, they can be VCM activity developers and use carbon credit finance to support their land management, livelihoods, and governance.

Buyers of carbon credits can conduct thorough due diligence assessments to ensure that credits they acquire were generated by VCM activities that follow all social safeguards and promote benefits to IPs&LCs. Carbon credits with labels indicating social benefits—such as labels issued by the Climate, Community, and Biodiversity Standard or Gold Standard for the Global Goals—are more likely to support IP&LC rights and needs.

When engagement is done effectively, VCM activities can strengthen the position of IPs&LCs in negotiating, securing, and maintaining land and resource rights. In turn, where IPs&LCs have secure land and forest rights, they can counter ecosystem conversion and degradation, which benefits both communities and climate change mitigation goals.

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## **Acknowledgments**

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

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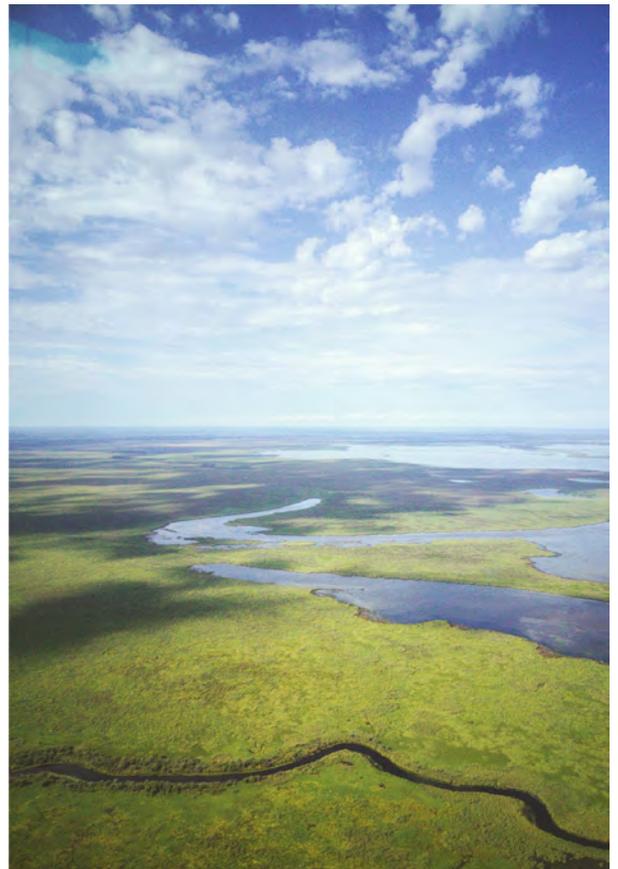
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# The Voluntary Carbon Market **Explained**

**Chapter 13**



## Chapter 13: How does the voluntary carbon market support nature-based solutions?

Nature-based solutions (NbS) are actions to protect, sustainably manage, and restore ecosystems and their benefits for humans and nature. Identified as one of the most important and cost-effective tools to mitigate climate change, NbS could deliver about a [quarter](#) of the mitigation needed to keep warming below 1.5°C, while providing important social, economic, and ecological benefits.

### Which NbS activities are supported by the VCM?

The voluntary carbon market (VCM) supports NbS by providing finance for activities that sequester and avoid the emission of greenhouse gases (GHGs) through trading [carbon credits](#) generated by those activities. VCM [carbon standards](#) certify credits from three main classes of NbS: forestry, agriculture, and wetlands.



**Forestry** activities provide the vast majority of NbS credits in the VCM. Avoided forest conversion and reforestation are the NbS with greatest potential to deliver climate change mitigation as well as multiple other ecological and social benefits. The largest supply of VCM

credits come from “Reducing Emissions from Deforestation and Degradation plus conservation, sustainable management, and enhancement of forest stocks” (REDD+) activities. REDD+ may be developed to generate carbon credits at an individual project scale (e.g., avoided deforestation projects) or at the scale of [jurisdictional and nested REDD+](#) programs.

Other types of forestry NbS that can generate carbon credits are Afforestation, Reforestation and Revegetation (ARR) and Improved Forest Management (IFM). ARR activities restore degraded forest land, reforest previously forested land, and convert non-forest land to forests through human intervention. IFM activities increase carbon stocks or reduce GHG emissions in both natural forests and plantations, through activities such as reduced-impact logging and extended harvest cycles.



**Agricultural** NbS activities include regenerative agriculture practices that sequester soil carbon, such as no-tillage, cover crop rotation and biochar. Agricultural NbS also includes activities that reduce emissions of methane and nitrous

oxide, such as livestock and fertilizer management. Another type of agricultural NbS that can generate carbon credits is agroforestry—when trees are planted in the same land areas used for crops or livestock. Restoring and avoiding the conversion of grasslands may also fall under agricultural NbS. Sustainable grassland management activities may include reducing land used for livestock grazing, avoiding conversion to crop production, managing for fire and drought, building or restoring soil carbon, and planting of vegetation.



**Wetlands**—including coastal wetlands (mangroves, marshes, and seagrass) and peatlands—hold the greatest amount of carbon stocks per unit area of any ecosystem. Wetlands are important carbon sinks and can become major sources of emissions when damaged or converted. Thus, avoided impacts on and restoration of wetlands are important climate change mitigation strategies. Coastal wetland NbS activities are often referred to as ‘blue carbon.’ Coastal NbS activities include

avoiding conversion or degradation of coastal ecosystems; restoring mangroves, marshes, and seagrasses; and enhancing the growth of kelp or shellfish. Peatland NbS activities include avoiding conversion or degradation of peatlands, rewetting drained peatlands, and restoring peatland vegetation.

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### Which standards certify NbS credits?

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To generate credits that are tradable in the VCM, NbS activities need to be covered by methodologies that guide the quantification of GHG emission reductions and removals.

The Verified Carbon Standard (VCS), the Gold Standard for the Global Goals (GS4GG), the Climate Action Reserve (CAR), and the ACR certify credits from NbS projects and programs. Plan Vivo (PV) certifies NbS projects that benefit Indigenous Peoples, local communities, and smallholder farmers. There are also standards that exclusively certify credits from REDD+ programs. The NbS project types and methodologies for which VCS, GS4GG, CAR, ACR, and PV issue credits (as of July 2023) and the standards that certify REDD+ are detailed in Table 13.1.

**Table 13.1 NbS methodologies under carbon standards**

Standard	Forestry	Agriculture	Wetlands
Verified Carbon Standard (VCS)	<p>VCS has a range of REDD+ methodologies and is in the process of consolidating all REDD+ methodologies and other methodologies for certifying activities that avoid unplanned deforestation or forest degradation.</p> <p>VCS has IFM methodologies for: extension of rotation age; avoided ecosystem conversion; preventing planned degradation; reduced impact logging; fire management; conversion of low-productive forest to high-productive forest; and conversion from logged to protected forest; tropical, temperate, and boreal forest ecosystems; and for Canadian and other national forests.</p>	<p>VCS has methodologies for improved agricultural land management; N2O emission reductions in crops; sustainable grassland management; fire and grazing for grasslands management; reduction of methane emissions from ruminants; and use of organic bedding material.</p>	<p>VCS has methodologies for avoided planned land-use conversion in peat swamp forests; coastal wetland creation; rewetting drained tropical peatlands; rewetting drained temperate peatlands; tidal wetland and seagrass restoration.</p>
Gold Standard for the Global Goals (GS4GG)	<p>GS4GG has methodologies for afforestation and reforestation. GS4GG does not</p>	<p>GS4GG has methodologies for increased soil carbon; low tillage; methane reduction;</p>	<p>GS4GG does not have wetlands methodologies.</p>

	<p>issue REDD+ credits due to concerns about environmental integrity.</p>	<p>livestock; and reduced erosion impacts on water.</p>	
ACR	<p>ACR has methodologies for ARR of degraded lands; IFM on Canadian and non-federal U.S. lands; and IFM on small non-industrial private forestlands.</p>	<p>ACR has methodologies for avoided conversion of grass- and shrublands to crop production.</p>	<p>ACR has methodologies for restoration of California deltaic and coastal wetlands; and restoration of Pocosin wetlands.</p>
Climate Action Reserve (CAR)	<p>CAR has protocols for IFM, reforestation, and avoided conversion for forests in Mexico, Panama, Guatemala, and the United States, including in urban areas of the United States.</p>	<p>CAR has protocols for biochar production and avoided conversion of grasslands in the U.S. and Canada; soil enrichment, nitrogen management, and improved rice cultivation in the U.S.; reduced emissions from livestock in the U.S. and Mexico.</p>	<p>CAR does not have protocols for wetlands.</p>
Plan Vivo (PV)	<p>PV has approved approaches for REDD+ in community-managed lands; prevention of deforestation; afforestation; reforestation; and agroforestry.</p>	<p>PV has approved approaches for agricultural land management and agroforestry.</p>	<p>PV does not have approved approaches for wetlands.</p>
Jurisdictional and Nested REDD+ (JNR) Framework	<p>JNR exclusively certifies jurisdictional-scale REDD+ credits. So far, no credits have</p>	<p>JNR and ART/TREES do not provide methodologies for Agriculture or Wetlands. However, REDD+ activities may</p>	

	been issued under JNR.	include peatlands, mangroves or other wetland ecosystems.
Architecture for REDD+ Transactions' The REDD+ Environmental Excellence Standard (ART/TREES)	ART/TREES certifies jurisdictional-scale REDD+ programs from national, subnational, and Indigenous-managed areas. So far, only one ART/TREES program is issuing credits.	

NbS projects often provide social, ecological, and sustainable development benefits in addition to climate benefits and can support the achievement of Sustainable Development Goals (SDGs).

Standards that credit SDG benefits of projects through labels or the issuance of tradable assets are still relatively new, and robust methodologies are under development. The Climate, Community and Biodiversity Standard (CCB), the Sustainable Development Verified Impact Standard (SD VISta), and the GS4GG allow the certification of socio-economic benefits. There are also new standards under development that would issue credits representing protection of biodiversity and of high-integrity forests. Purchasers of SDG, biodiversity, or high-integrity forest credits would use the credits to show contributions to these benefits, but not to offset emissions or other harms.

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### What is the state of NbS in the VCM?

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From 2018 to 2021, the voluntary market for NbS expanded rapidly, hitting a high of 160.3 million credits issued in 2021. In 2022, NbS issuances decreased. Renewable energy overtook NbS as the VCM activity category with the largest number of issuances. This aligns with the overall trend of fewer VCM credit issuances in 2022 than in 2021. However, issuances remain high in comparison to historical levels. Together, NbS and renewable energy accounted for two thirds of the issuances in 2022 and, while NbS issuances were lower in 2022 than in 2021, 2022 had the second highest level of NbS issuances of any year (see Figure 13.1).

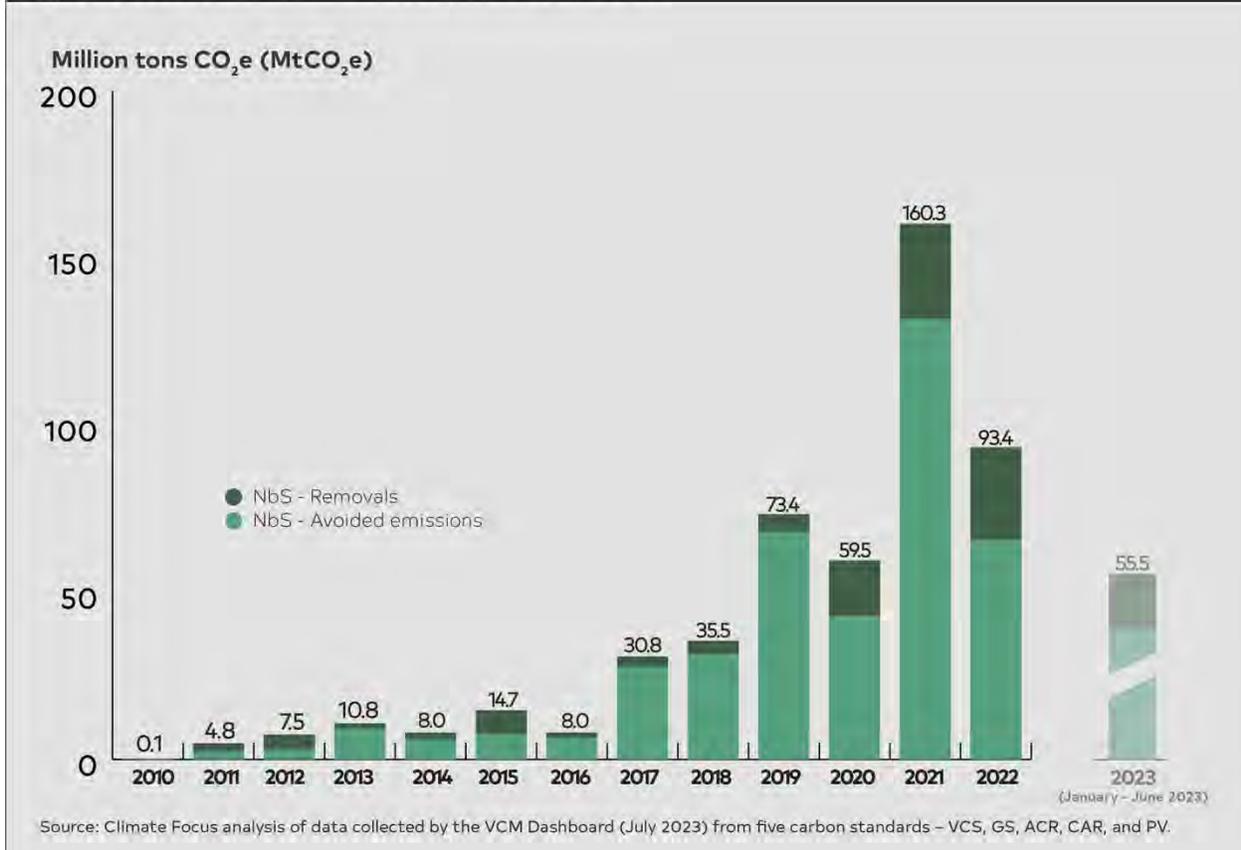
Demand for NbS credits in the VCM has expanded rapidly in the last few years. Voluntary buyers are attracted to the multiple social-

environmental benefits and the large credit inventories of NbS activities. However, carbon markets **historically excluded NbS credits** due to concerns about permanence, conservative baselines, and additionality. Recently, these concerns have resurfaced and decreased buyer interest in NbS credits. Commenters have pointed to issues such as an **increasingly large and chaotic mix** of codes, principles, and protocols developed for the VCM by a growing number of initiatives and organizations; the **unclear relation** of carbon credits to **Article 6 of the Paris Agreement**; and concerns about whether NbS credits represent **real and**

**additional emission reductions**. Ultimately, sustaining buyer interest for NbS credits depends on ensuring the **integrity** of NbS projects.

Investment in NbS is needed. NbS are essential to achieve global climate change mitigation goals, but they only receive a **small fraction** of global climate finance. NbS have the potential to reduce GHG emissions in the atmosphere by **8-14 gigatons** of carbon dioxide equivalent (CO<sub>2</sub>e) per year. Carbon markets are estimated to be able to **unlock at least 10 percent** of NbS' climate change mitigation potential by 2030. **43 percent** of the NbS potential is in agricultural NbS activities, followed by avoided

**Figure 13.1** | NbS carbon credits issued in the VCM



deforestation (32%), ARR (11%), IFM (7%), and wetlands (7%). To achieve this potential, carbon markets need to grow by **17 times** larger than 2021 levels by 2030. This requires private and public sector efforts.

Voluntary and private investment in NbS cannot replace public sector action. However, the ability of VCM activities to be designed and implemented relatively quickly and in areas out of reach of public policy makes them an important source of finance for and driver of climate change mitigation. VCM investments can provide urgently needed finance for activities like developing sustainable livelihood strategies and climate-smart agriculture, creating protected areas, or clarifying land ownership. Around **80 percent** of potential NbS activities are in developing and least-developed countries, making NbS through the VCM an attractive option for governments that may not have sufficient capacity to invest in mitigation projects. Biodiversity, high-integrity forest, and SDG non-offsetting credits traded on the VCM alongside carbon credits are increasingly important sources of finance.

**Governments** can attract more finance for NbS by clarifying land tenure, activities that need finance, and approvals and accounting procedures for VCM development in their countries. Clarification of land tenure and accounting rules could unlock as much as **35 percent** of currently-undeveloped NbS.

Governments are also engaging in **jurisdictional programs** to access finance to support ecosystem protection, climate-smart agriculture, and benefits to local communities. Private sector **buyers** may prefer project-level credits over jurisdictional-level credits because the climate and socio-economic impacts at the project level are easier to understand, audit, and communicate. Clear narratives about the huge potential benefits of large-scale NbS can guide buyers to invest in these essential activities. Through **REDD+ nesting**, defined safeguards, and guidance on **benefit sharing**, governments can ensure that NbS VCM activities have high environmental and social integrity.

Investment in NbS and increasing the demand for NbS credits from the VCM can accelerate the implementation of NbS and secure needed climate, ecosystem services, biodiversity, and socio-economic benefits.

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## Acknowledgments

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.

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# The Voluntary Carbon Market Explained

**Chapter 14**



## Chapter 14: How can the voluntary carbon market support REDD+?

The voluntary carbon market (VCM) incorporates Reducing Emissions from Deforestation and Degradation plus (REDD+) through the certification and trade of carbon credits that are generated by voluntary activities that seek to reduce deforestation. **Carbon standards** have developed methodologies to certify specific types of REDD+ activities. There are several standards focused specifically on the certification of jurisdictional-scale REDD+.

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### What is REDD+?

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REDD+ stands for “Reducing Emissions from Deforestation and Degradation plus conservation, sustainable management, and enhancement of forest stocks.” REDD+ is an incentive framework under the United Nations Framework Convention on Climate Change (UNFCCC) for developing countries to reduce forest emissions and increase the sequestration of carbon in forests. **REDD+ programs are set up** at the national level by governments in the form of jurisdictional programs. Complementary subnational REDD+ projects can be developed by public or private entities. **REDD+ can function** as a results-based payment (RBP) mechanism through which countries receive payments in exchange for reduced

emissions from deforestation. REDD+ can also be linked to carbon markets and function as market-based mechanism that is funded through the trade of **carbon credits**.

In 2013, the Conference of the Parties to the UNFCCC adopted the “Warsaw Framework for REDD+” (WFR), a set of seven UNFCCC decisions, as the rules governing REDD+. The WFR provides criteria for developing countries to implement REDD+, measure results, implement safeguards, and access finance. The WFR encourages countries to develop national or jurisdictional programs to guide implementation of REDD+ and requires countries to establish supporting national forest monitoring and safeguard frameworks. National REDD+ programs define measures to address deforestation and conserve and enhance forest carbon stocks. REDD+ results are measured in tons of carbon dioxide (tCO<sub>2</sub>) against a Forest Reference (Emissions) Level (FREL).

The WFR requires that countries develop national accounting frameworks for REDD+ results. Government-sponsored subnational accounting and implementation can serve as interim steps towards national implementation. Participating countries can decide on the REDD+ measures they will take to reduce

deforestation and degradation, enhance forest carbon stocks, or sustainably manage forests. Participation in market-based approaches, including the VCM, is one way that countries can achieve REDD+ results. Figure 14.1 provides an overview of the history of REDD+.

Governments can support jurisdictional REDD+ programs that are certified by [carbon standards](#) such as Verra's [Jurisdictional and Nested REDD+ Framework \(JNR\)](#) and the Architecture for REDD+ Transactions' [The REDD+ Environmental Excellence Standard \(ART/TREES\)](#). Governments can also support project-level REDD+ activities on their territories as part of public measures to reduce deforestation and forest degradation or to encourage private activity developers to develop and finance projects and programs that contribute to REDD+ outcomes.

Governments can facilitate site-specific REDD+ investments in the context of jurisdictional programs by clarifying and securing land, resource, and [carbon rights](#). To encourage VCM investment, countries can develop regulatory environments that facilitate direct investment into REDD+ activities through the VCM. Government agencies may also be project developers or implementation partners. Government agencies can partner with subnational agencies, authorities (e.g., park services), civil society organizations, and

Indigenous Peoples and local communities (IPs&LCs) to develop REDD+ projects and sell credits.

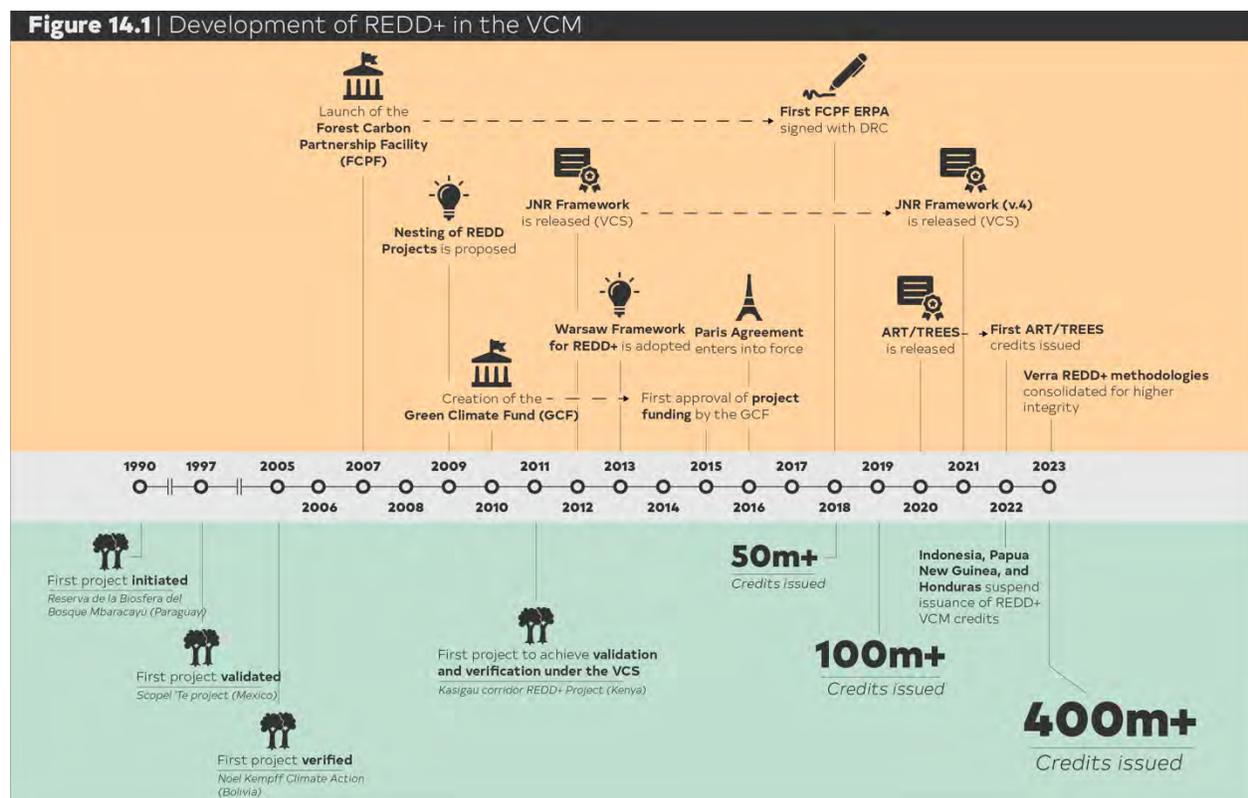
The WFR creates the necessary architecture to reward developing countries through RBPs for REDD+ benefits. The WFR also recognizes that market-based finance such as the VCM may require additional criteria to receive payments, such as independent verification of results. The Paris Agreement opens the possibility for forest carbon and REDD+ credits to be transacted under the modalities that govern [Cooperative Approaches under Article 6](#) of the Agreement.

Countries can develop cooperative REDD+ programs under Article 6.2 of the Paris Agreement, and REDD+ projects may be accredited under Article 6.4 of the Paris Agreement, provided they meet the mechanism's requirements and are approved by governments. Private actors can seek authorization to participate in such programs and projects under both Article 6.2 and 6.4. While REDD+ programs can also continue under the VCM, [authorization under Article 6](#) is necessary if participants want to ensure that greenhouse gas (GHG) reductions are backed by corresponding adjustments and do not count against the host country's Nationally Determined Contributions (NDCs).

## How is REDD+ integrated in the VCM?

REDD+ is one category of nature-based solutions (NBS) certified in the VCM. REDD+ can include avoided deforestation (AD), improved forest management (IFM), and afforestation, reforestation, and revegetation (ARR) activities. REDD+ can be developed at a project level or a jurisdictional or program level. To generate high-quality carbon credits, REDD+ projects and jurisdictional programs should follow methods consistent with the Intergovernmental Panel on Climate Change (IPCC) for quantification and use new monitoring technologies to the extent possible.

As of 2020, the Climate, Community, and Biodiversity Standards (CCB), the Verified Carbon Standard (VCS), the Gold Standard for the Global Goals (GS4GG), and Plan Vivo (PV) had certified 212 VCM REDD+ projects, which are expected to issue over 2.1 billion credits. 76 countries have REDD+ projects or programs, although not all REDD+ activities are certified to issue VCM credits. REDD+ has become more popular among voluntary buyers in recent years. There was a huge jump in REDD+ credit issuances and retirements in 2017-2022 compared to all the preceding years. The annual credit issuance for REDD+ grew by 20 times from 2016, when 5.4 million credits were issued, to 2021, which saw the issuance of over 108 million REDD+ credits,



exceeding all previous years and 2022.

Almost all VCM REDD+ credits are issued under VCS. VCS has [eight methodologies](#) that support REDD+, although it is in the process of consolidating all of its AD methodologies into [one new REDD+ methodology](#). PV issues a small portion of VCM REDD+ credits under its “REDD in community managed forests” and “prevention of deforestation” [approved approaches](#).

[JNR](#) and [ART/TREES](#) provide methodologies to certify jurisdictional-scale REDD+ credits that can be traded in the VCM. REDD+ activities under these standards can be developed by national or subnational governments or, in the case of ART/TREES, by indigenous groups with sufficiently large territories. The first Letters of Intent for transactions involving jurisdictional credits certified under ART/TREES were signed in November 2021. As of May 2023, there were 17 programs in the [ART/TREES registry](#). [Guyana is the first](#) and, so far, only jurisdiction to have been issued ART/TREES credits. So far, no credits have been issued under Verra’s JNR methodology.

Some REDD+ activities that generate VCM credits are supported by purchase programs. Purchase programs for national REDD+ credits often define their own program rules. Two notable purchase programs are the World Bank’s Forestry Carbon Partnership

Facility (FCPF) and the [Green Climate Fund](#).

The FCPF has two trust funds—the Readiness Fund and the Carbon Fund—that provide finance for national REDD+ strategies and large-scale REDD+ programs, respectively. Like private standards, the FCPF has defined rules, in the form of a methodological framework, to certify emission reductions from REDD+ programs. As of June 2023, the FCPF Carbon Fund had signed Emission Reduction Payment Agreements (ERPAs) with [15 countries](#).

Similarly, the Green Climate Fund allocates funds with respect to the three REDD+ phases of readiness, implementation, and RBPs with its own [“Performance measurement framework for REDD+ results based payments.”](#) As of June 2023, the Green Climate Fund had made RBPs to [8 countries](#).

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### **Is government implementation of the WFR and REDD+ compatible with engagement in the VCM?**

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REDD+, as defined by the WFR, is a RBP mechanism, like the VCM. However, reporting requirements under the WFR are insufficient to generate [high-quality](#) tradable GHG emission reduction and removal credits. For credits from REDD+ to be traded on the VCM, results must meet the monitoring, validation and verification

requirements of VCM [carbon standards](#).

In the past, there has been more demand for project-level credits than for jurisdictional credits. Jurisdictional-level REDD+ projects have received RBPs from bilateral or multilateral agencies, and eligible individual REDD+ projects have received payment through the VCM or compliance markets. Recently, credits from jurisdictional REDD+ are becoming more popular in the VCM due to the perception that they are of higher integrity. However, in many cases jurisdictional-level programs lack the accounting infrastructure to track emissions at scale, and without harmonized international efforts to regulate leakage and shift economic drivers of deforestation, jurisdictional REDD+ is not inherently more likely to prevent leakage than project-level REDD+.

The Science-Based Targets initiative (SBTi), which is setting guidance for corporate climate claims, recommends the purchase of jurisdictional REDD+ credits. The International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) has [exclusively authorized](#) jurisdictional-scale REDD+ credits. In March 2023, ICAO announced they would accept ART/TREES high forest, low deforestation (HFLD) credits as eligible units under CORSIA. As of July 2023, [125 states](#) had announced their intention to participate in the CORSIA from

January 2024 onwards. In 2021, the Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition, a coalition of public and private buyers, mobilized [USD 1 billion](#) for jurisdictional REDD+ credits. Other buyers continue to prefer project-based REDD+, which are faster to implement and for which risks are easier to control.

REDD+ programs and projects come with significant environmental and social benefits. However, they are not without risks. REDD+ projects can have inflated baselines and credit expectations, and jurisdictional programs face the risk of policy reversal that undermines forest protection activities. REDD+ activity developers have been criticized for failure to involve [IPs&LCs](#) in activity design, lack of appropriate [benefit sharing agreements](#), and displacing rather than reducing emissions. Despite risks, well-designed REDD+ activities have an important role to play in [countries' efforts](#) to meet their NDCs under the Paris Agreement. Jurisdictional-level REDD+ builds on governments' ability to influence land use and land use change through policies. VCM activities can complement these efforts by attracting finance quickly to areas where forests are lost or under threat, and where the reach of public policies is limited.

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## Acknowledgments

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Date of publication: October 2023

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# The Voluntary Carbon Market **Explained**

**Chapter 15**



## Chapter 15: How does REDD+ nesting work?

Countries may want to integrate Reducing Emissions from Deforestation and Degradation Plus (REDD+) activities across different scales to support jurisdictional programs and voluntary carbon market (VCM) projects. Nesting enables countries to support REDD+ at different investment and governance levels.

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### What is nesting?

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Nesting refers to aligning the accounting of greenhouse gas (GHG) emission reductions and removals across scales. Nested REDD+ systems align accounting and reporting of greenhouse gas (GHG) emission reductions and removals from Avoided Deforestation (AD) projects and jurisdictional REDD+ programs. By integrating the accounting frameworks for different types of REDD+, nesting harmonizes the climate benefits of land-use activities implemented at different scales, helps to manage leakage, and enforces environmental safeguards.

Nesting enables REDD+ implementation at different scales by creating incentives for both public and private actors. Governments are best equipped to establish long-term sustainable land use systems, fight illegal

activities and corruption, and grant secure land rights for Indigenous Peoples and local communities (IPs&LCs). Activity developers and local partners can design and implement solutions and establish benefit sharing arrangements for specific socio-ecological contexts. Companies can provide the investments and quickly disburse payments to accelerate climate change mitigation, while complying with regulations that push them to reduce emissions and deforestation in their supply chains.

Nested systems are likely to play a role in the design and implementation of REDD+ going forward. Effective nesting systems that generate high-quality carbon credits will attract private finance for forest conservation and climate change mitigation interventions. The ideal nesting arrangement aligns privately funded projects with jurisdictional REDD+ programs to protect forests at scale while maximizing cooperation between private and public actors.

### **Box 15.1: Is nesting required for REDD+ to generate credits that are traded in the VCM?**

No. REDD+ projects may be developed and generate tradable units without being nested if a country does not have a nesting approach. REDD+ can function as a jurisdictional program in which all activities are managed by the government, with no separate accounting or crediting, and payments are made through benefit sharing arrangements. However, nesting is a good strategy to ensure alignment between national forest policies and project-level activities to reduce deforestation. Nesting can be implemented in a stepwise approach, starting with the coordination of jurisdictional reference level and project baselines, and moving to a more comprehensive nesting system over time.

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### **Why would governments engage in nesting?**

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Governments choose to engage in nesting because they want to recognize existing and future REDD+ project activities and implement REDD+ in accordance with local systems of land ownership and rights. In areas where several REDD+ projects already exist or where the right to the land implies the right to harvest its resources (including carbon credits), nesting projects in national systems is often the only way to implement REDD+. Nesting can help countries to meet results-based payment (RBP) goals under international or multilateral agreements, access finance for climate and forests goals, strengthen national REDD+ strategies, and generate jurisdictional-level carbon credits to sell in the VCM.

Nesting can incentivize direct private investment into REDD+ while increasing the integrity of

REDD+ projects through conservative baselines and accounting of leakage across an entire jurisdiction. Credits from nested REDD+ programs may be more attractive to VCM buyers than credits from REDD+ projects because quality concerns associated with inflated project baselines, leakage, permanence, and safeguards are thought to be better addressed through larger-scale programs, while investments are allowed to flow to distinct project activities. However, the quality of credits from nested REDD+ programs depends on the integrity of national accounting methods and the ability to enforce regulation. The credibility of REDD+ programs depends on conservative forest reference (emissions) levels (FRELs), robust measurement, reporting and verification, and enforceable safeguards across all implementation levels.

Verra's Verified Carbon Standard (VCS) is consolidating all REDD+ methodologies and other methodologies for certifying

activities that avoid unplanned deforestation. This consolidation integrates REDD+ project baselines into historic national or jurisdictional FRELs. Ideally, these FRELs are developed or endorsed by national governments. However, they can also be created by the VCS itself. The consolidated VCS methodology revision addresses the risks of activity developers setting inflated baseline-setting and provides essential tools for nested REDD+.

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### **How should nesting be designed?**

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Governments should identify clear policy objectives before designing a nested system. Local circumstances and policy preferences will determine how a country nests REDD+. Governments may also seek to access carbon finance through jurisdictional REDD+ or by providing high-integrity frameworks for private REDD+ investments that are not part of nested systems. In areas where all rights to land and future carbon credits rest with the state, the government may implement nested REDD+ in the context of a government-administered benefit sharing system.

Nested REDD+ can have varying degrees of government control. In centralized nesting systems, carbon credits are only issued at the national scale and projects participate in REDD+ through government-controlled benefit

sharing (for example, through payment for ecosystem services programs). In decentralized nesting systems, credits are generated at the project scale, and projects generate and market credits independently from the government. In countries where VCM REDD+ projects are under implementation, or are generally welcome, decentralized nesting is often favored because it more easily integrates existing agreements and avoids legal controversy with participants in existing projects. Figure 14.1 shows how REDD+ can be structured as jurisdictional programs or stand-alone projects in a country with no nesting systems, or under centralized or decentralized nesting systems.

The two jurisdictional REDD+ standards —Verra’s Jurisdictional and Nested REDD+ Framework (JNR) and the Architecture for REDD+ Transactions’ The REDD+ Environmental Excellence Standard (ART/TREES) — define criteria for nested REDD+. In both cases, governments have the choice between centralized or decentralized nested systems. While JNR offers detailed guidelines rules for nested REDD+, ART/TREES defines nesting scenarios but leaves the details for the participating governments to decide.

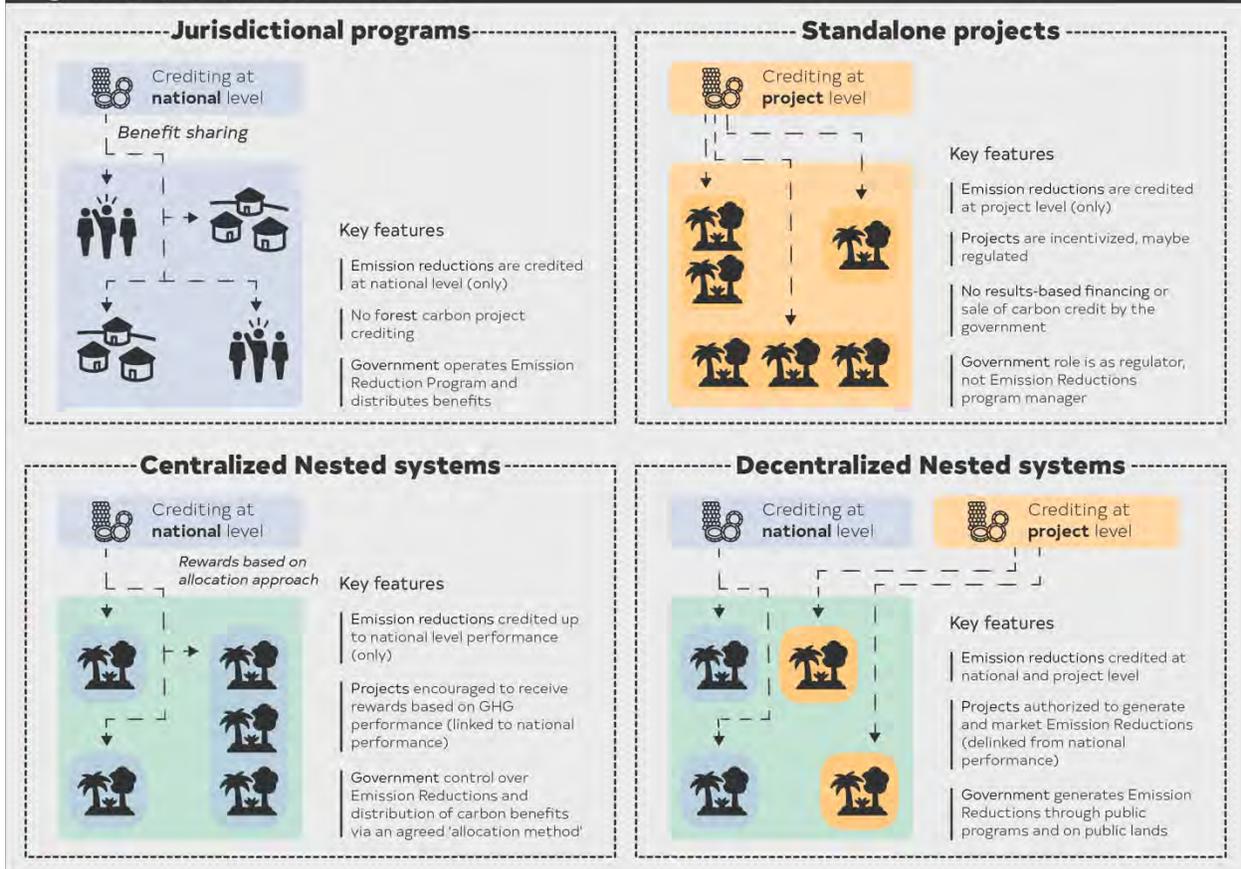
## What are the key features of nested REDD+ systems?

Nested REDD+ systems require that governments have credible REDD+ carbon accounting systems in place. To promote alignment in baseline setting across REDD+ activities, governments can mandate conformity in baseline and monitoring methodologies, allocate FRELs to ensure that project baselines do not exceed jurisdictional baselines, or set maximum crediting levels for projects. Governments must also decide on the REDD+ activities that will be included in nesting, and establish definitions, data, and methods for estimating GHG

emissions. For effective nested REDD+, governments must have the ability to track and register projects and credits, ensure consistency of data, and share this information transparently. Governments should also consider whether and when they will back REDD+ transactions with corresponding adjustments under Paris Agreement Article 6.

Government institutions should have clearly assigned responsibilities for the implementation of nesting. Institutional infrastructure is needed to manage the technical, financial, administrative, and supervisory aspects of nesting, and for the allocation of GHG emission

**Figure 15.1** | Structures for REDD+



reductions, management of funds and sharing of associated benefits. Government institutions are responsible for monitoring, verifying, and accounting for jurisdictional emission reductions. Governments should consider creating registries, national monitoring systems, and other data management mechanisms to facilitate effective nesting implementation and institutional coordination.

Clear land and carbon rights also inform the design of nested REDD+ systems. Clarifying land tenure and associated carbon rights through laws or contracts facilitates the implementation of REDD+ nesting. Governments should consider legal rights of existing avoided deforestation projects and how these rights need to be integrated into nested REDD+ systems. Depending on the land systems and rights of communities and individuals, governments may have to take into account future REDD+ projects and create measures for those projects to be legally nested in jurisdictional systems.

Governments should also establish benefit sharing plans that detail how carbon finance from REDD+ is distributed, and the monetary or non-monetary incentives that will be shared.

Governments can implement safeguards for nested REDD+ activities. Participatory consultations with local actors are essential to successful integration of existing REDD+ projects with

nested systems. Nested REDD+ should align with the objectives of national forest programs and international agreements; be transparent and account for national legislation and sovereignty; respect the knowledge and rights of IPs&LCs; ensure the full and effective participation of relevant stakeholders; promote conservation of forests and biodiversity; address the risks of reversals; and avoid displacement of emissions. In addition to safeguards imposed by governments, private project developers or carbon standards may impose safeguard requirements.

Governments should also consider the risks inherent to nested systems, particularly the underperformance of jurisdictional programs or projects in generating GHG emission reductions and removals. Corporate buyers may prefer to trade credits directly with project developers or invest directly in REDD+ projects because they are not able or willing to assume the risk of government implementation failure. However, governments can increase corporate support for jurisdictional programs by establishing clear nesting rules and by defining rules that allocate the risk of non-performance at the project or jurisdictional levels. Methods to reduce risks depend on the type of nested REDD+ system, and may include: strengthening institutions and governance to provide effective implementation;

sharing of performance risks; establishing accountability mechanisms; securing multiple streams of finance; compensating actors negatively impacted by nesting (e.g. where rights to carbon are centralized and need to be compensated), including relevant stakeholders in REDD+ and benefit sharing designs; and using the most updated methodologies for calculating GHG emission reductions and removals.

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### Further Reading

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*Hamrick, K., Webb, C., & Ellis, R. (2021). Nesting REDD+: Pathways to Bridge Project and Jurisdictional Programs. Retrieved August 9, 2021, from [https://www.nature.org/content/dam/tnc/nature/en/documents/REDD\\_Plus\\_PathwaystoBridgeProjectandJurisdictionalPrograms.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/REDD_Plus_PathwaystoBridgeProjectandJurisdictionalPrograms.pdf)*

*Streck, C., Lee, D., Cano, J., Fernandez, M., Llopis, P., Landholm, D., et al. (2021). Nesting of REDD+ Initiatives: Manual for Policymakers (No. AUS0002247) (No. AUS0002247). Retrieved October 11, 2021, from <https://documents1.worldbank.org/curated/en/411571631769095604/pdf/Nesting-of-REDD-Initiatives-Manual-for-Policymakers.pdf>*

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### Acknowledgments

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Date of publication: October 2023

The Voluntary Carbon Market Explained (VCM Primer) is supported by the Climate and Land Use Alliance (CLUA). The authors thank the reviewers and partners that generously contributed knowledge and expertise to this Primer.