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REDD+ ACADEMY

Learning Journal

Introduction to Forest Carbon Markets



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Welcome & introduction

Welcome to the Learning Journal on Introduction to Forest Carbon Markets

This Learning Journal is part of the revitalized REDD+ Academy. It is designed to bridge the gap between understanding and accessing high-integrity forest carbon markets, including in the context of the voluntary, compliance and markets related to Article 6 of the Paris Agreement. By engaging with this resource, you will gain insights into the key elements that national and subnational governments or jurisdictions must address to access high-integrity forest carbon markets.

Who is it for?

This Learning Journal is for government practitioners, but may also be of interest to project developers, public and private finance providers and REDD+ technical assistance partners.

At a glance

This Learning Journal provides a comprehensive overview of forest carbon markets as one of multiple alternatives for scaling up climate finance to protect and/or enhance forest areas. It explains the distinctions between market and non-market approaches for activities related to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. The journal also emphasizes what forests carbon markets are, what integrity is in the context of forest carbon markets, who the actors related to forest carbon markets are, and the typology (voluntary, compliance and international carbon markets under the Paris Agreement). You will learn how forest carbon markets can support Nationally Determined Contributions (NDCs) and corporate climate commitments and claims while also examining the key building blocks that national and subnational governments must consider to engage in high-integrity carbon markets. Topics include assessing risks and opportunities, defining and implementing policy, regulatory and governance frameworks, defining the roles of national authorities, and understanding and negotiating carbon trading contracts.

How to make the best use of this Learning Journal



Read the key chapters of relevance to you.



Download this publication at [REDD+ Academy Platform](#) and use the online version to access all hyperlinks in the text.



Utilize it as a supplement for any lifelong learning opportunities.



Use the QR CODES to access the additional online tools to reinforce your knowledge.



Check your knowledge before starting. What do you already know about forest carbon markets? Go to the [REDD+ Academy Platform](#) and answer the preliminary test question to see your current level of knowledge.



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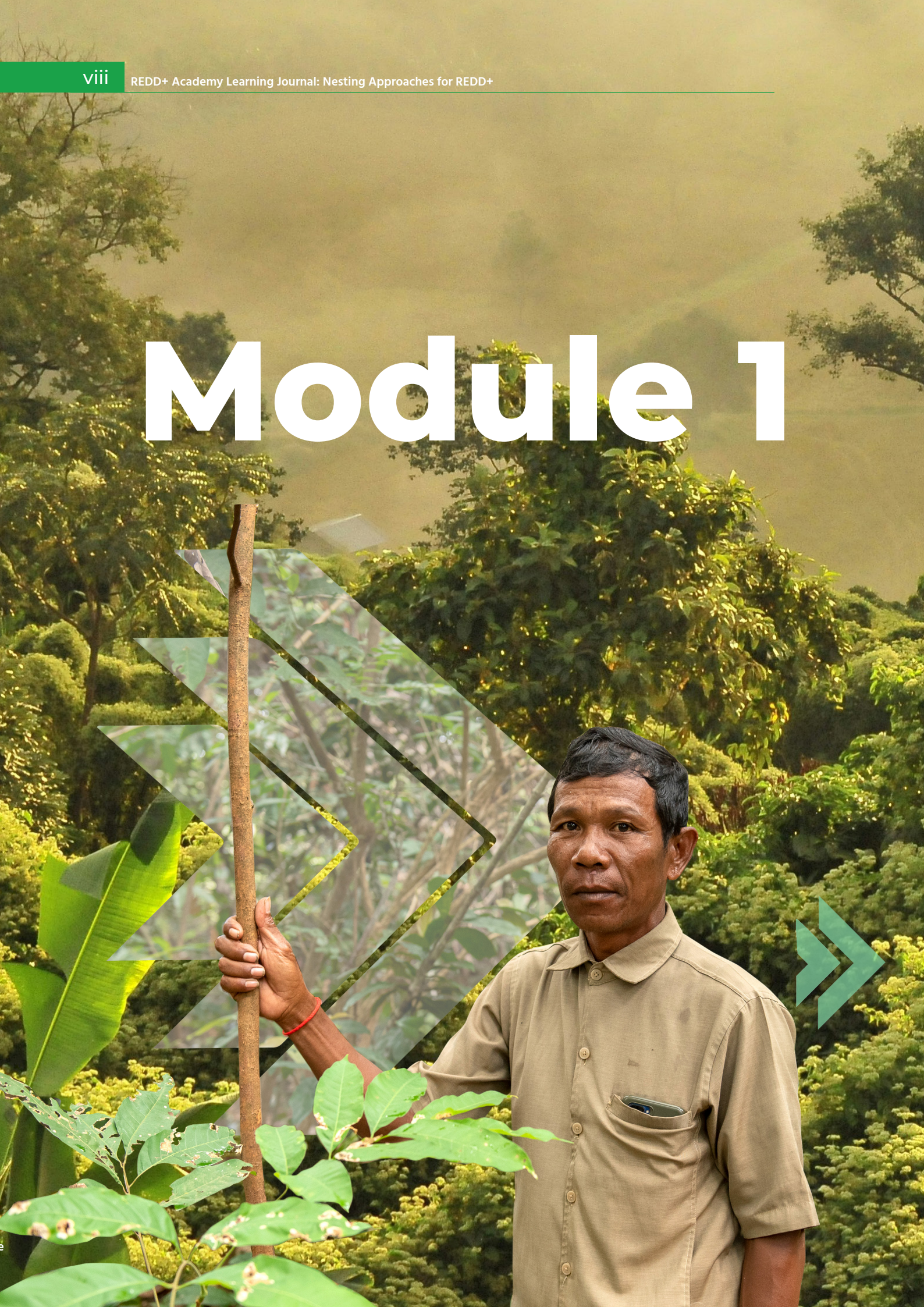
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Acronyms

A6.4ERs	Article 6, paragraph 4, emission reductions
ACR	American Carbon Registry
AFOLU	Agriculture, forest and other land uses
ARR	Afforestation, reforestation and revegetation
ART	Architecture for REDD+ Transactions
BVCM	Beyond Value Chain Mitigation
CAR	Climate Action Reserve
CARP	Centralized accounting and reporting platform
CCP	Core Carbon Principles
CDM	Clean development mechanism
CMA	Conference of the Parties serving as the meeting of the Parties of the Paris Agreement
CO ₂	Carbon Dioxide
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
COP	Conference of Parties
CSR	Corporate Social Responsibility
ERs	Emission reductions
ERPA	Emission Reduction Purchase Agreement
ETS	Emissions trading schemes
FAO	Food and Agricultural Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FREL	Forest reference emission level
FRL	Forest reference level
GCF	Green Climate Fund
GHG	Greenhouse gas emissions
GtCO ₂ y-1	Gigaton Tons of Carbon Dioxide per year
GS	Gold Standard
HFLD	High-forest Low-deforestation
LEAF	Lowering Emissions by Accelerating Forest Finance
LoI	Letter of Intent
IA	Implementation agreements
ICAO	International Civil Aviation Organization
ICVCM	The Integrity Council for Voluntary Carbon Markets
IFM	Improved Forest management
IPCC	Intergovernmental Panel on Climate Change
ISFL	Sustainable Forest Landscapes Fund
ITMOS	Internationally Transferred Mitigation Outcomes

JI	Joint Implementation
JNR	Jurisdictional and Nested REDD+
JREDD+	Jurisdictional REDD+
KP	Kyoto Protocol
LULUCF	Land use, land use change and forestry
MRV	Monitoring, reporting, verification
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organizations
NZU	New Zealand Units, representing 1 tonne of CO ₂ equivalent
OMGE	Overall mitigation in global emissions
PA	Paris Agreement
PPCDAm	Action Plan for the Prevention and Control of Deforestation in the Legal Amazon
RBP	Results based payments
REDD+	Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
REM	REDD Early movers
SBTi	Science-based Targets Initiative
SB	Article 6.4 Supervisory Body
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SBTs	Science-based targets
SIS	Safeguards Information System
tCO ₂	Ton of Carbon Dioxide
TREES	The REDD+ Environmental Excellence Standard
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN	United Nations
WB	World Bank
WBCSD	World Business Council for Sustainable Development
VCM	Voluntary carbon markets
VCMi	Voluntary Carbon Markets Initiative
VCS	Verified Carbon Standard
WFR	Warsaw Framework for REDD+
WRI	World Resources Institute

Module 1



Introduction



This module

Highlights the role of forests in climate change mitigation by providing scalable, cost-effective pathways to reduce greenhouse gas emissions.



You will be able to...

- Understand the potential of forests in reducing emissions and enhancing climate resilience.

1.1 The role of forests in climate change mitigation




Forests offer key climate mitigation pathways because they provide a cost-effective way to reduce and remove carbon dioxide (CO₂) from the atmosphere while conserving biodiversity and ecosystem services.

Reducing greenhouse gas (GHG) emissions from deforestation and forest degradation has a massive mitigation potential that ranges

between 0.15 – 4.0 GtCO₂e per year.¹ Such potential depends on the cost that society may be willing to pay for the CO₂eq reduced and/or removed from the atmosphere (see Table 1).

It is critical that when implementing such mitigation pathways, the perspectives and rights of marginalized groups, such as Indigenous Peoples, Afro-descendent and local communities, including women, men and youth among them, are fully taken into account and respected. See the learning journal on “Implementation of Social Inclusion and Gender Considerations in REDD+” (forthcoming, 2025).

Table 1. Forest mitigation potential (Gt tCO₂eq-1) and related costs²

Mitigation response options	Mitigation potential (GtCO ₂ eq yr-1) per “value of carbon”		
	<USD 20 tCO ₂ eq-1	<USD 50 tCO ₂ eq-1	<USD 100 tCO ₂ eq-1
 Protect Reduced deforestation, loss and degradation of peatlands, coastal wetlands, and grasslands	2.3 (1.7–2.9)	2.4 (1.2–3.6)	4.0 (2.5–7.4)
 Restore Afforestation, reforestation, peatland restoration, coastal wetland restoration	0.15	0.7 (0.2–1.5)	2.1 (0.8–3.8)
 Manage Improve forest management, fire management	0.4 (0.3–0.4)	ND	1.2 (0.6–1.9)

Financial needs for forest conservation, restoration, and management are estimated at USD 300 billion per year by 2030.³ However, climate finance for reducing deforestation and forest degradation is currently limited to around USD 2-3 billion per year.⁴ An average price that ranges between USD 30-50 per tCO₂ for REDD+ activities can offer a more realistic price to close the gap between current emissions trends and the net-zero emissions target.⁵

In this context, this Learning Journal explores forest carbon markets as one of multiple alternatives for scaling up climate finance to protect and/or enhance forest areas. Forest carbon markets create a financial incentive for the public and private sectors to reduce deforestation and forest degradation by assigning a monetary value to carbon removed and stored in forests. This encourages investment in activities that preserve and restore forests, making them a key tool in achieving carbon reduction goals.



Key Takeaways

- Forests offer key climate mitigation pathways in a cost-effective way while conserving biodiversity and ecosystem services
- It is critical that when implementing such mitigation pathways, the perspectives and rights of marginalized groups, such as Indigenous Peoples, Afro-descendent and local communities, including women, men and youth among them, are fully taken into account and respected
- Is critical to ensure a realist carbon price REDD+ activities to close the gap between current emissions trends and the net-zero emissions target

Module 2



Carbon market approaches in the context of forest-based mitigation



This module

Provides a comprehensive overview of high-integrity forest carbon markets, highlighting what forest carbon markets are, integrity in the context of forest carbon markets, the actors related to forest carbon markets and the forest carbon markets typology (voluntary, compliance and markets related to Article 6 of the Paris Agreement).



You will be able to...

- Differentiate between market-based and non-market-based approaches for forest-based climate mitigation.
- Define high-integrity carbon markets and identify initiatives that uphold forest carbon market integrity.
- Identify the key actors related to forest carbon markets.
- Differentiate between voluntary, compliance carbon markets and Article 6 of the Paris Agreement markets as well as their interlinkages.
- Assess the role of forest carbon markets in achieving Nationally Determined Contributions (NDCs) and corporate climate commitments and claims.

Countries have an increasing necessity to access adequate and predictable finance to implement forest-based mitigation in line with the provisions of the Warsaw Framework on REDD+ (WFR)^a and Articles 5 and 6 of the Paris Agreement. To this end, countries may pursue climate change finance in the form of, on one hand, results-based payments (i.e., non-market-based approach) and/or, on the other hand, accessing carbon markets (i.e., market-based approach) - refer to **Figure 1** for a non-exhaustive representation of different approaches.

Also, as part of the REDD+ landscape, while private sector actors such as project developers, landowners, and communities may develop forest carbon mitigation activities on a smaller scale (i.e., **project level**), national jurisdictions (countries) or subnational jurisdictions (states or provinces) may develop large scale **jurisdictional REDD+ programs** (known as JREDD+). In both cases, forest mitigation activities have the potential to generate multiple benefits beyond carbon emissions reductions and removals, including biodiversity conservation, watershed protection, and support for local livelihoods.

Figure 1. Market and non-market non-exhaustive approaches relevant to the forest sector⁶



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Go to the [REDD+ Academy Platform](#) to see an interactive version of the spectrum and clarify the differences between carbon market and non-market approaches.



^a The Warsaw Framework for REDD+ (WFR) is an international framework for the cooperation between developed and developing countries to reduce forest-based GHG emissions, adopted by COP 19 in 2013 and anchored in article 5.2 of the Paris Agreement. It comprise several decisions taken by UNFCCC providing clarity on a number of important issues related to REDD+ implementation. For the complete list of decisions taken visit: <https://redd.unfccc.int/fact-sheets/warsaw-framework-for-redd.html>

There is no agreed specific definition of what would constitute a “market-based approach” and a “non-market-based approach”. For this journal, the following definitions are used only with the purpose of facilitating an understanding of the main difference between market and non-market approaches:



A carbon market-based approach could refer to any approach that allows for the transfer of the ownership/title of either a GHG emission allowance or a GHG emission reduction and/or carbon removal achieved.



A non-market approach could refer to any approach that allows for payment of a GHG emission reduction and/or carbon removal achieved without the transfer of the ownership/title.

Carbon markets gained momentum in the context of international climate negotiations when, under the Kyoto Protocol (KP), emissions trading, the Clean Development Mechanism (CDM), and the Joint Implementation Mechanism (JI) were used to define a monetary value for units of GHG emissions and/or emissions reductions and removals (“Kyoto units”), that could be used by Parties to achieve their targets. Under the KP emissions trading scheme, countries were able to create and trade permissions to emit GHG (“emissions allowances”), and in the case of the CDM and JI, GHG emissions

reductions and/or carbon removals generated under agreed methodologies created “carbon credits.” More recently, the Paris Agreement created the possibility of voluntary cooperation in the implementation of the NDCs, using Article 6, in particular: “cooperative approaches that involve the use of internationally transferred mitigation outcomes (Article 6.2); and a mechanism – the Paris Agreement Crediting Mechanism (PACM) to contribute to the mitigation of GHG emissions and support sustainable development (Article 6.4).

2.1 Forest carbon markets

Defining forest carbon markets

A forest carbon market can be defined as a market-based approach where the transfer of ownership/title of carbon credits, generated through crediting programs for jurisdictional programs and/or project level activities that reduce deforestation and/or forest degradation (REDD), afforest, reforest and revegetate (ARR) and improve sustainable forest management (IFM), occurs for the purpose of mandatory and/or voluntary offset claiming and/or non-offset claiming (refer to **Table 5** for types of claims).

Carbon credits are measured in tons of CO₂ equivalent, representing the amount of GHGs that have been avoided, reduced, or removed from the atmosphere. Carbon credits are monitored, reported, and verified following methodologies either at the project level or at the jurisdictional level.

Forest carbon markets involve a diverse range of actors, including:

Table 2. Forest carbon markets related actors

Actors	General description
Countries/Parties to the Paris Agreement	Take decisions during the Conference of the Parties serving as the meeting of the Parties of the Paris Agreement (CMA) regarding market approaches under Articles 6.2 and 6.4 of the Paris Agreement.
Governments (national jurisdictions and subnational jurisdictions) and regulators	Create policies, laws, and regulations that define how forest carbon credits are generated, traded, and used within their jurisdiction. Regulators oversee compliance with these rules and may administer carbon crediting programs and/or certification systems. They can also develop and/or participate (usually as buyers) in forest carbon credit programs.
Project developers	Private entities, NGOs, landowners and/or communities that develop forest carbon mitigation projects on a smaller scale (project level).
Buyers	Purchase carbon credits to address mandatory and/or voluntary offset claiming and/or non-offset claiming. Buyers could be individuals or corporates from different economic sectors and acquiring jurisdictions (national or subnational).
Sellers	Offer forest carbon credits. Sellers can be forest owners and/or project developers, and host or transferring jurisdictions (national or subnational).
Financial intermediaries	They facilitate matching supply and demand, optimizing market efficiency, and reducing transaction costs. Intermediaries may connect project developers/ jurisdictions with carbon buyers, negotiate transactions, provide market intelligence, and assist with emission reduction purchase agreements (ERPAs) or contract arrangements. They may be banks, fund managers, brokers, traders, or market platforms.
Climate change funds	Act to channel climate change financial resources from individuals, corporations, and buyer countries and/or jurisdictions towards projects and/or jurisdictional programs.
Crediting programs	Develop and administer standards, certification schemes, and registries for forest carbon initiatives at the project or jurisdictional level. They establish criteria for project or jurisdictional programs eligibility, monitoring, reporting, and verification to ensure the credibility and integrity of carbon credits. Some examples of crediting programs are Verra, Gold Standard, ⁷ Climate Action Reserve (CAR), ⁸ Plan Vivo Foundation, ⁹ and the Architecture for REDD+ Transactions (ART), ¹⁰ among others.
Verification and auditing bodies	Assess and validate project activities and/or jurisdictional programs, verify emissions reductions or removals, and certify compliance with applicable standards, guidelines, and methodologies. Verification bodies play a crucial role in ensuring the integrity and credibility of carbon credits generated from the forest carbon market. These independent organizations are accredited by recognized standards bodies or regulatory authorities.
Rating agencies	Assess and provide evaluations of various aspects related to carbon credits, forest carbon projects and/or jurisdictional programs, or the performance of entities involved in these markets. Some of the approaches assessed by rating agencies are transparency, additionality, leakage, double issuance and double claiming, buffer strength, and permanence. ¹¹ Some examples of rating agencies in carbon markets are BeZero Carbon, ¹² Calyx Global, ¹³ Renoster ¹⁴ and Sylvera. ¹⁵

Actors	General description
Integrity initiatives related to carbon markets	Provide guidance towards high-integrity in the carbon markets. This includes the Voluntary Carbon Markets Initiative (VCMI) ¹⁶ and the Integrity Council for Voluntary Carbon Markets (ICVCM). ¹⁷
Indigenous Peoples, Afro-descendent and local communities, including women, men and youth among them	Own or manage forestlands and participate in forest carbon projects at the project or jurisdictional level. They may include Indigenous Peoples, Afro-descendent and local communities, and other marginalized groups, such as women, youth, persons with disabilities, etc., whose participation and consent are essential for the success and legitimacy of forest carbon initiatives. Beneficiaries' and rights holders' participation in the revenues from forest carbon markets is provided via benefit-sharing arrangements.
Civil society organizations	Civil society organizations provide expertise, oversight, and accountability, advocate for policy reforms, support community engagement, and promote transparency and integrity in forest carbon market transactions. Some examples of civil society organizations are environmental NGOs, advocacy groups and research institutions.

Defining high-integrity carbon credits in the context of forest carbon markets

Forest carbon markets that deliver high-integrity emissions reductions and/or removals present a solution to accelerate climate finance from public and private sources by providing a pricing instrument to reduce deforestation and forest degradation and enhance forest restoration.

High-integrity emissions reductions and/or removals from forests can be defined as "emissions reductions and/or removals generated at the jurisdictional level (including nested projects) with strong compliance to social and environmental safeguards, and

measured, reported and verified following international best practice in carbon accounting".¹⁸

Integrity concerns, particularly around social (including gender) safeguards, existed early in project-level initiatives but gained much more attention during 2022-2023 when REDD+ project-level initiatives were challenged in regard to the quality of the carbon credits being issued. As a consequence of these concerns, the reputation and demand for REDD+ carbon credits were negatively affected and their price in the market plummeted (refer to **Box 1**).



Go to the [REDD+ Academy Platform](#) to review the definition of high integrity in the context of forest carbon markets and discover the key initiatives.



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Ensuring high-integrity has become crucial to restoring trust and credibility and consequently unlocking volumes and prices in the forest carbon market. Several initiatives have recently developed specific guidance to ensure the higher integrity of carbon markets both at the project and jurisdictional levels. This includes, among others, the Integrity Council for Voluntary Carbon Markets and Voluntary Carbon Market Integrity Initiative. See below for more information:

I) Integrity Council for Voluntary Carbon Markets (ICVCM)

On the supply side, the Integrity Council for Voluntary Carbon Markets (ICVCM) launched the [Core Carbon Principles](#) (CCPs) and Assessment Framework (AF) to ensure environmental and social integrity and quality in carbon credits. The CCPs “establish a global benchmark for high-integrity carbon credits that set rigorous thresholds on disclosure and sustainable development and unlock urgently needed finance”. The principles address three perspectives and ten principles:¹⁹

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

Under each CCPs, a [list of requirements](#) (“[criterion](#)”) for carbon-crediting programs and categories of carbon credits were established.

To date, the ICVCM has assessed several carbon crediting programs and related methodologies against the CCPs. The following methodologies have been approved²⁰ for the forest sector:

- Afforestation, Reforestation and Revegetation (Including Natural Forest Establishment and Agroforestry):
 - VM0047 Afforestation, Reforestation, and Revegetation – v1.0
- Reducing Emissions from Deforestation and Forest Degradation+ (Jurisdictional):
 - The REDD+ Environmental Excellence Standard V2.0 - TREES of the Architecture for REDD+ Transactions (ART)
 - VCS Jurisdictional and Nested REDD+ (JNR) Framework
- Reducing Emissions from Deforestation and Forest Degradation+ (Project):
 - VM0048 Reducing Emissions from Deforestation and Forest Degradation
- II) Voluntary Carbon Markets Integrity Initiative (VCMI)

On the demand side, the Voluntary Carbon Markets Integrity Initiative (VCMI) provides guidance for companies on when and how they should use carbon credits as part of their net-zero targets. The VCMI Claims Code of Practice consists of four steps that companies must adhere to get bronze, silver, or gold tiers, depending on a company’s progress in reducing emissions within its value chain and the amount of its remaining emissions it offsets through high-quality credits. By standardizing the claims that companies make (refer to **Table 5** for types of claims), the VCMI hopes to increase transparency over how carbon credits are used, ensuring they complement companies’ own decarbonization actions.²¹

2.2 Types of carbon markets

Carbon credits from forest-related mitigation activities can be traded in different markets, including both voluntary and compliance markets, at both the national and international levels.

2.2.1 Voluntary carbon markets

Voluntary carbon markets (VCM) are markets in which participants act on a voluntary basis. Either national or international, market participants are under no formal obligation to achieve a specific mitigation outcome or target. Instead, individuals, corporations, and acquiring jurisdictions seek to buy carbon credits for voluntary offset claiming and/or non-offset claiming (refer to **Table 5** for types of claims).²²

The VCM, which as of 2024, represented a size of around USD 535 million²³ (refer to **Box 1**) is “self-regulated” by standards developed by independent crediting programs. These standards have achieved different levels of acceptance in the market based on several factors, including clarity in their modalities, procedures, and guidelines, registration, validation and verification costs and time, availability of methodologies, and perceived risks, among others. The most common standards used in the VCM at the project level related to the forest sector are the Verified Carbon Standard (VCS), Climate Action Reserve (CAR), American Carbon Registry (ACR), and Plan Vivo, among others. VCMs have helped countries to access much-needed finance, though they have yet to fully realize their potential, which is projected to reach between USD 10 – 40 billion by 2030.²⁴ The limited growth reflects concerns about integrity on the supply and demand side, and an underdeveloped market infrastructure.



Box 1.

Forestry projects in the voluntary carbon markets²⁵

In 2024, transactions on the voluntary carbon market declined in both volume and value compared to the previous year. A total volume of 84 MtCO₂e (a decrease of 25 per cent from 2023) was traded, representing around USD 535 million (a decrease of 29 per cent from 2023). The main reason for such a decline can be attributed to concerns about integrity.

REDD+ projects were among the most affected, falling 52 per cent in volume (to 13.6 MtCO₂e) and 23 per cent in price (to USD 6.03 per ton CO₂e). On the other hand, while prices for Afforestation-reforestation and revegetation (ARR) increased by 19 per cent (to USD 20.44 per ton CO₂e), those for improved forest management (IFM) decreased in price by 8 per cent (to USD 14.97 per ton CO₂e). These values may suggest a fragmentation of the market, with some preference for removal projects.

Table 3. Transaction volumes, values, and prices by forestry and land use project types, 2023-2024

Project Cluster	2023			2024			Percent Change		
	Volume (MtCO ₂ e)	Value (USD)	Price (USD)	Volume (MtCO ₂ e)	Value (USD)	Price (USD)	Volume	Value	Price
REDD+	28,2	\$222.3M	\$7.87	13,6	\$82.1M	\$6.03	-52%	-63%	-23%
Improved Forest Management (IFM)	2,6	\$41.9M	\$16.2	8,8	\$132.3M	\$14.97	242%	216%	-8%
Afforestation-Reforestation and Revegetation (ARR)	4,8	\$82.4M	\$17.15	3,8	\$77.7M	\$20.44	-21%	-6%	19%
Agroforestry	0,7	\$8.1M	\$11.58	0,6	\$8.3M	\$14.11	-17%	1%	22%
Blue Carbon	0,4	\$3.2M	\$8.33	0,2	\$5.2M	\$29.72	-54%	64%	257%

In addition to project-level activities, emerging jurisdictional level standards, primarily the Architecture for REDD+ Transactions of the REDD+ Environmental Excellence Standard (ART-TREES) and Verra Jurisdictional and Nested REDD+ (JNR) are making available carbon finance opportunities in which jurisdictions (national and/or subnational) have new opportunities to align the available financing with environmental and sustainable development needs and forestry sector implementation of NDCs at scale.

- The REDD+ Environmental Excellence Standard (TREES) from the Architecture for REDD+ Transactions (ART),²⁶ developed for the “*quantification, monitoring, reporting and verification of GHG emission reductions and removals from REDD+ activities at a jurisdictional and national scale*”^b
- VCS Jurisdictional and Nested REDD+ (JNR) Framework from VERRA²⁷ which “*helps entities with forest-related emission reduction activities to integrate their efforts*

into governmental climate goals. It also gives governments a framework to generate GHG credits for their REDD+ programs and to nest projects”^c

2.2.2 Compliance Markets

Compliance carbon markets are formally regulated markets in which participants are required to reduce GHG emissions and/or compensate/offset residual GHG emissions according to a target set by a regulatory body. These markets enable individuals, corporations, and governments to buy and sell emissions allowances and/or carbon credits to meet the regulatory targets. The key instruments in these markets are:

- l) A crediting mechanism,²⁸ in which carbon credits are issued representing GHG emissions reduction and/or carbon removals that have been verified against an approved standard and methodologies. To date 31 per cent of the GHG emissions from high-income countries and 22 per cent from middle-

b Up to date, according to ART (2024), 19 ART-TREES Programs are listed in ART Registry, but only 1 is registered (Guyana). From the listed Programs, only Costa Rica and Ghana have presented the registration document and monitoring report; but are still undergoing the validation and verification process. In the case of Guyana, a total of 40,614,961 tonnes of CO₂e have been issued or retired.

c Up to date, no verified credit units (VCUs) have been issued under VERRA JNR.

income countries are covered by a crediting mechanism.²⁹

- ii) An emissions trading scheme (ETS),³⁰ in which a jurisdiction sets a limit or a cap on the total level of covered GHG emissions. The allowances (permissions) to emit are distributed to liable entities (direct emission sources or others), which must redeem allowances for every emitted ton of GHG, with the possibility to buy additional allowances or sell unused ones. An ETS can be established nationally (see example in **Box 2**) or at the regional level (e.g. the European

Union ETS). To date 19 per cent of the global GHG emissions are covered by ETS.³¹

Globally, some domestic ETSs and/or crediting mechanisms have included forest carbon credits, for example, New Zealand ETS (refer to **Box 2**), the Québec offset crediting mechanism, the Alberta emission offset system, and the California compliance offset program. The inclusion of forests as a sector in compliance markets could generate additional revenues at the level needed to unlock forests-based mitigation potential on those regions.



Box 2.

Forests in New Zealand ETS³²

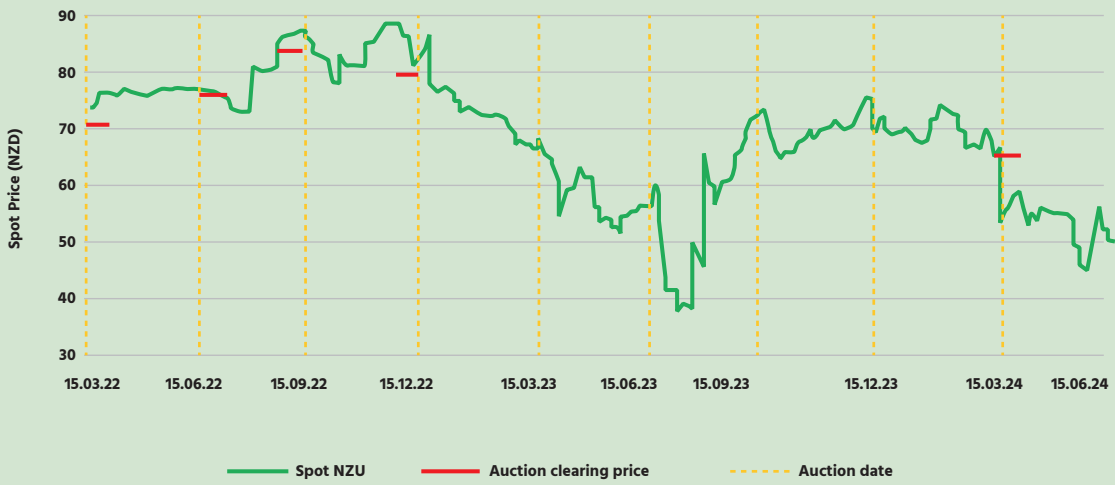
The New Zealand Emissions Trading Scheme (NZ ETS) was established in 2008 and has since been used as the main tool to meet international and national climate change obligations and targets. Under the NZ ETS, all sectors, except agriculture, are required to pay for their GHG emissions through obligations to surrender a corresponding amount of “New Zealand Units (NZUs).” An NZU represents 1 tonne of CO₂ equivalent.

Under the NZ ETS, landowners can apply for NZUs for forests that they commit to conserve, and forest owners must surrender NZUs to gain the right to deforest. Forests are split into two parts:

- Pre-1990 forestry: Land that was forest on 31 December 1989 (can be native and/or exotic forest species) and on 31 December 2007 (the forest must contain mostly exotic tree species). Landowners who deforest pre-1990 forest land must report the emissions associated with deforestation and surrender the corresponding quantity of NZUs.
- Post-1989 forestry: Land that was established with forest species after 31 December 1989 and meets the definition of forest land. Post-1989 landowners can choose to become participants in the ETS to earn NZUs for carbon sequestration by the forest. However, participants must surrender NZUs when reporting a decrease in the total amount of carbon stored.

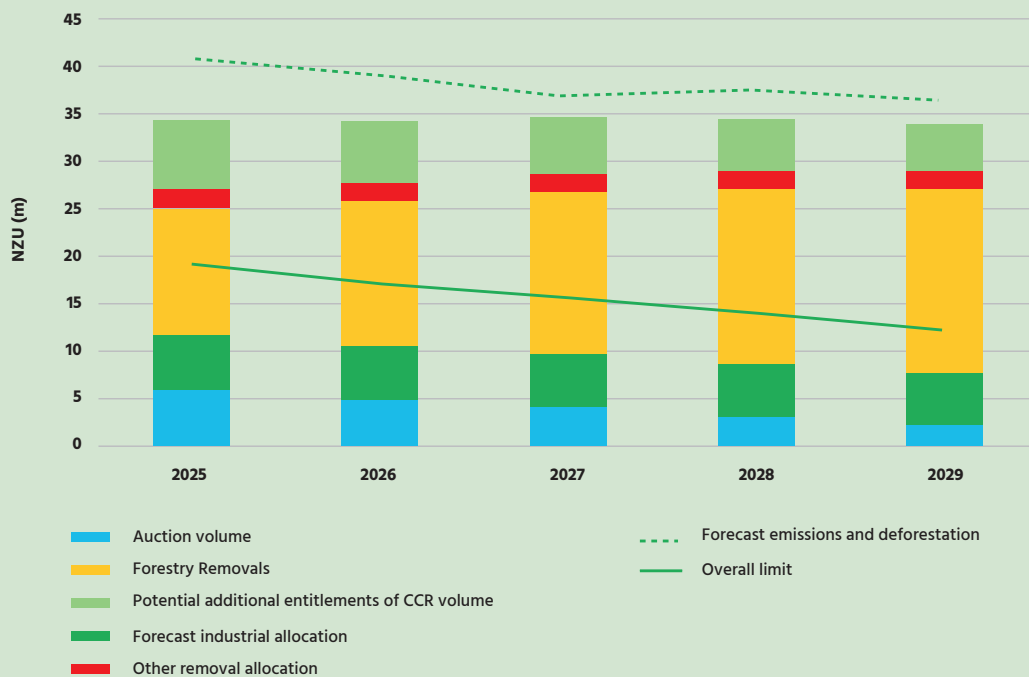
NZUs from forest support participants to meet their emissions budgets and are not part of the overall limit set in the NZ ETS. Participants that earn these NZUs can use them to meet their emissions obligations or sell them into the secondary market, with current prices of around NZ\$50 per NZU (see **Figure 2**).

Figure 2. NZU spot price and auction clearing price³³



The figure below shows the forecast (made in April 2024) of annual removals, industrial allocation and auction volume, and emissions for 2024-2028, using the NZ ETS cap as a reference point. It can be noted that forest removals are expected to increase, creating more opportunities for “post-1989 landowners” to generate NZUs from forest carbon sequestration. How much of these NZUs would be bought by participants to meet their emissions budgets will depend on relative prices and the perceived credibility of the forest activities. Nevertheless, it can be seen that forestry plays a key role in NZ ETS.

Figure 3. Annual removals, industrial allocation and auction volume, and emissions for 2024-2028



An example of an international compliance carbon market is the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) of the International Civil Aviation Organization (ICAO).³⁴ CORSIA is a global offsetting scheme allowing international airline companies to offset the amount of CO₂ emissions that cannot be reduced using technological improvements, operational improvements, and sustainable aviation fuels. CORSIA is relevant for the forest sector since it allows forest carbon credits from selected standards, including (some exclusions apply):

- Architecture for REDD+ Transactions TREES credits (ART-TREES)^d
- BioCarbon Fund for Sustainable Forest Landscapes (ISFL) emission reductions
- Climate Action Reserve (CAR) activities developed in Mexico that utilize the Reserve's Mexico Forest Protocol
- Forest Carbon Partnership Facility (FCPF) emission reductions
- Verified Carbon Standard (VCS) verified carbon units (VCUs) issued to project-level activities under a REDD+ jurisdictional programme following Scenario 2a and Scenario 3 of the VCS JNR framework and VCUs issued to project-level activities that utilize one of the following methodologies: VM0012, VM0017, VM0021, VM0022, VM0024, VM0026 (and VMD0040), VM0032, VM0033, VM0036, VM0041, VM0042.

2.2.3 Article 6 of the Paris Agreement

The operationalization of Article 6 reached during COP 29 (2024) leveraged the possibility for voluntary cooperation among countries in implementing their NDCs using the carbon market-based approaches established by the Paris Agreement: a cooperative approach (Article 6.2) and the Paris Agreement Crediting Mechanism (PACM) (Article 6.4).

i. Article 6.2 of the Paris Agreement

*"(...) 2. Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting (refer to **Box 3**), consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement."*

Paris Agreement

Through a cooperative approach, countries can transfer international mitigation outcomes (ITMOs) achieved through domestic measures to other countries/buyers, who can use these outcomes to fulfill their NDC mitigation commitments and/or for other international mitigation purposes (e.g., international airline companies in CORSIA).

An ITMO is an **emission reduction and removal**, measured in metric tonnes of carbon dioxide equivalent (tCO₂ eq) in accordance with the methodologies and metrics assessed by the Intergovernmental Panel on Climate Change (IPCC) and adopted by the Conference of the Parties serving

^d In early 2024, the government of Guyana announced the issuance of the first 7.14 million 2021 vintage ART-TREES carbon credits eligible for use by airlines in the context of the first phase of CORSIA. The Government of Guyana then authorized the credits to be used in the context of Article 6.2 of the Paris Agreement (refer to Box 5).

as the meeting of the Parties of the Paris Agreement (CMA) or in other non-GHG metrics determined by the participating Parties that are consistent with the NDCs of the participating Parties. ITMOs represent mitigation from 2021 onward.³⁵

From the above definition, the forest sector can be part of a cooperative approach since emission reductions and removals are not specific or restricted to any sector. ITMOs could emerge from reducing emissions from deforestation and from reducing emissions from forest degradation. Parallely, given that the definition

also includes removals, other REDD+ activities, such as sustainable management of forests and enhancement of forest carbon stocks, could also generate ITMOs. Therefore, it cannot be said that REDD+ has been excluded from cooperative approaches or that its inclusion is contingent upon further negotiations.³⁶

However, a cooperative approach that plans to generate ITMOs from REDD+ activities must not only comply with the Warsaw Framework for REDD+ (WFR) requirements; but also with the requirements of Article 6.2 (e.g. authorization, corresponding adjustments).



Box 3.

The definition of double counting³⁷

There is no official definition of “double counting” in the decisions taken regarding Article 6 of the Paris Agreement. Nevertheless, a common understanding could be that “double counting describes situations where a single GHG emission reduction and/or removal is used towards more than one mitigation target, pledge, obligation or other mitigation commitment or effort”. Provision for corresponding adjustments, under cooperative approaches of the Paris Agreement, only refers to the “double use” of ITMOs. Other standards, such as ART-TREES, have their own provisions to avoid and/or minimize the risk of “double counting”.

According to ART, double counting can occur in several different ways, including double issuance, double use/double selling, and double claiming, as described below:

Double issuance: “occurs when more than one unique unit is issued for a single GHG emission reduction and/or removal within the same program/registry or when more than one program/registry issues unique units for a single GHG emission reduction and/or removal”.

Double use: “occurs when a unique unit is used twice, for example, if it is 1) sold to more than one entity at a given time (also referred to as double selling) due to double issuance or fraudulent sales practices, 2) used by the same owner toward more than one obligation/target, or 3) paid for as a results-based payment and then also transferred or sold to another entity. Double use can also occur if the use of a unique issued unit is reported, such as towards NDC achievement or a CORSIA obligation, but the unit is not retired or cancelled”.

Double claiming: “occurs when the same GHG emission reduction and/or removal is used by two or more entities (e.g. Parties to the Paris Agreement, airplane operators under CORSIA, corporate voluntary buyers) to meet climate change mitigation obligations, targets, pledges, commitments or efforts, including international transfers under the Paris Agreement towards the achievement of NDCs and transfers for use by airplane operators under the ICAO CORSIA, or when voluntary market transfers are counted toward both corporate buyer pledges and supplier country NDCs”.

Note: The above definitions may not have consensus to be used outside ART-TREES. For example, some may argue that GHG emission reduction and/or removal could be financed through “result-based payments”, and since there was no transfer, the same unit could be sold to another entity. In this case, a “double payment” has occurred, but not necessarily a “double use”. Also, the fact that the unit is not “retired or cancelled” could be seen as a flaw in the registry, but not necessarily a “double use”.

To avoid double counting of the same ITMO, provisions for performing corresponding adjustments have been created as part of the Article 6 guidance. Corresponding adjustments refer to additions and subtractions of GHG

emission reductions or carbon to be made by the host or transferring (Figure 4) and acquiring country. Figure 5 represents the sources of GHG emissions and carbon removals covered by the NDC targets.

Figure 4. Host or transferring country or jurisdiction³⁸

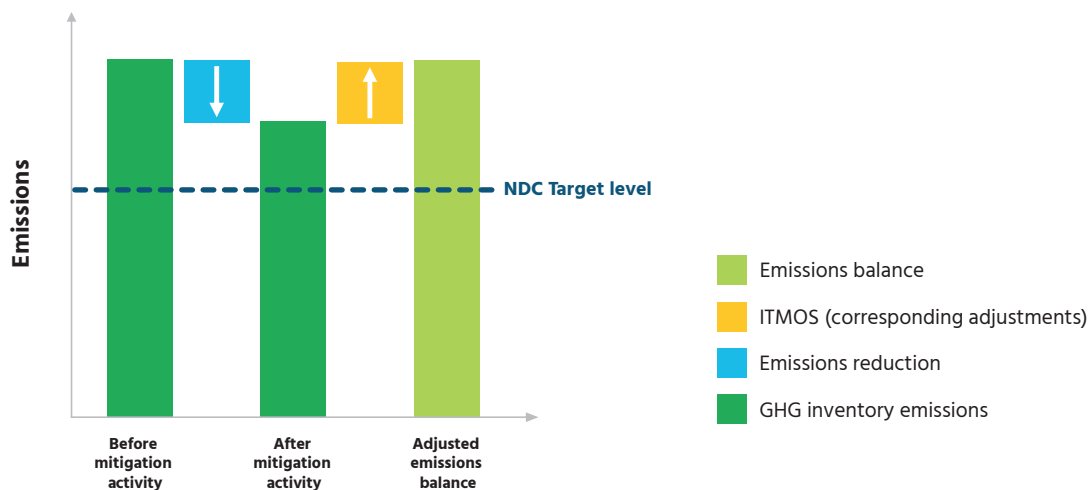


Figure 5. Acquiring country or jurisdiction

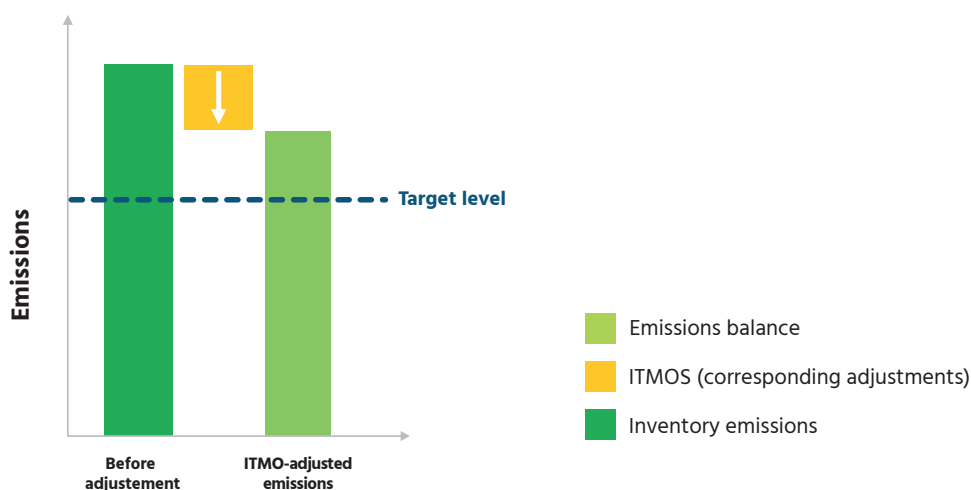


Figure 4 shows how a mitigation activity leads to reduced emissions (box in green), resulting in mitigation outcomes that can be transferred as ITMOs. When ITMOs are transferred, the emission reductions are neutralized by corresponding adjustments (box in yellow), ensuring that the mitigation outcomes are not double counted.

Figure 5 describes corresponding adjustments for the acquiring country. In this case, the emission balance is lowered by corresponding adjustments, meaning that the acquiring country can count the mitigation outcomes toward its NDC target. In this case, as for the transferring country, the national GHG inventory does not change.



LEARNING TOOL

Go to the [REDD+ Academy Platform](#) to examine the definition and examples of corresponding adjustments.



Box 4.

Article 6.2 decisions

By January 2025, the following decisions have been taken regarding cooperative approaches:

Decision 2/CMA.3: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement³⁹

Decision 6/CMA.4: Matters relating to cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement⁴⁰

Decision -/CMA.6: Matters relating to cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement⁴¹

A “reference manual for the accounting, reporting and review of cooperative approaches”⁴² has been published by the UNFCCC Secretariat to assist Parties in better understanding the accounting, reporting and review requirements for cooperative approaches. It offers guidance on Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) decisions and addresses the roles and processes for reviewing the information reported by Parties who have chosen to participate in a cooperative approach. The manual provides expected timelines for various relevant processes over the next decade, a link to frequently asked questions, and references to relevant decisions to facilitate the understanding of the legal basis of the Paris Agreement.

Based on the current decisions, countries are able to establish cooperative approaches⁴³ submit reports to the UNFCCC⁴⁴ and authorize the transfer of ITMOs;⁴⁵ including proposals of cooperative approaches with REDD+ activities (as the case of Guyana and Suriname).

Although additional guidance is still required to allow ITMOs that can be fully transferred among participants and transparently accounted for under their NDCs, some countries are moving forward with proposals for cooperative approaches. Information on such proposals can be found in the “centralized accounting and

reporting platform” (CARP).⁴⁶ To date, several countries have established and/or are proposing cooperative approaches, such as Switzerland, Thailand, Ghana, and Vanuatu; but only Guyana (refer to **Box 5**) and Suriname have proposed cooperative approaches that involves ITMOs from REDD+ activities.

Box 5.



Example of REDD+ cooperative approach: The case of Guyana

The cooperative approach proposed by Guyana aims to sell ITMOs arising from the REDD+ jurisdictional program that the country has established using the REDD+ Environmental Excellence Standard (TREES) from Architecture for REDD+ Transactions (ART).

Under Guyana’s jurisdictional ART-TREES REDD+ programme, a total of 40,614,961 tonnes of CO₂ eq have been issued or retired as follow:⁴⁷

Vintage	Quantity of ART-TREES credits (tones of CO ₂ eq).
2016	7.867.104
Issued	7.865.696
Retired	1.408
2017	7.604.998
2018	7.252.244
2019	4.478.401
2020	6.267.852
2021	7.144.362
Total	40.614.961

According to Guyana latest letter of approval and authorization,⁴⁸ the use of a maximum of 7,144,362 tCO₂ eq have been authorized, as ITMOs, for the purpose of achievement of NDCs, international mitigation purpose such as CORSIA, and other purposes (including for use in the voluntary carbon markets). The Guyana Initial Report⁴⁹ has not indicated other participating parties, i.e. potential buyers for ITMOs.

ii. The Paris Agreement Crediting Mechanism (PACM) - Article 6.4

“(...) A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim:

- a.** *To promote the mitigation of greenhouse gas emissions while fostering sustainable development.*
- b.** *To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party.*
- c.** *To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its nationally determined contribution; and*
- d.** *To deliver an overall mitigation in global emissions”.*

The PACM creates the opportunity for non-governmental actors (including private sector and NGOs) to develop a project activity (or programme of activities) to deliver GHG emission reductions and/or removals (known as “A6.4ER”) using approved methodologies. The 6.4 Mechanism is guided by a Supervisory Body (SB) that has been created with the responsibility of developing specific provisions and rules for the development and approval of methodologies; validation and registration of 6.4 activities; monitoring, verification and certification, issuance, renewal, first transfer of A6.4ER from the mechanism registry, voluntary cancellation and other processes.^{50 51}

There are two types of A6.4 ER:

- A6.4ERs authorized for use towards achievement of NDCs and/or for other international mitigation purposes (known as “authorized A6.4ERs”). In this case, the host country of the 6.4 activity shall apply the corresponding adjustment provisions like in Article 6.2.
- A6.4ERs not specified as authorized for use towards achievement of NDCs and/or for other international mitigation purposes (known as “mitigation contribution”), which may be used, inter alia, for results-based climate finance, domestic mitigation pricing schemes or domestic price-based measures, for the purpose of contributing to the reduction of emission levels in the host country. In these cases, there is no need to apply corresponding adjustments.



Box 6.

Article 6.4 decisions

By January 2025, the following decisions have been taken regarding 6.4 Mechanism:

Decision 3/CMA.3: Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement.⁵²

Decision 7/CMA.4: Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement.⁵³

Decision -/CMA.6: Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement,⁵⁴ that includes requirements for activities involving removals under the Article 6.4 Mechanism.⁵⁵

Decision -/CMA.6: Further guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement.⁵⁶

Up to January 2025, the SB for Article 6.4 has not yet approved any methodology, including methodologies related to the forestry sector and REDD+ activities.⁵⁷ As a result, to date, no registered activities nor emissions reductions/removals have been achieved under Article 6.4.

Nevertheless, the SB has already established procedures for development, revision and clarification of methodologies and methodological tools,⁵⁸ requirements for activities involving removals under the Article 6.4 mechanism⁵⁹ and some specific methodological guidance for REDD+ activities as part of the requirements to address leakage.⁶⁰

Regarding this last guidance, any REDD+ activity under Article 6.4 will have to demonstrate that the activity is considered as part of the elements of the Warsaw Framework for REDD+ required by the host Party as per decision 1/CP.16, paragraph 71. That means that any 6.4 REDD+ activity (regardless of who is proposing) needs to be included in the REDD+ national strategy or action plan, in the forest reference emission level and/or forest reference level, in the national forest monitoring system, and the safeguards system.⁶¹



Go to the [REDD+ Academy Platform](#) to summarize the contents of Article 6.2 and Article 6.4 of the Paris Agreement.



**LEARNING
TOOL**

2.2.4 Intersection between voluntary and compliance forest carbon markets, and markets of the Article 6 of the Paris Agreement

As presented above, forest mitigation activities (at project and/or jurisdictional level) can generate carbon credits for voluntary and/or compliance carbon markets. Linkages between voluntary and compliance markets (including Article 6 of the Paris Agreement) could occur (refer to **Figure 6**) as long as the carbon credit is recognized in both markets (that means that “one tonne” of GHG emission reduction or removal in one market is equal to “one tonne” of GHG emission reduction or removal in the other market). To achieve this, some characteristics need to be met, including the use of:

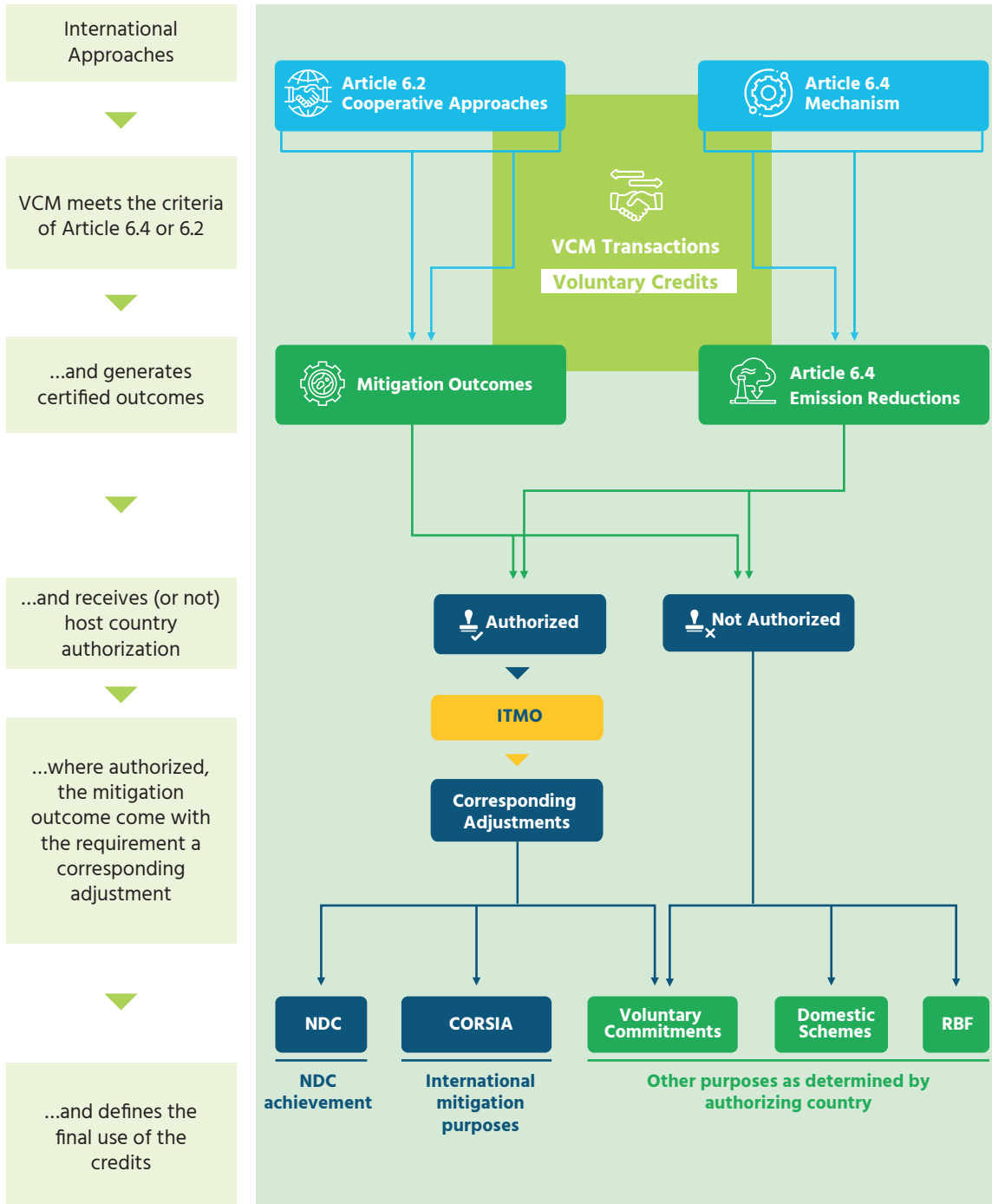
- I) Common standards/methodologies accepted by both markets.
- II) Registries that are capable of tracking carbon credit transactions between the different markets.

- III) Institutional and legal arrangements relevant to both markets.

The standards/methodologies to be used should be defined based on what is the intended use of the carbon credits. If it is for compliance purposes under the Paris Agreement, using a cooperative approach (Article 6.2), it will be required that both the transferring and acquiring Party agree on a standard/methodology. If it is for compliance purposes under the Paris Agreement, using Article 6.4 Mechanism, it will be required to use methodologies approved by Article 6.4 SB. If it is for voluntary purposes, it will be required that both the buyer and seller agree on a specific standard/methodology.

For example, countries may engage in cooperative approaches to transfer ITMOs from REDD+ activities issued under the voluntary market (using, e.g., ART-TREES) to meet their compliance obligations under the Paris Agreement. Similarly, private sector entities may participate in the Article 6.4 Mechanism to issue carbon credits using approved methodologies by the 6.4 SB to achieve their voluntary carbon neutrality goals.

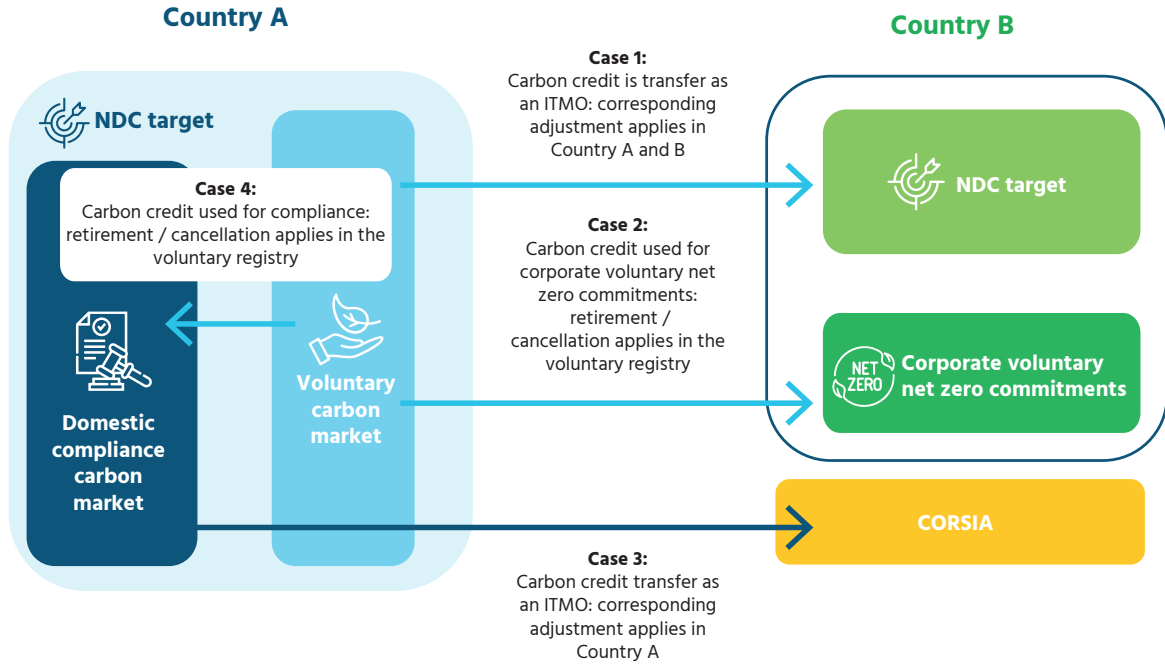
Figure 6. Possible linkages between voluntary carbon market, national compliance carbon market and international carbon market under the Paris Agreement⁶²



Source: The Climate Focus (2021). The VCM Explained.

Additional illustrative cases are presented in **Figure 7**.

Figure 7. Illustrative example of possible linkages between voluntary carbon markets, national compliance carbon markets, and international carbon markets under the Paris Agreement⁶³







LEARNING TOOL

Go to the [REDD+ Academy Platform](#) to access an interactive version of the linkages between voluntary carbon markets, national compliance markets, and international carbon markets as well as country examples.



Table 4. Illustrative examples description of possible linkages between voluntary carbon markets, national compliance markets, international carbon markets under the Paris Agreement

Cases	Description
<p>1 </p>	<p>A carbon credit (generated using VCM standards/methodologies and/or Article 6.4 approved methodologies) in a host country is authorized to be transferred as an ITMO to an acquiring country for the achievement of its NDC; the corresponding adjustment provision needs to be applied by both countries to avoid double counting.</p>
<p>2 </p>	<p>A carbon credit generated using a VCM methodology or Article 6.4 approved methodology in a host country is used (without authorization) for claiming a corporate voluntary net-zero commitment of a company in another country. Since the carbon credit has not been authorized as an ITMO, it does not trigger a corresponding adjustment and cannot be counted in the other country's NDC where the company resides. Nevertheless, the carbon credit needs to be retired/canceled in the voluntary or Article 6 registry to avoid double claiming.</p>
<p>3 </p>	<p>A carbon credit generated using standards/methodologies eligible under CORSIA⁶⁴ in a host country is authorized to be transferred as an ITMO to an airline company under CORSIA; the corresponding adjustment provision needs to be applied by country A to avoid double counting.</p>
<p>4 </p>	<p>A carbon credit generated using a VCM or Article 6.4 methodology in the host country A is used by a company in the domestic compliance carbon market of country A. The corresponding adjustment does not apply because the transaction occurs within the country, but the carbon credit needs to be retired/canceled in the voluntary or Article 6 registry to avoid double use.</p>

2.3 The role of forest carbon markets in climate mitigation

As explained before, there are multiple alternatives in terms of carbon pricing instruments for scaling up climate mitigation action. Carbon markets are one of them. When focusing on the forest sector, carbon markets are among the alternatives to incentivize individuals, corporations, and jurisdictions to reduce their GHG emissions and/or to enhance carbon removals in exchange for a payment to each tonne of CO₂ equivalent that is mitigated through forest-based activities.

By doing so, “forest carbon credits” provide financial incentives and/or alternative economic revenues to forest owners and/or forest rights holders by generating an additional source of income, making forests important assets for reaching mitigation and adaptation targets.

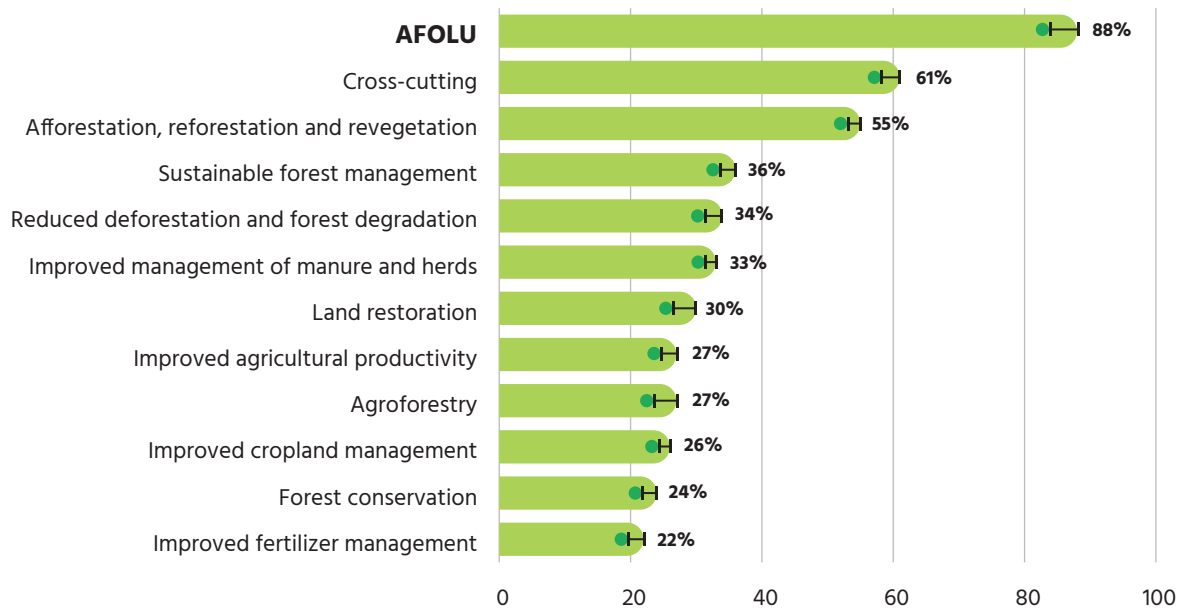
Both countries (in the NDCs) and private companies (in the corporate net-zero commitments and claims) have identified forest carbon mitigation opportunities that could be financed through forest carbon markets. The following sections will highlight some considerations about using forest carbon markets as an economic instrument for achieving NDC targets and corporate net-zero commitments and claims.

2.3.1 Forest carbon markets as an economic mechanism for the achievement of NDCs targets

Forest carbon markets can play a crucial role by providing additional financial resources for countries to implement their NDC commitments. Forest carbon markets allow countries with forest resources to obtain payments by reducing GHG emissions and/or enhancing carbon removals through REDD+ activities. These payments might be used to fund forest conservation projects and support Indigenous Peoples, Afro-descendent, and local communities, and other marginalized groups, such as women, youth, persons with disabilities, etc. to promote equity and invest in sustainable land use practices and other non-carbon benefits of REDD+.

Based on the information presented in the UNFCCC’s NDC registry, as of 25 September 2023,⁶⁵ almost all countries (88 per cent) have included some type of Agriculture, Forestry, and Other Land Use (AFOLU) mitigation options in their NDCs (see **Figure 8**). However, only 34 per cent of the countries have included in the NDC reduced deforestation and forest degradation as a mitigation option. Other relevant reported mitigation options are afforestation, reforestation and revegetation, sustainable forest management and forest conservation.

Figure 8. Share of countries referring to specific AFOLU priority areas and frequently indicated mitigation options in NDCs⁶⁶

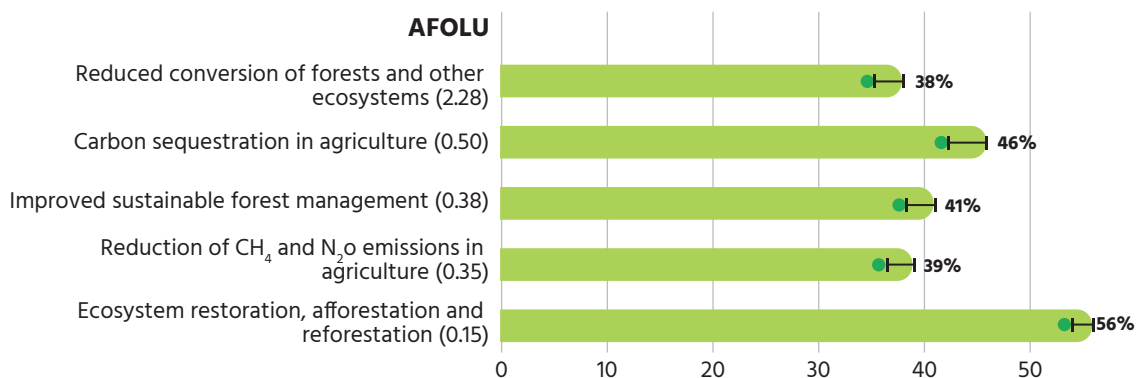


OBS: Cross-cutting encompass different AFOLU mitigation options

Countries have also reported reduced conversion of forests and other ecosystems as one of the key mitigation options with high

mitigation potential (2.28 Gt CO₂ eq per year) costing below USD 20 per t CO₂ eq in 2030 (see Figure 9).

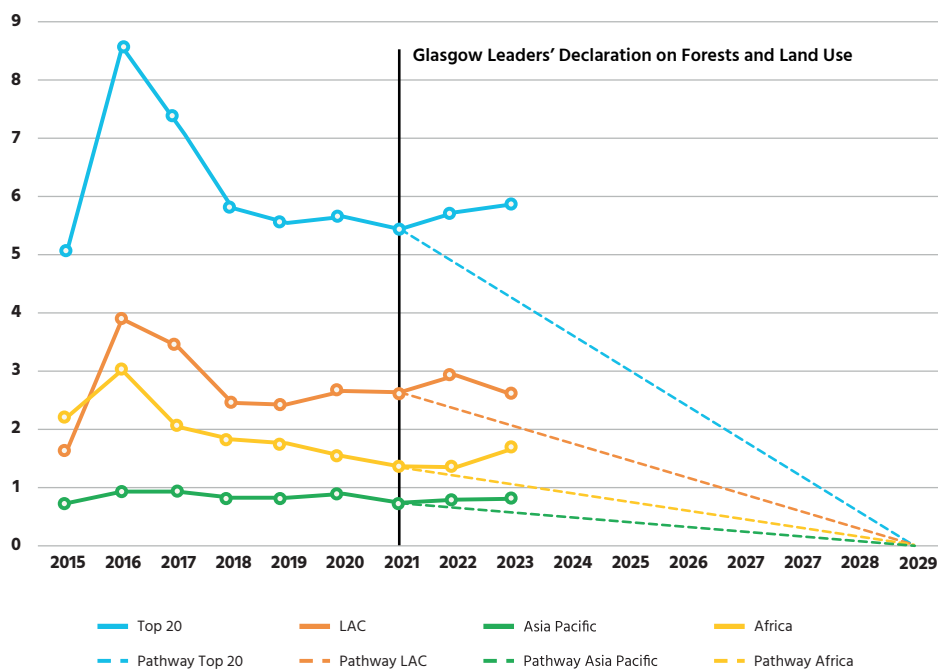
Figure 9. Share of countries referring to AFOLU mitigation options with high mitigation potential costing below USD 20/t CO₂ eq in 2030 in NDCs⁶⁷



However, a recent analysis by UNEP (2024) indicated that the NDC targets to reduce deforestation submitted by the twenty countries with the highest emissions from deforestation do not meet the global ambition to halt

deforestation by 2030; i.e., none of these NDCs included a goal that is aligned with the global goal and pathways to halt deforestation by 2030 (Figure 10).

Figure 10. Emissions from forest cover loss and pathways for the 20 top emitters⁶⁸



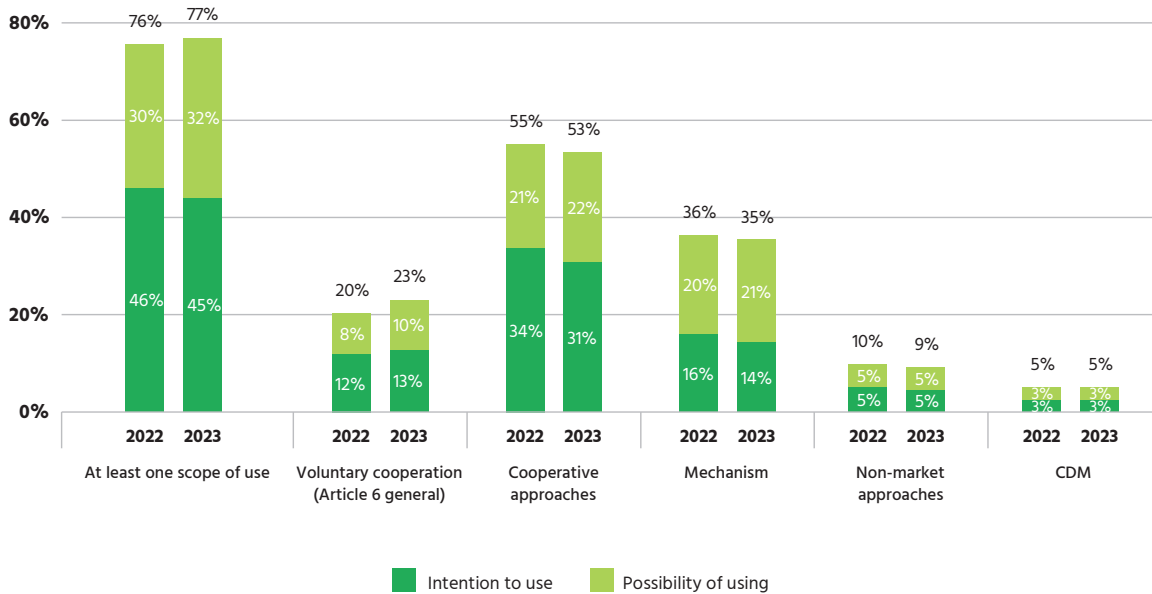
According to UNEP (2024), some countries have REDD+ national strategies or action plans that contain more ambitious actions to reduce deforestation, even if these actions are not specified in their NDCs, such as the cases of:

- **Brazil's updated NDC** does not contain any forest-related targets, but it mentions the country's commitment to end deforestation by 2030 as part of its "Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM)".
- **Indonesia's NDC** does not have specific forest commitments, but the country's "Forest and Other Land Use (FOLU) Net Sink 2030 Operational Plan" aims to achieve

net-zero emissions in forest and land use sectors by 2030.

One way of strengthening, enhancing, and aligning forest-based measures in NDCs and other national policies is through the enhancement of climate finance to reduce deforestation, including through the use of Article 6 of the Paris Agreement. According to the UNFCCC (2023), 120 countries in 2023 communicated on their NDCs that they plan or will possibly use cooperative approaches under Article 6, paragraph 2, or use of the mechanism under Article 6, paragraph 4 or use of non-market approaches under Article 6, paragraph 8 (Table 11).

Figure 11. Share of countries indicating in NDCs the intention to use voluntary cooperation under Article 6 of the Paris Agreement⁶⁹



Even if countries were not specific about using Article 6 to catalyze climate finance to the implementation of forest mitigation activities, Article 6 can have a key role if forest carbon prices increase to a level that would incentivize action (i.e., at least USD 30-50 per tonne of CO₂e).

2.3.2 Forest carbon markets as an economic instrument for the achievement of corporate net-zero commitments and claims

Corporate net-zero commitments and/or claims refer to pledges made by corporates to set targets for reducing GHGs to net-zero and, if necessary, “compensate” any residual emissions. Companies may make these commitments as part of their efforts to address climate change, reduce their environmental impact, align with corporate social responsibility (CSR) initiatives, gain legitimacy by aligning corporate values with societal ones, improve their institutional reputation and image, access to green markets and consumers, among others. Corporations may also be motivated by global campaigns and

voluntary corporate initiatives such as the “Race to Zero” encouraging corporates to halve global emissions by 2030,⁷⁰ and the Science-based Targets Initiative (SBTi).

A conceptual framework, known as mitigation hierarchy, is to be followed by corporations when implementing their corporate net-zero commitments. The mitigation hierarchy comprises four broad action steps that are designed to be implemented sequentially: (1) avoid, (2) minimize, (3) remediate/restore, and (4) offset.⁷¹ By following the mitigation hierarchy, corporations can ensure that they are taking a responsible and sustainable approach to their operations while also minimizing any potential harm to the environment or communities.

In this manner, forest carbon markets can play a crucial role in helping companies achieve their corporate net-zero commitments and/or claims by providing an instrument for corporates to purchase carbon credits from forest projects when advancing to the last step of the mitigation hierarchy. Depending on the type of claim, carbon credits will have different roles (see **Table 5**).

Table 5. Carbon credits role in different types of claims involving offsetting and non-offsetting⁷²

Types of claims	Carbon credits role
Non-offsetting claims	Companies purchase and retire carbon credits without using them to offset emissions made in their own supply chains.
Non-offsetting claims not backed by corresponding adjustment	Companies communicate that carbon credits have contributed to the achievement of a quantified mitigation or removal target, such as a national climate target set by the host country.
Non-offsetting claims backed by corresponding adjustment	Companies communicate that carbon credits have contributed to the overall mitigation in global emissions (OMGE) under Article 6.4 of the Paris Agreement, which will require that the carbon credits are authorized as ITMOs and corresponding adjustment is done by the host/seller country.
Offsetting claims	Companies use carbon credits to offset emissions made in their own supply chain (with or without corresponding adjustments).
Offsetting claim backed by corresponding adjustment	Companies communicate that the carbon credits used have been authorized as ITMOs by the host/seller country, and that corresponding adjustments were made to ensure that the country excluded the emission reduction or carbon removals from its NDC accounting.
Offsetting claim not backed by corresponding adjustments	Companies communicate that the carbon credits used have not been authorized as ITMOs by the host country, and that corresponding adjustments were not made. This option may reflect the fact that the voluntary mitigation action that has generated the carbon credit falls outside of the host country's NDC (i.e. the forest sector is not covered by the NDC). Notwithstanding, off-setting claims made without a corresponding adjustment remain controversial and susceptible to being perceived as greenwashing.

Adapted from Trouwloon et. all (2023).

An example of how corporate participants such as the Lowering Emissions by Accelerating Forest Finance (LEAF) Coalition can make different claims, when using ART-TREES credits is presented in the following table. The LEAF Coalition is a public private partnership focused

on halting tropical deforestation by 2030 through funding national and sub-national jurisdictions REDD+ programs developed using ART-TREES. It has over 25 major corporations that are seeking high-integrity carbon credits.⁷³

Table 6. Possible claims under LEAF transactions pathways⁷⁴

	LEAF transaction's pathways	Possible claim by corporate participants
#1	Sovereign contributors will provide results-based payments (RBPs) and neither take title to the ERs nor use them towards their NDC targets. Supplier receiving RBPs will be required to retire the ERs on the ART registry, but the Supplier Country may include the underlying mitigation in accounting for its NDC.	Not applicable
#2	Private sector buyers may replicate the sovereign approach (e.g., RBPs without taking title). Supplier receiving RBPs will be required to retire the ERs (emissions reductions) on the ART registry, but the Supplier Country may include the underlying mitigation in accounting for its NDC.	Non offsetting claim not backed by corresponding adjustments
#3	Private sector buyers may provide results-based finance and take title to the ERs. If private sector buyers take title to the ERs under this option, the Supplier will transfer the ERs to the buyer on the ART registry, but the Supplier Country can still include the underlying mitigation in accounting for its NDC. The private sector buyer will transparently communicate that the underlying mitigation counts towards the Supplier Country's NDC implementation and achievement.	
#4	Private sector buyers may take title to ERs, including for use towards compliance targets, for which the Supplier Country is willing to make a corresponding adjustment. Under this option the Supplier will transfer the ERs to the buyer on the ART registry, and the Supplier Country will apply corresponding adjustments for the underlying mitigation in accounting for its NDC and report on it to the UNFCCC.	Offsetting claim backed by corresponding adjustment

To support the progress of corporate net-zero commitments and claims, independent initiatives have emerged providing tools and

guidance for corporate climate mitigation (refer to **Box 7**).

Box 7.



Independent initiatives related to corporate net-zero commitments

The Greenhouse Gas (GHG) Protocol

The Greenhouse Gas (GHG) Protocol is a partnership entity between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) that establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.⁷⁵

Key guidance developed by the GHG Protocol⁷⁶ refer to GHG emissions from Scope 1, Scope 2, and Scope 3:

Scope 1 - *“Direct emissions: (...) occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment.”*

Scope 2 - *“Electricity indirect GHG emissions: (...) from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.”*

Scope 3 - *“Other indirect emissions: (...) are a consequence of the activities of the company but occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.”*

GHG Protocol

The Science-based Targets Initiative (SBTi)

The Science Based Targets Initiative (SBTi) is a corporate climate action organization that develops standards, tools, and guidance that allow companies to set GHG emissions reduction targets in line with what is needed to limit global warming and reach net-zero by 2050 at the latest. One of SBTi's leading standards is the Corporate Net-zero Standard.⁷⁷

The components of the standard are:

1. Near-term science-based targets (SBTs): Companies are required to set 5–10-year targets to reduce emissions within the company value chain in line with 1.5°C pathways.
2. Long-term SBTs: Companies are required to set targets to reduce emissions within the company value chain and align with reaching net-zero at the global or sector level in eligible 1.5°C pathways by 2050 or sooner.
3. Neutralization of any residual emissions: Companies are required to take measures to remove carbon from the atmosphere and permanently store it, counterbalancing the impact of emissions that remain unabated after the long-term science-based target is achieved.
4. Beyond Value Chain Mitigation (BVCM): Mitigation action or investments outside a company's value chain. This includes activities that avoid or reduce GHG emissions, and those that remove and store GHGs from the atmosphere. Preference is given to jurisdictional REDD+ credits.

As of May 2024, 8,658 companies have acted under the SBTi, representing 5,436 science-based targets and 3,205 net-zero commitments.



Go to the [REDD+ Academy Platform](#) to better analyze these two independent initiatives and access relevant resources.



**LEARNING
TOOL**



Key takeaways

- Market and non-market approaches could mobilize climate finance to the forest sector
- Forest carbon markets that deliver high-integrity emissions reductions and/or removals present a solution to accelerate climate finance from public and private sources by providing a pricing instrument to reduce deforestation and forest degradation and enhance forest restoration
- To fully benefit from forest carbon markets is essential to fully understand the difference between voluntary, compliance carbon markets and Article 6 of the Paris Agreement markets as well as their interlinkages

Module 3



The road to access high-integrity forest carbon markets



This module

Seeks to provide a guide to national and/or subnational governments in establishing fundamental elements to enable and access to high-integrity forest carbon markets.

You will be able to...

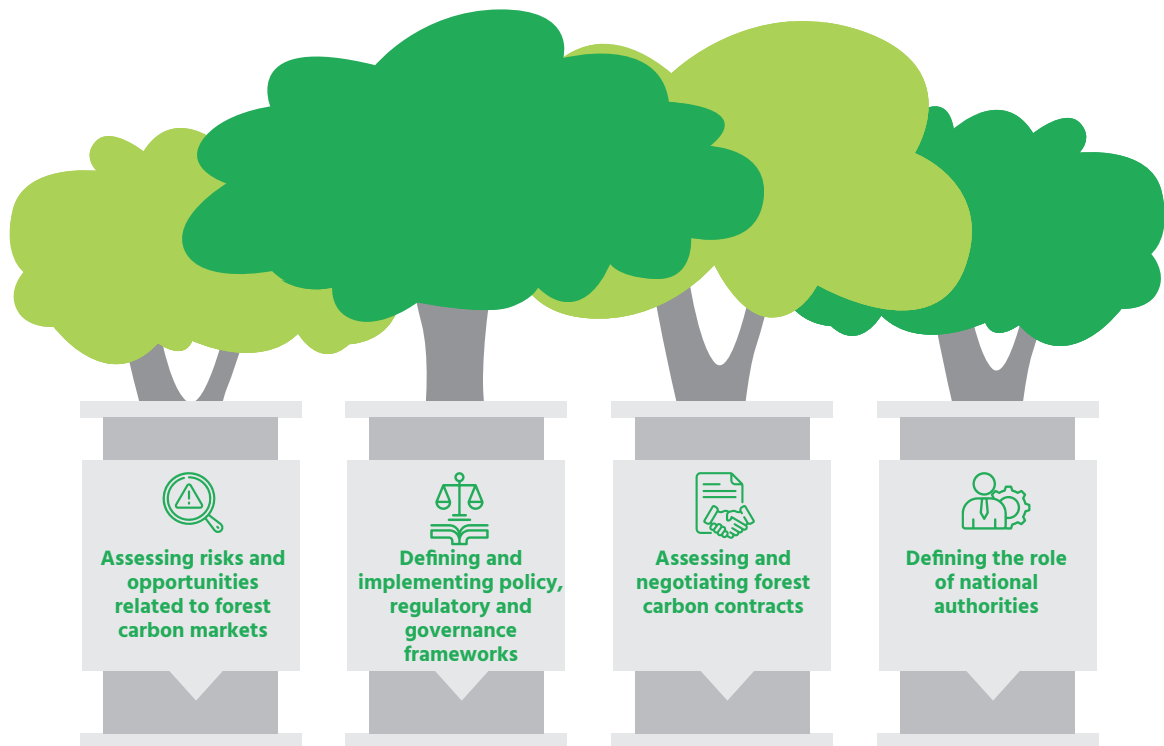


- Identify the fundamental elements required for enabling high-integrity forest carbon markets.
- Assess risks and opportunities related to forest carbon markets.
- Define policy, regulatory and governance frameworks considerations including Forest reference emission level (FREL) and/or forest reference level (FRL), Monitoring, reporting, and verification (MRV) system, registry system, nesting system, and Safeguards approach and system.
- Explain the role of national authorities, including regarding Article 6 of the Paris Agreement.
- Evaluate the critical components of carbon trading contracts and their implications for market participation.

The following section assumes that different carbon pricing instruments have been assessed by a host country and/or jurisdiction and that a carbon market approach has been defined as a viable option for the jurisdiction (national and/or subnational).

The following building blocks are advised to policymakers in the road to implementing high-integrity forest carbon markets:

Figure 12. Building blocks to implementing high-integrity forest carbon markets



3.1 Assessing risks and opportunities related to forest carbon markets

Forest carbon markets face various risks and challenges that can impact their implementation and results, but if they are previously addressed and appropriately managed, they could also be opportunities. The role of policymakers in assessing these risks and opportunities before proceeding to engage in forest carbon markets and during implementation, is crucial. A range of risks and opportunities are presented below and may be related to policy, regulatory, governance, and coordination risks, market risks, social risks (including gender), environmental risks, technical and implementation risks.

- Policy, regulatory, and governance risks:** Issues on the matter can impact the viability and scalability of forest carbon projects and JREDD+ programs. The most relevant risks may be policy uncertainty, policy inconsistency, regulatory and policy compliance, land tenure and property rights, legal liability and enforcement, political instability and conflict, corruption, and governance challenges.⁷⁸ To minimize and/or eliminate such risks, there are opportunities to develop and implement robust and clear policies, and regulatory and governance frameworks that could give private stakeholders enough confidence to implement forest mitigation activities targeting medium and long-term results to be traded at national and international level.

- **Coordination issues** may arise from policy, regulatory and governance frameworks, and governance structures that span multiple levels of government, sectors, and geographic scales. Misalignment between local, subnational, and national policies, overlapping mandates, and unclear responsibilities may create confusion, inefficiencies, and gaps in coordination efforts. Adopting carbon markets policies may entail different coordination efforts between different stakeholders, at different scales. Coordination may imply high transaction costs. There is an opportunity to create viable work plans within the policy, regulatory and governance frameworks, where clear responsibilities are defined between different stakeholders; along with feasible deadlines and milestones to be achieved.
- **Market risks:** Market uncertainties can affect the feasibility, scalability, and sustainability of forest carbon projects and JREDD+ programs. Risks may be disaggregated in carbon price volatility, market oversupply or undersupply, competitive pressures, market perception and reputation.⁷⁹ Opportunities arise from the use of high-integrity standards and methodologies, which, in combination with other environmental and social co-benefits, create the chance to negotiate higher prices. In addition, insurance and target subsidies could be used to reduce volatility impacts.
- **Social risks (including gender):** There is growing recognition that the quality of a carbon unit (and its associated price) needs to be defined by the extent to which the actions leading to results effectively apply safeguards, produces real positive impacts over people and nature, as well as are embed by core international standards related to human rights, equity, participation and consent, and governance (discussed above), among others. However, countries and jurisdictions face challenges on various fronts and related social (including gender) risks in being able to meet these expectations and requirements. These social risks include inadequate stakeholder engagement, local elite capture (of benefits, representation, decision making), social and gender inequalities, weak monitoring frameworks, and insufficient leverage to catalyze transformational change required to address deeper rooted or more contested issues (e.g., tenure reform). Substantial institutional strengthening and capacity building from grassroots to provincial to subnational and national levels often remains crucial to help address these ongoing social risks.⁸⁰ Once again, using high-integrity standards and methodologies or aligning domestic standards with international best practices can offer the opportunity to provide reliable carbon credits that also achieve high social integrity.
- **Environmental risks (permanence):** As part of environmental integrity, particular attention should be given to the permanence of carbon stocks. Forest carbon projects and JREDD+ programs are vulnerable to natural disturbances such as wildfires, storms, pests, and diseases, as well as climate-related risks such as droughts and extreme weather events. These risks can cause sudden changes in forest carbon stocks, disrupt forest carbon projects and JREDD+ program activities, and compromise the achievement of emissions reduction targets, requiring adaptive management strategies and risk mitigation measures. High-integrity methodologies that use buffer pools of credits create **opportunities** to ensure the durability of forest carbon stocks. There is also an emerging and promising complementary measure in the form of insurance products. Some may already reach the market in 2025. Finally, registries would also create opportunities to ensure the traceability and accountability of carbon stocks in a transparent manner.
- **Technical and implementation risks:** The accurate monitoring, reporting, and verification (MRV) of GHG emissions reductions and/or carbon removals are

essential for the effective operation of forest carbon markets, but technical challenges, low institutional capacities, and data gaps create risks to the reliability of emissions estimates and reporting. Capacity building and technology development and transfer create **opportunities** for national experts to use the appropriate methodologies and tools available.

3.2 Defining and implementing policy, regulatory and governance frameworks

Defining a robust and clear policy, regulatory, and governance framework is essential to advancing forest carbon markets. This framework gives the necessary long-term assurance for both supply and demand stakeholders to invest in forest carbon mitigation that is aligned with international, national, and subnational climate change mitigation policies and strategies. Key to this process is also ensuring that all applicable stakeholders at both national and local levels (e.g. local municipalities and Indigenous Peoples and local communities, including equitably women, men and youth among them) have adequate resources, access to information and technical expertise to engage effectively within associated decision-making spaces.

Policy, regulatory and governance frameworks involve establishing legal and technical requirements to address carbon rights, land tenure and property rights, equitable benefit-sharing arrangements, stakeholder engagement and consent, effective grievance mechanisms and responding to well-defined objectives and mitigation targets, including defining eligible forest mitigation activities (refer to **Box 8** and **Box 9** for examples of frameworks under development in Indonesia and Tanzania).

As part of the development and implementation of a relevant policy, regulatory and governance framework, several elements are relevant to create a supportive framework that encourages private sector engagement and participation, ensures transparency, and promotes environmental and social integrity in forest carbon markets:

- I) **Forest reference emission level (FREL) and/or forest reference level (FRL):** When defining regulations and policy frameworks, it may be assumed that a country or jurisdiction has already established a FREL and/or FRL, and in consequence, it is ready to seek for REDD+ results-based payments in the context of Article 5 of the Paris Agreement. However, jurisdictions may need to revise/update their FRELs/FRLs as part of their strategy to access forest carbon markets based on specific requirements established under forest carbon market standards and/or potential buyers. For example, a FREL/FRL submitted to UNFCCC may not contain all elements required by ART-TREES.
- II) **Monitoring, reporting, and verification (MRV) system:** MRV systems are crucial for tracking progress toward GHG emission reduction targets, evaluating the effectiveness of policies and measures, and facilitating the exchange of information among forest carbon market actors. To accurately monitor, report and verify GHG emissions, emission reductions, and/or carbon removals, it is essential to use robust standards and methodologies. Therefore, it is necessary to clearly indicate what standards and methodologies are accepted under the forest carbon market. Such standards and methodologies need to be aligned with other international initiatives, in particular the decisions from the Integrity Council for Voluntary Carbon Markets (ICVCM) and the Article 6.4 Supervisory Body (SB). In addition, a comprehensive MRV engages independent and suited third-party verifiers and auditors to review and validate project data, methodologies, reported outcomes, and safeguards conforming. Independent verification assures stakeholders and investors on the integrity of carbon accounting in forest carbon market initiatives.

- III) Registry system:** In addition to the MRV system, countries should establish a national registry (or at least have access to an international registry system) that would allow the recording and tracking of carbon credits through unique identifiers (both at national and international levels). If the intention is to participate in cooperative approaches, then particular attention should be given to the form, functions, and processes required by the Article 6 registry.⁸¹
- a.** Accounts for ITMOs and/or “VCM carbon credits”, as applicable.
 - b.** Maintains records of actions relating to ITMOs (i.e., authorization, first transfer, transfer, acquisition, use towards NDCs, use towards other international mitigation purposes and voluntary cancellation), and actions related to “VCM carbon credits”, as applicable.
 - c.** Tracks, maintains records and accounts for ITMOs and/or “VCM carbon credits”, including through unique identifiers.
 - d.** Provides access to stakeholders for which access is authorized to implement the actions referred to in paragraph (b) above.
 - e.** Produces, maintains and compiles records, information and data consistently with reporting requirements.
- iv. Nesting system:** Determining whether nesting is needed for accessing forest carbon markets depends on the range of REDD+ activities and administrative and operational scales currently within the jurisdiction (national and/or subnational). If considering JREDD+, a comprehensive nesting system that integrates and harmonizes carbon accounting, monitoring, governance, and safeguards considerations, operating at multiple geographic and governance levels, into a single national level framework should be established. See the learning journal on “Nesting approaches REDD+”).
- v. Safeguards approach and system:** Safeguards need to be considered to minimize or avoid negative environmental and social impacts and mitigate such risks while also promoting benefits (e.g., biodiversity conservation, ecosystem services, zoonotic diseases prevention, rural livelihoods, social inclusion, gender equality and forest governance, among others). Policies and actions need to be in place at the different potential scales of forest carbon markets (national, JREDD+ and projects) to ensure social and environmental safeguards are being addressed and respected, and to report on the topic through a **Safeguards Information System (SIS)**. A SIS in the context of accessing forest carbon markets should align with the other Warsaw Framework for REDD+ elements established for results-based payments. It could also contribute to reporting relevant information needed to respond to other approaches, guidelines, or requirements defined by specific carbon finance sources as well as demonstrate environmental and social integrity within forest carbon markets. A key ongoing challenge in compliance and voluntary carbon markets is the diversity of safeguards standards and methodologies that apply and the fragmentation of safeguards-related requirements. Thus, as carbon finance sources continue to emerge and carbon opportunities expand, an integrated safeguards approach and a functional safeguards system are key, wherein SIS together with other safeguards elements and processes (e.g. equitable benefit-sharing arrangements, socially inclusive and gender-responsive stakeholder engagement and consent, effective grievance mechanisms, etc.) remains crucial to ensuring application of social and environmental safeguards and international standards related to human rights, equity, participation, and governance, among others.⁸² For further information on social and environmental Safeguards, refer to the corresponding Safeguards learning journal that is part of the REDD+ Academy.

Box 8.



Market and non-market approaches in Indonesia

Indonesia's regulatory framework, which is anchored in the Presidential⁸³ and Ministry of Environment and Forestry regulations,⁸⁴ focuses on implementing a "National Carbon Pricing Policy" to control GHG emissions and achieve NDC targets. This framework includes instruments such as national registry, carbon trading, results-based payments, and carbon levies.

Through these instruments, Indonesia's legal framework allows ministries/agencies, regional governments, and companies to engage in carbon trading and RBPs both domestically and internationally. RBPs are designed to meet the country's NDC targets without transferring carbon ownership, emphasizing alignment with international non-offsetting-based climate finance goals.

The framework also highlights the importance of "Mutual Recognition Cooperation", which outlines a process for information disclosure, conformity assessment, and the establishment of agreements with international crediting programs to enhance transparency and cooperation in facilitating international carbon finance.

Indonesia's regulations also include social and environmental responsibility and provisions to promote the use of climate change labeling schemes by companies, thereby incentivizing environmentally friendly practices. Companies are recognized and rewarded for implementing climate change adaptation measures beyond their obligations, further encouraging climate-friendly initiatives.

3.3 Defining the role of national authorities

Defining and implementing policy, regulatory, and governance frameworks for forest carbon markets involves establishing rules and roles for leading and accountable public and/or private institutions/actors, including institutions/actors in the financial system if a forest carbon credit is defined as a financial asset.

In a compliance forest carbon market, establishing the policy, regulatory and governance framework includes defining

national authorities to oversee and regulate activities related to GHG emissions reductions and carbon removals from forests within the jurisdiction to ensure transparency, integrity, and compliance with regulatory requirements (refer to an example of a national authority in Box 9).

In the context of the Paris Agreement, a national authority is also required for different authorizations/approvals under Article 6 and the application of “corresponding adjustments” (when applicable). The following table describes the duties of a national authority under Art. 6.2 and Article 6.4.

Table 7. National Authority role under the Article 6 of the Paris Agreement

Authorization/approval requirements under Article 6. 2 cooperative approach	Authorization/approval requirements under Article 6. 4 Mechanism
<p>Authorizing the use of ITMOs towards the achievement of NDCs⁸⁵ (an example of authorization is the use of “REDD+ program’s Emission Reductions or Removals, issued as ART Credits” given by Guyana).⁸⁶</p>	<p>Authorization and approval that includes:⁸⁷</p> <ul style="list-style-type: none"> a. Confirmation and information on how the activity fosters sustainable development in the host Party. b. Approval of any potential renewal of the crediting period if the Party intends to allow the activity to continue beyond the first crediting period. c. Explanation of how the activity relates to the implementation of its NDCs and how the expected GHG emission reductions or carbon removals contribute to the host Party’s NDCs. <hr/> <p>Authorization of public or private entities to participate in the activity as activity participants under the 6.4 Mechanism.⁸⁸</p> <hr/> <p>Authorization for the use of A6.4ERs issued for the activity towards achievement of NDCs and/or for other international mitigation purposes.⁸⁹</p>
<p>Application of “corresponding adjustments.”⁹⁰</p>	<p>Application of “corresponding adjustments.”⁹¹</p>



Box 9.

Tanzania national carbon trading authority⁹²

Tanzania has established a policy, regulatory and governance framework to address all types of carbon trading projects, including REDD+. In particular, the framework has defined a “Designated National Authority or National Focal Point” and the roles of other institutions/actors.

The “Designated National Authority or National Focal Point” is the ministry designated to coordinate matters relating to the environment and carbon trading projects in the country; in this case, it is the Minister of State for Environment in the Vice President’s Office for Environment of the Government of Tanzania.

The functions of the “Designated National Authority or National Focal Point” includes:

- a. Link the country with international processes for climate change.
- b. Coordinate climate change-related matters across the country.
- c. Provide policy guidance on carbon trading and other crediting mechanisms that promote investment, social, cultural, economic and environmental justice.
- d. Register carbon trading projects under compliance and voluntary mechanisms.
- e. Constitute a National Carbon Assessment Technical Committee to review and scrutinize the Project Concept Note and Document.
- f. Issue a letter of no objection for the project qualifying for registration.
- g. Advise the project proponent to have/adhere to insurance policies on carbon trading projects.
- h. Provide key information to proponent in the carbon trading project.
- i. Measure, report and verify of GHG.
- j. Coordinate and conduct monitoring and evaluation of the registered carbon trading project.
- k. Collaborate with the ministry responsible for environment of the Revolutionary Government of Zanzibar for issues concerning carbon trading.
- l. Keep a register of all carbon trading projects in the country.
- m. Implement all necessary matters in accordance with these Regulations and other international treaties.

A “National Carbon Assessment Technical Committee” is established to advise the “Designated National Authority or National Focal Point” with the following main functions:

- a. Review Project Concept notes and provide recommendations to the Designated National Authority or National Focal Point.
- b. Review project documents and provide recommendations to the Designated National Authority or National Focal Point.

Finally, the Sectorial ministries have the following functions:

- a. Provide sectoral technical, administrative, and legal advice on carbon trading projects.
- b. Provide a clearance letter for a carbon trading project proposed in a specific sector, and
- c. Recognize “Certified Carbon Emission Reduction Units” from sector-specific carbon trading projects in the national GHG inventory.

3.4 Assessing and negotiating forest carbon contracts

Once the GHG emission reductions and/or carbon removals are monitored, reported, and verified, they can be monetized.

Project owners and host JREDD+ programs (national and/or subnational) as sellers need to consider key terms for potential forest carbon market transactions. These terms may first be described in a Letter of Intent (LoI) as a preliminary non-binding agreement between a buyer and a seller outlining the key terms and conditions of the potential transaction. A LoI expresses the parties' intention to negotiate and finalize a formal Emission Reduction Purchase (or Payment) Agreement (ERPA).⁹³

An ERPA is a contractual agreement between a buyer and a seller of carbon credits. The seller, often representing a forest carbon project or JREDD+ programs, agrees to deliver a certain quantity of carbon credits to the buyer over a specified period.

There are several pieces of information to be described and agreed upon in an ERPA and LoI, and the elaboration of any of these documents should be done with the proper legal advice, taking into consideration the potential differences in the legal framework of the host country as seller and the buyer/donor country.

Key elements/terms to be considered in the ERPA and LoI include:

Table 8. Key elements of Emission Reduction Purchase (or Payment) Agreement (ERPA)

Key terms	Description
Parties involved	Identification of the buyer and the seller, along with any intermediaries or agents involved in the transaction.
Quantity of carbon credits to be traded	Specification of the quantity of carbon credits to be purchased/sold, usually expressed in t CO ₂ e resulting from MRV.
Price	Agreement on the price per unit of carbon credit. This may be a fixed price, a variable price based on market conditions, or a combination of both.
Delivery Schedule	Establishment of the timing for delivery of the carbon credits, including any milestones or performance targets that the seller must meet.
Standards	Definition of the criteria that the carbon credits must meet in terms of their validity, verification, and certification under relevant carbon crediting programs.
Eligibility period	Definition of a timeframe during which GHG emission reductions or carbon removals can be generated and credited for carbon trading purposes.
Ownership and title of ERs	Allows for the transfer of the ownership/title of the GHG emission reduction and/or carbon removals.
Verification and certification	Specification of the process for verifying and certifying the emission reductions associated with the carbon credits, including any third-party verification requirements.
Payment terms	Clarification of payment terms, including the currency, payment schedule, advance payment alternatives, invoicing procedures, and any penalties for late payment or non-performance.
Definition of financial instrument	Identification of the financial instrument.
Governing law and dispute resolution	Determination of the jurisdiction whose laws will govern the agreement and procedures for resolving disputes between the parties, which may include arbitration, mediation, representation and warranties.

Key considerations to reflect in the context of the ownership and title of GHG emission reductions and/or carbon removals are the description of the “carbon rights,” which should be defined at the issuance stage. In the case of forest projects and JREDD+ programs, “carbon rights” may have a direct relationship with “land rights.”

Having clear definitions of carbon rights, as per local regulations, would provide clarity when ownership and title of the GHG emission

reduction and/or carbon removals is negotiated within an ERPA. Complementary negotiation terms should provide fair rewards to project owners and host JREDD+ programs in relation to a fair price and acknowledgment from buyers that achieving a forest carbon credit is the result of a process that requires an upfront investment. Therefore, project owners and host JREDD+ programs would highly benefit from an advancement of payments as part of the negotiation terms.



LEARNING TOOL

Go to the [REDD+ Academy Platform](#) to access interactive versions of the building blocks and frameworks for implementing high-integrity forest carbon markets.



Box 10.



Singapore – Implementation Agreement under Article 6.2 of the Paris Agreement⁹⁴

Since 2022, Singapore has been conducting substantive negotiations with Bhutan, Ghana, Papua New Guinea, Paraguay, Viet Nam, and other countries with the aim to sign implementation agreements (IA) under Article 6.2 of the Paris Agreement. Up to date, IA have been signed with Ghana and Papua New Guinea.

The IA proposed by Singapore establishes a “Joint Committee” between the participating countries that is responsible for:

- Provide decision-making recommendations to countries for topics such as guidance on processes, environmental integrity, the share of proceeds and registry arrangements.
- Establish rules and guidelines for project proponents to ease participation.
- Review the IA and its annexes as required.
- Consider potential cooperation areas.
- Facilitate information exchange.
- Discuss any questions and perform other functions related to the IA.

The IA also define the process that should take place:



Stage A – Feasibility of the proposed mitigation activity

1. The project applicant submits a Project Application to the Joint Committee.
2. If the proposed mitigation activity concept is accepted by both countries, the Joint Committee will issue a Letter of Support (LOS) and Letter of Intent (LoI) from both countries. These letters may specify the conditions that the project applicant should meet in designing the proposed mitigation activity.
3. If the proposed mitigation activity concept is not accepted, the project applicant will be informed, along with any reasons for the non-acceptance (if relevant).



Stage B – Design of the proposed mitigation activity

1. The project applicant submits the completed Project Design Document (PDD) Submission Template to the Joint Committee for assessment by both countries, which will be based on the conditions and requirements in the IA, LOS and LOI.
2. After assessment, the Joint Committee will inform the project applicant of the PDD submission outcome.
3. If the PDD Submission is accepted, the host country will issue a letter of recommendation and Singapore will reaffirm the earlier issued Letter of Support via an email to the Joint Committee, which will be forwarded to the project applicant.
4. If the PDD Submission is rejected because the project design is not feasible or acceptable, the project applicant will be advised on how to revise their project design (if relevant).



Stage C – Authorization of the proposed mitigation activity

1. The project applicant submits an authorization application and the validation report of the proposed mitigation activity to the Joint Committee.
2. The Joint Committee will assess the proposed activity and inform the project applicant of the outcome.
3. If the proposed mitigation activity is authorized, the Joint Committee will:
 - a. Forward the letters of authorization issued by Singapore and the host country respectively.
 - b. Enter the mitigation activity into the register.
 - c. Submit the initial report prepared jointly by Singapore and the host country to the UNFCCC Secretariat.
4. After the initial report has been accepted by the UNFCCC Secretariat, the Joint Committee will issue a Joint Statement of Authorization to the project applicant and publish the Joint Statement of Authorization.
5. After a Joint Statement of Authorization has been issued, the project “applicant” becomes a project “participant”. Project participants may then register their mitigation activity with the approved International Offset Programme stated in the letters of authorization and inform the Joint Committee of their registration. They may then begin to implement their project.
6. If the proposed activity is not authorized, the project applicant will be advised by the Joint Committee on how to revise their project authorization application (if relevant).



Stage D – ITMO Issuance Authorization

1. The Project Participant submits an ITMO issuance application to Singapore and the host country Joint Committee.
2. The Joint Committee sends the application to Singapore and the host country separately to determine if the ITMO issuance meets their national requirements. The Joint Committee will inform the project participant of the outcome after the assessment.
3. If the ITMOs are authorized for issuance, the host country will issue a Letter of Positive Examination and list the ITMOs in its national registry. Corresponding adjustments will also be made in accordance with Article 6 of the Paris Agreement.

If the ITMOs are not authorized for issuance, the applicant will be advised on how to revise their ITMO issuance application (if relevant).



Key takeaways

There are four building blocks to implement high-integrity forest carbon markets:

- Assessing risks and opportunities related to forest carbon markets
- Defining and implementing policy, regulatory and governance frameworks
- Defining the role of national authorities
- Assessing and negotiating forest carbon contracts



Module 4



Summary and conclusions



This module

Reflects on the opportunities and pathways for forest countries to leverage carbon markets to scale up climate finance for forest conservation and restoration, emphasizing the importance of integrity, equity, and sustainability in these mechanisms.



You will be able to...

- Summarize the key factors driving the demand for high-integrity forest carbon credits, including NDC targets and corporate net-zero commitments.
- Summarize a roadmap for forest countries to leverage carbon markets.

As forest countries transition through the REDD+ phases and reach results-based finance (RBF), they have increasing opportunities to access carbon finance from different sources (public, private, national, and international).

Voluntary and/or compliance high-integrity forest carbon markets emerge as an opportunity to direct finance towards forest conservation and restoration (both at the project and jurisdictional level) as a response to:

- An increasing recognition of the mitigation potential and value of ecosystem services from forests.
- Better assessment of the costs of REDD+ leading to an attractive price per tCO₂e for forest carbon credits.
- The mainstreaming of integrity as a key consideration in both the supply and demand sides to increase confidence and mitigate risks associated with forest carbon markets.
- The progressive establishment and use of robust carbon standards for high-integrity carbon markets.
- The emerging and progressive establishment of regulations, policies, and governance frameworks in host countries enabling forest carbon market development and willingness to engage in voluntary cooperation under Article 6 of the Paris Agreement.

- Increasing interest for high-integrity carbon credits from countries advancing on their NDCs.
- Increasing interest for high-integrity carbon credits from corporations advancing on their net-zero commitments.

National and subnational governments can use carbon forest markets to scale up complementary climate finance for protecting and/or enhancing forest areas. It is critical that when developing and implementing forest carbon markets, the rights of Indigenous Peoples, Afro-descendent and local communities, women and marginalized groups are fully considered and respected.

Both project-level initiatives (led by private project developers, landowners, and communities) and jurisdictional REDD+ programs (led by national or subnational jurisdictions) can deliver high-integrity emissions reductions or removals.

Demand for high-integrity emissions reductions or removals exists at the national and international levels and can be monetized through transactions in the voluntary carbon market and/or compliance market. Both countries (in the NDCs) and private companies (in the corporate net-zero commitments and claims) have identified forest carbon mitigation activities as opportunities for achieving their targets and goals.



LEARNING TOOL

Review what you have just learned. Go to the [REDD+ Academy Platform](#) to watch the video with key messages and important takeaways for ensuring high-integrity forest carbon markets.



To maximize these opportunities, a clear roadmap should be established based on the four main building blocks presented and explained in this Learning Journal, taking into consideration the current status quo existent in the country or region:



Your learning journey is concluded: What do you know now about forest carbon markets? Go to the [REDD+ Academy Platform](#) and answer the questions to assess your actual knowledge.



**LEARNING
TOOL**



1. Based on the **assessment of the risks and opportunities related to forest carbon market**, identify where are the major opportunities/demands (nationally and/or internationally), and what are the main risks under the different types of market (voluntary and/or compliance) and under the instruments to be used (e.g., voluntary carbon standards; Article 6.2 cooperative approaches; Article 6.4 Mechanism; etc.).



2. Develop and implement the necessary policy, **regulatory and governance framework**, that should focus on the immediate, major opportunities, and in strategies to avoid and/or minimize risks. Voluntary and compliance carbon markets and different instruments can co-exist with healthy competition. In particular, as part of the regulatory and policy framework the following elements need to be considered:
 - a. **FREL/FRL:** If necessary, revise/update the FRELS/FRLs based on specific requirements established under forest carbon market standards and/or by potential buyers.
 - b. **MRV system:** Develop, implement and maintain a MRV system that would be able to provide all the necessary information and data required by different instruments to be used (e.g., voluntary carbon standards; Article 6.2 cooperative approaches; Article 6.4 Mechanism; etc.). The MRV system needs to clearly indicate what standards and methodologies are accepted under the forest carbon market. Such standards and methodologies need to be aligned with other international initiatives, in particular the decisions from the Integrity Council for Voluntary Carbon Markets (ICVCM) and the Article 6.4 Supervisory Body (SB).
 - c. **Registry system:** Develop and implement a national registry (or at least have access to an international registry) that would allow recording and tracking of carbon credits through unique identifiers (both at national and international level).
 - d. **Nesting system:** Use the Nesting Decision Tree (presented in the Nesting LJ) to assess the necessity and suitability of implementing a nesting approach for REDD+.
 - e. **Safeguards:** Develop and implement a Safeguards approach and a functional safeguards system, including guidelines or criteria for inclusive participatory process, and arrangements for equitable, transparent, and participatory benefit-sharing distribution, recognizing the role of Indigenous Peoples, Afro-descendent and local communities and women that depend on forest for their livelihoods. For further information on social and environmental safeguards refer to the corresponding safeguards learning journal that is part of the REDD+ Academy.



3. Identify and define the necessary roles of **national authorities** to oversee and regulate activities related to GHG emissions reductions and carbon removals from forests within the jurisdiction, to ensure transparency, integrity, and compliance with regulatory requirements.



4. Engage and/or support the engagement of different actors in **assessing and negotiating forest carbon contracts**. If necessary, develop templates for Emission Reduction Purchase (or Payment) Agreement (ERPA) that are more suitable for the national circumstances and types of market (voluntary and/or compliance) and instruments to be used.

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