Country Guidance for Navigating Carbon Markets

Paris Agreement Article 6 Implementation Partnership

GGGI

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

THE INTEGRITY COUNCIL FOR THE VOLUNTARY CARBON MARKET

UNDP

United Nations Climate Change

Voluntary Carbon Markets Integrity Initiative

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The initiative aims to address fragmentation in technical assistance for carbon markets, identified by stakeholders as a key barrier to market development in the convenings organized by the World Bank under the *Carbon Markets Engagement Roadmap*. These guidance documents build on the high-level framework presented in *Navigating Decisions in Carbon Markets*, launched at COP29, and aim to translate that framework into practical, technical guidance to inform and strengthen host country engagement in international carbon markets.

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Abbreviations

A6.2	Article 6.2 of the Paris Agreement
A6.4	Article 6.4 of the Paris Agreement
AML	Anti-Money Laundering
ART	Architecture for REDD+ Transactions
CCP	Core Carbon Principles
CDA	Community Development Agreement
CDAC	Community Development Agreement Committee
CDM	Clean Development Mechanism
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CPI	Carbon pricing instrument
DOE	Designated Operational Entity
D4C	Digital for Climate
EAC	Environmental attribute certificate
ERR	Emission reduction or removal
ETS	Emissions Trading System
FPIC	Free, prior, and informed consent
FRA	Financial Regulatory Authority (Egypt)
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
ICVCM	Integrity Council for the Voluntary Carbon Market
IOSCO	International Organization of Securities Commissions
IPLC	Indigenous Peoples and local communities
IT	Information technology
ITMO	Internationally Transferred Mitigation Outcome
JCM	Joint Crediting Mechanism
KYC	Know Your Customer
LDC	Least Developed Country
LT-LEDS	Long-term Low Greenhouse Gas Emission Development Strategy
MACC	Marginal Abatement Cost Curve
MCU	Mitigation Contribution Unit
$MtCO_2e$	Million tonnes of carbon dioxide equivalent
NDC	Nationally Determined Contribution
OIMP	Other International Mitigation Purposes
OMGE	Overall Mitigation of Global Emissions
PACM	Paris Agreement Crediting Mechanism
PFM	Public financial management
RBCF	Results-based climate finance
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SDG	Sustainable Development Goal
SIDS	Small Island Developing State
SOP	Share of Proceeds
TCAF	Transformative Carbon Asset Facility
TREES	The REDD+ Environmental Excellence Standard
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Markets
VCMI	Voluntary Carbon Markets Integrity Initiative

Foreword

Carbon markets are increasingly recognized as a key pathway for accelerating global climate action while mobilizing much-needed finance for sustainable development. As the international carbon market landscape evolves—with the operationalization of the Paris Agreement Crediting Mechanism and growing expectations around high-integrity crediting—host countries face both promising opportunities and significant complexities in determining how best to engage.

This set of guidance documents is the result of a unique collaboration among leading international institutions: the Paris Agreement Article 6 Implementation Partnership (A6IP), the Global Green Growth Institute (GGGI), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the Integrity Council for the Voluntary Carbon Market (ICVCM), the United Nations Development Programme (UNDP), the United Nations Framework Convention on Climate Change (UNFCCC), the Voluntary Carbon Markets Integrity Initiative (VCMI), and the World Bank. This partnership reflects a shared commitment to strengthening coordination among capacity building providers and supporting host countries in designing, implementing, and participating in high-integrity carbon markets.

This initiative responds to a challenge that countries have raised repeatedly: fragmentation in technical assistance, which has made it difficult to develop coherent and well-informed strategies for engaging in international carbon markets. This need for greater alignment and a harmonized approach to capacity building was also clearly highlighted in stakeholder consultations convened under the World Bank's *Carbon Markets Engagement Roadmap*, launched at COP28.

Building on the high-level framework presented in *Navigating Decisions in Carbon Markets*, launched at COP29, these guidance documents aim to help countries translate strategic considerations into practical, technical actions. Structured around seven thematic modules, the guidance provides non-prescriptive support for navigating key policy choices—from whether and how to authorize credits, to how credits can be used and what institutional systems are needed to support implementation.

It is our hope that this joint effort serves as both a starting point and an ongoing resource for countries seeking to use international carbon markets to advance their national climate goals and strategies—while delivering inclusive, transparent, and sustainable outcomes for their people and communities.

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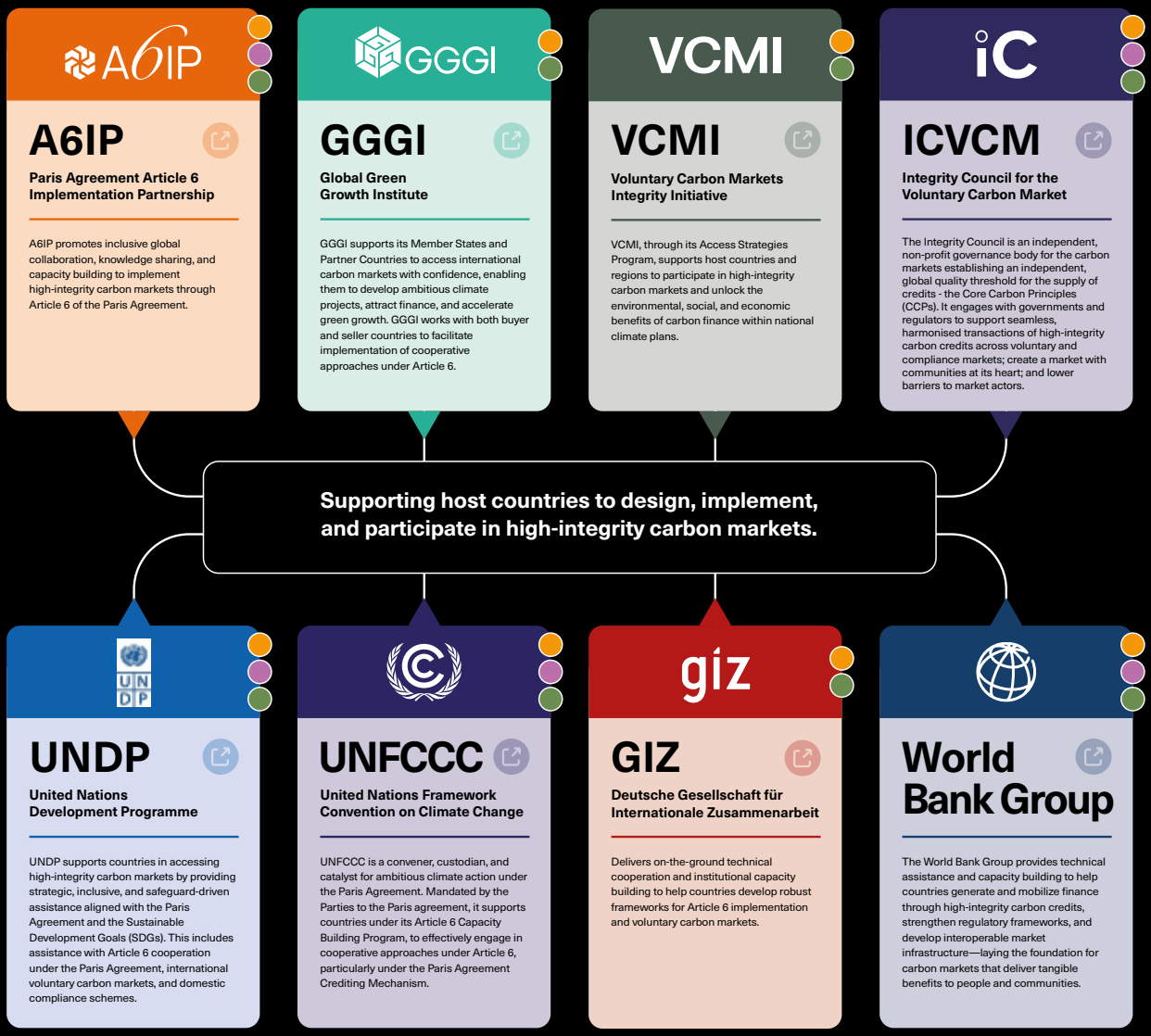
A harmonized approach to technical assistance for navigating carbon markets

Coordination of support aims to address the fragmentation of technical assistance and provide a coherent supporting framework to countries that will enable them to maximize their carbon market potential and achieve their climate and development goals. As some of the key providers of capacity building support in international carbon markets, these organizations aim to streamline countries' access to appropriate technical support to enable them to make informed decisions.



PARTNER TECHNICAL ASSISTANCE IS TARGETED TOWARD:

ARTICLE 6
Cooperative approaches and mechanisms under the Paris Agreement that enable countries and other entities to transfer mitigation outcomes internationally for NDC implementation, and other international mitigation purposes.

COMPLIANCE
Government-regulated carbon pricing instruments encompassing Emissions Trading Systems (ETS) and carbon taxes which impose compliance obligations on covered entities.

VOLUNTARY
This involves entities purchasing carbon credits to meet voluntary mitigation commitments. These commitments include corporate net zero targets and other voluntary climate or environmental claims.

Executive Summary

Understanding the international carbon market context

International carbon markets, especially carbon crediting mechanisms[1], offer significant potential for host countries. These markets can mobilize critical public and private financing for climate action; deliver crucial development co-benefits such as jobs, ecosystem conservation, and clean air, and provide revenues that can be re-invested by and in local communities to advance sustainable development and improve livelihoods. They can also play a strategic role in helping countries meet their climate targets, or Nationally Determined Contributions (NDCs) and when aligned, implement their Long-Term Low Emissions Development Strategies (LT-LEDS), by enabling more cost-effective and flexible pathways to reducing emissions. Amid widespread public financing constraints globally, it is unsurprising that many developing countries have shown a strong interest in hosting carbon market activities to advance their climate and development objectives.

These markets are at a critical juncture. Following rapid growth in the early 2020s—driven primarily by voluntary demand from large corporates—market activity plateaued on both the supply and demand sides (World Bank 2024c). This slowdown prompted several efforts in strengthening market integrity and infrastructure. Notable developments include the decision at COP29 in Baku to operationalize the Paris Agreement Crediting Mechanism (PACM), as well as advances in defining and implementing high-integrity credits through initiatives led by the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI). These efforts have laid a stronger foundation for a more credible and transparent market. Building on this momentum, host countries now have a renewed opportunity to engage with high-integrity international carbon markets — leveraging both existing and emerging market segments.

However, the landscape of international carbon market is complex. Figure ES.1 highlights some of this complexity, following a chronological pathway from credit generation through to credit use:

i. there are a wide range of different economic activities (and associated sectors) that can generate credits. These credits might be generated by different actors, at different organizational scales and for different uses;

ii. there are different mechanisms that define the rules for quantifying emission reductions and removals (ERRs) and converting into tradable credits;

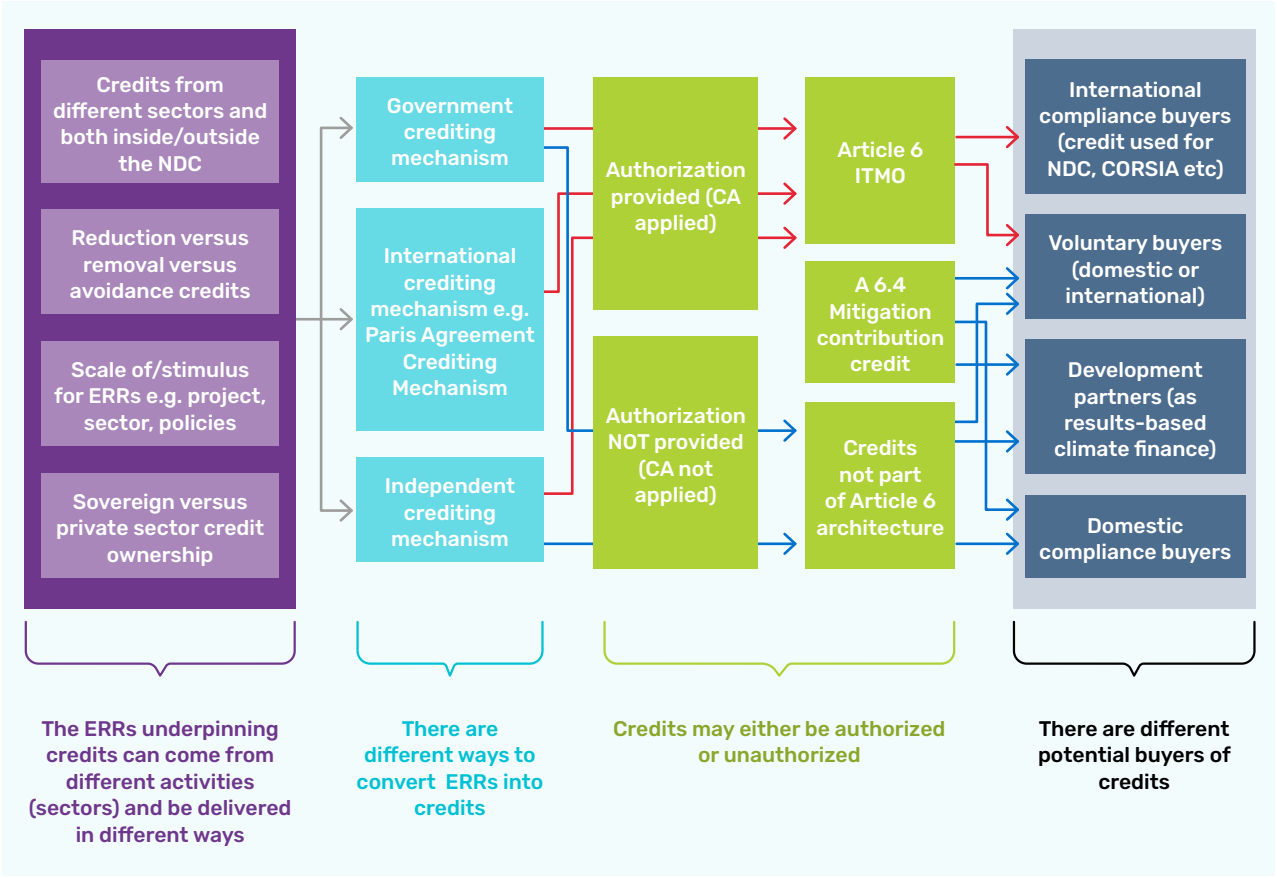
iii. following Article 6 of the Paris Agreement, carbon credits might either be 'authorized' – which requires the host country to apply a corresponding adjustment when reporting their national emissions – or 'unauthorized'

iv. there are multiple different buyers for any credits including international buyers using the credits for different purposes, including for compliance purposes or to meet their NDC, international voluntary buyers for offsetting, development partners providing results-based climate finance (RBCF), or domestic buyers.

1 'Under a carbon crediting mechanism, tradable credits (representing 1 tCO_2e) are generated through voluntary emissions reduction or removal activities. Carbon credits are issued … according to protocols that aim to ensure each credit represents a genuine emission reduction. Credits can then be sold to buyers, generating revenue.'

World Bank. 2024. State and Trends of Carbon Pricing 2024'. Washington, DC. *https://openknowledge.worldbank.org/server/api/core/bitstreams/253e6cdd-9631-4db2-8cc5-1d013956de15/content*.

Figure ES.1 The international carbon market



Note: Red lines show different pathways for the generation and use of authorized credits. Blue lines show different pathways for the generation and use of unauthorized credits. Credits generated through the Paris Agreement Crediting Mechanism (PACM) – the mechanism developed under Article 6.4 of the Paris Agreement - and that are subsequently authorized are referred to as Authorized Emission Reductions (AERs).

This landscape is rapidly evolving and increasingly converging. Traditionally, a clear distinction was made between the voluntary market — voluntary credit buyers making use of independent crediting mechanisms such as Verra and Gold Standard and with little reference to Article 6 of the Paris Agreement — and the international compliance market, which has developed more slowly alongside the finalization of Article 6 rules under the Paris Agreement. However, greater clarity around Article 6, particularly regarding the role of authorization, is narrowing this divide. As illustrated by the red lines in Figure ES1, it is now recognized that authorized credits might be issued through a range of different crediting mechanisms, including independent ones that have previously focused on issuing credits for voluntary buyers. Likewise, some voluntary buyers, as well as compliance buyers, are expressing interest in buying authorized credits, potentially generated through a range of different crediting mechanisms. Conversely, recent decisions mean that unauthorized credits, as shown by the blue lines in Figure ES1, might be generated under the Paris Agreement Crediting Mechanism established under Article 6. This growing flexibility reflects a more integrated and dynamic global carbon market.

Potential host countries face some external challenges in navigating this evolving landscape. As noted, until recently, there has been slow progress on key aspects of Article 6 under the Paris Agreement. Likewise, the proliferation of mechanisms for defining the quantity of ERRs and converting these into credits — each with differing rules and methodologies — increases complexity. This is compounded by varying preferences among international buyers, which can make it difficult for host countries to identify and prioritize the most valued types of credits, and how this varies by buyer. Finally, previous analysis (World Bank 2024; Pollination Group 2023)[2] has shown that technical assistance and capacity-building efforts have been fragmented, leaving many host countries with insufficient or inconsistent information that prevents the development of country-owned strategies (though, as this Guidance Document highlights, steps are now being taken to address this – see infographic after Foreword).

Other challenges and barriers are domestic in nature. As discussed elsewhere in this Document, strategic engagement with international carbon markets requires the host country to have a clear understanding of how it will meet its NDC and at what cost — information that is not always available. Many host countries are also developing domestic carbon pricing instruments (CPIs) to achieve or exceed their NDCs. While vital for climate action, these initiatives can complicate decisions around international carbon market participation by providing an alternative market for domestically generated credits. Finally, some host countries are wary of integrity and reputational risks that have affected carbon markets in recent years.

These challenges help explain why the full potential of international carbon markets has yet to be realized. For example, a 2024 survey undertaken by the Article 6 Implementation Partnership (A6IP), specifically reviewing progress in relation to the use of Article 6, found that while 71 countries were working on the authorization and tracking systems needed to use these approaches, only a few had operational frameworks in place. Survey responses indicated that countries needed a better understanding of these mechanisms and support in establishing policy frameworks for implementation (Article 6 Implementation Partnership 2024)[3].

How to use this guide

This Guidance Document helps (potential) host countries develop a strategic approach for engaging with international carbon markets. It aims to help countries unlock the potential these markets offer to mobilize financing to support climate and wider developmental objectives, while managing risks. It identifies options, evaluates their strengths and weaknesses, and supports informed decision-making.

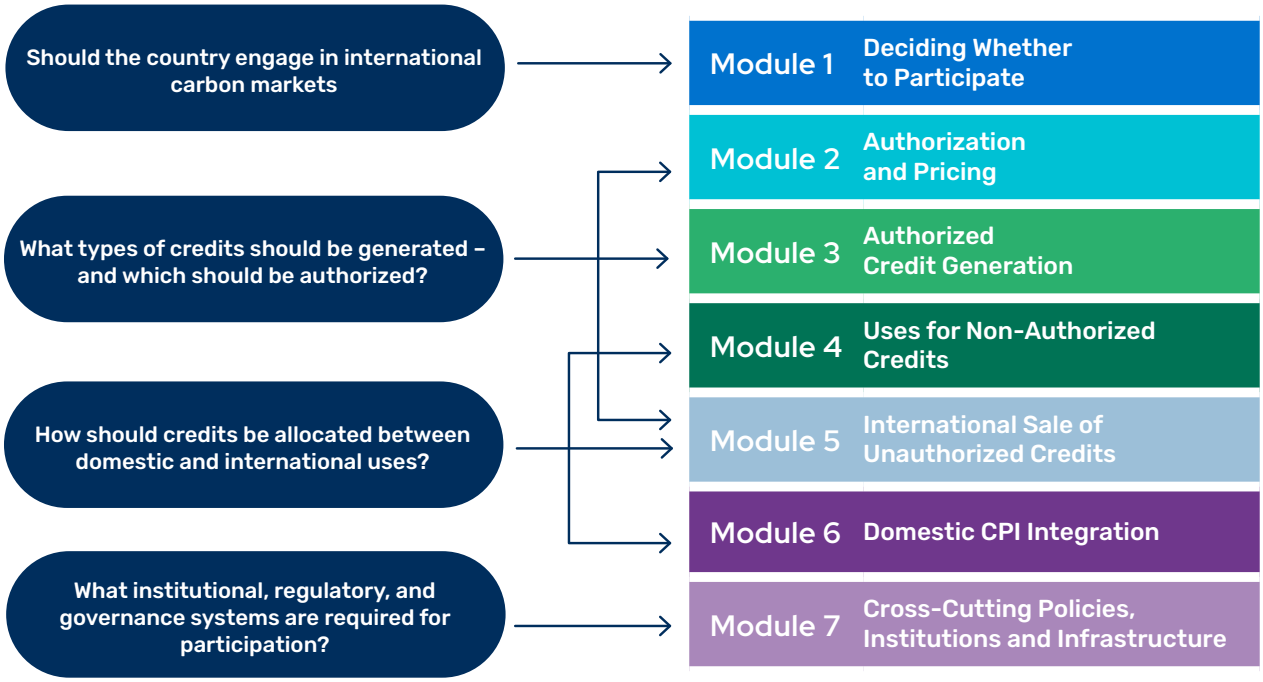
As a follow-up to the *Navigating Decisions in Carbon Markets framework*, this Document is structured into seven modules and is designed to help countries explore and answer fundamental questions on their participation in international carbon markets, as highlighted in Figure ES.2.

2 Pollination Group. 2023. 'The Role of VCMI and Philanthropic Funders in Supporting Country Market Readiness'. *https://vcmintegrity.org/wp-content/uploads/2023/12/VCMI_CM_Readiness_Report_Final_231201.pdf*.

World Bank. 2024. 'State and Trends of International Carbon Pricing 2024'. Washington, DC: World Bank. *http://hdl.handle.net/10986/41544*.

3 Paris Agreement Article 6 Implementation Partnership. 2024. 'Paris Agreement Article 6 Implementation Status Report'. *https://ca1-aip.edcdn.com/library/A6_Implementation-Status-Report-ISR_Web_FY2024.pdf?v=1741083956*.

Figure ES.2 Fundamental questions on carbon markets covered in this Guidance



Some countries may choose to follow each module sequentially to develop a comprehensive approach to international carbon markets (please refer to Figure 3 in *Navigating Decisions in Carbon Markets*). The modules are structured as follows[4]:

Module 1 offers support to countries regarding making an initial decision on whether to participate in international carbon markets as a host country.

Module 2 addresses core questions: whether and when to authorize carbon credits, thereby converting them into Internationally Transferred Mitigation Outcomes (ITMOs), as well as the associated risks and opportunities.

Module 3 explores host country options for generating and transferring authorized credits. This includes options for credit generation, identifying and selecting buyers, and the necessary infrastructure for tracking and reporting authorized credits (ITMOs).

Module 4 covers credits that host countries choose not to authorize for international transfer—and explores options such as selling these credits to international voluntary buyers, using them domestically, or exploring other possible uses.

Module 5 considers critical policy issues surrounding the international sale of unauthorized credits.

Module 6 provides guidance on using credits domestically, particularly within the context of carbon pricing instruments and their interaction with international carbon markets.

Module 7 addresses important cross-cutting considerations such as setting up the right institutions and policies and ensuring that carbon markets create strong social benefits.

4 The structure of the modules differs from the chronological presentation of the international carbon market in Figure ES1. This reflects the interactions that exist across the different features presented in Figure ES1 and, in particular, the centrality of the decision on whether and when to authorize credits.

Each module offers non-prescriptive guidance on one or more key policy questions. For each question, the Guidance outlines the pros and cons of different options, their interdependencies, and broader implications. Where relevant, it references the Article 6 Rulebook and provides country examples. Recognizing the complexity of these issues, the Guidance serves as an entry point and also directs readers to additional resources for deeper exploration. The Guidance is not intended to be exhaustive; instead, it remains focused on high-level decision-making and key strategic considerations, while relying on complementary efforts can provide the technical and legal depth needed to operationalize those decisions.

Host countries do not need to have addressed all questions in all modules before participating in international carbon markets. Key early-stage questions are marked with an asterisk in the rest of the document. Other questions may be addressed iteratively as host countries gain more experience.

Host countries can also use this guide selectively to address specific questions where additional guidance is needed. Given countries' varied experience with international carbon markets, while some may follow the full Guidance Document, others may find it more useful to consult certain modules or questions. The Guidance is intended to be useful and accessible for both countries who are new to international carbon markets and those looking for input on specific issues.

The rapid evolution of international carbon market as described above is still taking shape, with key elements—such as the implementation of the Paris Agreement Crediting Mechanism and the role of prospective buyers—still somewhat uncertain. As the landscape continues to develop, ongoing learning will be essential to inform host country strategies. The World Bank and its partners intend to update this Guidance Document periodically to reflect emerging insights and market developments.

Module 1: Should a country participate as a host in international carbon markets?

➔ **What are the advantages and disadvantages of engaging as a host country in international carbon markets? What preparation can countries consider?***

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

Participation in international carbon markets can provide significant financial and environmental benefits. Host countries can use carbon markets to mobilize critical public and private financing for climate action; deliver crucial development co-benefits such as jobs, ecosystem conservation, and clean air; and provide revenues that can be re-invested by and in local communities to advance sustainable low-carbon development and improve livelihoods. Participation can also drive innovation, strengthen supply chains, and promote knowledge transfer. Developing countries with substantial emissions reductions opportunities available at a lower cost than those in more developed countries are particularly well positioned to benefit.

Host countries face a range of challenges in engaging with carbon markets. These include managing potential claims on emission reductions and removals (ERRs) by international buyers (e.g., use for NDCs or other international mitigation purposes including by the private sector entities who buy them as part of their climate change strategy), which—if not carefully addressedcould compromise the achievement of Nationally Determined Contributions (NDCs); mitigating potential risks to local communities or conflicts with broader national development priorities; navigating the complexities of balancing international demand for carbon credits with any needs for credits from domestic carbon pricing instruments (CPIs); and

addressing reputational risks that may arise from crediting activities perceived to lack environmental or social integrity. To meet these challenges, they need to invest in strengthening institutional capacity including regulatory frameworks, measurement and reporting systems, and stakeholder engagement mechanisms.

Host countries should assess key strategic factors before deciding on carbon market participation. Understanding the mix of ERR opportunities, along with their costs and co-benefits, can help determine alignment with international demand. Evaluating how these opportunities fit within the country's NDC targets can ensure that credit sales support, rather than hinder, reaching these climate goals. Future NDC or Long-Term Low Emission Development Strategy (LT-LEDS) planning and anticipated policy shifts might also be considered to maintain long-term market alignment. Mapping existing mitigation policy measures and carbon market activities helps identify expertise, gaps, and collaboration opportunities, while assessing current and future domestic climate policies—particularly carbon pricing instruments—will further influence participation.

Module 2: How can host countries approach the decision of whether to authorize credits and how to price them?

- **How might a country decide which activities can generate authorized credits at different points in time?***
- **How should host countries approach the question of pricing authorized credits?***
- **How (else) can countries manage any overselling risks associated with authorization?***

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

Whether to authorize credits – meaning they become Internationally Transferred Mitigation Outcomes (ITMOs) - is a pivotal decision. Some buyers, such as governments using credits to support achievement of their NDCs and airlines complying with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), can only purchase authorized credits. Furthermore, some voluntary buyers of credits prefer authorized credits due to the implications they have for emissions accounting (see below)[5]. As a result, demand and prices for authorized credits are expected to be higher than for non-authorized credits, and the sale of authorized credits may imply less reputational risk for the host country. However, authorization also requires the host country to apply corresponding adjustments, increasing its reported emissions by the number of ITMOs sold. This adjustment could impact the country's ability to meet its NDC targets – a risk referred to as 'overselling' - making careful assessment essential before authorizing credits.

Host countries may wish to carefully assess which activities should generate authorized credits. Credits from low-cost emission reduction activities ("low-hanging fruit") that are crucial for meeting unconditional NDC targets, either now or in the future, and especially those already supported by domestic policy (including, but not limited to, a domestic carbon price) should be authorized with caution, as doing so may drive reliance on more expensive alternatives for NDC achievement. Where it is cost-effective to do so, using marginal abatement cost curve (MACC) analysis is one tool host countries can consider to guide authorization decisions and may lead countries to develop both **positive lists** (sectors whose credits will be eligible for authorization) and **negative lists** (sectors whose

5 It is important to note that authorization only affects the emissions accounting treatment of the credit and does not influence or determine other dimensions that shape perceptions of the 'quality' of a credit.

credits will typically not be authorized). Additionally, host countries should be aware that authorizing credits—even from sectors currently outside the scope of their NDC—still requires corresponding adjustments. This effectively increases the emissions tally under the NDC, implying that additional emissions reductions must be achieved in sectors within the NDC scope to stay on track with national targets. The interaction between carbon credit authorization and the sale of other environmental attribute certificates as well as activities benefiting from international climate finance also needs careful management.

The pace at which countries decide to take authorization decisions is also important. Initially, it would be understandable that uncertainty around NDC achievement and the expectation for future elevated ambition updates may make countries hesitant to authorize credits. Countries may prefer to build institutional knowledge by observing other countries' transactions before committing. However, early movers with ambitious NDCs and strong implementation plans can establish themselves as leading authorized credit (ITMO) providers. In addition, the fact that countries using authorized credits (ITMOs) for NDC achievement must use them in the same NDC implementation period in which they were generated means that demand for approved credits may decline towards 2030[6], creating additional timing considerations. Countries with clear cost assessments, well-defined strategies, which are aligned to long-term decarbonization goals, will be best positioned to make informed authorization decisions.

Host countries can benefit from pricing authorized credits to reflect not only the costs of generating the underlying mitigation outcomes, but also the opportunity costs of forgoing their use toward national climate targets or other domestic benefits. Opportunity cost pricing ensures that authorized credit sales represent the true cost of mitigation for the country and generate sufficient revenues to finance additional mitigation efforts needed to achieve the NDC (also, ideally, considering any future plans that the country may have for its NDC). It can either be undertaken directly by governments if they are negotiating ITMO prices with buyers, or through the application of fees when the private sector is responsible for ITMO generation. If done well, opportunity cost pricing affords host countries with greater flexibility over the credits they choose to authorize. Host countries may benefit from technical assistance support to help address the analytical challenges that this pricing strategy creates.

Managing overselling risks is crucial for maintaining credibility. Authorizing an excessive volume of credits without ensuing adequate domestic emission reductions can jeopardize the achievement of NDC targets. In addition to using tools such as positive and negative lists and pricing that reflects the opportunity cost, host countries should consider adopting conservative baselines, ensure that their emissions inventories are sufficiently granular to capture ERRs associated with authorized credit (ITMO) transfers, and clearly attribute reductions to specific sectors. Countries may also consider transferring only a portion of mitigation outcomes generated, retaining the reminder to support progress toward their own NDC goals.

6 Although this will be counteracted if key potential buyers only determine how much they wish to make use of authorized credits close to the 2030 deadline

Module 3: How to approach the generation and transfer of authorized credits?

- **What role might a government play in generating and owning authorized credits?**
- **Which part of the Article 6 architecture might host countries use to generate authorized credits? ***
- **What crediting approaches can be used for generating and issuing authorized credits?**
- **Should the government adopt its own crediting mechanisms or rely on those provided by others?**
- **How can host countries influence who buys their authorized credits?**
- **What infrastructure does a host country need to authorize credits? ***
- **Should the host country consider Overall Mitigation in Global Emissions (OMGE)/Share of Proceeds (SOP) contributions?**
- **How can host countries calculate the quantity of corresponding adjustments to apply?**

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

Host country governments must decide whether to take an active role in generating authorized credits (ITMOs), delegate this responsibility to the private sector or adopt a hybrid approach that combines multiple credit generation modalities. Each option carries specific advantages and trade-offs. Private sector led models of generation will allow host countries to benefit from the expertise and implementation experience possessed by private sector developers with competition between these developers supporting the innovative and timely delivery of credits that are more likely to meet the needs of buyers. A stronger role for government may be essential to unlock larger-scale crediting opportunities (i.e. sectoral/jurisdictional or policy crediting) and may make it easier to re-allocate the gains from carbon market participation to support development goals.

Determining the right balance across the different options for generating authorized credits (ITMOs) is crucial. Countries can engage under the decentralized Article 6.2 framework, allowing bilateral agreements, or use the structures of the Paris Agreement Crediting Mechanism (PACM) under Article 6.4. Article 6.2 allows for customized crediting methodologies and enhanced bilateral cooperation, while Article 6.4 offers international oversight and uniform standards. Many countries will benefit from using both options, determining the appropriate balance according to a range of considerations.

Host countries using Article 6.2, often in collaboration with ITMO buyers, must select the appropriate crediting approaches and mechanisms. Project-based, programmatic, sectoral, and policy-based crediting approaches offer different benefits. Project-based crediting is the most familiar and maximises the opportunities for engaging the private sector; sectoral and policy-based approaches can unlock larger emission reductions and revenues but are less well-established and, especially in the case of policy-based crediting, complex. Host countries must also decide on how they will approach the quantification, verification, and issuances of credits for authorization. Using methodologies from credible independent mechanisms or government

mechanisms proposed by the buyer with a well-established track record (e.g. Japan's Joint Crediting Mechanism) offers the lowest cost option and can enhance buyer trust in the integrity of the credit. If using independent mechanisms, making use of existing quality standards – most notably the Integrity Council for the Voluntary Carbon Market's (ICVCM's) Core Carbon Principles – can help demonstrate integrity and provide confidence that the relevant guidance has been met. However, host countries may choose to develop their own national mechanisms to provide greater national ownership that are tailored to their country context, although this will be more time-and resource intensive.

Host countries have several strategic options to influence who buys their authorized credits (ITMOs) and enhance their attractiveness. Key decisions revolve around the authorization of entities to participate in the generation of ITMOs, decisions around the use of authorized credits (e.g., to meet another country's NDC, use under CORSIA, or for use by voluntary buyers of credits), how legally binding any credit authorization is, the timing of authorization (before or after securing a buyer), and, in certain cases, when to designate that 'first transfer' has taken place, which triggers the requirement to apply corresponding adjustments. Host countries may also participate in bilateral agreements with buyer nations to structure crediting mechanisms and mitigation priorities.

To engage in authorized credit (ITMO) transfers under Article 6.2, host countries require robust infrastructure, including a greenhouse gas inventory, data management systems, and, critically, access to registry services. Registries serve as tools for tracking credit issuance, transfers, and corresponding adjustments. Host countries can either develop their own national registries, use third-party providers, or make use of the registry services that will be offered by the UNFCCC. Each option has trade-offs between national ownership, customization, cost, and technical capacity. The choice will depend on the country's level of market engagement and ability to manage registry operations efficiently. Countries that desire the maximum scope to customize their registry to fit with an ambitious Article 6 strategy, and/or that are developing their own domestic carbon pricing instruments, will likely find value in developing a national registry. Others may be able to make use of simpler approaches that require less time and investment to build and maintain.

While Article 6.4 mandates contributions to Overall Mitigation in Global Emissions (OMGE) and the Adaptation Fund via a Share of Proceeds (SOP), host countries have the discretion to decide whether to apply these contributions under Article 6.2. However, their application is 'strongly encouraged' under the Article 6.2 guidance. These contributions enhance environmental credibility, and may be attractive to some buyers, but may reduce credit competitiveness by increasing the costs of authorized credit (ITMO) generation. The decision depends partly on buyer price sensitivity—if buyers accept these costs, applying them strengthens climate action without undermining market appeal. Host countries may be able to negotiate a Share of Proceeds for adaptation within their country.

Host countries with single-year NDC targets must determine how to apply corresponding adjustments for authorized credits. Two approaches exist: averaging, which distributes adjustments across the NDC period, and multi-year accounting, which aligns adjustments with annual emissions trajectories. While the latter enhances transparency and mitigates double-counting risks, it is technically complex. Averaging is simpler but risks NDC non-achievement if emissions rise unexpectedly in the target year. It may also reduce market credibility.

Module 4: How to decide between alternative uses for non-authorized credits?

➔ Might host countries prefer to use non-authorized credits domestically or sell them internationally?*

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

For credits that host countries choose not to authorize, there are three main potential uses that they may require or encourage: credits might either be used by domestic entities facing a carbon price[7], sold to international development partners through results-based climate finance (RBCF) transactions, or sold to international voluntary buyers of credits not looking for authorized credits.

Host countries may benefit from first considering whether they would prefer to see credits used domestically or sold internationally. International sales are attractive because of the additional inflows these imply. However, this may conflict with domestic carbon pricing priorities, which may rely on locally available credits to facilitate lower-cost compliance. Countries can also allow market-driven decisions with project proponents deciding on the buyer on a case-by-case basis. This is likely to provide the strongest incentive to undertake credit-generating activities but might create policy uncertainty for national carbon pricing strategies and revenue planning.

For non-authorized credits intended for international sale, host countries may choose between RBCF or facilitating sales to voluntary buyers of credits RBCF provides stable pricing, a clear understanding of how the credits will be used and is more likely to provide alignment with national climate strategies. Voluntary buyers offer greater potential to scale and faster revenue access but comes with price fluctuations, the possibility of lower government oversight (although this can be mitigated by a robust regulatory framework), and may create reputational risks, especially if the final user of the credit is not obvious.

Credits from different activities may be appropriate for different uses. In countries with existing or planned domestic carbon pricing instruments (CPIs), credits that can be generated at costs below the domestic carbon price, from sectors outside the CPI's scope, may be prioritized to reduce compliance costs, provided they meet high environmental integrity standards. Sales to the international voluntary market buyers may be appropriate for well-established sectors such as land use, with growing interest in nature-based and technological removals. For this market, policymakers should be aware of how the eligibility requirement of crediting mechanisms themselves, or assessments by others of these mechanisms (e.g. the Core Carbon Principles) may shape this opportunity. For example, opportunities to sell credits from renewable energy projects outside of least developed countries to voluntary market buyers may face declining interest following the decision of the ICVCM that existing methodologies will not receive the high-integrity CCP label. Results-based climate finance (RBCF) can also play a key role in supporting emerging mitigation approaches and innovative crediting approaches, offering stable pricing and development partner support to help manage risks.

7 It is also possible that the unauthorized credits could be used by domestic voluntary purchasers of credits. However, in many host countries this market may be modest, and it is not considered at length in this Document.

Module 5: How to approach the generation and transfer of non-authorized credits to international buyers?

- **What role might a government play in generating and owning unauthorized credits?**
- **Might a host country make use of the PACM to generate unauthorized credits?***
- **What crediting approaches can be used for generating and issuing unauthorized credits?**
- **Might countries adopt their own crediting methodologies or rely on those provided by others for generating unauthorized credits?**
- **How might a host country reduce any reputational risks from selling unauthorized credits internationally?**

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

Governments can lead non-authorized credit generation, approve private sector-led projects, or adopt an explicitly market-led approach. While government-led models ensure strategic alignment and revenue control, models with a greater role for the private sector will make a country more attractive to international developers.

Host countries may generate (or encourage others to generate) unauthorized credits through independent crediting mechanisms or through the PACM. It is expected that the PACM will offer credits that are perceived to be of higher quality but will require compliance with additional rules and for many countries, a requirement that transactions include OMGE and SOP. Independent crediting mechanisms provide flexibility but may introduce additional scrutiny over credit integrity.

Host countries engaging in, or facilitating, unauthorized carbon credits sales to voluntary buyers of credits, especially using independent crediting mechanisms, must consider integrity risks and market perceptions. To reduce these risks, host countries might implement safeguards to prevent reputational harm; focus on mechanisms and methodologies that are ICVCM Core Carbon Principles (CCPs) Approved or recognized by CORSIA's Technical Advisory Board (TAB) and that are consistent with principles for baseline setting that have been adopted under the PACM; and seek to limit the sale of credits to those it is confident will make claims for credits it deems responsible or appropriate.

Module 6: How to incorporate domestically generated credits into domestic Carbon Pricing Instrument design?

- **Might a host country make use of its own crediting mechanisms or rely on existing international crediting mechanisms?**
- **If the host country recognizes international crediting mechanisms in its CPI, should it make use of the PACM or independent crediting mechanisms?**
- **What quantitative or qualitative limits might a host country wish to place on the use on domestic credit use?**

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

Host countries seeking to facilitate unauthorized credits for domestic purposes, particularly within carbon pricing instruments (CPIs), must address several issues. Key policy decisions include whether to develop a national crediting mechanism or rely on international mechanisms, whether to impose limits on credit use within CPIs, and how to balance domestic credit supply with international market participation. These choices influence the effectiveness of carbon pricing, market stability, and alignment with national climate strategies, and have important interactions with a country's international carbon market activity.

Host countries can integrate international crediting mechanisms into their domestic CPIs in four ways: full reliance (accepting all international credits), gatekeeping (selective use of international credits based on sectoral and/or other eligibility considerations), outsourcing (adopting international methodologies within a national system), or indirect reliance (learning from international standards without direct adoption). Using international mechanisms reduces costs and accelerates credit issuance but limits policy flexibility. Conversely, domestic mechanisms provide greater alignment with national climate goals and regulatory control but require higher administrative investment to avoid integrity risks. Smaller countries, in particular, may find these difficult to justify. Countries may begin with international mechanisms and transition to domestic systems as their market matures.

Host countries can decide whether to impose qualitative or quantitative restrictions on credit use within CPIs. Qualitative restrictions limit credit eligibility to specific sectors or activities[8], often intended to enhance credit quality and policy alignment. Quantitative restrictions cap the number of credits that entities can use for compliance, maintaining pressure for direct emission reductions. While unrestricted credit use lowers compliance costs and maximizes credit demand, restrictions enhance long-term decarbonization and CPI integrity. Many countries with CPIs cap credit use to balance cost control and emission reduction incentives.

8 Any such qualitative restriction should be additional to a requirement that eligible credits must come from sectors not already covered by the CPI. This prevents double counting and ensures the environmental integrity of the CPI.

Module 7: What are the key cross cutting issues that need to be considered?

- **What institutional and regulatory arrangements can countries establish?***
- **How can host countries support the financial integrity of carbon credit markets?***
- **How to ensure that carbon crediting activities generate high social value and comply with robust environmental standards?***
- **How might countries make use of any surplus revenues raised from carbon market activity?**
- **How can host countries measure the effectiveness of their carbon market strategy?**

Note: the questions marked with an asterisk are those that will be most important for host countries to consider before participating in international carbon markets.

There are several key issues that all host countries engaging or facilitating participation in international carbon markets should consider, regardless of the relative (expected) balance of authorized or non-authorized credit sales or the extent to which credits might also be used domestically. These related to the institutional and regulatory frameworks adopted, how to ensure financial market integrity and deliver social benefits, the management of revenues generated from carbon transactions, and approaches to monitoring and evaluation.

To engage effectively in carbon markets, host countries will need strong institutional frameworks that define strategic priorities, regulate credit authorization, and manage reporting obligations. Key decisions include whether to establish new institutions or adapt existing ones, how best to secure co-operation across different ministries/ agencies and the mechanisms that can be put in place to resolve differing perspective between these bodies, how to involve civil society and the private sector, and how to balance domestic and international governance. A structured approach, including capacity assessments that help identify gaps and facilitate institutional strengthening and carbon market ecosystem development including, for example, of validation and verification bodies; clear decision-making processes; and ongoing evaluations, will help ensure effective oversight and provide the predictability that the private sector and other credit generators will value (see Box ES.1).

Trustworthy primary and secondary carbon markets attract investors and support transparent price formation, but they also present financial risks, including fraud. Host countries can mitigate these risks by defining the legal status of carbon credits (in line with emerging international practice), strengthening registry security, enforcing anti-money laundering (AML) and Know Your Customer (KYC) protocols, and setting governance standards for trading platforms. Granting credits legal property rights enhances investor confidence, while aligning market regulations with global best practices ensures integrity without deterring international participation (see also Box ES.1).

Ensuring carbon crediting activities meet environmental standards and generate social value is crucial, particularly credit generating activities affecting Indigenous Peoples and Local Communities (IPLCs). Credit-generating activities that demonstrate strong social benefits often secure higher credit prices, making social impact considerations both an ethical and financial priority for host countries. Best practices include obtaining Free, Prior, and Informed Consent (FPIC), integrating benefit-sharing mechanisms, and enforcing environmental and social safeguards. Governments can enhance IPLC participation by conditioning

credit authorization on compliance with social safeguards, and, potentially, directing a share of revenues to community development. Ensuring that carbon crediting activities align with, or are approved by, the ICVCM's CCPs can give confidence that the activities meet best practice.

Host countries can generate revenue from carbon markets through authorization fees, the taxation of carbon transactions or direct credit sales. In the case of the first two, care needs to be taken to avoid discouraging socially valuable credit generating activities and to ensure that fees and levies are introduced and implemented within the context of existing laws. Once revenues have been raised, allocation strategies include reinvesting in mitigation or adaptation efforts, funding broader development initiatives, or integrating funds into general government budgets. Earmarking revenues for climate action enhances transparency and buyer confidence and is likely to be particularly important in cases where revenues arise from opportunity cost pricing. However, care needs to be taken to avoid administrative complexity.

Host countries might develop context-specific results frameworks to assess the effectiveness of their carbon market strategies and provide confidence and clarity, especially to the private sector. These results frameworks can incorporate both quantitative and qualitative targets across areas such as credit generation, investment mobilization, revenue use, and governance. Regular, transparent monitoring aligned with Article 6 reporting requirements can facilitate predictable updates to a host's carbon market strategy, fostering stakeholder confidence and enabling informed investment decisions (see also Box ES.1)

Box ES.1 The Importance of Establishing an Enabling Environment to Support Private Sector Engagement

While host country governments are responsible for setting the policy direction and making strategic decisions regarding participation in international carbon markets, in many cases the actual credit generation will be undertaken by private sector and other actors. These entities play a critical role in mobilizing investment, developing projects, and delivering mitigation outcomes on the ground.

For these actors to engage effectively, the strategic decisions taken by host country governments will need to be firmly rooted in robust institutional, regulatory and legal frameworks. Clarity and predictability concerning laws and rules/regulations, transparent decision-making, evidence of coordination and alignment among all key government stakeholders regarding the role of carbon markets, and credible monitoring and reporting systems not only build investor confidence but can also enhance the environmental integrity of market participation. Some of the key elements where private sector actors are likely to seek clarity and predictability concern:

- the legal status of carbon credits and ensuring that title can be transferred easily
- decision-making processes for authorization and providing confidence in the permanence of these decisions;
- clarifying the rules and expectations around tax and accountancy treatment of carbon credits and the revenues realized by their sale;
- the safety and robustness of any registries operating in the country; and
- governance and risk management frameworks to prevent conflicts of interest and fraudulent activities, and the regulatory enforcement that will underpin this.
- Establishing such enabling conditions will be essential for attracting private sector engagement at scale and ensuring the long-term success of host country carbon market strategies.

Introduction

Understanding the international carbon market context

International carbon markets, especially carbon crediting mechanisms[1], offer significant potential for host countries. These markets can mobilize critical public and private financing for climate action; deliver crucial development co-benefits such as jobs, ecosystem conservation, and clean air, and provide revenues that can be re-invested by and in local communities to advance sustainable development and improve livelihoods. They can also play a strategic role in helping countries meet their climate targets, or Nationally Determined Contributions (NDCs) and when aligned, implement their Long-Term Low Emissions Development Strategies (LT-LEDS), by enabling more cost-effective and flexible pathways to reducing emissions. Amid widespread public financing constraints globally, it is unsurprising that many developing countries have shown a strong interest in hosting carbon market activities to advance their climate and development objectives.

These markets are at a critical juncture. Following rapid growth in the early 2020s—driven primarily by voluntary demand from large corporates—market activity plateaued on both the supply and demand sides (World Bank 2024c). This slowdown prompted several efforts in strengthening market integrity and infrastructure. Notable developments include the decision at COP29 in Baku to operationalize the Paris Agreement Crediting Mechanism (PACM), as well as advances in defining and implementing high-integrity credits through initiatives led by the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI). These efforts have laid a stronger foundation for a more credible and transparent market. Building on this momentum, host countries now have a renewed opportunity to engage with high-integrity international carbon markets — leveraging both existing and emerging market segments.

However, the landscape of international carbon market is complex. Figure I.1 highlights some of this complexity, following a chronological pathway from credit generation through to credit use (see Box I.1 for more) there are a wide range of different economic activities (and associated sectors) that can generate credits. These credits might be generated by different actors, and at different organizational scales and for different uses;

i. there are different crediting mechanisms, both domestic and international, that define the rules for quantifying emission reductions and removals (ERRs) and converting into tradable credits;

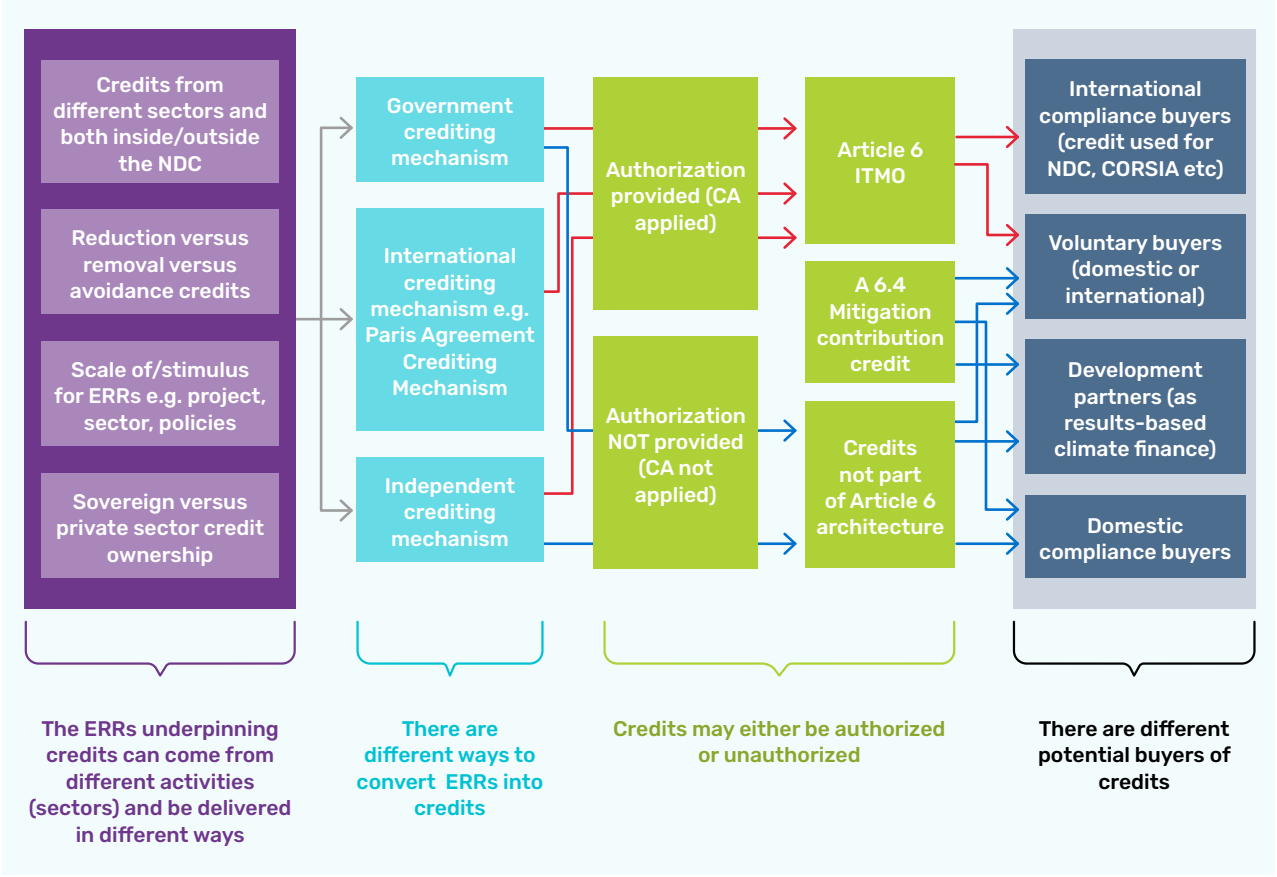
ii. following Article 6 of the Paris Agreement, carbon credits might either be 'authorized' – which requires the host country to apply a corresponding adjustment when reporting their national emissions – or 'unauthorized'

iii. there are multiple different buyers for any credits including international buyers using the credits for different purposes, including for compliance purposes or to meet their NDC, international voluntary buyers for offsetting, development partners providing results-based climate finance (RBCF), or domestic buyers.

These decisions are interlinked. Choices in one area affect options in others, shaping the feasibility and attractiveness of different approaches. Navigating these trade-offs requires planning to ensure carbon market participation supports both climate and development goals.

1 'Under a carbon crediting mechanism, tradable credits (representing 1 tCO_2e) are generated through voluntary emissions reduction or removal activities. Carbon credits are issued … according to protocols that aim to ensure each credit represents a genuine emission reduction. Credits can then be sold to buyers, generating revenue.' (World Bank 2024b)

Figure I.1 The international carbon market



Note: Red lines show different pathways for the generation and use of authorized credits. Blue lines show different pathways for the generation and use of unauthorized credits. Credits generated through the Paris Agreement Crediting Mechanism (Article 6.4 mechanism) that are subsequently authorized are referred to as Authorized Emission Reductions (AERs).

Box I.1 Elaboration on the current international carbon market context

There are different ways of categorising the economic activities that might deliver ERRs to be converted into tradable credits, and/or how these activities are implemented:

ERRs may come from various sectors or activities, some of these sectors may be included within the sectoral coverage of the country's Nationally Determined Contribution (NDC), in other cases they may come from sectors beyond the NDC;

- activities may either reduce greenhouse gas (GHG) emissions or remove CO_2 from the atmosphere (in each case, compared to a baseline scenario);
- ERRs can result from actions taken by individual project proponents, or at broader scales through policies and/or sector-wide initiatives;
- either governments or private sector actors (including local communities) may be responsible for selling credits and realizing revenues.

There are different mechanisms (i.e. rules and protocols) that can be used to quantify and convert ERRs into tradable credits. Three main options are:

- Governmental crediting mechanisms administered by one or more governments (host or buyer), such as Thailand's T-VER Scheme.
- International crediting mechanisms, administered by international organizations with national government authority. The most important of these is Article 6.4 of the Paris Agreement or the Paris Agreement Crediting Mechanism (PACM).
- Independent crediting mechanisms, administered by non-governmental organizations, such as Verra or Gold Standard, with initiatives such as the Integrity Council for the Voluntary Carbon Market (ICVCM) providing oversight and assurance to help promote integrity.

A critical feature of the international carbon market is the host country's decision to authorize credits, or not. Under Article 6 of the Paris Agreement, authorization designates credits as Internationally Transferred

Mitigation Outcomes (ITMOs). Subject to eligibility criteria being met, authorized credits can be generated either using any of the mechanisms described above. Authorizing credits unlocks additional markets. However, it requires the host country to include a corresponding adjustment to its emissions balance equal to the number of credits authorized and first transferred. For the purposes of NDC accounting, the number of corresponding adjustments will then be added to the GHG emissions reported in the host country's emissions balance, potentially complicating NDC attainment. Corresponding adjustments are applied to ensure that the ERRs represented by the ITMOs are not double counted at the global level.

Credits that host countries choose not to authorize may either be issued under Article 6.4, in which case they are known as mitigation contribution units, or through any of the mechanisms listed above.

Finally, there are range of different buyers of credits. Countries purchasing credits to meet their NDCs, and airlines under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), must purchase authorized credits (ITMOs) to meet compliance obligations. Voluntary buyers of credits may also choose ITMOs but can opt for non-authorized credits instead, while development partners may offer results-based climate finance (RBCF) for unauthorized credits so as to support the host country meet its NDC. Further, where a host country has a domestic carbon pricing instrument (CPI), covered entities may be allowed to purchase domestically generated unauthorized credits from sectors not covered by the CPI.

This landscape is rapidly evolving and increasingly converging. Traditionally, a clear distinction was made between the voluntary market — voluntary credit buyers making use of independent crediting mechanisms such as Verra and Gold Standard and with little reference to Article 6 of the Paris Agreement — and the international compliance market, which has developed more slowly alongside the finalization of Article 6 rules under the Paris Agreement. However, greater clarity around Article 6, particularly regarding the role of authorization, is narrowing this divide. As illustrated by the red lines in Figure I.1, it is now recognized that authorized credits might be issued through a range of different crediting mechanisms, including independent ones that have previously focused on issuing credits for voluntary buyers. Likewise, some voluntary buyers, as well as compliance buyers, are expressing interest in buying authorized credits, potentially generated through a range of different crediting mechanisms. Conversely, recent decisions mean that unauthorized credits, as shown by the blue lines in Figure I.1, might be generated under the Paris Agreement Crediting Mechanism established under Article 6. This growing flexibility reflects a more integrated and dynamic global carbon market.

Potential host countries face some external challenges in navigating this evolving landscape. As noted, until recently, there has been slow progress on key aspects of Article 6 under the Paris Agreement. Likewise, the proliferation of mechanisms for defining the quantity of ERRs and converting these into credits — each with differing rules and methodologies — increases complexity. This is compounded by varying preferences among international buyers, which can make it difficult for host countries to identify and prioritize the most valued types of credits, and how this varies by buyer. Finally, previous analysis[2] shown that technical assistance and capacity-building efforts have been fragmented, leaving many host countries with insufficient or inconsistent information that prevents the development of country-owned strategies (though, as this Guidance highlights, steps are now being taken to address this).

Other challenges and barriers are domestic in nature. As discussed elsewhere in this document, strategic engagement with international carbon markets requires the host country to have a clear understanding of how it will meet its NDC and at what cost — information that is not always available. Many host countries are also developing domestic carbon pricing instruments (CPIs) to achieve or exceed their NDCs. While vital for climate action, these initiatives can complicate decisions around international carbon market participation by providing an alternative market for domestically generated credits. Finally, some host countries are wary of integrity and reputational risks that have affected carbon markets in recent years.

These challenges help explain why the full potential of international carbon markets have yet to be realized. For example, a 2024 survey undertaken by the Article 6 Implementation Partnership (A6IP) specifically reviewing progress in relation to the use of Article 6, found that while 71 countries were working on the authorization and tracking systems needed to use these approaches, only a few had operational frameworks in place. Survey responses indicated that countries needed a better understand of these mechanisms and support in establishing policy frameworks for implementation.

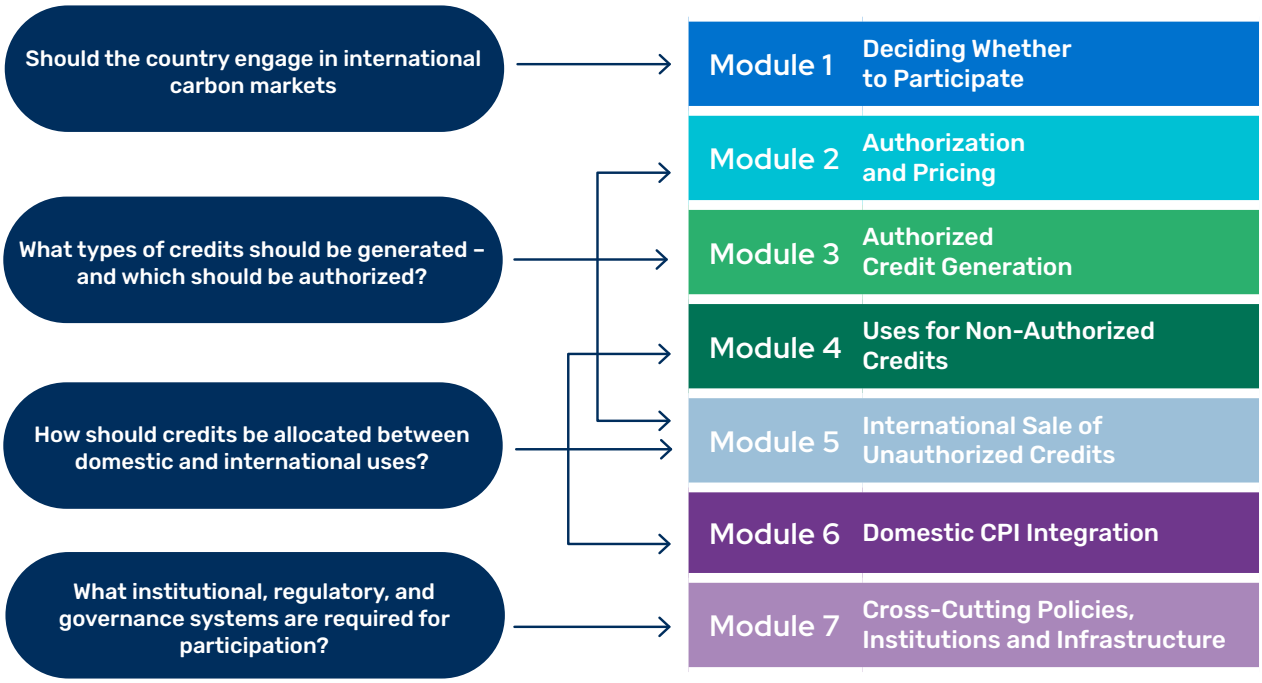
2 (World Bank 2024c; Pollination Group 2023)

How to use this guide

This Guidance Document helps (potential) host countries develop a strategic approach for engaging with international carbon markets. It aims to help countries unlock the potential these markets offer to mobilize financing to support climate and wider developmental objectives, while managing risks. It identifies options, evaluates their strengths and weaknesses, and supports informed decision-making.

As a follow-up to the *Navigating Decisions in Carbon Markets framework*, **it is structured into seven modules, and is designed to help countries explore and answer some fundamental questions on their participation in international carbon markets:**

Figure I.2 Fundamental questions on carbon markets covered in this Guidance



Some countries may choose to follow each module sequentially to develop a comprehensive approach to international carbon markets. (please refer to Figure 3 in *Navigating Decisions in Carbon Markets*) The modules are structured as follows:

Module 1 offers support to countries regarding making an initial decision on whether to participate in international carbon markets as a host country.

Module 2 addresses core questions: whether and when to authorize carbon credits, thereby converting them into Internationally Transferred Mitigation Outcomes (ITMOs), as well as the associated risks and opportunities.

Module 3 explores host country options for generating and transferring authorized credits. This includes options for credit generation, identifying and selecting buyers, and the necessary infrastructure for tracking and reporting authorized credits (ITMOs).

Module 4 covers credits that host countries choose not to authorize for international transfer—and explores options such as selling these credits to international voluntary buyers, using them domestically, or exploring other possible uses.

Module 5 considers critical policy issues surrounding the international sale of unauthorized credits.

Module 6 provides guidance on using credits domestically, particularly within the context of carbon pricing instruments and their interaction with international carbon markets.

Module 7 addresses important cross-cutting considerations such as setting up the right institutions and policies and ensuring that carbon markets create strong social benefits.

Each module offers non-prescriptive guidance on one or more key policy questions. For each question, the Guidance outlines the pros and cons of different options, their interdependencies, and broader implications. Where relevant, it references the Article 6 Rulebook and provides country examples. Recognizing the complexity of these issues and that the scope of the guidance cannot fully capture diverse national contexts, the Guidance serves as an entry point and directs readers to additional resources for deeper exploration.

Host countries do not need to have addressed all questions in all modules before participating in international carbon markets. Key early-stage questions are highlighted through the shaded elements in Table 1 with the headings marked with an asterisk in the remainder of the document(s). Other questions may be addressed iteratively as host countries gain more experience.

Host countries can also use this guide selectively to address specific questions where additional guidance is needed. Given countries' varied experience with international carbon markets, while some may follow the full Guidance, others may find it more useful to consult certain modules or questions. The Guidance is intended to be useful and accessible for both countries who are new to international carbon markets and those looking for input on specific issues.

The rapid evolution of international carbon market described above is still taking shape, with key elements—such as the implementation of the Paris Agreement Crediting Mechanism and the role of prospective buyers—still somewhat uncertain. As the landscape continues to develop, ongoing learning will be essential to inform host country strategies. The World Bank and its partners intend to update this Guidance periodically to reflect emerging insights and market developments.

Table I.1 Policy relevant questions addressed in each module

Module	Title	Policy-relevant questions
1	Should a country participate as a host in international carbon markets?	What are the advantages and disadvantages of engaging as a host country in international carbon markets? What preparation can countries consider?
2	How can host countries approach the decision of whether to authorize credits?	How might a country decide which activities can generate authorized credits at different points in time?
		How should host countries approach the question of pricing authorized credits?
		How (else) can countries manage any overselling risks associated with authorization?
3	How to approach the generation and transfer of authorized credits?	What role might a government play in generating and owning authorized credits?
		Which part of the Article 6 architecture might host countries use to generate authorized credits?
		What crediting approaches can be used for generating and issuing authorized credits?
		Should the government adopt its own crediting mechanisms or rely on those provided by others?
		How can host countries influence who buys their authorized credits?
		What infrastructure does a host country need to authorize credits?
		Should the host country consider Overall Mitigation in Global Emissions (OMGE)/Share of Proceeds (SOP) contributions?
		How can host countries calculate the quantity of corresponding adjustments to apply?
4	How to decide between alternative uses for non-authorized uses?	Might host countries prefer to use non-authorized credits domestically or sell them internationally?
5	How to approach the generation and transfer of non-authorized credits to international buyers?*	What role might a government play in generating and owning unauthorized credits?
		Might a host country make use of the PACM to generate unauthorized credits?
		What crediting approaches can be used for generating and issuing unauthorized credits?
		Might countries adopt their own crediting methodologies or rely on those provided by others for generating unauthorized credits?
		How might a host country reduce any reputational risks from selling unauthorized credits internationally?

Module	Title	Policy-relevant questions
6	**How to incorporate domestically generated credits into domestic CPI design?**	Might a host country make use of its own crediting mechanisms or rely on existing international crediting mechanisms?
		If the host country recognizes international crediting mechanisms in its CPI, should it make used the PACM or those of independent crediting mechanisms?
		What quantitative or qualitative limits might a host country wish to place on the use on domestic credit use?
7	**What are the key cross cutting issues that need to be considered?**	What institutional and regulatory arrangements can countries establish?
		How can host countries support the financial integrity of carbon credit markets?
		How to ensure that carbon crediting activities generate high social value and comply with robust environmental standards?
		How might countries make use of any surplus revenues raised from carbon market activity?
		How can host countries measure the effectiveness of their carbon market strategy?

Module 5 only focuses only on differences when considering these issues for unauthorized credits compared to authorized credits.

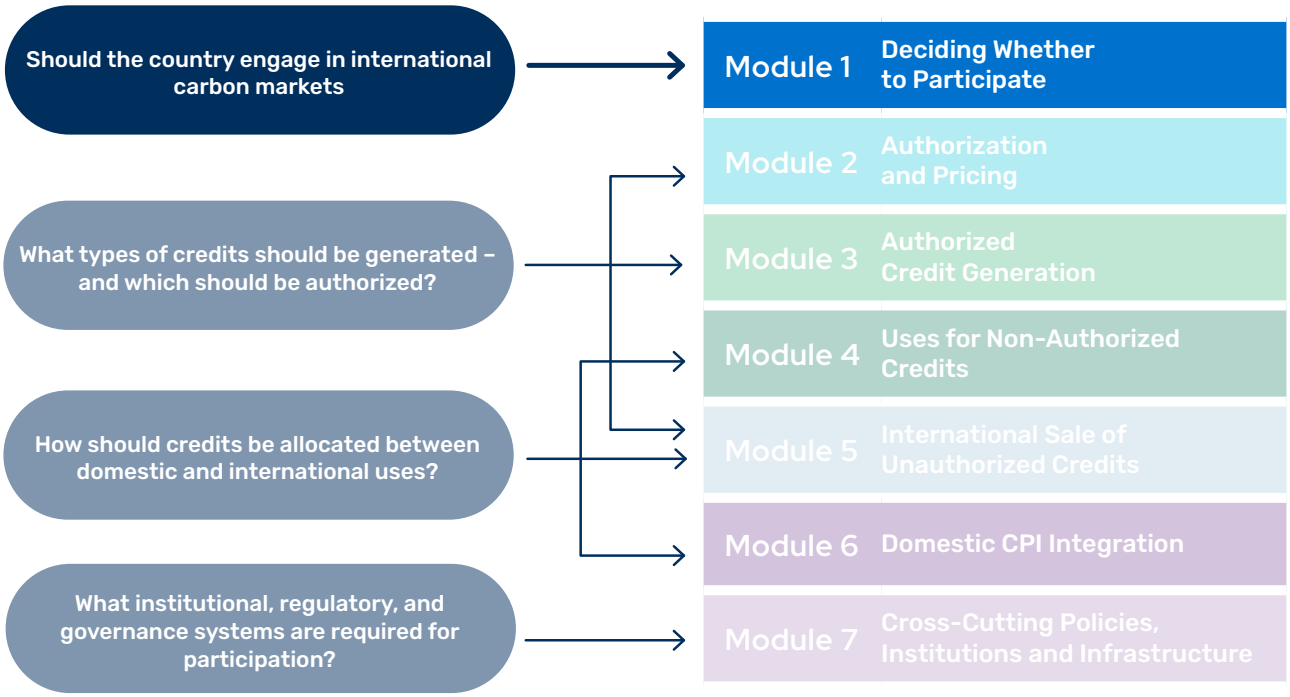
Note: The shaded rows highlight the most critical questions that host countries should consider before participating in international carbon markets, as emphasized in the main body of the report.

Module 1

Should a country participate as a host in international carbon markets?

This Module focuses on whether a country wishes to become (or strengthen their role) as a host country for international carbon market activity, and how it can decide this.

The discussion focuses on fundamental considerations that host countries may wish to keep in mind when deciding whether to participate as a host country, rather than on the aspects regarding how to participate—such as credit authorization, the relative role of public versus private sectors, or the different international markets that might be targeted (or not) by policymakers. It requires some preliminary knowledge of the international carbon market architecture.



Question 1.1 What are the advantages and disadvantages of engaging as a host country in international carbon markets? What preparation can countries consider?*

What are the key actions or options host countries may consider?

Acting as a host and becoming a significant net seller of credits brings many benefits[3]. It can drive economic activity, support emission reductions and removals (ERRs), and attract financial inflows. However, it also allows external actors to claim contributions to these ERRs and, if poorly structured, could undermine domestic policy objectives. Participation also requires upfront investment in institutions, processes, and infrastructure. Countries must weigh these benefits and risks carefully, considering other financial resource mobilization opportunities.

Countries have two alternatives to being a net seller: autarky or becoming a net buyer. Under autarky, ERRs are used domestically, with little or no international trade in credits. Alternatively, countries like Switzerland, Norway, and Singapore have positioned themselves as net buyers, actively purchasing credits to meet climate goals.

What factors might shape decision-making?

The decision to participate as a host country in international carbon markets is closely tied to how participation is structured.[4] This reflects the range of motivations that can drive countries to participate as host countries, given their unique circumstances, development goals, and climate priorities. Despite these differences, common potential advantages and disadvantages can help guide prospective host countries. Assessing these factors informs both the participation decision itself and the critical preparatory steps that can be undertaken.

3 In many cases, considering the actions of both government and private sector actors, a country may be both a buyer and seller of carbon credits. This discussion focuses on the strategic question of whether a country might seek to become a significant net seller of credits.

4 Most notably, decisions on whether to authorize credits, as discussed in Module 2.

Advantages

Host country participation in international carbon markets offers three primary benefits.

First, international carbon markets offer significant potential for mobilizing financial resources towards low-carbon development. While market size estimates vary, one projection suggest a potential market value of $7-35 billion in 2030, rising to $45-$250 billion by 2050 (MSCI Carbon Markets 2025).

These revenues can help mobilize investments in emissions reductions and removals (ERRs) that:

- unlike domestic subsidies, do not draw on constrained public budgets;
- unlike domestic carbon pricing instruments, do not impose direct compliance costs on domestic firms; or,
- unlike many traditional forms of international support for climate action that flows upfront in the form of debt / equity, does not impose a repayment obligation.

Additionally, revenues from credit sales often exceed credit generation costs, creating a surplus or "rent" that, depending on revenue sharing arrangements, market structure and fiscal arrangements, might fund development priorities, enhance citizen welfare, or be reinvested to deliver further ERRs.

To date, revenue potential has been concentrated in sectors such as reducing emissions from deforestation and forest degradation (REDD+) and renewable energy (World Bank 2024c). However, buyer interest is growing in credits from CO_2 removal activities, both nature-based removals and technology-based removals (e.g., direct air capture, enhanced weathering, biochar), which currently command price premiums (World Bank 2024c), especially the latter.

Second, crediting activities can often deliver significant co-benefits beyond ERRs. These might include job creation, livelihood enhancement, biodiversity protection, and improved ecosystem services, which can contribute to adaptation and resilience-building. In other words, if designed well, crediting activities can mobilize financial resources to help foster long-term sustainable development.

Third, participation can deliver broader spillover benefits across sectors and over time. These include driving technological innovation through exposure to new engineering solutions and learning-by-doing, strengthening domestic supply chains, upskilling the workforce, and expanding the local financial sector's capacity to support low-carbon investments. Participation can also help build a robust domestic carbon market ecosystem, including credit trading and the growth of legal accounting, and professional services.

Challenges

While host country participation in international carbon markets offers significant benefits, it also poses challenges that must be carefully managed. Four key challenges stand out.

One critical consideration is the claim that international partners (buyers) may make in relation to the ERRs represented by carbon credits. As discussed in Modules 2 and 4, the nature of these claims varies but they *may* necessitate emissions accounting changes that make it more difficult for the host country to achieve its NDC. Even in cases where there is no immediate impact on national emissions accounting, there may be challenges for countries with domestic carbon pricing instruments (CPIs). Often regulators of these instruments may wish to allow domestic participants to purchase domestically generated credits as a compliance option. Typically, regulators will only want to allow a credit to be counted once towards a mitigation obligation, implying that if it is used in the domestic CPI, it will not be acceptable to also sell the credit internationally.[5]

5 More generally, a credit might be counted towards more than on mitigation obligation if there is double issuance (if more than one unit is issued for the same ERR), double use (if the same issued unit is used twice), or double claiming (if the same ERR is claimed by both the buyer and the seller of the credit) (International Civil Aviation Organization 2019).

Second, crediting activities may pose risks to local communities or conflict with national priorities — especially in land-use sectors. If crediting activities neglect biodiversity, cultural heritage, or community needs, they could deepen inequalities or trigger conflicts. Careful selection and approval of activities (Modules 3 and 5), combined with robust approaches to safeguards and benefit-sharing mechanisms (Module 7), can mitigate these risks, and turn carbon markets into tools for community development that yield broader socio-economic benefits beyond ERRs.

Third, there are reputational risks. Recent controversies around some carbon crediting activities mean host countries could face heightened scrutiny. This risk varies by activity type and the extent of host country involvement in approving activities but in many cases can be managed through decisions on methodologies (Module 3 and 5), credit buyers (Module 3 and 4), and how revenues are used (Module 7).

Fourth, participation requires significant investment of time, resources, and political capital. As noted in the introduction, the international carbon market has grown increasingly complex, with host countries needing to address numerous technical challenges. While support programs and guidance (like this document) can help, countries must still commit substantial effort to fully realize the benefits of participation.

Navigating the landscape

Table 1.1 below summarizes the key advantages and disadvantages from host country participation.

Table 1.1 Pros and cons for host countries considering whether to authorize credits

Benefits from being a host country	Risks/costs from being a host country
↑ Raise revenues and mobilize investment to support low-carbon development	↓ International partners may be able to make claims in relation to the ERRs represented by carbon credits that could impact NDC achievement (depending on decisions taken on authorization as discussed in Module 2)
↑ Generate co-benefits such as job creation, livelihood enhancement, biodiversity protection, and improved ecosystem services	↓ Complicates domestic CPI implementation
↑ Realize spillover benefits from new technology/ learning-by-doing that can deliver long-term emission reductions.	↓ Carbon crediting activities could pose risks to local communities or conflict with national priorities
↑ Potential to generate economic activity in relation to carbon trading	↓ Potential reputational risks
	↓ Need to invest time, resources, and political capital to gain full benefits

To navigate the opportunities and challenges of international carbon markets, prospective host countries may benefit from addressing the following guiding questions. These aim to clarify strategic considerations and ensure alignment with national priorities and capacities**.**

1. *What is the country's mix of emission reduction and removal opportunities, and what are their costs and co-benefits?* A clear understanding of the ERR profile is essential — identifying opportunities across sectors, estimating costs, and assessing co-benefits. Countries should evaluate how these opportunities align with areas of international demand and high revenue potential, as well as the cost of achieving ERRs internationally, to identify competitive advantages. Domestic cost analysis also informs key decisions about engagement (see Module 2)

2. *How does the emission reduction and removal profile match to the country's NDC?* Placing the ERR profile in the context of NDC unconditional and conditional (as relevant) targets and progress is critical. Countries off track — particularly on their unconditional targets — and with high domestic abatement costs may benefit more from acting as credit buyers. Countries on track or ahead of their NDCs have greater flexibility to host and sell credits, attracting finance. Countries off track but with low abatement costs could strategically use carbon markets to sell unauthorized credits helping to both raise revenue and advance towards their NDCs.

3. *What is the existing profile of international carbon market activity in the country?* Mapping current activity helps countries understand the types of crediting projects in demand, assess local capacity and expertise, and identify potential international partners.

4. *Does the country understand the focus of future – more ambitious - NDCs and how these might be met?* Countries that have assessed future NDC strategies — through a Long-Term Low-Greenhouse Gas Emissions Development Strategy (LT-LEDS), for example — can better align near-term carbon market participation with long-term climate goals. This helps ensure today's international engagement does not constrain future NDC achievement, while maximizing spillover benefits from hosting crediting activities.

5. *What are the core current and expected future policies that could be used to meet these NDCs?* Countries should assess whether they plan to introduce a domestic carbon pricing instrument (CPI) that relies heavily on domestically generated credits. In such cases, acting as a host in international markets may be less attractive.

These considerations emphasize the importance of making sure that any decision on whether (and then how) to engage in international carbon markets is integrated within the host country's overall climate ambitions as reflected in its NDC and any LT-LEDS. Box Box 1.1 discusses further.

Box 1.1 The importance of integrating strategies for host country participation within NDC and LT-LEDS

Historically, many countries have often treated the what and the how of climate strategy separately — first developing NDCs and, in some cases, Long-Term Low Emissions Development Strategies (LT-LEDS) as expressions of ambition, and only later addressing how to implement them, including financing. In parallel, strategies for international carbon market participation and domestic carbon pricing have often evolved in isolation, limiting policy coherence.

Integrating international carbon market participation to support implementation of NDCs, and LT-LEDS, allows countries to create a coherent, cost-effective mitigation strategy. Ideally, countries should develop their LT-LEDS first and then align their NDCs with LT-LEDS. This helps countries to identify their core mitigation pathways and identify mitigation actions that can be supported by international carbon markets, among other financial instruments. This approach ensures that carbon credit generation does not compromise national climate goals and creates a framework through which carbon market revenues can be strategically directed to finance the country's own domestic mitigation needs, as well as adaptation and development priorities. At the same time, the opportunity to participate in carbon markets can serve as a powerful incentive for countries to develop or strengthen their LTSs and NDCs, reinforcing the ambition and coherence of national climate strategies.

For example, Brazil's updated NDC outlines its intention to use Article 6 of the Paris Agreement to raise the ambition of its climate action. It estimates the potential to go beyond its base target of 59% emissions reduction below 2005 levels by 2035 (1.05 $GtCO_2e$) using internationally transferred mitigation outcomes (ITMOs). By attracting large-scale investment in high-cost mitigation technologies and activities, Brazil aims to accelerate its pathway to net-zero emissions, aligning international cooperation with its national development priorities and long-term low-emissions strategy.

By contrast, failing to align international market strategies with NDCs and LT-LEDS can result in policy fragmentation, missed opportunities and potentially compromise national climate goals. For example, issuing authorizations without accounting for corresponding adjustments may jeopardize NDC attainment if mitigation outcomes are transferred without replacement plans. This disconnect may also lead to over-reliance on less effective or more expensive instruments, adding pressure on public resources. It can further prevent countries from targeting carbon finance to strategic sectors identified in their LT-LEDS, reducing both efficiency and credibility with international partners.

Achieving this integration requires strong institutional coordination. Different ministries often prioritize different objectives—climate agencies may focus on NDC delivery, while finance or planning bodies may emphasize revenue generation or investment flows. Establishing coordination mechanisms to bridge these perspectives is essential for a whole-of-government approach that ensures carbon market decisions advance both climate and development priorities, without unintended trade-offs.

Considering these factors — and the guiding questions above — the benefits of being a host country in international carbon markets could be especially compelling for some countries. For instance, a country with abundant, low-cost ERR opportunities that align well with international demand, and that is already on track to meet its NDC, is likely to find participation in international carbon markets attractive. Such a country may also place high value on the technology transfer and spillover benefits these markets can offer. Countries in a similar position but where NDC achievement remains more challenging will also have opportunities to engage as a host country; although, in these cases, the nature of the engagement, and the extent to which the country 'authorizes' credits, will be different (see Module 2). The appeal of hosting is further strengthened if domestic carbon pricing instruments (CPIs) remain a longer-term policy objective rather than an immediate priority.

In contrast, for other countries, the case for serving as a host in international carbon markets may be less straightforward. This could include countries with more ambitious NDCs but where ERRs are, in international comparison, relatively high cost. These nations may already be planning or implementing domestic CPIs and may want to allow regulated entities to use carbon credits for compliance purposes. In such cases, the country may choose to participate in international markets primarily as a buyer — leveraging credit purchases to bridge domestic abatement gaps and pursue more cost-effective NDC attainment.

How does responding to question 1.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

Addressing this question applies to any potential involvement as a host country in international carbon markets – whether that be through Article 6 or otherwise. As such, it does not specifically relate to requirements or opportunities under Article 6 of the Paris Agreement. However, having clarity on this helps countries to better prepare for participation in carbon markets and supports fulfilling the Article 6 participation requirements under the Paris Agreement.

Links and dependencies to other questions in the Guidance

This is a fundamental step for countries to consider before considering the other Modules in this Guidance. However, as discussed above, the extent of some of the advantages and risks will depend on decisions taken about authorization, as discussed in Module 2.

Further resources

A range of further resources also look at the question of participating as a host country, although often with a focus on a particular source of demand (e.g. voluntary buyers of credits) or using modalities for selling credits. These include:

- The World Bank's '*Defining Results-Based Climate Finance, Voluntary Carbon Markets and Compliance Carbon Markets*' & '*Developing and Article 6 Strategy for Host Countries*' part of its Article 6 Approach Paper Series.
- Global Green Growth Institute's (GGGI's) *Developing an Article 6 Host Party Strategy*, part of its Supporting Preparedness for Article 6 Cooperation series.
- The Voluntary Carbon Market Integrity Initiative's, '*VCM Access Toolkit*' – and its associated Access Strategies Program – is designed to help policymakers establish the policies and processes needed to underpin their country's participation in high-integrity carbon markets.

References for Module 1

1. **International Civil Aviation Organization. 2019.** 'CORSIA Emissions Unit Eligibility Criteria'. *https://www.icao.int/environmental-protection/CORSIA/Documents/ICAO_Document_09.pdf*.

2. **Government of Brazil. 2024.** Brazil's NDC National determination to contribute and transform. *https://unfccc.int/sites/default/files/2024-11/Brazil_Second%20Nationally%20Determined%20Contribution%20%28NDC%29_November2024.pdf.*

3. **MSCI Carbon Markets. 2025.** 'Frozen Carbon Credit Market May Thaw as 2030 Gets Closer'. January 2025. *https://www.msci.com/www/blog-posts/frozen-carbon-credit-market-may/05232727859*.

4. **World Bank. 2024.** 'State and Trends of International Carbon Pricing 2024'. Washington, DC: World Bank. *http://hdl.handle.net/10986/41544*.

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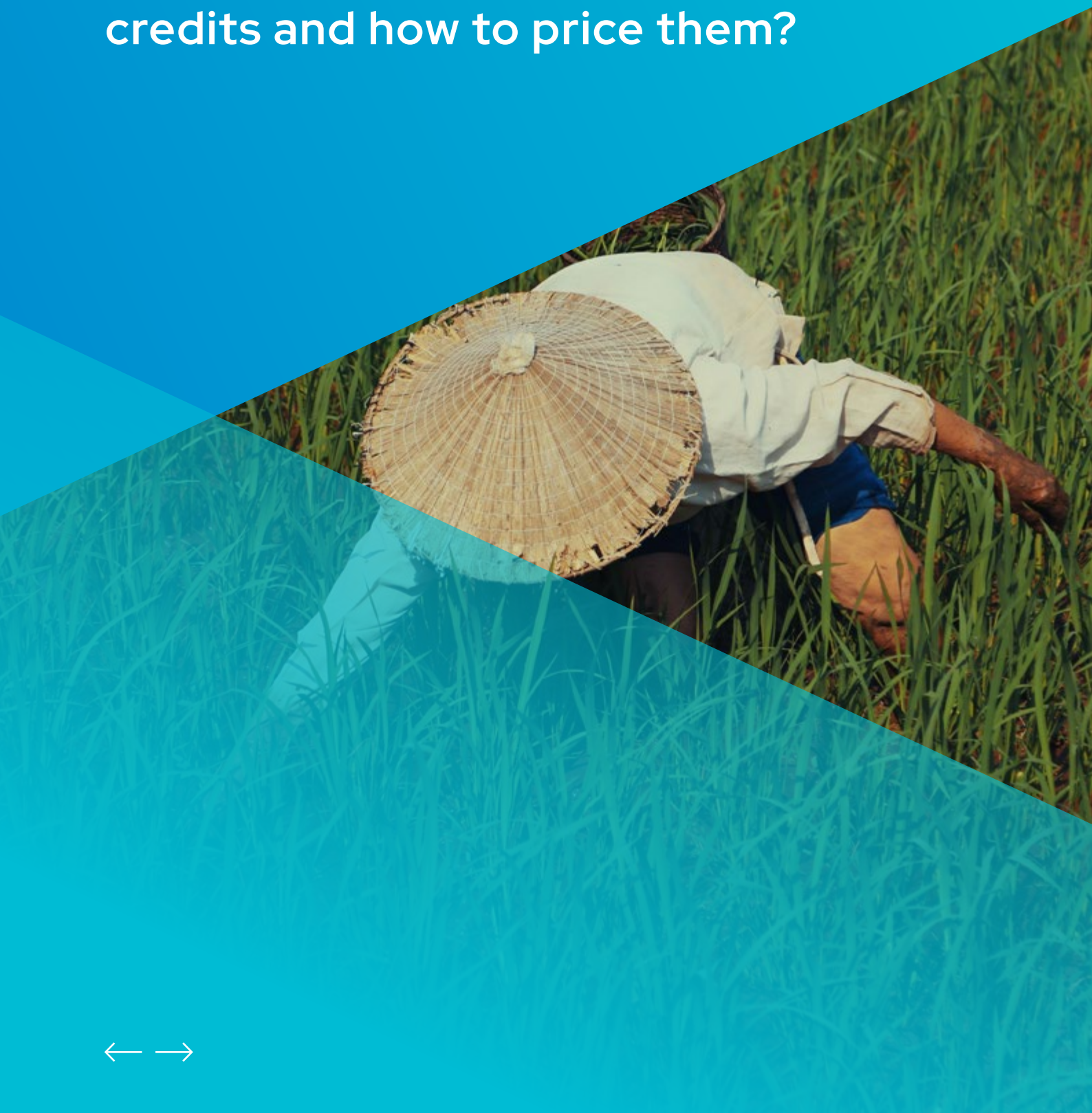
Module 2

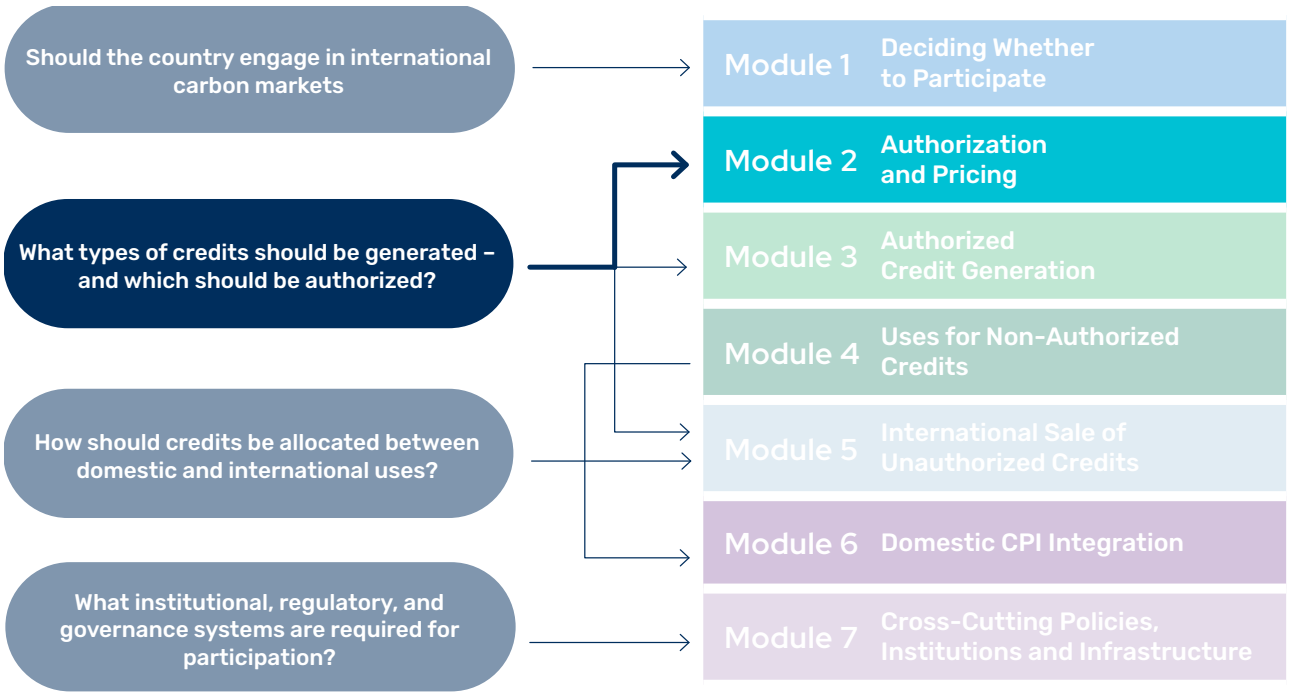
How can host countries approach the decision of whether to authorize credits and how to price them?



Countries seeking a significant role as host countries in international carbon markets must make key decisions on whether and when to 'authorize' credits, and how to price them. Authorization lies at the heart of Article 6 of the Paris Agreement.

This section explores the issue through three policy-relevant questions:

- **Question 2.1:** How might a country decide which activities can generate authorized credits at different points in time?
- **Question 2.2:** How might a country approach the pricing of any authorized credits?
- **Question 2.3:** How (else) can countries manage any overselling risks associated with authorization?



Question 2.1 How might a country decide which activities can generate authorized credits at different points in time?

What are the key actions or options host countries may consider?

Authorizing a credit for specific uses turns it into an internationally transferred mitigation outcome (ITMO). An ITMO can be used toward another country's NDC (through Article 6 of the Paris Agreement) or for "other international mitigation purposes" (OIMP), such as CORSIA compliance (International Air Transport Association 2024) or by voluntary users of carbon credits. However, voluntary buyers of credits may also elect to purchase non-authorized credits (more in Module 4).

The act of authorizing a credit (creating an ITMO) and its subsequent first transfer6 requires the host country to apply a "corresponding adjustment". This corresponding adjustment increases the host country's reported emissions by the number of authorized credits that are transferred. This aims to prevent double counting — ensuring the same mitigation outcome is not claimed by both the host country and the buyer**.**

Authorization is a critical decision. After a credit has been authorized and the point of first transfer has passed, the underlying ERRs associated with the authorized credits will effectively not count toward the host country's NDC[7]. This may mean that the host country will have to find additional ERRs to meet its NDC.

Specific language applies to authorized and unauthorized credits generated through the Paris Agreement Crediting Mechanism (PACM)/ Article 6.4 mechanism (see Figure 1). In this case, authorized credits are called Authorized Emission Reductions (AERs), while unauthorized ones are called Mitigation Contribution Units (MCUs). The accounting rules for AERs, in terms of the need to make corresponding adjustments, are identical to those for other authorized credits i.e. AERs are a type of ITMO.

6 For credits that have been authorized for use towards another Party's NDC, first transfer is defined as the 'the first international transfer of the mitigation outcome'. For credits that have been authorized for use for OIMP, the host country has more flexibility to define the point of first transfer, see Question 3.5.

7 Decisions at COP29 clarified that the option to remove the authorization of credits that have been first transferred can only take place if 'specified by the Parties participating in the cooperative approach in applicable terms and conditions of the authorization that specify the x

What factors might shape decision-making?

Table 2.1 summarizes the key pros and cons for host countries when deciding whether to authorize credits. The core trade-off is between securing potentially higher prices for authorized credits alongside lower reputational risks versus the higher opportunity and transaction costs that authorization may involve.

Table 2.1 Pros and cons for host countries considering whether to authorize credits

Relative benefits of providing an authorization	Relative benefits of not providing an authorization
Greater potential demand and higher prices enabling delivery of more costly/challenging ERRs • Authorizations are required for credits used for NDC achievement or CORSIA compliance. This is expected to become the main source of credit demand in the medium term. Some voluntary buyers also favor authorized credits for perceived integrity benefits. • Market reports indicate a price differential of around $20-$25 per credit (in 2024) while the World Bank iCRAFT transaction[8] had a $15 difference between authorized and non-authorized credits.	**Lower NDC attainment risk and therefore lower opportunity cost** • All of the ERRs can be counted toward the host country's decarbonization efforts, so unauthorized credits do not jeopardize NDC attainment or carry the reputational risks associated with failure to meet targets.
Host country may be perceived as capable of supporting climate action, both domestically and internationally • Authorization process involves establishing robust regulatory, legal, and institutional frameworks, which in turn incentivize greater private sector participation in climate action. • Host countries can boost global climate goals by helping others meet NDCs or CORSIA targets, especially given their vulnerability to climate impacts.	**Quicker financial flows/lower transaction costs** • Authorization requires more complex governance structures and resources, while unauthorized transfers can proceed more quickly, accelerating revenue flows.

How to trade-off these pros and cons of providing an authorization will depend both on the source of credit, and may vary over time, as discussed in the subsections below.

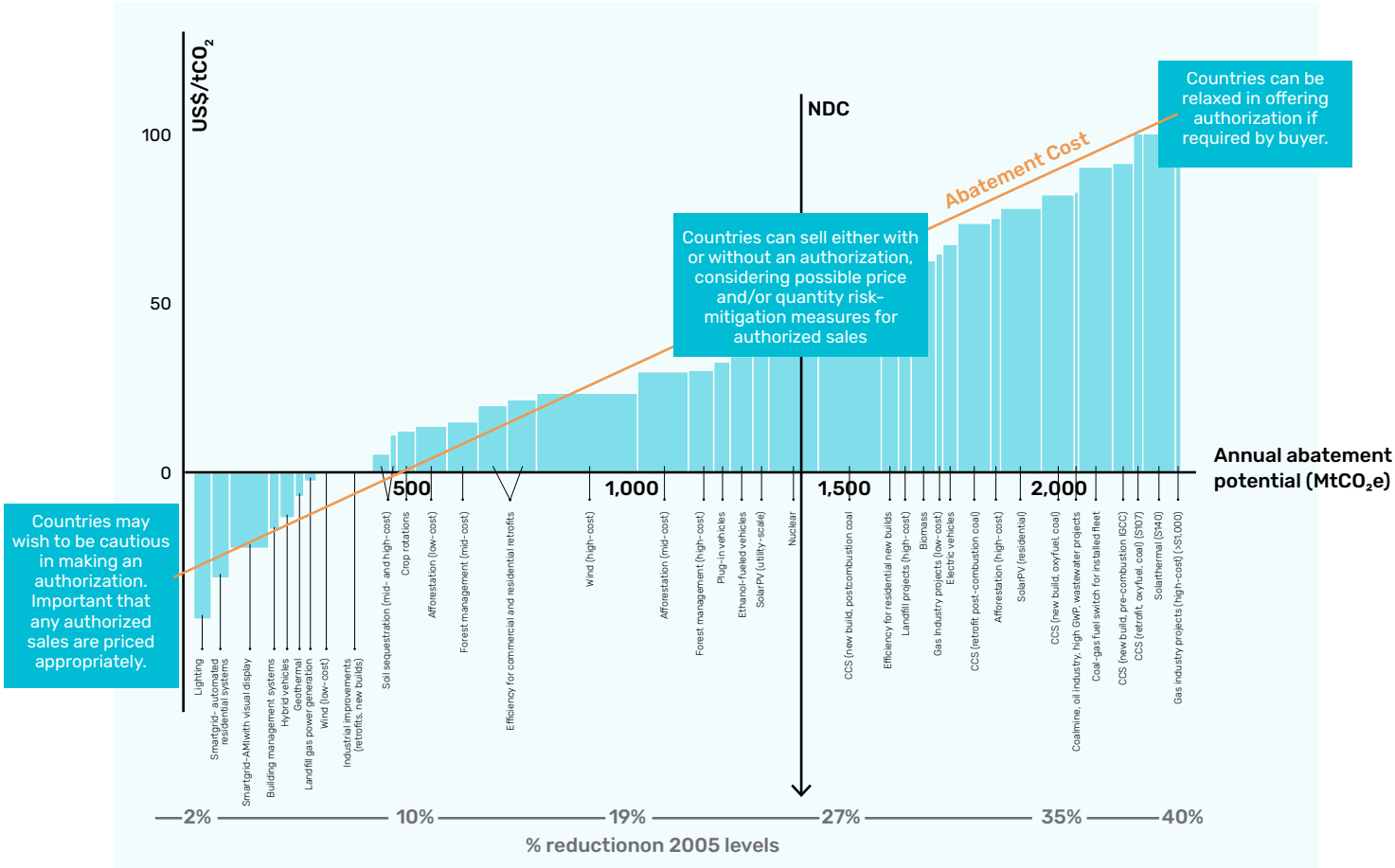
8 iCRAFT is a $45 million program in Uzbekistan, financed by the World Bank's Transformative Carbon Asset Facility (TCAF). The program supports energy sector reforms, including subsidy reductions, to cut CO_2 emissions.

Credit source

Host countries may want to be cautious about authorizing credits from activities / sectors that they expect to use to meet their NDC[9]. These will most often be activities that provide low-cost ERRs. If host countries authorize credits associated with these ERRs, they may need to rely on higher-cost alternatives to fulfil their NDC. This concern is heightened if policies are already in place to achieve these ERRs, as the country's policy efforts and associated costs will end up supporting the achievement of another Party or entity's climate targets.[10]

When countries have both an unconditional and a conditional NDC, they need to pay particular attention to how they intend to meet their unconditional NDC. The unconditional NDC will be the baseline against which countries' performance will be judged: failing to meet this target carries greater reputational risk than missing a conditional NDC, making authorizations of credits from sectors tied to the unconditional NDC particularly sensitive.

Figure 2.1 Using MACC analysis to help determine authorization strategy



Source: World Bank, adapted from Bloomberg

9 This discussion focuses on the interaction between authorization and a host country's current NDC. However, host countries may also wish to consider plans for their future NDCs as well. The same principle – that host countries need to consider how authorization may affect NDC achievement – also applied.

10 While this Guidance focuses on the perspective of host countries, buyers may also be less interested in purchasing authorized credits associated with ERRs that derive from activities that expected to form part of the country's strategy for meeting its NDC, as the buyer may also be concerned about whether the ERRs are additional. This concern will be greater if the buyer has doubts on whether the host country will be able to source alternative ERRs once the authorization is provided.

Consequently, host countries might consider using marginal abatement cost curve (MACC) analysis to help guide authorization decisions. Host countries may be more flexible in authorizing high cost ERRs unlikely to be needed for their unconditional NDC while being more cautious with low-cost ERRs that could be used to meet it. In such cases, pricing strategies to ensure that the sale price of ERRs reflects the opportunity cost not just the project cost (Q2.2) but also risk mitigation measures (Q2.3) become crucial. This is illustrated in Figure 2.1 above.

However, while MACCs may be useful as a starting point, they can also be costly and time-consuming to develop and possess other limitations[11], so other factors may also ultimately shape decision-making on which sectors should (and should not) generate authorized credits. As already mentioned, if host countries have already introduced policies[12] to deliver emission reductions in line with their unconditional NDC, it may be imprudent to then sell authorized credits from that sector internationally as its policy effort will end up supporting other actors meet their emission targets. Given the expectation that demand/willingness to pay for authorized credits may be higher than for unauthorized credits, host countries may also wish to use authorization decisions to target specific technologies, especially if these are expected to be important in meeting a LT-LEDS, or to focus on activities that are expected to have high sustainable development benefits. In addition, complementary analyses—such as technology needs assessments, national SDG strategies, or sectoral development plans—can help refine the scope of activities considered for authorization. Countries may also wish to apply a structured prioritization process, such as a multi-criteria analysis, to evaluate and weigh opportunities through stakeholder engagement.

Host countries should be cautious about authorizing credits (creating ITMOs) from sectors outside their NDC scope. Many host countries have developed NDCs that exclude certain sectors of their economy. The Article 6 Rulebook confirms that if countries provide authorized credits derived from sectors outside their NDC, the host country must still make a corresponding adjustment. This means host countries may still then need to achieve additional reductions in sectors covered by their NDC. As a result, countries should be cautious in authorize these credits unless they are confident that they can still meet their NDC. However, this could still be desirable if the resources generated from selling authorized credits from sectors outside their NDC helps to fund emission reductions in hard to abate sectors inside their NDC.[13] Countries should also be cautious of authorizing credits from sectors covered by domestic CPIs as this will impact the environmental integrity of both credits and CPIs and may result in reputational risks for buyers.

Another consideration is whether the underlying activity generating authorized credits will receive other forms of international support, particularly:

- **Other environmental attribute certificates (EACs).** In some countries, mitigation activities may also be eligible to participate in other EAC markets. For example, renewable energy projects may also consider participation in International Renewable Energy Certificates (I-REC)[14] or Tradeable Instruments for Global Renewables

11 MACCs have other limitations, including its inability to account for evolving NDCs, country-specific institutional and technical constraints, and interdependencies between sectors and technologies. Additionally, it provides a static snapshot that overlooks dynamic changes in costs and potentials, omits key co-benefits and trade-offs, and fails to assess the MRV-readiness of mitigation options. Further, in data-scarce contexts in particular, MACCs may not always be helpful given that they require significant amounts of data, making it difficult to generate reliable results. Even where sufficient data is available, doing analyses of national and sectoral strategic documents can also help to refine the MACC's scope (e.g., type and number of measures) and data needs.

12 The exception to this is if the ERR from that sector associated with the authorized credit would not be achieved by the domestic policy instrument. There may be some domestic policy instruments where this is easy to demonstrate e.g. technology mandates. By contrast, it will be difficult to demonstrate this for other domestic instruments including, notably, carbon pricing instruments. Sectors covered by a domestic CPI will generally not suitable for authorized credit sales. Module 6 explores the interaction between domestic carbon pricing instruments and domestically generated carbon credits in more detail

13 A further consideration is that if host countries are confident that they can still meet their NDC then allowing authorized credit sales from sectors beyond the NDC's scope may help catalyze future emission reduction activity within that sector, making it more attractive to bring the sector within the scope of future NDCs.

14 This requires compliance to the International Attribute Tracking Standard and the associated product code for electricity. See *https://www.trackingstandard.org/the-standard/*

(TIGR) markets, or nature-based projects may seek to sell biodiversity credits. Typically, this so-called 'stacking' of revenues from carbon credits sales with those from another EAC will be prohibited by the rules/methodologies associated with the generation of each credit (see question 3.3 below). This is because it is difficult for each to demonstrate additionality i.e. that the purchases of the certificate/credit make the critical difference in allowing the activity to proceed, especially if the credits/certificates are sold to different buyers.[15] Even when it is not explicitly prohibited by the market standards, host countries should only allow for the parallel sales of authorized credits (ITMOs) and EACs from the same activity when both the (expected) buyer of the authorized carbon credit and the (expected) buyer of the EACs are informed of and agree to such an arrangement. Beyond ITMOs, buyers of carbon credits (irrespective of status of authorization) as well as EACs may have concerns related to double counting or double use of the environmental benefits of the same activity. In the case of renewable energy projects for instance, generating a carbon credit and other EAC from the same MWh of electricity generated would constitute double counting, by seeking to monetize the same environmental and social attributes. Furthermore, governments may seek to avoid "double dipping", or the same activity benefitting twice from payments for environmental attributes. To avoid the potential negative reputational risks that could arise if host countries were to sell multiple credits/certificates without the informed consent of the buyers, host countries can establish clear rules defining the attributes that can be generated, traded, and claimed. Such rules are typically based on the principle of attribute exclusivity. This can be reinforced by maintaining a comprehensive registry that tracks all environmental attributes certificates, including carbon credits (see section 3.6 below). For example, Australia allows stacking of biodiversity certificates and carbon credits, where methodologies align such as replanting native forest and woodland ecosystems.[16]

Considering these factors, host countries may find it useful to establish either/or:

- **Positive lists:** Activities resulting in ERRs/credits that will typically receive authorization. These are activities not needed to meet the country's unconditional NDC (ideally informed through LT-LEDS and potentially through a MAC curve analysis), where the country wishes to see further investment and where there are no other forms of international support for those activities (or there is clarity on the relationship between that support and that provided from authorized credit sales).

- **Negative lists:** Activities resulting in ERRs/credits that will typically not receive authorization, except in exceptional cases and with risk mitigation. These are likely to be activities critical to meeting the unconditional NDC, already supported by domestic policies (such as domestic CPIs- more in Module 6), outside the current NDC scope, or supported with other forms of international assistance, where it has been agreed that support from authorized credit sales (ITMOs) will not be pursued.

Several countries use positive and/or negative lists to determine which sectors or activities can generate authorized credits as discussed in Box 2.1.

15 There may even be situations where the same underlying activity is claimed to deliver ERRs (and authorized credits) through two different carbon crediting programs. For example, reductions in unsustainable fuelwood harvesting could be claimed as delivering ERRs by both a clean cooking program and a REDD program. This should be avoided both to avoid double counting risk and/or that the host country may need to apply unnecessary corresponding adjustments. Host countries can avoid this risk by requiring program registration and approval before issuing credits, promoting coordination between different agencies involved in carbon credit programs (especially those looking to generate authorized credits) and transparent reporting on the provenance of all carbon credits (including authorized credits).

16 Project owners can stack benefits by earning both Australian Carbon Credit Units (ACCUs) and biodiversity certificates for the same land activities, such as replanting native ecosystems, under aligned carbon and biodiversity project methodologies. A new Biodiversity Market Register, developed by the Clean Energy Regulator (CER), will publicly track registered biodiversity projects and issued certificates. See for more: *https://www.dcceew.gov.au/environment/environmental-markets/nature-repair-market#:~:text=about%20biodiversity%20certificates.-,Aligning%20carbon%20and%20biodiversity%20markets,forest%20and%20woodland%20ecosystems%20method*.

Box 2.1 Countries using positive and/or negative lists to determine which sectors/activities can generate authorized credits

India: Its positive list focuses on facilitating emerging technology adoption and includes sectors such as renewable energy with storage, green hydrogen, fuel cells, sustainable aviation fuel, green ammonia, and carbon capture utilization and storage

Cambodia: has a positive list which contains all mitigation activities that are designated as "conditional" under the updated NDC

Ghana: Uses both a white-list and a red-list. The white-list covers activities linked to the *conditional* elements of Ghana's NDC (25 programs of action), while the red-list focuses on activities critical to *unconditional* NDC delivery.

Sources: Ministry of Environment, Forest and Climate Change 2023; GGGI 2023b; Government of Ghana 2022; Hoffman, Spalding-Fecher, and Marcias Diaz 2025

There are potential caveats and nuances to this approach:

- First, the sector or activity generating ERRs — and whether they contribute to the unconditional NDC — can be ambiguous. For example, improved cooking solutions could be classified as residential energy use or as reducing emissions from deforestation (REDD+). To avoid confusion, countries should establish and document a clear, shared understanding of how such "borderline" ERRs fit into NDC delivery, ensuring this is reflected in policy and guidance.

- Second, low-cost emission reductions could still be authorized if appropriate risk mitigation measures are applied — for example, through pricing strategies (see question 2.2) or careful baseline setting or other measures (see question 2.3).

Across time

Several factors suggest host countries may be reluctant to authorize credits and create ITMOs early in an NDC implementation period. Countries may lack clarity on how they will achieve their NDCs or what the costs will be. This uncertainty is compounded by the need to regularly update NDCs with increased ambition within the duration of the same NDC implementation periods. This means that host countries know that they are expected to make their current NDC more ambitious but may not have had the opportunity to determine how much more ambitious they will be and how this will be achieved. Some countries may also prefer to build institutional knowledge by observing others' Article 6 transactions first. In this context, flexibility is valuable.

On the other hand, early authorizations offer potential advantages. Countries with ambitious NDCs that move quickly to authorize credits could establish themselves as leading providers of authorized credits (ITMOs), strengthening their market position.[17] The benefits of being an early mover are increased by Article 6 rules which require authorized credits used for NDC achievement to apply within the same NDC implementation period — meaning demand for these credits could fall near the end of implementation periods (e.g., by 2030), as unused credits cannot be banked for future periods (Greiner 2023).[18]

17 In contrast, countries with unambitious NDCs are unlikely to secure high prices for their authorized credits, even if they bring them to market quickly.

18 Demand could also rise toward the end of the NDC period if buyers only realize late that they are off track. Meanwhile, the option to sell authorized credits for other international mitigation purposes (OIMP) will remain.

Different host countries will weigh these considerations differently, but better prepared countries and ambitious countries will have an advantage. Countries with ambitious NDCs, clear implementation strategies, good cost data, and alignment with long-term low-carbon development plans will be best placed to make informed decisions on when to authorize credits from specific ERRs.

How does responding to question 2.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

The requirements around authorization, and the application of corresponding adjustments, are primarily set out in chapters I and III of the Annex to *Decisions 2/CMA.3*. This includes paragraph 14 which confirms that host countries should apply corresponding adjustments for authorized credits (ITMOs) associated with ERRs that are outside the scope of the NDC.

Decision 4/CMA.6 provides further detail concerning what information must be reported when making an authorization and clarifies the circumstances in which authorization can be withdrawn (paragraph 7).

Confirmation that it will be possible under Article 6.4 to convert mitigation contribution units (i.e. unauthorized credits) into ITMOs (i.e. authorized credits) later is in *Decision 6/CMA.6* of COP 24 in Baku (paragraph 12).

Links and dependencies to other questions in the Guidance

This issue links closely to several other elements of the Guidance. Most importantly, it links closely to questions 2(b) below on pricing strategies and 2(c) on (other) risk-mitigation measures for authorized credits. A careful approach to pricing and/or the adoption of other risk mitigation measures may make it safer for host countries to take advantage of the expected market demand for authorized credits, even for low-cost ERR activities.

Other resources

Interested readers will find further insights and discussion on the authorization decision in these documents:

- The World Bank's '*Developing an Article 6 Strategy for Host Countries*' and '*Letter of Authorization and Acknowledgement*', part of its Article 6 Approach Paper Series (World Bank 2022b). The Letter of Authorization paper in particular provides an illustrative template with schedule of terms that may be useful for host countries for all authorizations granted.
- GGGI's *Developing an Article 6 Host Party Strategy*, part of its Supporting Preparedness for Article 6 Cooperation series (GGGI 2023b) while its report on *Promoting Ambition and Transformational Change using Article 6* also discusses factors that might shape authorization decisions (especially Chapter 2) (GGGI 2024).
- A6IP Center's '*A6IP Capacity Building Tools: Article 6 Introductory Guide*' provides an overview of Article rules and guidance on authorization, key consideration and country practices (Article 6 Implementation Partnership Center 2025).
- A number of countries have published their overall approach to Article 6 in which they specify how they will approach authorization decisions, or have otherwise published information on their approach to authorization. This includes *Zambia* (Government of the Republic of Zambia 2025), *Sri Lanka* (Ministry of Environment, Sri Lanka 2024), *India* (Ministry of Environment, Forest and Climate Change 2023) and *Bhutan* (Ministry of Energy and Natural Resources, Bhutan 2025).
- Further information on options for sharing emission reductions between climate finance and carbon market sales is available in the Transformative Carbon Asset Facility (TCAF) discussion paper: *Blending climate finance and carbon market mechanisms* (Fuessler, Kansy, and Spalding-Fecher 2019).

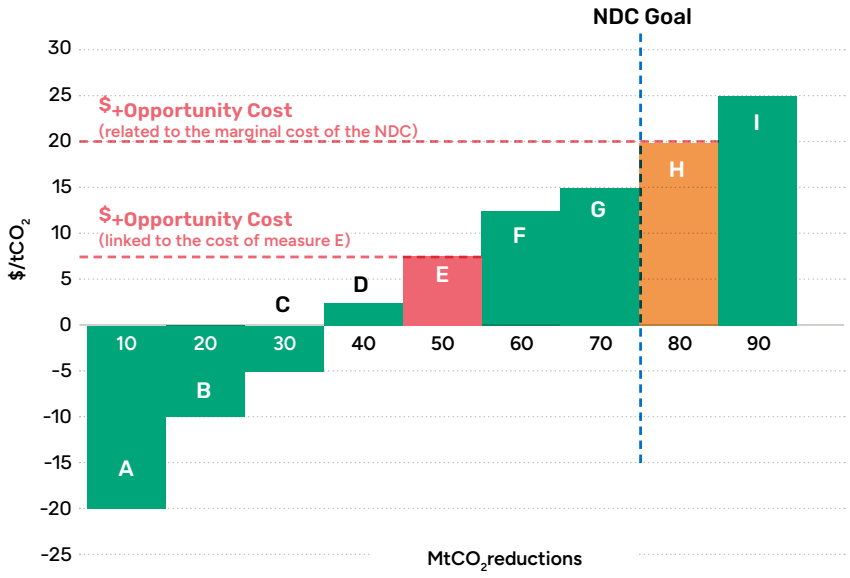
Question 2.2 How should host countries approach the question of pricing authorized credits?*

What are the key actions or options host countries may consider?

Host countries will not want to sell authorized credits (or see authorized credits sold) at a price below the marginal cost of generating them[19]. If prices fall below this threshold, either the activity will not proceed, or the host country will need to support ERR delivery — despite those ERRs not contributing to its NDC. This cost assessment should also include the transaction costs involved in selling authorized credits (ITMOs), recognizing that the lower that these costs are kept, the more attractive its credits will be in attracting buyer interest.

However, some analysts recommend opportunity cost pricing for authorized credits. This approach prices ITMOs high enough to cover the cost of delivering additional ERRs needed to meet the host country's NDC.[20] For example, in the stylized case in Figure 2.2, an authorized credit (ITMO) costing $7.50/tCO$_2$e would be priced at around $20/tCO$_2$e to reflect the cost of additional mitigation (option H) required to maintain NDC achievement after selling the ITMOs from option E. In cases where a host country government was the activity proponent this pricing approach could be reflected in its negotiation strategy with potential buyers. In cases where credit generating activities are led by the private sector, the approach would be implemented as a levy/fee applied on top of any market-determined price.

Figure 2.2 Opportunity cost pricing of ITMOs



Source: World Bank 2023a

19 Taking account of any complementary income streams that the credit generating activity may be able to access.

20 In principle, this analysis might also take account implications for future NDC achievement as well as the current NDC, although this may be difficult to assess.

What factors might shape decision-making?

Opportunity cost pricing ensures host countries benefit from selling authorized credits. This approach guarantees that revenue exceeds the costs of applying corresponding adjustments including the cost of any additional mitigation needed to ensure NDC achievement. While some countries may worry this pricing could reduce competitiveness, if the approach is carefully calibrated, it ensures the country does not sell authorized credits when this would be detrimental. Box 2.2 below summarises the experience of a number of countries thar have, or are in the process of, establishing opportunity cost pricing.

Box 2.2 Countries developing opportunity cost pricing approaches

Ghana: Ghana requires that parties acquiring authorized credits pay a 'corresponding adjustment fee' which ranges between $3 and $5 per ITMO, depending on the scale and type of activities generating the authorized credits. 90% of the proceeds will be reinvested in additional mitigation activities, with the remaining 10% used to cover the costs of authorizing, transferring and reporting on authorized credit sales.

Cambodia: Although the specific amounts have not been identified as yet, Cambodia has indicated that it intends to introduce a 'corresponding adjustment fee' to cover the opportunity costs associated with the authorization and transfer of ITMOs, which will be used to raise funds for additional mitigation and adaptation action.

Zimbabwe: Zimbabwe has indicated that 30% of the share of proceeds from carbon market transactions must be deposited in the Environment Fund, which is referred to as an 'environmental levy'. Of the total capitalisation of the Environment Fund, 55% must be reinvested into climate change adaptation and low-carbon development projects.

Source: Hoffman, Spalding-Fecher, and Marcias Diaz 2025

Countries with emissions well below their NDC target, those authorizing credits from sectors/activities that are not expected to be needed for their NDC or those countries with no quantitative sectoral or economy-wide target may have near-zero opportunity costs[21]. In contrast, countries selling authorized credits (ITMOs) associated with low-cost ERRs but needing expensive ERRs to meet their NDC would require a high premium. World Bank modeling suggests that, on average, many host countries may need to charge more than $25 per authorized credit, in addition to ERR generation costs (World Bank 2023a)[22].

The main challenge with opportunity cost pricing is implementation. While $25/$tCO_2e$ is a helpful benchmark, the ideal premium will vary by ERR type/cost and over time, and potentially also take account of domestic co-benefits from the ERR. This makes accurate pricing technically complex. It is notable that none of the countries that have developed some guidance on the pricing to date have developed an approach that tries to account for differences by ERR type (to any significant extent), or over time. This suggests that that the conceptual benefits of the approach may be difficult to realize in practice. Host countries may wish to engage development partners to support this process.

21 In principle, opportunity costs may be above zero if the host country may wish to use the associated ERRs for future NDC attainment.

22 If host countries have a comprehensive Emissions Trading System (ETS) that is playing an important role in driving NDC attainment, then some insight into the appropriate price for selling authorized credits (ITMOs) will be provided by market price in this system. Note that, as discussed in question 2.1, host countries may wish to be cautious in authorizing credits covered by a domestic CPI such as an ETS.

How does responding to question 2.2 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook places no restrictions or guidance in relation to the pricing of authorized credits (ITMOs). However, under *Decision 2/CMA.3* Annex (paragraph 4), host countries must be able to demonstrate that participation in authorized credit sales contributes to the implementation of its NDC and long-term low-emission development strategy, if it has submitted one. Opportunity cost pricing can be one way to demonstrate this (see below).

Links and dependencies to other questions in the Guidance

Robust opportunity cost pricing gives host countries greater confidence in selling credits from ERRs they might otherwise need to meet their NDC (question 2.1). This is because the additional revenue raised can directly fund the extra mitigation needed to ensure NDC achievement — provided the host country has the time and institutional capacity to allocate funds effectively.

Opportunity cost pricing is often framed as a tool to manage overselling risk — the risk that authorized credit sales undermine NDC attainment (question 2.3). By creating a dedicated funding stream for additional mitigation, it helps safeguard NDC achievement. However, even if a host country was fully confident about its NDC pathway after selling credits, it would still benefit from applying opportunity cost pricing to ensure it captures sufficient value from credit sales. Reallocating any revenues raised to further mitigation would allow the host country to demonstrate, as required under Article 6, that its participation in authorized credit sales has contributed to the implementation of its NDC and (if relevant) its long-term low-emission development strategy. If there is uncertainty around setting the right premium, host countries may also want to apply additional overselling risk mitigants as discussed in question 2.3.

Countries that apply opportunity cost pricing will need to determine how these funds can be best allocated, including the institutional arrangements. This is discussed further in Module 7 (question 7.4).

Further resources

Interested readers will find further insights and discussion on the opportunity cost pricing at the World Bank report: *Corresponding Adjustment and Pricing of Mitigation Outcomes* (World Bank 2023a).

More details on Ghana's approach to setting fees for international carbon market activity, including its opportunity cost fee approach is available in its *Carbon Market Framework* (Government of Ghana 2022), for Cambodia in its *Operations Manual* (Ministry of Environment, Cambodia 2024) while the approach in Zimbabwe is described in its *Carbon Credits Trading (General) Regulations SI 150/2023* (Government of Zimbabwe 2023.

Question 2.3 How (else) can countries manage any overselling risks associated with authorization?*

What are the key actions or options host countries may consider?

Host countries may be unsure whether they can meet their unconditional NDCs after authorizing credit transfers — a concern known as overselling risk. If this risk materializes and a country fails to meet its NDC, the consequences might be severe including potentially reduced access to international climate finance, weakened investor confidence, and strained international partnerships. At a global level, widespread non-achievement — especially by large emitters — could undermine the credibility of the climate regime, with disproportionate impacts on climate vulnerable nations relying on strong international action. The measures discussed in questions 2.1 and 2.2 — including positive/negative lists and opportunity cost pricing — can help reduce overselling risk or ensure funding is available for additional mitigation if needed. Box 2.3 outlines further no-regret actions that can further mitigate risk.

Box 2.3 No-regret options to reduce the risk of over-selling authorized credits

Choose appropriate (conservative) baselines: Oversupply risk can be reduced by aligning crediting baselines with the sector's expected contribution to the unconditional NDC target. Countries that have developed their LT-LEDs may be better placed in this regard. For others, this often requires analytical work to allocate the NDC target across sectors — a complex task (although one that aligns with the eligibility requirements for authorized credit sales). For example, in its NDC Action Plan on Mitigation 2021-30, Thailand has taken it overall NDC target (a 30% reduction in emissions relative to business as usual by 2030, increasing to 40% subject to adequate and enhanced access to technology development and transfer, financial resources and capacity building support) and allocated this across sectors. It has then identified that the expected contribution from Article 6 could be up to 3% on top of its conditional NDC. Zambia has also implemented this approach, explicitly requiring that activity baselines aligned to its NDC target while Ghana requires that 'underlying assumptions and quantitative figures used in the Ghana NDC baseline' must be used when choosing crediting baselines for activities that will generate authorized credits (ITMOs).

Align emissions inventory and crediting methodologies: Crediting methodologies often measure emissions and ERRs more precisely than national inventories. This mismatch can lead to corresponding adjustments (CAs) being applied for ERRs that are not reflected in the emissions inventory — complicating NDC attainment. Host countries may wish to consider improving the detail of their inventory, especially in sectors like avoided forest land, forest management, cement, and nitric acid production. GGGI's Supporting Preparedness for Article 6 Cooperation (SPAR6C) program has supported the Government of Zambia with evaluating the level of detail and quality of data in their GHG inventory, with a specific focus on the forestry sector and energy sectors to both improve long-term emissions planning as well as ensure credible, conservative baseline setting for potential carbon transactions under Article 6.

Develop up-to-date MAC curves with clear sector boundaries: As noted in question 2(a), MAC curve analysis helps shape authorization decisions, but inconsistent sector definitions between stakeholders create risks. Regularly updated MAC curves with clear sectoral delineation can help minimize overselling risk, particularly in the absence of LT-LEDs.

Sources: (GGGI 2023d; World Bank 2022b; Government of the Republic of Zambia 2025; Government of Ghana 2022)

Another approach is to authorize only a portion of the ERRs from a given activity, retaining the rest to support the host country's NDC.[23] Different sharing rules can be applied to allocate ERRs between the buyer and host country. Figure 2.3 illustrates three examples:

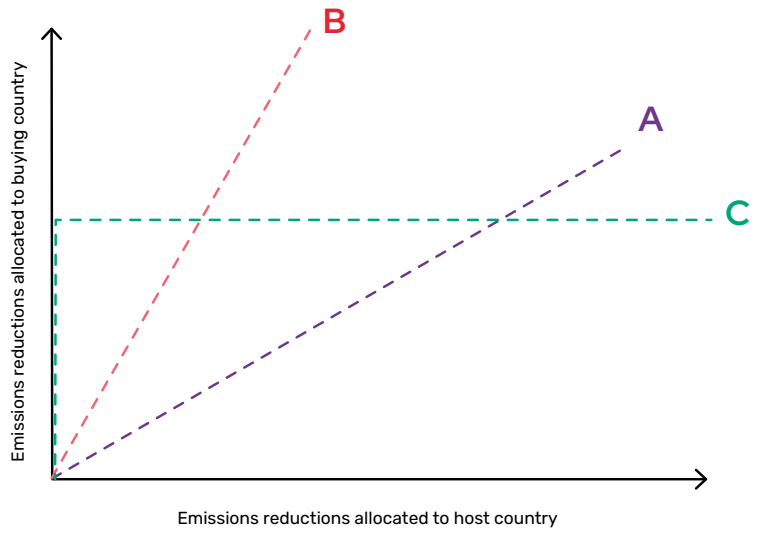
- **Profile A:** ERRs split 50:50 between the buyer and the host country;
- **Profile B:** the sharing rule is 70:30 in favor of the buyer;
- **Profile C:** Buyer receives all ERRs up to a threshold, with any excess retained by the host. This could be applied, for example, by adjusting rules across different crediting periods.

Several host countries have or intend to implement this approach (GGGI 2023c; Republic of Vanuatu 2023)[24]:

- Ghana retains 1% of total ERRs from mitigation activities for its own NDC;
- Paraguay uses a value of 3%;
- Indonesia plans to retain 10-20% of ERRs from NDC-covered activities, rising to 20% for activities outside the NDC scope;
- Vanuatu, in the context of its Article 6.2 agreement with Switzerland concerning emission reductions from the development of mini-grids, has indicated that 5% of emission reductions will be retained for its own NDC, or to secure an Overall Mitigation in Global Emissions (see question 3.7).

This approach also allows for the creation of buffer stocks — credits not immediately authorized, but which could be authorized later if the host country gains confidence in meeting its NDC. This flexibility was further enhanced by the COP29 decision allowing MCUs under Article 6.4 to be converted into ITMOs at a later stage.

Figure 2.3 Sharing ERRs between buyer and host country



23 This might include including selling this remaining portion of the credits without an authorisation, at a lower price. This sharing approach is equivalent to the sharing of ERRs between ITMOs and climate finance discussed in Question 2.1.

24 As well as host country's using this approach, some buyers also make use of this approach, as they recognize the long-term risks associated with overselling. For example, Japan's Joint Crediting Mechanism (JCM) involves sharing authorized credits/ERRs between Japan and the host country (Government of Japan 2024).

What factors might shape decision-making?

Table 2.2 summarizes the pros and cons of requiring host countries to retain a portion of ERRs. This approach provides a simple safeguard against overselling risk, with the added benefit of allowing flexible adjustments over time as NDC achievement becomes clearer. It also supports the host country to meet Article 6 participation requirements regarding contributing to host country NDC and LT-LEDS implementation. However, determining an appropriate retention rate can be complex. Higher retention rates can reduce revenue generation, potentially undermining the financial viability of the credit generating activity. Attempts to offset this by increasing credit prices could, in turn, reduce the activity/country's competitiveness. Likewise, any attempt to share credits between host and buyer over time will need to consider when the buyer requires the authorized credits. As a result, host countries may choose moderate retention rates, while relying on other safeguards — such as positive/negative lists, opportunity cost pricing, and the measures in Box 2.3 — to further manage overselling risk.

Table 2.2 Pros and cons of sharing ERRs between buyer and host country

Pros	Cons
↑ Straightforward way to reduce overselling risk	↓ Requires careful calibration/negotiation to set the 'right' sharing rule in order to not undermine the financial viability of ERR activities.
↑ Credited activity immediately contributes to NDC (hence meeting the host country's participation requirements) reducing need for extra ERRs later	↓ May reduce host country's attractiveness to buyers, for example, by leading to higher prices or reduced credit availability when buyers have the greatest demand for credits.
↑ Buffer stock approach provide flexibility over time	

How does responding to question 2.3 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Annex to *Decisions 2/CMA.3* (paragraph 4) states that any participation in Article 6 shall contribute to both Parties' NDC implementation and the long-term goals of the Paris Agreement.

Links and dependencies to other questions in the Guidance

This issue links closely to those discussed in relation to question 2(a) and 2 (b). As discussed above, the more that countries make use of the strategies discussed in relation to these questions (positive and/or negative lists, pricing) – which effectively reduce the extent of overselling risk – the smaller will be the residual risk that will need to be managed through sharing emission reductions.

Countries that retain a share of the ERRs associated with crediting activities and then proceed to meet their NDC without these ERRs may choose for these 'surplus' ERRs to be counted as contributing to an Overall Mitigation in Global Emission (OMGE) (see question 3.7).

Further resources

A report for the Swedish Energy Agency by Carbon Limits – *Practical Strategies to Avoid Overselling* - discusses this issue in more, depth. The GGGI guide on *Developing an Article 6 Host Party Strategy* is a further useful resource (GGGI 2023b).

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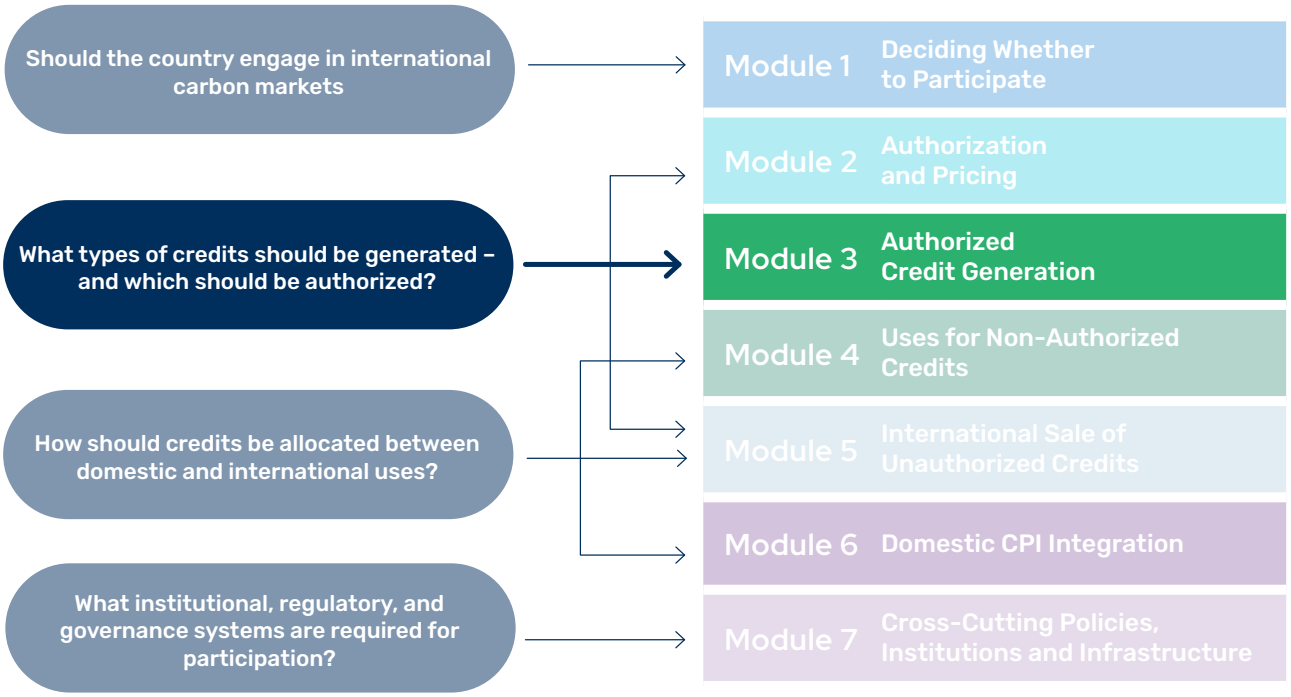
Module 3

How to approach the generation and transfer of authorized credits?

Once a host country decides which ERR sources are eligible to generate authorized credits (ITMOs) — and under what conditions — it must then address how to operationalize this decision and ensure effective delivery to suitable buyers. This involves a range of steps, from supporting ERR-generating activities to converting ERRs into authorized credits, selling them, and applying corresponding adjustments.

This module covers these steps through the following key questions:

- **Question 3.1:** What role might the government play in generating and owning authorized credits?
- **Question 3.2:** Which part of the Article 6 architecture might be used for generating authorized credits?
- **Question 3.3:** What crediting approaches can be used to generate authorized credits?
- **Question 3.4:** Should the government adopt its own crediting mechanisms or rely on those provided by others?
- **Question 3.5:** How can host countries influence who buys their authorized credits?
- **Question 3.6:** What infrastructure does a host country need to authorize credits?
- **Question 3.7:** Should the host country consider Overall Mitigation in Global Emissions (OMGE)/Share of Proceeds (SOP) contributions?
- **Question 3.8:** How might host countries implement corresponding adjustments?



Question 3.1 What role might the government play in generating and owning authorized credits?

What are the key actions or options host countries may consider?

Host countries must decide the level of regulation and oversight of activities generating authorized credits (ITMOs). This can be framed around two key rights (Gold Standard Foundation and EY Law 2022):[25]

- **The Right to Generate credits:** To what extent does the government define which activities can generate credits expected to be authorized?
- **The Right to Own credits:** How will legal ownership of authorized credits be allocated?

Under the PACM (Article 6.4), host governments must explicitly approve activities before they generate authorized credits. This requirement reflects the direct implications of authorized credit generation on a country's ability to meet its NDC**.** Outside the PACM, host countries have more flexibility and can allow credit generation without pre-approval. Indeed, this is a common approach for unauthorized credits. However, as discussed further below, this approach may not be attractive for authorized credit generation.

Host countries must also decide – or will have already decided because of previous decisions - who owns authorized credits, influencing how they are traded and how revenues are shared. Broadly, two models exist:

- Government ownership of credits: This is particularly common for credits linked to publicly managed resources like forests or land. In this case, governments organize, implement, and sell the credits unless they choose to transfer these rights to a third party. Examples include the Democratic Republic of Congo and Mozambique, where governments retain carbon rights over land and forests.
- Private and/or community ownership of credits: Private entities, local communities, or NGOs own the credits, sell them, and receive the revenue — unless they choose to transfer these ownership rights to others.

Combining rights to generate and rights to own, Table 3.1 identifies three stylized models for organizing authorized credit generation (ITMOs).

25 A further set of issues relate to the right to use carbon credits and the legal status of the any authorized credits. This is explored in Module 7 below.

What factors might shape decision-making?

Table 3.2 shows some of the main advantages and disadvantages of each of these stylized models for government involvement in the supply of authorized credits (ITMOs). Several key insights emerge.

- The **market-led model** is poorly suited for the generation of credits that are expected to be authorized. Since the government must authorize the credits generated, it will likely seek to influence who generates them, from which sectors or activities, and in what manner. Private actors are also unlikely to invest in activities intended to generate ITMOs without a clear signal that the government will agree to credit authorization.[26]

- The **private sector-led but with government consent model** offers advantages by tapping into private sector expertise and fostering competition that can drive innovation and/or low cost and/or timely ITMO generation. It also does not require scarce host country fiscal resources to cover the investment costs of the credit generating activities. It is likely to be especially valuable for project-based crediting (see question 3.2)

- The **government-led model** is often essential for policy or sectoral/jurisdictional crediting, where only governments can coordinate at scale. In doing so, they can potentially harness the support of international organizations such as MDBs, especially where domestic institutional capacities are more limited. This model also makes it easier to redirect any revenue surplus towards any further mitigation that may be needed to ensure NDC achievement or for social or development goals. However, under this model, host country governments may need to use their fiscal resources to invest in activities needed for ITMO generation.

Table 3.1 Stylized models for organizing authorized credit (ITMO) generating activities

	Government – led model	Private sector led but with government consent	Market-led
Right to generate	Government leads ITMO generation — either directly or through incentives/ regulations	Government consents to specific activities and actors generating ITMOs	Government does not actively consent or control which activities generate ITMOs (but still decides whether to authorize resulting credits under Article 6 rules)
Right to own	Government owns and sells ITMO credit	Private sector, communities, or NGOs own and sell ITMO	Private sector, communities, or NGOs own and sell ITMO

26 As discussed in question 5.1 in Module 5 below, different considerations apply in the context of organizing unauthorized credit supply.

Table 3.2 Pros and cons of different models for organizing authorized credit (ITMO) generating activities

	Advantages	Disadvantages
Government – led model 	↑ Enables scaled-up crediting approaches such as policy/sectoral crediting, potentially harnessing institutional support from international partners such as MDBs ↑ Facilitates allocating surplus revenues to support development goals or additional mitigation activity	↓ Does not harness the knowledge and skills of the private sector ↓ Limited competition may reduce credit attractiveness to buyers ↓ Investment costs of credit generating activities will likely need to draw on scarce fiscal resources
Private sector led but with government consent 	↑ Leverages expertise of private actors ↑ Promotes competition, increasing credit attractiveness ↑ Can be used to direct revenues to local communities ↑ Allows government to guide activities throughout the lifecycle	↓ Difficult to implement policy-based and sector/jurisdictional crediting ↓ Potential for corruption in some contexts ↓ Risk that carbon market rents are captured by private actors making it more difficult to allocate these to wide development goals or to additional mitigation that may be needed for NDC achievement
Market-led 	↑ Maximizes competition among credit suppliers, in theory improving alignment with buyer preferences	↓ Government cannot shape authorized credit pipeline ↓ Private actors unlikely to invest without clear authorization signal ↓ Not possible under Article 6.4 (PACM)

How does responding to question 3.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

On this question, the Article 6 Rulebook has different requirements for crediting activities undertaken under Article 6.2 or Article 6.4 (see question 3.2):

- Formally, there are no restrictions or requirements on the role of governments in relation to credit generating activities under Article 6.2.
- Under Article 6.4, paragraph 40 of the Annex to *Decision 3/CMA.3* confirms that 'The host Party shall provide to the Supervisory Body an approval of the activity [intended to generate credits under the mechanism]'[27]

Links and dependencies to other questions in the Guidance

Host countries might consider this issue in conjunction with deliberations over the type of crediting approaches that they wish to use to generate credits (see question 3.3).

Question 3.2 Which part of the Article 6 architecture might host countries use to generate authorized credits?*

What are the key actions or options host countries may consider?

Host countries may wish to decide how much importance to place on generating authorized credits (ITMOs) through Article 6.2 versus Article 6.4.

- **Article 6.2** is an accounting framework that establishes a set of minimum requirements that must be satisfied (see question 3.3) to allow Parties to voluntarily cooperate to generate and transact authorized credits (ITMOs). It therefore facilitates bottom-up, decentralized arrangements with buyers often[28] collaborating with host countries to co-design key features of credit generation and issuance.
- **Article 6.4** – referred to as the Paris Agreement Crediting Mechanism (PACM) – is a centralized mechanism for generating credits. Host countries sell authorized credits (ITMOs) to a buyer, and each must follow the same accounting rules established under Article 6.2, but the Article 6.4 Supervisory Body is responsible for approving methodologies, registering the activities that will generate credits, managing registries etc. The Supervisory Body is tasked with establishing rules for the PACM to ensure the requirements of the PACM as set out in the Article 6 Rulebook are met.

These are not binary options. Many/most host countries are likely to authorize credits under both approaches, but their different advantages and disadvantages may influence the emphasis placed on each. Host countries can also authorize credits generated outside the Article 6 mechanisms, and all authorization must be reported to UNFCCC to fulfil the country's reporting requirements (more in 3.5).

27 This approval of the activity is required regardless of whether the credits will be authorized or not.

28 While countries will often generate credits (ITMOs) under Article 6.2 further to a cooperative agreement with a specific buyer, they can also decide to unilaterally generate and authorize credits and subsequently seek a buyer. Unilateral authorization of AERs under the PACM is also possible. See question 3.5.

What factors might shape decision-making?

Table 3.3 highlights key factors that may influence how host countries choose between the two approaches for generating authorized credits.

Table 3.3 Considerations shaping use of Article 6.2 and Article 6.4 (PACM) by host countries

Considerations favouring use of Article 6.2	Considerations favoring use of Article 6.4 (PACM)
Flexibility – Host (and buyer) can (jointly) set crediting scale, approaches, and methodologies. This can include harnessing the crediting approaches and methodologies of independent crediting mechanisms or those developed by the host or buyer (see question 3.4 below), as long as they comply with the Article 6.2 environmental integrity requirements.	**Lower in-country transaction costs** – PACM absorbs much of the cost of developing market infrastructure.
Pace of execution can be controlled by Parties – The speed at which any transactions take place will be determined only by the Parties participating in the transaction.	**Potential for (perceived) higher integrity** – International scrutiny, stringent rules (e.g., baseline setting), and integrity standards may support higher prices and lower reputational risks. For example, the Supervisory Body has recently, following public consultation, recently developed a standard for the demonstration of additionality within its methodologies (UNFCCC 2025), as well as a standard setting out the requirements for activities involving emission removals (UNFCCC 2024h). These are all intended to demonstrate the integrity of the PACM.[29]
Foreign policy integration – ITMO transactions can be embedded in broader diplomatic engagement e.g. potentially through the concept of Climate Action Teams (Environmental Defense Fund et al. 2021). This may create opportunities to generate higher prices for credits, incentivizing further mitigation or additional rents to be re-allocated across the economy.	**Provides opportunity to support global mitigation and adaptation goals:** Buyers and sellers wishing to support global climate action may be attracted to the fact that Article 6.4 requires the application of SOP and OMGE (see question 3.7).
Not necessary to include SOP and OMGE contributions - Host and buyer may value the flexibility to decide whether to apply Share of Proceeds (SOP) and Overall Mitigation in Global Emissions (OMGE) (see question 3.7)	**Attracting private/foreign direct investment (FDI)** – Use of internationally approved methodologies may help attract foreign investors.
	More flexibility over when to provide authorizations – Countries can convert MCUs into AERs later, unlike Article 6.2, where buyers typically seek early authorization assurance (as discussed above).

29 Although host countries and buyers may choose to emulate these rules and standards in A6.2 transactions, should they choose.

The relative pros and cons of Article 6.2 and Article 6.4 will vary by host country, depending on national circumstances, policy priorities, capacity, and market dynamics. A key factor will be potential price differences between credits from each mechanism — though ITMO prices remain uncertain, and wide variations may arise. Beyond this, host countries are likely to prefer Article 6.2 if they:

- want to use approaches/methodologies not prioritized under Article 6.4 (e.g., potentially, large-scale sectoral/jurisdictional methodologies, as discussed in question 3.3).
- have the capacity and support to develop robust national governance and methodologies to maintain credit quality and price;
- want to leverage strong diplomatic ties with specific buyers.

By contrast, host countries might favor the PACM when they:

- want to focus on authorized credit sales from activities prioritized for methodologies by the PACM Supervisory Body;
- want to use the PACM infrastructure to signal the high quality and integrity of their credits and wish their carbon market participation to contribute to global mitigation and adaptation goals[30];
- are concerned that they may have insufficient bargaining power within any Article 6.2 transaction; and/or
- lack the capacity or desire to develop their own governance, methodologies, and infrastructure[31] and wish to provide the private sector with direct access to the global carbon market.

How does responding to question 3.2 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook places no restrictions or requirements regarding the extent to which host countries choose to use Article 6.2 or Article 6.4.

Links and dependencies to other questions in the Guidance

As noted above, host countries may link this choice to the types of crediting approaches they plan to use (see question 3.3). This also connects to how they organize activities that generate credits (see question 3.1). In addition, question 3.4 – concerning which methodologies to use - question 3.6 – on registry choices – and 3.7 on OMGE and SOP contributions will only apply to countries that elect to make some use of Article 6.2.

If a country decides to make use of the PACM to generate authorized credits then it may be more likely to also use the same mechanism to generate unauthorized credits (question 6.2).

30 Recognising that host countries and buyers may choose to emulate these rules and standards in A6.2 transactions, should they choose.

31 Although, as discussed below, under Article 6.2 host countries will be able to make use of existing crediting mechanisms (question 3.4) and market infrastructure (question 3.5).

Question 3.3 What crediting approaches can be used for generating and issuing authorized credits?

What are the key actions or options host countries may consider?

Article 6.2 offers host countries flexibility to adopt different crediting approaches, allowing them to tailor participation to their capacity, priorities, and strategies.[32] Four main approaches have emerged to date:

- **Project-based crediting:** ERRs are quantified at the project level (e.g., renewable energy, industrial efficiency, methane capture). Familiar from the CDM and the independent carbon-crediting programs, this remains a well-established option.
- **Programmatic crediting:** Aggregates multiple small projects, reducing transaction costs for dispersed activities like improved cookstoves or decentralized solar. Also widely used under the CDM.
- **Sectoral/jurisdictional crediting:** Quantifies ERRs across whole sectors or regions, crediting system-wide improvements from policies, technology shifts, or market changes. An example is ART TREES for jurisdictional REDD+. **Policy-based crediting:** Quantifies ERRs from specific policy impacts, linking credits directly to broader policy reforms. For example, the World Bank supported Uzbekistan in developing a methodology tied to fossil fuel subsidy reform.

Under the PACM only Supervisory Body-approved methodologies can be used, and standards and tools developed so far focus on projects and programs of activities, with larger-scale approaches still in conceptual development. While the Supervisory Body has published broad principles that these methodologies must meet (UNFCCC 2024a), specific methodologies are not yet available. Countries and organizations are able to submit methodologies to the Supervisory Body for its approval.

32 This Guidance follows the terminology of, for example, (World Bank 2019) in defining a crediting approach in terms of the boundaries applied to the calculation of the ERR associated with credit generation.

What factors might shape decision-making?

Table 3.4 shows some of the main pros and cons of different options.

Table 3.4 Pros and cons for host countries from differing crediting approaches

Crediting approach	Pros	Cons
Project	↑ Simple, with many existing methodologies providing flexibility ↑ Easily enables private-sector transactions	↓ Hard to scale given transaction costs • **Risk of – and requires accounting for - potential increase in emissions beyond crediting boundary (leakage)** ↓ Some difficulties in assessing additionality
Programmatic	↑ Simple, with many existing methodologies ↑ Achieves scale through aggregating similar activities ↑ Supports small- and micro-scale activities	↓ Risk of – and requires accounting for - potential increase in emissions beyond crediting boundary (leakage ↓ May be difficult to assess additionality ↓ May be difficult to predict ERR/credit volume as activities added over time
Policy	↑ Large scale potential with higher revenues ↑ Policy change can drive transformative impact (beyond the credited ERRs)	↓ Complex and associated with high transaction costs, especially for robust baseline setting and demonstrating additionality ↓ Relies on high quality GHG inventory in order to be confident in tracking policy to changes in emissions ↓ Cannot involve private sector in crediting transaction (although it can/will support policy implementation) ↓ Impact on the number of corresponding adjustments needed, and potential challenges for NDC attainment, will be greater
Sector/ jurisdictional	↑ Large scale potential with higher revenues and high systemic change potential ↑ Reduced risk of leakage (compared to project based approaches) ↑ Supports small- and micro-scale activities ↑ May be better able to avoid or reduce adverse impacts on local populations	↓ Require long-term planning and coordination, and robust governance ↓ Host country may struggle to control delivery of ERRs ↓ Cannot involve private sector in crediting transaction ↓ Some challenges around assessing additionality and challenges with interaction with certain project based carbon market activities ↓ Impact on the number of corresponding adjustments needed, and potential challenges for NDC attainment, will be greater

Considering these advantages and disadvantages, host countries can evaluate several factors to determine the most suitable crediting approaches to generate authorized credits.

- **Scale of opportunity.** Project/programmatic crediting fits smaller ERR opportunities, while policy/sectoral crediting suits large-scale opportunities.
- **Nature and organization:** Programmatic/sectoral crediting works best for many diffuse opportunities, while project crediting fits discrete, actor-specific opportunities.
- **MRV uncertainty and costs.** Where site-level ERRs are uncertain or costly to measure (e.g., rice production, livestock farming), sectoral/jurisdictional crediting may be preferable, as it is more justifiable to rely on average values when these are applied across multiple locations.
- **Leakage risks:** Policy/sectoral crediting is especially valuable in sectors with high leakage risk i.e. the risk that measured emission reductions at the project level are partly offset by increases beyond the project boundary, such as in the land use sector.
- **Role of private sector:** If private sector involvement in transactions is preferred (see question 3.1), then project/programmatic crediting is more suitable. Policy/sectoral crediting is a better fit if the government prefers to organize credit supply.
- **Willingness to pioneer innovative approaches:** Policy/sectoral crediting offers higher revenue potential but involves greater complexity and risk. Countries comfortable pioneering innovative approaches may favor these models, while risk-averse countries may prefer established project/programmatic methods.

A host country can apply multiple crediting approaches within its jurisdiction, using a strategic framework to match approaches to different ERR activities based on their characteristics and national preferences. However, simultaneous crediting at multiple scales requires careful coordination to avoid double-counting or double-claiming the same emission reductions — and to prevent the host country from applying unnecessary corresponding adjustments. This risk is particularly high when different crediting approaches operate in the same or closely related sectors. This issue has been extensively studied in the context of avoided deforestation, where various nesting models have been developed to align project-level and sectoral-level crediting within a single system (Ward et al. 2024).

How does responding to question 3.3 relate to the obligations or opportunities countries have under Article 6 Guidance?

While the Article 6 Rulebook provides host countries, in conjunction with buyers, considerable flexibility determining the use of crediting approaches under Article 6.2, it does set some minimum requirements. The Annex to *Decision 2/CMA.3* (paragraph 18) requires countries to report on the quality of the authorized credits (ITMOs) that it sells which it indicates means that crediting approaches should use conservative baselines (which take account of all existing policies and address uncertainties in quantification and potential leakage); should demonstrate how any risks of non-permanence have been minimized and give confidence that any reversal of ERRs will be addressed. It also requires host countries be able to report on a range of issues including how the sale of the authorized credits is consistent with the host country's sustainable development objectives and how credit generating activities have minimized and, where possible, avoided negative environmental, economic, and social impacts. However, as stressed above, so long as these requirements are met, it allows for host countries (and buyers) to select any crediting approach.

Links and dependencies to other questions in the Guidance

The question of crediting methodologies might be assessed in conjunction with considering the preferred approach to organizing credit generating activities (question 3.1). Furthermore, as noted above, it seems more likely that the early phases of the PACM will primarily focus on project- and programmatic crediting, hence deliberations on this question might be linked to those around preferences for relative use of Article 6.2 or 6.4.

Further resources

Further information on the differences between different types of crediting approaches is available in this World Bank report on *"Carbon Crediting - A Results-based Approach to Mobilizing Additional Climate Financing"* (World Bank 2025)

This GGGI report explores the potential for policy-based crediting under Article 6 (Mraz 2021) while the World Bank supported *iCRAFT transaction in Uzbekistan* (World Bank 2023b; 2023c) is pioneering policy-based crediting under Article 6.2.

The potential benefits of jurisdictional crediting in relation to carbon crediting in the forestry and land-use sector has been considered at length. The *EDF NCS Crediting Handbook* (Ward et al. 2024) considers the pros, cons and necessary preconditions. It also explores different models for nesting. The *ICVCM Board Observations* related to Jurisdictional REDD+ methodologies sets out methodological considerations relating to robust quantification, baseline-setting and leakage when dealing with different scales of crediting activities focused on reducing deforestation (Integrity Council for the Voluntary Carbon Market 2024).

Question 3.4 Should the government adopt its own crediting mechanisms or rely on those provided by others?

What are the key actions or options host countries may consider?

A key step for host countries engaging in Article 6.2 cooperative approaches is selecting an appropriate carbon crediting mechanism and methodologies to generate credits. Mechanisms define the rules and institutions for quantifying, verifying, and issuing credits, while methodologies set out how to calculate ERRs for specific activity types.

Host countries have three main options

- **Governmental / Domestic mechanisms and methodologies ("Government administered"):** Fully designed by the host country and tailored to the country's economic, environmental, and policy context. For example, Thailand's Voluntary Emission Reduction program, with sector-specific methodologies. As discussed in question 6.1, when designing these domestic mechanisms and methodologies, host countries may choose to build off international mechanisms and methodologies in various ways. [33]

33 If a host country follows this option, then it will have a wide range of different detailed issues that it will need to consider in relation to the specific methodologies for quantifying ERRs. The interested reader can learn more in (World Bank 2021a)

- **Independent mechanisms and methodologies:** Using existing global standards that are not managed by national or sub-national governments, nor through international agreements between governments. Examples include Gold Standard, Verra, Climate Action Reserve and the American Carbon Registry. Host countries can choose how much to rely on these, adapting them to fit their needs and regulating their activities.[34]

- **International and bilateral mechanisms ("cooperative approaches") and methodologies:** These are mechanisms and methodologies that are managed internationally and organized such as UNFCCC (such as UNFCCC's PACM) or agreed between the buyer and seller for the purposes of the transaction. In the case of the latter, often these will be proposed by the buyer. For example, Japan's Joint Crediting Mechanism, which includes its own set of methodologies to support Article 6.2 transactions, or the agreements between Switzerland and host Parties for the activities developed by the KliK Foundation. A further example is the Methodological Framework of the Forest Carbon Partnership Facility.

What factors might shape decision-making?

Using methodologies from internationally recognized mechanisms offers a low cost and risk option for host countries. Tools like the Core Carbon Principles (CCPs) and Assessment Framework from the Integrity Council for the Voluntary Carbon Market (ICVCM)[35] can help countries assess different mechanisms and methodologies. For example, host countries might allow for ITMOs generated from a mitigation activity that is registered under an independent crediting mechanisms to be authorized, but only if that mechanism (or "carbon-crediting program) has been approved by the ICVCM as CCP-eligible.[36] CORSIA's Technical Advisory Board (TAB)[37] might play a similar role in signaling high-quality mechanisms and methodologies. Host countries can also leverage the international experience in the validation and verification of specific activities under these mechanisms and methodologies. This can help host countries demonstrate how they are meeting the relevant requirements of Article 6 (see immediately below). A recent analysis by GGGI indicated that five out of the six countries reviewed intended to allow the use of independent crediting mechanisms (Cambodia, Ghana, Rwanda, Tanzania and Zimbabwe) (Hoffman, Spalding-Fecher, and Marcias Diaz 2025).

Likewise, bilateral crediting mechanisms - typically proposed by the buyer and may take longer time to develop – will also be a low-risk route to market access. Host countries, working with the expected buyer, can typically leverage the experience from the prior use of these mechanisms.

Developing domestic methodologies give host countries more control over credit generation. This could be useful if, for example, emissions inventories are not very granular — allowing flexibility in balancing revenue generation with NDC attainment. However, national methodology development and program set-up is time- and resource-intensive and may reduce buyer interest. Countries would also have to make sure that the rules and requirements of domestic mechanisms and methodologies are aligned with Article 6.2 integrity criteria and easily demonstrable in the initial reports and updated initial reports. This approach is likely to be best suited for countries developing methodologies for both international carbon markets and domestic carbon pricing instruments i.e. where there will also be domestic demand for the credits generated (see Module 6).

34 These models are explored in more detail in Module 6.

35 This is discussed further in module 5.

36 The assessment status of carbon crediting mechanisms (or "programs"), as well as categories of credits, is available at: *https://icvcm.org/assessment-status/*.

37 See *https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/TAB2024/Summary%20Table_2024.pdf*

How does responding to question 3.4 relate to the obligations or opportunities countries have under Article 6 Guidance?

As discussed in question 3.3, host countries will need to be able to demonstrate that whatever crediting mechanism they use, they are able to satisfy the relevant requirements of Annex to *Decision 2/CMA.3* **(paragraph 18).** These relate, among others, to the use of conservative baselines that take account of existing policies, which minimize the risk of non-permanence, which minimize and wherever possible avoid negative environmental, economic and social impacts and that are consistent with the host country's sustainable development objectives.

Links and dependencies to other questions in the Guidance

The choice on preferred crediting approaches – question 3.3 above – needs to be considered in conjunction with the choice of crediting mechanism, as different crediting mechanisms provide methodologies that are associated with different crediting approaches.

As noted above, there may be more justification in developing a domestic crediting mechanisms in cases where some of the credits being generated will also be used within a domestic CPI. This is explored in Module 6.

Further resources

Within their respective carbon market strategy documents, a number of host countries have identified which crediting mechanism they will allow/make use of. For example, *Cambodia's Operations Manual* refers explicitly to the use of both bilateral crediting mechanisms and 'independent carbon mechanisms including Gold Standard and VCS' (Ministry of Environment, Cambodia 2024). Likewise, the *National Carbon Trading Guidelines of Tanzania* refer to a range of crediting mechanisms and standards including 'Verra Standards, Climate Community Biodiversity (CCB) Standard to generate carbon credit, Gold Standard and Plan vivo' (Vice President's Office, United Republic of Tanzania 2022). Chapter 2 of GGGI's guide – '*Using Article 6 with carbon pricing instruments: three key policy issues for host countries'* – explores the potential for government crediting mechanisms in more detail (GGGI 2023e).

The Government of Singapore, Gold Standard and VERRA are collaborating to develop a protocol that will support countries in using independent crediting mechanisms to facilitate transactions under Article 6.2. *Initial Recommendations* were published in November 2024 (National Climate Change Secretariat, Gold Standard, and Verra 2024).

World Bank A6 approach paper on "*Developing an Article 6 Strategy for Host Countries"* and *"Considerations for Additionality Concepts to Article 6.2 Approaches*".

Question 3.5 How can host countries influence who buys their authorized credits?

What are the key actions or options host countries may consider?

Host countries have several options that shape who may buy authorized credits and how attractive their credits are to buyers. Many of these relate to authorization decisions. These decisions relate not only to some of the detailed aspects of the authorization of credits (as initially discussed in Module 2), but also in relation to the authorization of the entities who can participate in Article 6 transactions and the activities that can generate credits. In particular this question considers five issues:

- **Authorization of entities and activities:** Host countries must confirm which entities have been authorized to participate in Article 6 transactions and in relation to which activities (cooperative approaches).

- **Purpose of use:** In relation to the authorization of credits, host countries must specify if they can be used toward another Party's NDC, for Other International Mitigation Purposes (OIMP) (e.g., under CORSIA or for use by voluntary buyers of credits). Multiple uses are allowed.

- **Provision of authorization:** Host countries authorize credits by issuing a Letter of Authorization. The content and legal form of this letter—particularly the extent to which it is legally binding—is an important variable for host countries to consider. These decisions can influence buyer confidence and affect the perceived value and credibility of the authorized credits in international markets

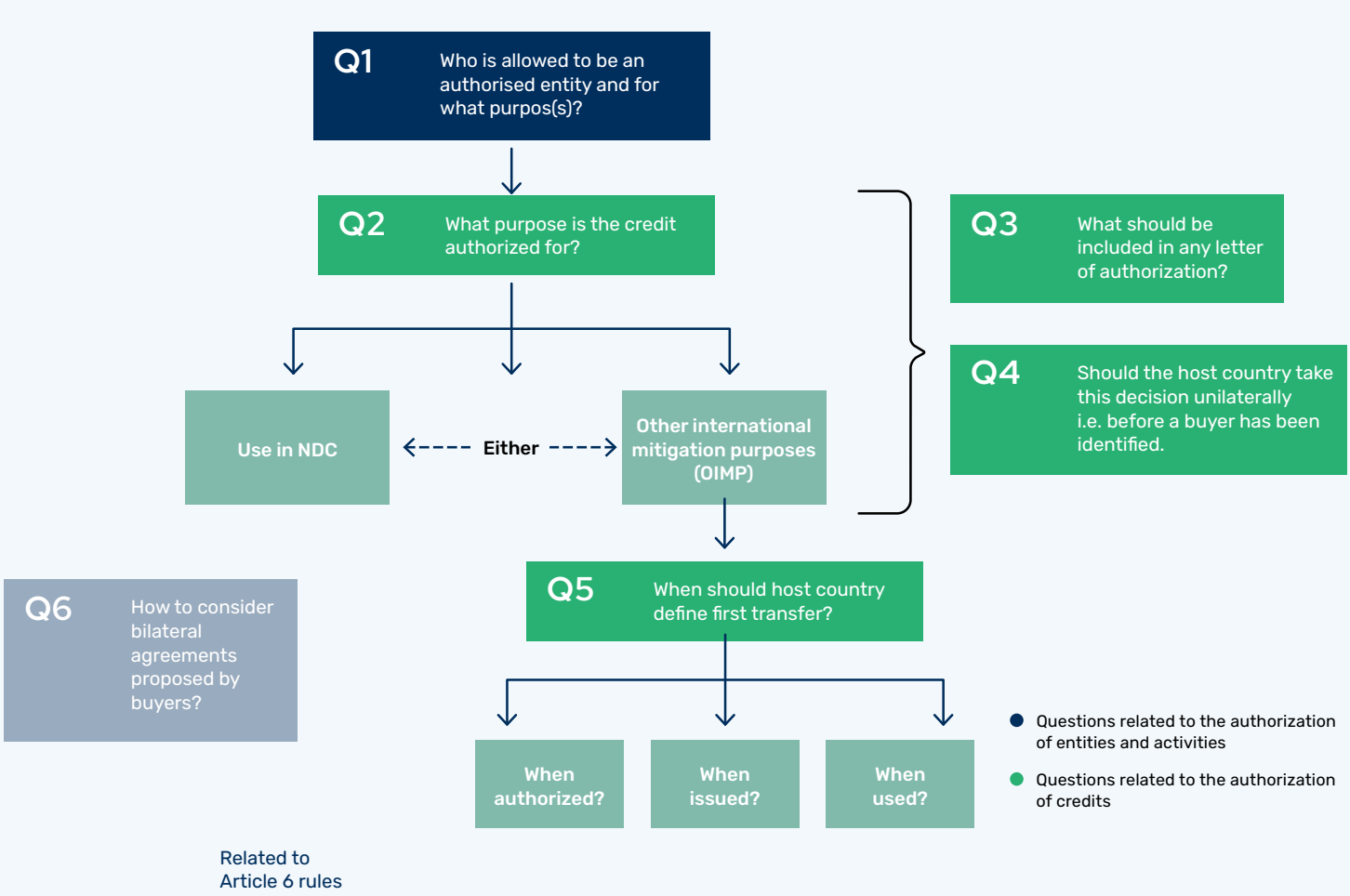
- **Timing of authorization:** Host countries may choose to unilaterally authorize credits, before a buyer is identified. For example, in 2024, Guyana authorized 2021 REDD+ credits under ART TREES without a pre-identified buyer (Co-operative Republic of Guyana Office of the President 2024).

- **First transfer timing (for OIMP credits):** Also in relation to the authorization of credits, host countries must decide when to apply the corresponding adjustment —when the credits is authorized, issued, or when it is used/cancelled.

Beyond Article 6 rules, host countries must also define their broader strategy for engaging with potential credit purchasers. A key issue is how to respond to Article 6 bilateral agreements proposed by (sovereign) buyers. These umbrella agreements — especially relevant for Article 6.2 — can outline priority mitigation activities, specify crediting mechanisms, and may include support commitments from the buyer country.

Figure 3.1 below maps out the different options/ decision points available to host countries.

Figure 3.1 Host country options that influence likely buyers and how attractive credits might be



What factors might shape decision-making?

Authorization of entities and activities (cooperative approaches)[38]

Host countries must confirm their consent (authorize) to the proposed parties/entities undertaking a transaction. This includes both the entity responsible for generating authorized credits (ITMOs) and, if known[39], proposed buyer of the credits. In many cases, this will be a formality as it will have been subject to considerable prior negotiation. In most cases, this will be a procedural step following prior negotiations. However, this does mean that host countries retain the right to veto potential buyers — for example, due to concerns about a buyer's financial reliability or broader foreign policy considerations.

Where the buyer is not yet identified, the selection and authorization of the entities that will generate the ITMOs becomes particularly important. The future marketability of the credits will depend, for example, on the entity's track record in emissions reductions, financial standing, governance, and capacity to meet environmental and social safeguards.

38 Under Article 6.2, host countries must authorize the cooperative approach that will be responsible for generating authorized credits including the sectors and activities covered. Under Article 6.4, they must approve the activity that will generate (authorized) credits.

39 As discussed below, this will not always be known

In relation to the authorization of the activities/ cooperative approaches that generate credits that will be authorized, see question 2.2.

Authorization purpose

In many cases, host countries will have established a cooperative approach with one or more specific counterparties, and this will naturally determine the intended purpose of any authorized credits. This arrangement is particularly relevant when a host country has entered into an agreement with another Party to the Paris Agreement. For example, pursuant to an Article 6.2 bilateral agreement, Thailand has transferred Internationally Transferred Mitigation Outcomes (ITMOs) related to e-mobility to Switzerland. The purpose of these ITMOs is to support Switzerland achieve its NDC. It is also possible for host parties to conclude agreements with one or more buyers concerning authorized credits to be generated using the PACM, where the intended use of the credits will be obvious depending on whether the buyers is/are countries, airlines etc.

However, host countries also have the option to unilaterally authorize ITMOs (see below), which will provide them with greater flexibility in specifying the intended purpose of authorization. In these cases, host countries may strategically define the purpose of authorization to signal the type of buyers they seek to attract and align with expected market dynamics. For example, Guyana provided authorization for credits generated through the ART-TREES crediting mechanism with the intention of attracting CORSIA buyers.

A key factor in selecting the purpose of authorization is the anticipated (average) demand for authorized credits from different market segments. While future demand remains highly uncertain, broad estimates provide an indication of potential market size:

- NDC Market: demand is currently limited, but it has been estimated could be in the range of **0.2-1.5** billion credits in the period to 2030 (Arumugam 2024).
- CORSIA: Estimates for demand from CORSIA are generally lower, with one study suggesting that demand could be **0.4-0.6** billion credits in the period to 2030, most of which will be seen in the period from 2027. Further demand growth is expected beyond 2030 such that demand over the period 2024-2035 could be between 1.0 and 1.5 billion credits (International Civil Aviation Organization 2025).
- Voluntary buyers: Estimates of demand for authorized credits from voluntary buyers are highly uncertain. This is due both to the wide range of overall demand estimates and the fact that, unlike the other two sources of demand, these buyers are not obligated to purchase authorized credits. However, one study estimates voluntary demand for all credits (authorized and non-authorized) of between **0.3 and 2.7** billion credits in the period to 2030 (Fearnehough et al. 2021).

The attractiveness of different buyer types and the strength of demand for authorized credits are likely to fluctuate over time. Several trends may shape market dynamics:

- **Short term:** In the short term, demand from voluntary buyers may dominate, as government buyers are still defining their strategies. Early CORSIA demand will also be low, only growing significantly after 2027.
- **Next 2-4 years:** Selling authorized credits for NDC attainment may be attractive as host countries may be hesitant to commit to selling authorized credits linked to ERRs generated beyond their current NDC period. Buyers looking for authorized credits (ITMOs) to support NDC achievement will also want to purchase authorized credits in this period.
- **Towards 2030:** Demand for authorized credits for NDC attainment *may* decline, so long as buyer countries are confident in meeting their NDC targets[40], as the "no banking" rule under Article 6 means they would not be eligible for use in future NDC periods. By contrast, CORSIA Phase 2 demand is expected to strengthen.

40 By contrast, if potential buyers only become aware that they may miss their NDC targets close to the end of the NDC implementation period then demand for authorized credits might increase towards 2030.

Host countries must also assess reputational risks tied to different buyers and uses. Transactions for NDC and CORSIA use follow clear regulatory frameworks, while voluntary credit buyers lack an international framework. This creates uncertainty over how and when authorized credits should be used, which could expose host countries to reputational risks. [41] To mitigate this, governments may screen buyers based on the intended use to ensure credibility. Governments may also wish to incorporate criteria on credit use into their policy frameworks to foster investor certainty. Examples of countries that have done so include the UK, Singapore, Peru, and Panama.

Content of Letter of Authorization

Host countries may find it attractive to issue Letters of Authorization that fall short of being legally binding. This approach offers greater flexibility, allowing for the potential revocation of authorization if, for example, it becomes evident that the host country may not meet its Nationally Determined Contribution (NDC) once corresponding adjustments are applied. Such flexibility can make the initial decision to authorize credits less daunting and reduce perceived risks for host country governments. It is to be noted that any changes to authorization status must nevertheless be consistent with relevant terms and conditions specified in the authorization letter, both before and after the first transfer.

However, the absence of legal binding force may reduce the attractiveness of authorized credits to buyers. Some buyers may seek insurance against the risk of revocation, but this is only likely to b available if the initial authorization is legally enforceable. This consideration is likely to be especially relevant for entities such as airlines participating in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), where authorization is essential but lack the access to diplomatic channels that will be available to sovereign buyers.

The Further Resources section below outlines resources that provide illustrative LoA templates with schedules that can be used to maximise investments and value, while retaining flexibility for host countries.

Unilateral authorization?

In some cases, particularly under Article 6.2, unilateral authorization is not relevant. ERR opportunities will be jointly identified by the host and buyer as part of a broader cooperative approach, with a shared understanding that resulting credits will be authorized for NDC achievement.

However, there are scenarios in which a host country may identify credit-generating activities that it wishes to develop independently or where credits have already been generated before a buyer for those credits has been identified and secured. In such cases, the government must decide whether to authorize credits in the absence of a pre-identified buyer. This can apply to credits being generated under both Article 6.2 and the PACM.

This decision involves a strategic trade-off.

- On the one hand, indicating that credits from certain activities will be authorized in advance of their generation could help attract greater interest from private sector project developers and investors to engage in generating those credits. Given that authorized credits typically command higher market value, this signal could enhance investment confidence and facilitate project financing. It may also generate buyer interest, giving the host country a first-mover advantage.

- However, authorizing credits before securing a buyer diminishes a key bargaining tool for host countries. Because authorized credits can be used in more markets, they hold additional value for buyers. If the host country commits to authorization too early, it may find itself in a weaker negotiating position when a buyer is eventually identified. The strategic value of withholding authorization can be

41 Another technical reputational risk arises when host countries with single-year NDC targets decide whether to apply averaging or multi-year approaches for corresponding adjustments (see question 3.8). The global emissions impact depends on the accounting choices of both the host and the acquiring Party. A high-risk scenario occurs when ITMO transfers increase over time, the host country uses averaging, and the acquiring Party uses a multi-year approach. As (Siemons and Schneider 2022) discuss, this constellation of factors could arise when a host country is selling authorized credits to CORSIA participants. While this could offer short-term benefits to the host country, it creates significant reputational risk. This risk can be mitigated if the host country adopts a multi-year approach for applying corresponding adjustments.

particularly important when the host country has strong market leverage, as delaying authorization may allow it to secure better terms.

The choice depends on the host country's market power. If demand for its credits is strong, unilateral authorization may be unnecessary. If demand is weak, unilateral authorization can signal market readiness and attract investment.

The act of authorization does not commit the host country to immediately apply a corresponding adjustment. This only takes place when the ITMO is transferred internationally (for NDC use) or, for credits authorized for OIMP, at one of three possible points of first transfer, as discussed below.

Definition of first transfer

Host countries can choose the point of first transfer when selling authorized credits (ITMOs) for OIMP. The three options for defining the point of first transfer are:

- at the point of authorization;
- when the credit is issued; or
- when the authorized credit is used or cancelled by the buyer.

A key attraction of this flexibility is that countries have greater opportunity to revoke a credit's authorization before or after the point of first transfer, (provided such revocation meets the requirements of the terms and conditions of authorization). That is, revocation is only possible if the initial authorisation specified the circumstances in which such a change could take place and the process that should be employed to manage it. Furthermore, any changes that are made must be consistent with the process identified. As such, the possibility to set a late date for first transfer could be attractive to host countries who are unsure how authorization will affect NDC achievement. It also allows host countries to generate authorized credits while they are still developing the accounting frameworks needed to apply corresponding adjustments.

On the other hand, buyers may hesitate to accept credits with late points of first transfer. They might fear the authorization could be withdrawn and no corresponding adjustment made, reducing the credit's value. This could lead to higher prices for credits with earlier points of first transfer.

Host countries have specific obligations in relation to the application of first transfer for authorized credits (ITMOs) for OIMP. These include:

- If first transfer is defined as being at the point where the authorized credits is issued or its use or cancellation, then the host country must have robust arrangements in place to ensure that it is aware that the first transfer has been triggered, and these arrangements must be specified in its authorization decision;
- The first transfer of an ITMO authorized to be used for OIMP must be recorded no later than the 31st December of the year preceding the submission of the host country's biennial transparency report for the NDC implementation period in which the underlying ERR (mitigation outcome) occurred.

Bilateral Agreements (Cooperative approaches)

Host countries must decide how to approach Article 6 bilateral agreements often offered by buyer countries. A key question for host countries is whether to focus on a small number of bilateral agreements, which shape the overall terms of cooperation between the two countries, or engage with buyers on a project-by-project basis. As of 16 May 2025, there are 98 bilateral agreements between 60 different countries with Japan, Singapore and Switzerland leading the most cooperation agreements (UNEP Copenhagen Climate Center). Many of these bilateral agreements are publicly available, including, for example, *Sweden's* and *Switerland's.* Table 3.5 highlights key factors for host countries to consider when evaluating these agreements. In general, structured agreements can offer clear benefits if they align with the host country's carbon market strategy and if the host country is confident in the fairness of the pricing approach for authorized credits.

Table 3.5 Pros and cons for host countries from signing bilateral agreements.

Pros	Cons
↑ Builds trust, supporting long-term cooperation and transactions	↓ Reduces host country flexibility (e.g., choice of crediting mechanisms)
↑ May allow host country to leverage buyer country investments in methodologies/ crediting systems	↓ May limit ability to engage other buyers, reducing competition and pricing leverage
↑ Reduces uncertainty over future revenue from sale of authorized credits	
↑ May include technical/financial assistance to support transactions	

How does responding to question 3.5 relate to the obligations or opportunities countries have under Article 6 Guidance?

The key elements of the Paris Agreement Rulebook relating to this question are set out below.

- The need to authorize the cooperative approach under Article 6.2 and the content that this must cover, including the participating parties/ entities and the sectors/activities covered is set out in the Decision 4/CMA.6, paragraph 5. The same paragraph also sets out the requirements associated with the authorization of the associated ITMOs. The requirement for host country to approve the activities and entities that will engage in PACM activities is set out in the Annex to Decision 3/ CMA.3 paragraph 40 and 41.

- The need to identify the purpose of authorization is first articulated in the definition of an ITMO in the Annex to Decision 2/CMA.3 (paragraph 1). It is further clarified in Decision 4/CMA.6 (paragraph 5) (for Article 6.2) and Decision 6/CMA.6 (paragraph 11) (for Article 6.4).

- The right of host countries to undertake unilateral authorizations has been inferred from the absence of any text indicating that host countries require agreement from others before issuing an authorization. However, any country purchasing an authorized credit (ITMO) to be counted towards its NDC must report on this use as part of its Biennial Transparency Report (Paragraph 22 and 23 of Decision 2/CMA.3)

- The flexibility for a host county to define what defines first transfer is reflected, for example, in the definition of an ITMO in the Annex to Decision 2/CMA.3 (paragraph 2)

Links and dependencies to other questions in the Guidance

The flexibility to determine the date of first international transfer for credits authorized for OIMP may be valuable while countries are still finalising their approach to registry development (question 3.7).

Further resources

The UNFCCC has made available a voluntary standardized template for authorization stipulating mandatory elements that the country should consider, mainly covering cooperative approaches, the authorization of ITMOs, and the entities generating them. To strengthen the credibility and insurability of authorized credits and to reflect any country specific contexts, countries may consider enhancing the Letters of Authorization. Relevant templates are provided below.

- UNFCCC guidance on *Application of First Transfer* provides more detail on this issue.
- The Multilateral Investment Guarantee Agency (MIGA) *'Letter of Authorization template'* & *World Bank's 'Letter of Authorization and Acknowledgement'* both provide an illustrative template with schedules.

Question 3.6 What infrastructure does a host country need to authorize credits?*

What are the key actions or options host countries may consider?

To participate as a host country under Article 6, countries must provide credible, timely reports on key information. This includes on authorized ITMOs, first transfers, participating cooperative approaches, and corresponding adjustments (see full list in World Bank 2022c).

This requires access to core infrastructure and accounting systems. These include a greenhouse gas (GHG) emissions inventory - to provide a record of physical emissions and removals - and a data management system - to store and track information related to emission reductions/removals, methodologies and tools, stakeholder engagement documentation, monitoring reports, validation and verification reports, among others.

A registry is particularly critical, as it tracks ITMO authorizations and transfers, ensuring authorized credits are excluded from host country NDC accounting. Two different types of registry can be distinguished:

- **Accounting registry** *(sometimes referred to as a register).* This is a relatively simple database that tracks units and key information (e.g., vintage, project details, status). However, an accounting registry (register) does not support the issuance or transfer of ITMOs.
- **Transaction registry.** This has a more complex set of functions including to issue credits, assign serial numbers, cancels/retires units, and support transfers between accounts and to other registries.

Article 6.2 rules require that host countries to have access to an accounting registry (register). Specifically, all countries participating in Article 6.2 are required to be able to:

- account for ITMOs (authorized credits);

- record actions related to ITMOs including authorization, first transfer, transfer, acquisition, use towards NDCs, authorization for use towards other international mitigation purposes and voluntary cancellation;
- track, maintain records and account for ITMOs, using unique identifiers;
- produce, maintain, and compile records, information and data consistently with the information required by the United Nations Framework Convention on Climate Change (UNFCCC).

However, if a host country wishes to take part or facilitate international transactions of authorized credits (ITMOs), then it will need to be able to access a transaction registry that can interact with the registries used by those buying its authorized credits. This places a strong focus on ensuring the interoperability between different registries. The Carbon Markets Infrastructure Working Group - convened by the World Bank and consisting of a series of exchanges, independent standards developers and other entities - has developed a series of recommendations to enhance interoperability and that have important implications for the detailed design and functionality of any registry (World Bank 2024a).

Host countries can consider three main options for accessing a transaction registry:

- **Build a national registry.** This could be developed by working with dedicated software developers. Alternatively, the country could use existing open-source code to develop a national registry. For example, the Digital for Climate (D4C) Working Group provides a common registry offering, including the UNDP National Carbon Registry and the World Bank Core Registry. Namibia and the Royal Kingdom of Bhutan have used open-source code from United Nations Development Programmes (UNDP) and the World Bank, respectively, to develop their registries. Ghana provides another example of a national registry (see Box 3.1). The A6IP survey on Article 6 implementation reports that, of the countries that have indicated a registry preference, the use of a national registry is currently the most popular choice (Institute for Global Environmental Strategies 2024).
- **Make use of the registries of independent standards e.g. Gold Standard, Verra , Global Carbon Council.** In this model, the host country could use its own national accounting registry (register) and then use the independent standards provider's transaction registry. For example, Guyana is making use of the ART TREES registry (Institute for Global Environmental Strategies 2024). This can also include the use of registries that have been developed for government crediting mechanism. For example, Mongolia has decided to make use of Japan's Joint Crediting Mechanism (JCM) registry for the purposes of transferring authorized credits between the two countries (Government of Mongolia and Government of Japan 2022).
- **Make use of the international registry currently being developed by the UNFCCC.** Decisions taken at COP29 confirmed that, as well as the UNFCCC developing an International Registry to track ITMOs i.e. an accounting registry, it will also offer a service to countries that would allow them to issue and trade ITMOs i.e. transaction registry services.

Box 3.1 Ghana's Carbon Registry

Ghana has established a Carbon Markets Office (CMO) that is responsible for the day-to-day activities associated with Ghana's Article 6 engagement. One of its core functions is to operate the Ghana Carbon Registry (GCR) which has been specifically designed to track the authorization, transfer and use of ITMOs under Article 6.2. All activities seeking to create authorized mitigation outcomes must be registered in the GCR. Alternatively, developers can opt to have authorized mitigation outcomes issued in the registries of recognized independent mechanisms, but they must inform the CMO about it within seven days. The CMO will then record the activity in the developer's account within the GCR.

Source: Climate Focus (2024)

What factors might shape decision-making?

Table 3.6 summarizes the pros and cons of different transaction registry options, highlighting their suitability for different host countries. Each option balances national ownership and customization against time, cost, and technical demands. The optimal choice will depend on how strategically the host country plans to engage with Article 6.2.

Table 3.6 Different options for host countries to access registries

Approach to registry access	Pros	Cons	Host country suitability
National registry	↑ Strong national ownership ↑ Customizable to country context e.g. accommodate domestic CPIs ↑ Scalable/ modifiable over time	↓ Highest upfront costs ↓ Requires strong technical/legal capacity ↓ Ongoing security and interoperability responsibilities	Countries planning extensive international market participation, especially those with multiple cooperative approaches or needing to manage domestic CPIs or the sale of other environmental attribute certificates
Third party registries	↑ Limited technical expertise needed ↑ Likely to be inter-operable with other registries ↑ Likely to offer flexibility to purchase different levels of functionality	↓ Provider owns source code ↓ Limited back-end customization ↓ Inter-operability with other registries determined by third party ↓ Ongoing fees may be high ↓ Use tied to provider's methodologies	Countries with limited carbon projects and lack in-house capacity, and wanting registries with established reputations and flexibility to customise the registry's functionality.
International registry (i.e. making use of the (transaction) registry services that will be offered by the UNFCCC)	↑ Lowest cost option ↑ Full technical support ↑ Will be designed to be interoperable with other registries	↓ Need to follow rules, processes and requirements specified by the UNFCCC	Countries with financial/ technical constraints or limited Article 6.2 plans.

How does responding to question 3.6 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Registry requirements for countries participating in Article 6.2 transactions is specified in Decision 6/CMA.4 annex I, para 1. The opportunity for host countries to make use of the registry services offered by the UNFCCC is set out in Decision 4/CMA.6 paragraph 50.

Links and dependencies to other questions in the Guidance

As noted above, countries that are looking to also use credits to support domestic CPI implementation, as discussed in Module 6, will probably need to develop a national registry. The same applies for those countries who are looking to combine the sale of authorized carbon credits with other international sales of environmental attribute certificates, a factor that can shape authorization decisions as discussed in Module 2.

Further resources

The World Bank has developed a general guide on *'Infrastructure to Meet Reporting Requirements under Article 6'* (World Bank 2022c). On behalf of TCAF, *Climate Focus* has developed a detail assessment of the different registry access options for host countries (Climate Focus 2024).

Chapter 6 of GGGI's guide – *'Developing an Article 6 host party institutional framework'* – also explores different registry options (GGGI 2023a) while A6IP Center's *'A6IP Capacity Building Tools: Article 6 Introductory Guide'* also provides an overview of tracking requirements under Article 6.2 guidance and key consideration on registry options (Paris Agreement Article 6 Implementation Partnership Center 2025).

The Government of Singapore, Gold Standard and VERRA are collaborating to develop a protocol that will support countries in using independent crediting mechanisms to facilitate transactions under Article 6.2, which includes consideration of how they registries of these crediting mechanisms can be used. *Initial Recommendations* were published in November 2024 (National Climate Change Secretariat, Gold Standard, and Verra 2024).

Question 3.7 Should the host country consider Overall Mitigation in Global Emissions (OMGE)/Share of Proceeds (SOP) contributions?

What are the key actions or options host countries may consider?

When credits are issued under the PACM (A6.4), the Article 6 Rulebook requires certain financial contributions and actions.
Two of the most important are:

- Share of Proceeds (SOP): 5% of issued credits go to the Adaptation Fund at issuance, to be sold by the Fund Trustee to finance adaptation projects.
- Overall Mitigation in Global Emissions (OMGE): At least 2% of issued credits are cancelled at issuance to contribute to global emission reductions.

These requirements apply to both authorized credits (AERs) and unauthorized credits (MCUs). PACM activities that take place in Least Developed Countries (LDCs) and Small Island Developing States are excluded from the Share of Proceeds for adaptation unless they choose to voluntarily participate.

Similar adjustments are 'strongly encouraged' in relation to transactions associated with A6.2, but not mandatory. Host countries can decide whether to implement them and, if so, what the size of any OMGE[42] and SOP might be. Host countries must report on the OMGE and SOP associated with their A6.2 transactions. Host countries must also apply corresponding adjustments for all authorized credits that are transferred, regardless of whether these credits are used for SOP or OMGE or not.

What factors might shape decision-making?

Applying OMGE and SOP to Article 6.2 transactions would demonstrate host countries' commitment to global mitigation and adaptation. Analysis indicates that applying OMGE universally could significantly reduce global emissions and suggests that, under a given set of assumptions about total market size, a 5% SOP applied to all transactions could generate approximately €2.7 billion (Fearnehough et al. 2021). By committing to making these adjustments, host countries can demonstrate their support for climate action, and contribute to global flows for climate and adaptation finance.

However, host countries will still be required to apply corresponding adjustments for authorized credits subject to OMGE and SOP, potentially without receiving revenues from the sale of these credits. As noted in Module 2, countries confident in meeting their NDCs may be more open to applying these adjustments than those with less certainty.

The buyer's sensitivity to credit pricing plays a major role. These adjustments effectively function as an implicit "tax" as the costs incurred per authorized credit transferred is higher. Host countries could try to pass this cost on to credit buyers by charging higher prices to counteract the increased cost. Success depends on the price sensitivity of buyers:

- In cases where the increase in costs is decisive, **price-sensitive buyers** may shift to countries not applying OMGE/SOP or invest in their own abatement, limiting cost pass-through. Under the CDM, it is estimated that 70% of a similar levy's burden would fall on host countries/project developers in cases where buyers were price sensitive (Fankhauser and Martin 2010) to the economic costs (deadweight loss). In the case of Article 6.2 transactions, the incidence might be even higher, as buyers may then prefer to buy ITMOs from host countries that choose not to make these adjustments.

Table 3.7 illustrates some of the key factors that may influence host-country decision making.

Table 3.7 Pros and cons of applying OMGE and SOP contributions in Article 6.2 transactions

Pros	Cons
↑ Provides a way of host countries demonstrating their commitment to greater ambition in global mitigation and adaptation	↓ Will still need to apply corresponding adjustment for the total number of authorized credits
↑ If buyers are less price sensitive then much of the burden may be passed on to them (and, indeed, some buyers may actively seek host countries applying these adjustments)	↓ If buyers are price sensitive, much of the cost burden associated with these adjustments will be borne by host countries
↑ SOP contribution could be negotiated to support adaptation funding within the host country	

42 In addition, acquiring parties can contribute to an OMGE by cancelling any authorized credits purchases rather than using them towards their NDC or other mitigation targets.

- However, in some cases, the cooperative nature of Article 6.2 means that decisions on authorized transactions will often be driven by additional factors to costs or prices, including diplomatic relations, broader cooperation (e.g., climate clubs), and mutual strategic interests. This could allow host countries to pass on most of the cost of OMGE and/or SOP to the buyer. Indeed, some buyers may actively seek out authorized credits that apply OMGE and SOP. This is perhaps most likely to apply in cases where the buyer is a sovereign government but may also be relevant for other buyers as well. In these cases, there will be a stronger rationale for host countries to apply one or both adjustments. For example, the experience of the World Bank in the iCRAFT transaction discussed in Table 2.1 was that buyers were willing to make a SOP. This has also been the case for all transactions GGGI has supported to date.

Given the voluntary nature of SOP under Article 6.2, these contributions can be directed entirely to the host country. For instance, a buyer may agree to purchase a share of credits without claiming them towards its NDC, require the host country to apply corresponding adjustment to this share, with an agreement between the host and buyer that the associated proceeds would be allocated towards domestic adaptation efforts. This approach is reflected as a possibility in the cooperation agreement between Ghana and Sweden (Republic of Ghana and Kingdom of Sweden 2024). In these cases, host countries will require robust financial management processes to demonstrate the revenues have indeed been spent on adaptation.

How does responding to question 3.7 relate to the obligations or opportunities countries have under Article 6 Guidance?

The obligation to apply an OMGE and SOP for Article 6.4 transactions is first identified in the Annex to Decision 3/CMA.3 (paragraphs 58 and 59).

The 'strong encouragement' to apply OMGE and SOP and the requirement for Parties to report on whether they have been applied is stated in the Annex to Decision 2/CMA.3 (paragraphs 37-40).

Links and dependencies to other questions in the Guidance

The possibility that SOP and OMGE adjustments may not apply to Article 6.2 transactions could be one factor that shape host country preferences between Article 6.2 and Article 6.4 (PACM) as discussed in question 3.2 (in either direction). It could also influence whether host countries wish to use the PACM to generate unauthorized credits (MCUs) as discussed in question 6.2.

The fact that OMGE and SOP contributions will still require the application of corresponding adjustments means that the discussion around authorization in question 2.1 is closely linked to this issue.

The options for host countries to use the revenues received from international carbon market activities, including institutional approaches are discussed in Module 7 (question 7.4). The institutional options discussed here would also apply to any SOP earmarked for use in the host country.

Further resources

Fearnehough et al. (2021) developed an assessment of the impacts of different OMGE and SOP contributions if applied to all Article 6 transactions. This was developed before the rules were finalized but provides a helpful summary as to the scale of potential impacts.

The analysis of the incidence of the similar CDM levy was undertaken by (Fankhauser and Martin 2010) the economic costs (deadweight loss with key results summarized in the *World Bank's 2010 World Development Report*.

Question 3.8 How can host countries calculate the quantity of corresponding adjustments to apply?

What are the key actions or options host countries may consider?

The final question concerns how host countries apply corresponding adjustments for authorized credits. This is particularly complex for host countries with a single-year target (e.g. 2030). In these cases, rules were needed to address the transfer of authorized credits before the target year, where a corresponding adjustment would increase the emissions reported in their inventory in the year of transfer, without affecting whether the country meets its single-year target. To avoid this perverse outcome, Article 6 Rules provide two options for host countries with single-year targets to consider:

- Averaging: apply a corresponding adjustment equal to the average annual ITMO transferred over the implementation period[43];
- Multi-year accounting: Define a multi-year emissions trajectory/budget aligned with the single-year target, and apply annual corresponding adjustments based on actual ITMOs first transferred (according to the 'vintage year' in which the ERR associated with the ITMO was generated).

Host countries must apply the same approach throughout a given NDC implementation period. This challenge does not apply to countries with multi-year NDC targets or those that have defined their NDC as a cumulative emissions budget over the period.

What factors might shape decision-making?

A multi-year approach offers a more credible, lower-risk framework for host countries under Article 6, especially when both host and acquiring countries adopt it. This enhances environmental integrity and long-term sustainability.

However, this approach requires additional analysis and could be seen as undermining the simplicity of a single-year NDC target. Some host countries may be reluctant to define a multi-year emissions trajectory, even indicatively, for fear of reducing economic flexibility.

Averaging is simpler but introduces risks and distortions. Two key concerns arise:

- **High sensitivity to target year performance.** With averaging, NDC achievement depends heavily on performance in the target year. A country may have an NDC implementation period between 2023 and 2030 and first transfer ITMOs in each year from 2023 to 2029 according to ERRs in each of those years, while staying below its 2030 target. However, if its 2030 emissions just meet the NDC, averaging will mean that historic ITMO first transfers will require the host country to apply corresponding adjustments in 2030, potentially leaving the country unable to meet its NDC. Under a multi-year approach, adjustments apply in the year of first transfer (according to the vintage year of the associated ERRs), avoiding this distortion.
- Incentive for higher credit sales or weaker mitigation in the final year. If a host country steadily reduces emissions below its single-year NDC target, averaging could create "headroom" for additional ITMO first transfers in the target year. As shown in Table 3.8, assuming an 8-year NDC implementation period between 2023 and 2030, averaging across years when fewer ITMOs were first transferred (according to their vintage year) results in fewer corresponding adjustments in 2030 (8.1 $MTCO_2$) than actual transfers (30 million ITMOs). This may incentivize host countries to sell more ITMOs or reduce mitigation efforts in the final year while still formally meeting their NDC. Moreover, depending on the accounting approach of the buyer, this could raise global emissions, undermining Article 6 credibility.

43 This can be calculated on a running basis by dividing the cumulative number of ITMOs first transferred during the NDC implementation period, with each ITMO allocated to the year in which the ERR (mitigation outcome was achieved), by the number of years in the NDC implementation period to date

Table 3.8 Implications of averaging when authorized credit sales are increasing over time

	2023	2024	2025	2026	2027	2028	2029	2030
2030 NDC target	N/A							100
Actual emissions ($MTCO_2e$)	120	115	105	100	95	90	80	70
Authorized credits (ITMOs) first transferred by vintage year[44] (millions)	0	0	0	0	5	10	20	30
Average cumulative corresponding adjustment (Cumulative corresponding adjustment/elapsed years)	=0/1 =0	=0/2 =0	=0/3 =0	=0/4 =0	=5/5 =1	=15/6 = 2.5	=35/7 =5	=65/8 **=8.1**
Adjusted emissions balance	120	115	105	100	96	92.5	85	78.1
Emissions in target year using averaging approach to calculate corresponding adjustments, $MtCO_2e$	N/A							78.1

Table 3.9 compares the advantages and disadvantages of averaging versus multi-year accounting for host countries with a single-year NDC target.

Table 3.9 Pros and cons for host countries from differing crediting approaches

Approach to applying CAs for authorized credit transfers	Pros	Cons
Multi-year approach	↑ Most robust — minimizes double-counting and reputational risk ↑ Can provide greater comfort on NDC attainment even if target year emissions rise unexpectedly	↓ Technically complex ↓ May be seen as weakening the original single-year NDC intent
Averaging	↑ Easy to apply ↑ May allows potential for extra carbon revenues if ITMO transfers rise over time	↓ Higher risk of double-counting and reputational damage ↓ Raises risk of NDC non-achievement if target year emissions are higher than expected

44 When ITMOs are first transferred, the year for which a corresponding adjustment must be calculated is the year in which the ERR corresponding to the ITMO was achieved.

How does responding to question 3.8 relate to the obligations or opportunities countries have under Article 6 Guidance?

The different options for applying corresponding adjustments that are available for host countries with a single year NDC target are set out in the Annex to Decision 2/CMA.3 (paragraph 7).

Links and dependencies to other questions in the Guidance

Detailed analysis shows that the risk that averaging will lead to perverse outcomes arises when transfers are increasing over time and the buyer is applying a budgeting approach to calculate how the ITMO purchases reduce their emissions. This constellation of factors may arise in cases where authorized credits are sold to airlines under the CORSIA scheme and so this question may influence decisions on who to sell credits to (question 3.5).

Further resources

This analysis draws heavily on the analysis provided in (Siemons and Schneider 2022).

Further discussion and detailed explanation on how to implement the different approaches to applying corresponding adjustments is available in the *UNFCCC Reference Manual for the Accounting, Reporting and Review of Cooperative Approaches* (UNFCCC 2024b).

World Bank's *'Ensuring Environmental Integrity under Article 6 Mechanisms'* under the Article 6 approach paper series.

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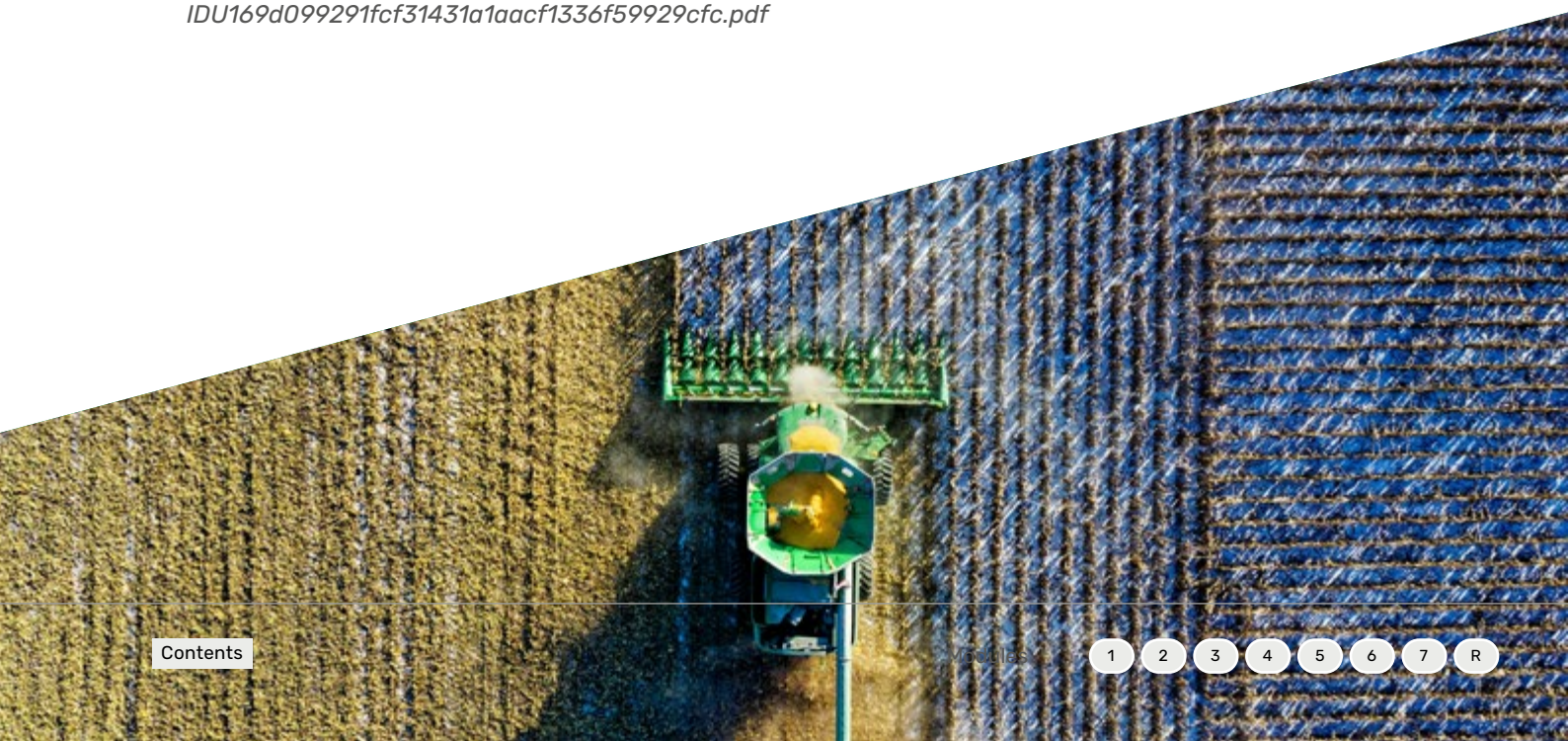
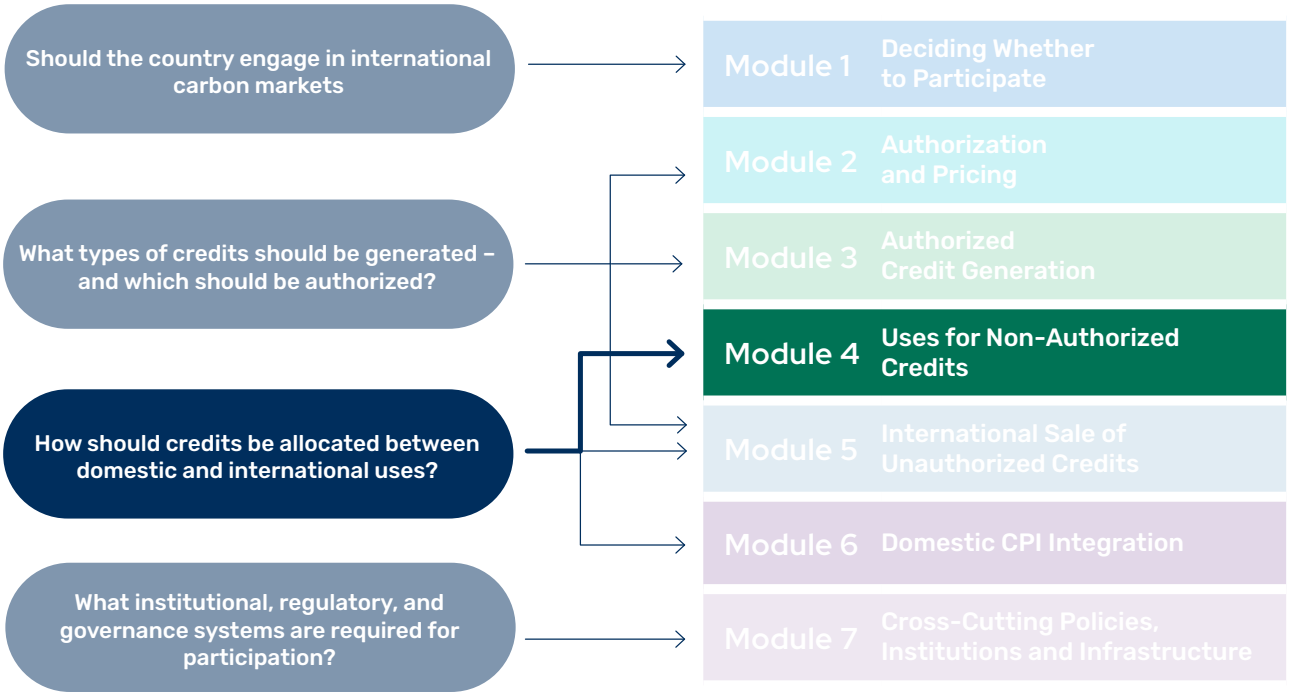


Module 4

How to decide between alternative uses for non-authorized credits?

This Module turns to what host countries might do in relation to credits that they decide not to authorize. It focuses on the strategic question on whether host countries might prefer to see non-authorized credits used domestically or for them to be sold internationally. In cases where the host country government has ownership of the unauthorized credits, it can directly determine this. In cases where unauthorized credits are developed by the private sector, the emphasis could be on using policy and regulatory instruments to incentivize (or discourage) particular uses.



Question 4.1 Might host countries prefer to use non-authorized credits domestically or sell them internationally?*

What are the key actions or options host countries may consider?

If a host country does not authorize a credit, it may still wish to influence who can purchase the credit and for what purpose. There are three main potential options to consider:

- Domestic use: Restrict or encourage credit sales to domestic entities, such as companies covered by a domestic carbon pricing instrument (ETS, carbon tax).

- Results-based climate finance: Sell credits to an international development partner providing climate finance to help the host country itself meet/exceed its NDC. These credits are cancelled and not used towards the partner's own targets. Typically, the partner helps design and finance the credit-generating activity.

- Voluntary buyers: Allow or encourage sales to private sector entities who buy them as part of their climate change strategy. These credits may be used for different purposes. Some private sector entities may use them as offsets to neutralize emissions beyond their established targets, thereby claiming to have met specific, quantified, climate commitments[45]. Others may acquire and cancel credits without making specific counterbalancing claims. However, credits sold with the expectation that they will be used by voluntary credit buyers may pass through multiple intermediaries, which can limit host country visibility over final use.

These options are reflected in the language of the Article 6.4 Rulebook. Under Article 6.4, credits that are not authorized are referred to as Mitigation Contribution Units. The Article 6 Rule Book states that the Article 6.4 mechanism registry shall track[46]:

A6.4ERs not specified as authorized for use towards achievement of NDCs and/or for other international mitigation purposes (mitigation contribution A6.4ERs), 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 Party.

Domestic mitigation pricing schemes and domestic price-based measures are both examples of domestic credit use, while the text explicitly refers to RBCF. The inclusion of the phrase 'inter alia' is recognized as referring to the international voluntary buyers of credits.

The same three strategic options also apply for unauthorized credits generated through mechanisms other than Article 6.4. However, while the same three options apply, the Article 6 Rulebook does not regulate the generation or transaction of unauthorized credits in these cases.

Host countries can also adopt a flexible approach — allowing both domestic and international buyers to compete for credits, leaving the unauthorized credit owner (e.g. project developer or other) to choose. However, this is not an option for selling credits through RBCF, where sales are exclusively to the finance provider due to its public sector role.

What factors might shape decision-making?

Host countries may find it beneficial to consider these options sequentially, as shown in Figure 4.1. The first step is deciding whether to prioritize the use of non-authorized credits for domestic purposes, to sell them internationally, or to remain flexible by leaving the choice open to credit sellers. If the host

45 Entities subject to a domestic carbon pricing mechanism may, in some cases, be permitted to purchase unauthorized international credits to meet their compliance obligations, as allowed by the mechanism's rules. This is akin to voluntary buyers of credits using these credits as offsets. When a domestic compliance system permits the use of unauthorized credits for compliance, careful consideration is needed to assess its role in achieving the country's NDC to avoid any risk of double counting.

46 Annex 1 to Decision 7/CMA.4, paragraph 29

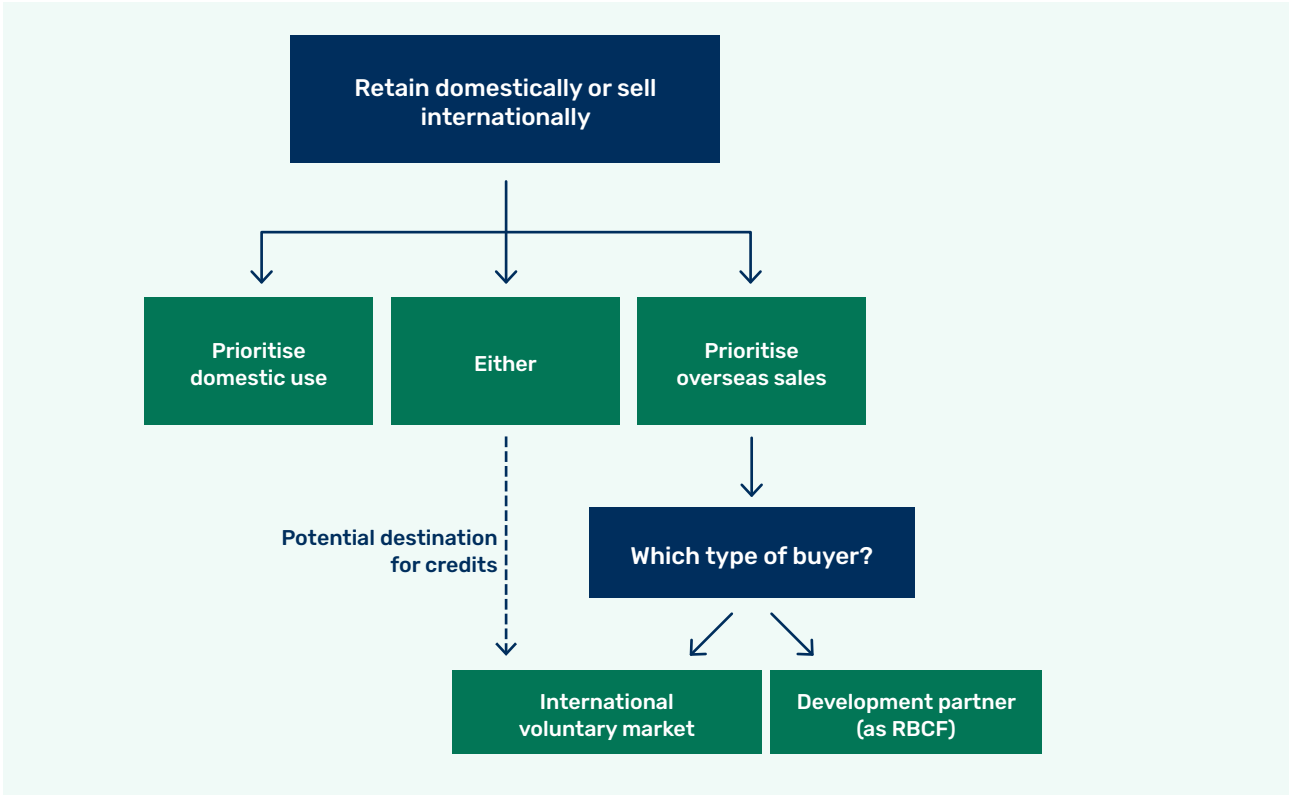
country favors international sales, the next decision is whether to actively seek results-based climate finance (RBCF) or to permit sales to international voluntary buyers.

Selling credits internationally brings clear financial benefits by generating external inflows and supporting domestic economic activity linked to credit generation. Furthermore, if credits sell for more than they cost to produce, this creates economic rents that can be reinvested in further climate action or broader development goals. In contrast, limiting sales to domestic buyers is likely to reduce foreign exchange inflows and external investment.

However, allowing credits to be sold internationally can introduce challenges for domestic carbon pricing instruments (CPIs). Many host countries exploring Article 6 participation are also developing CPIs to achieve their NDCs. CPIs often allow covered entities to use domestic credits for compliance, mitigating potential industrial competitiveness concerns and helping to address any regressive impacts of carbon pricing. However, credits cannot typically be used both internationally and within a domestic carbon pricing instrument (CPI).[47] Therefore, where a CPI exists—or is anticipated—whose effective functioning will require/generate strong domestic demand for credits, allowing some credits to be used domestically may be desirable. Moreover, this approach allows the host country regulator greater flexibility to design crediting rules that are tailored to national circumstances, a flexibility that is more constrained when credits are intended for international sale.

Some host countries adopt a flexible approach, leaving the decision to sell credits domestically or internationally to project developers. This can maximize demand for credits thus encouraging credit generation. However, it may also create policy

Figure 4.1 Different uses and markets for unauthorized credits



47 It may distort the impact of the domestic CPI if only some actors are able to access domestically generated credits that have been sold internationally (and which can therefore be sold at a lower cost), while international credit buyers may find it challenging to demonstrate the additionality of the associated ERRs if credits associated with the same ERRs are also allowed to be used in the domestic CPI.

uncertainty — making it harder for governments to plan for CPI coverage or project future revenues from international sales.

If a country chooses to focus on attracting international interest, it may also decide whether it wishes to prioritize attracting voluntary buyers of credits or working with international development partners to develop RBCF schemes. While many sales of unauthorized credits to voluntary credit buyers will be determined by whoever is responsible for generating the credits[48], host countries can assess whether to invest political and institutional resources in facilitating these transactions. Host countries may also need to decide how to respond to proposals/opportunities from international development partners to provide RBCF in relation to certain ERR activities.

A key consideration is the respective scale of each opportunity – at present, RBCF is more prevalent:

- In 2023, MDBs reported that they provided around $2.5bn of RBCF for mitigation in low- and middle-income countries (European Investment Bank 2024)[49]. Unfortunately, the scale of ERRs associated with this finance is not available.

- In the same year, total voluntary purchases of credits were around $0.7bn, with transaction values at around $6 per credit, implying trades accounting for around 120m tCO_2e (World Bank 2024c). This includes domestic transactions by voluntary credit buyers.

By contrast, the market for voluntary credit purchases likely has greater scale potential, though there is uncertainty about whether this potential will be fully realized. Some projections suggest that the market could reach $12 billion in 2030 and $27 billion in 2035 (AlliedOffsets 2024), although the share of this for unauthorized credits is currently unclear.

A key difference between the two is the level of government involvement. RBCF requires close government coordination with development partners to co-design supported activities. This allows host governments to align RBCF with national mitigation strategies and broader development goals, such as preparing sectors for more ambitious mitigation or targeting adaptation co-benefits. In contrast, sales to voluntary credit buyers may involve limited government oversight, with transactions often negotiated directly between private sector entities. This offers faster access to revenues, encourages innovative projects, and can act as a broader stimulus to private sector development within the host country. However, it may reduce government control over project selection and strategic alignment.

Two further considerations may also shape preferences for these two alternatives:

- Price risk: RBCF typically offers fixed price whereas the allocation of price risk in a carbon market transaction is determined through negotiation between buyer and seller. While fluctuating prices can provide valuable signals and incentives, the fixed price of RBCF can make it easier to mobilize finance for the underlying ERR activity. Credit use visibility: RBCF agreements clearly define credit use (usually cancellation). For voluntary buyers, final credit use may be less transparent, especially if credits are sold through intermediaries. This can pose reputational risks for host countries. To manage this, host countries could endorse / highlight / promote high integrity end use via, for example, support for VCMI Carbon Integrity Claims and Scope 3 guidance (Voluntary Carbon Markets Integrity Initiative 2024b; 2024a).

48 Which in some cases may be the government itself (see question 5.1).

49 In some cases, this RBCF may have been provided without the climate finance provider acquiring and then cancelling carbon credits.

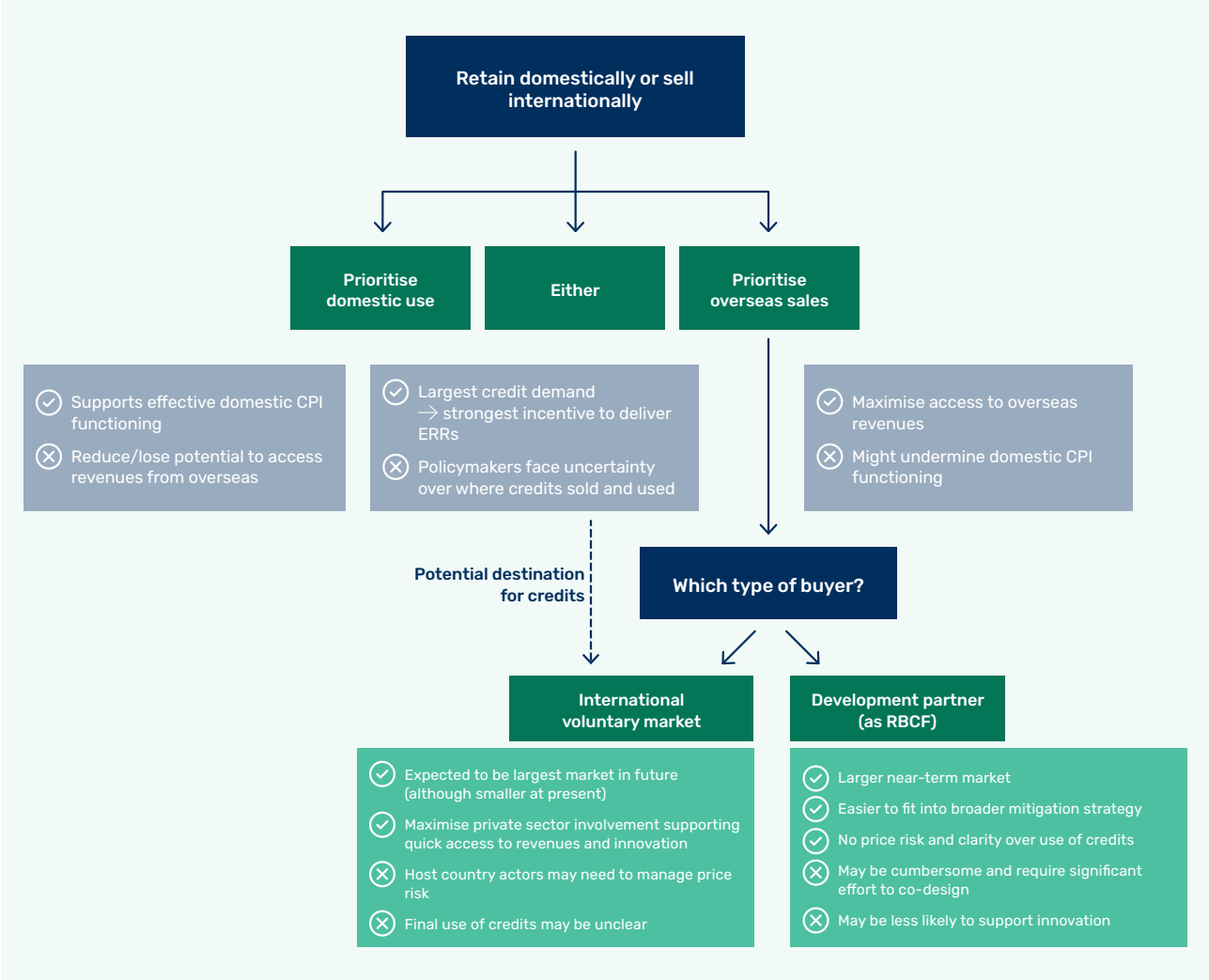
Both cases can be designed to offer host countries the flexibility to convert into authorized credit sales at a later date. For instance, the World Bank's 'Scaling Climate Action by Lowering Emissions' (SCALE) program – an RBCF initiative - includes transactions with opt-out provisions, allowing host countries to authorize and sell credits to carbon market buyers. Similarly, host countries generating unauthorized credits under Article 6.4 can convert MCUs into AERs or unilaterally authorize credits that have previously been developed without anticipation of authorization.

Figure 4.2 takes the same options as presented in Figure 4.1 and maps the discussion of the key advantages and disadvantages for host countries to consider.

Host countries may select different options for non-authorized credits depending on the type of activity generating the ERRs. For example:

- A share of credits may be prioritized for domestic CPIs, helping to reduce compliance costs and ease the introduction of carbon pricing. For this to be effective, it will be necessary for the generation cost of these credits to be lower than the (expected) domestic carbon price, while still ensuring that the credits are perceived as being credible and of high quality. In essence, domestic entities with compliance obligations would choose to buy credits only when their price is lower than the prevailing price of the domestic CPI.

Figure 4.2 Advantages and disadvantages of different uses and markets for unauthorized credits



- International voluntary buyers may suit activities with an existing project development ecosystem, where market transactions have already proven effective — such as land use emission reductions. Historically, this would also have included credits from renewable energy projects but opportunities to sell these credits from these activities, except when developed in LDCs, are increasingly more limited.[50] (see Box 9 in Question 5.2 below). Voluntary buyers are also increasingly interested in credits from nature-based and technological removals, although buyer guidance on these credits remains contested (Coordinator of Indigenous Organizations of the Amazon Basin et al. 2023).

- Meanwhile, RBCF could focus on less proven mitigation opportunities or support innovative crediting methodologies, where fixed pricing and development partner support help manage risk.

How does responding to question 4.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook first introduced the distinction between authorized and unauthorized credits in relation to credits generated through the PACM, and it requires that the PACM registry tracks both authorized (AERs) and unauthorized (MCU) credits generated through the mechanism. This is specified in Annex 1 to Decision 7/CMA.4, paragraph 29. However, beyond this, it does not place any constraints on how host countries use unauthorized credits.

Links and dependencies to other questions in the Guidance

Host countries wishing to prioritize unauthorized credits for domestic purposes, or to restrict sales to certain types of buyers, will need to ensure that they have sufficient visibility and control concerning the activities expecting to generate credits. This has implications for the way in which non-authorized credit generation activities in the country is organised (question 5.1). Likewise, opportunities to sell unauthorized credits to international voluntary market buyers will be shaped by the growing scrutiny attached to the third party standards that are often used for credits sold to these buyers (question 5.2). More generally, if the host country decides that it wishes to sell the unauthorized credits to international voluntary buyers then the discussion throughout Module 5 will be relevant.

Module 6 discusses the introduction of carbon credits into domestic CPI in more detail, including the role of quantitative and qualitative restrictions. These are different ways in which a host country might allocate credits between domestic and international uses.

Further resources

A series of World Bank reports have explored the role of RBCF in more detail. For example:

The Information Note *'Defining Results-Based Climate Finance, Voluntary Carbon Markets and Compliance Carbon Markets'* further clarifies and explains the relationships between these terms.

'Results-based Climate Finance in Practice: Delivering Climate Finance for Low-carbon Development' provides some empirical grounding on different types of RBCF

'Results-based Climate Finance to Support Mitigation Policies in Developing Countries' explores how RBCF can be used to support policy change that delivers emission reductions .

50 Independent standards like Verra and Gold Standard have evolved their policies on utility scale renewable energy projects due to inability of these projects to meet the additionality criterion, particularly in regions outside LDCs where renewable energy is already economically viable.

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2. **Coordinator of Indigenous Organizations of the Amazon Basin, Conservation International, Environmental Defense Fund, Amazon Environmental Research Institute, The Nature Conservancy, Wildlife Conservation Society, World Resources Institute, WWF, and Bezos Earth Fund. 2023.** 'Tropical Forest Credit Integrity Guide'. *https://tfciguide.org/#press*.

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5. **UNFCCC. 2024d.** 'Draft Tool: Article 6.4 Sustainable Development Tool. Version 09.0'. *https://unfccc.int/sites/default/files/resource/A64-SBM014-AA-A07.pdf*.

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7. **UNFCCC. 2024g.** 'Standard: Article 6.4 Validation and Verification Standard for Projects'. *https://unfccc.int/sites/default/files/resource/A6.4-STAN-AC-003.pdf*.

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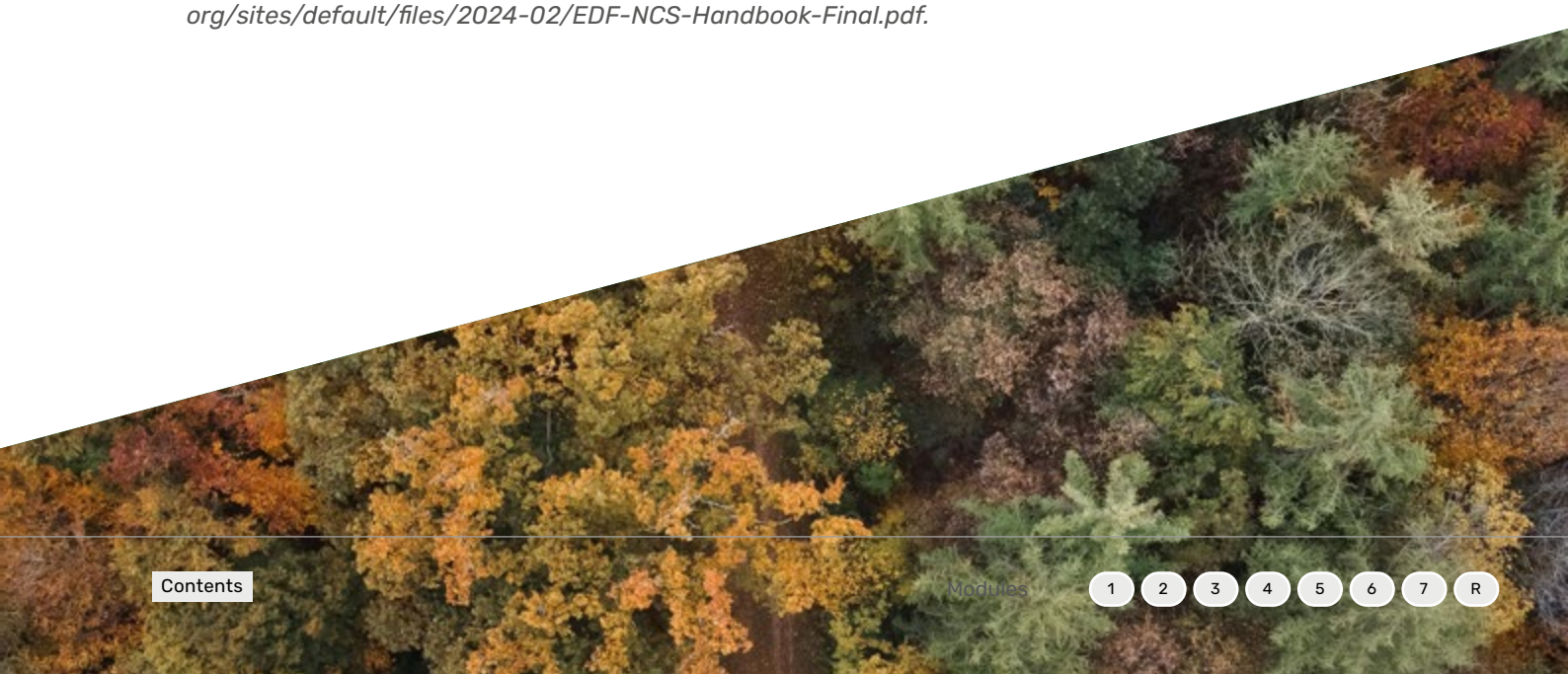
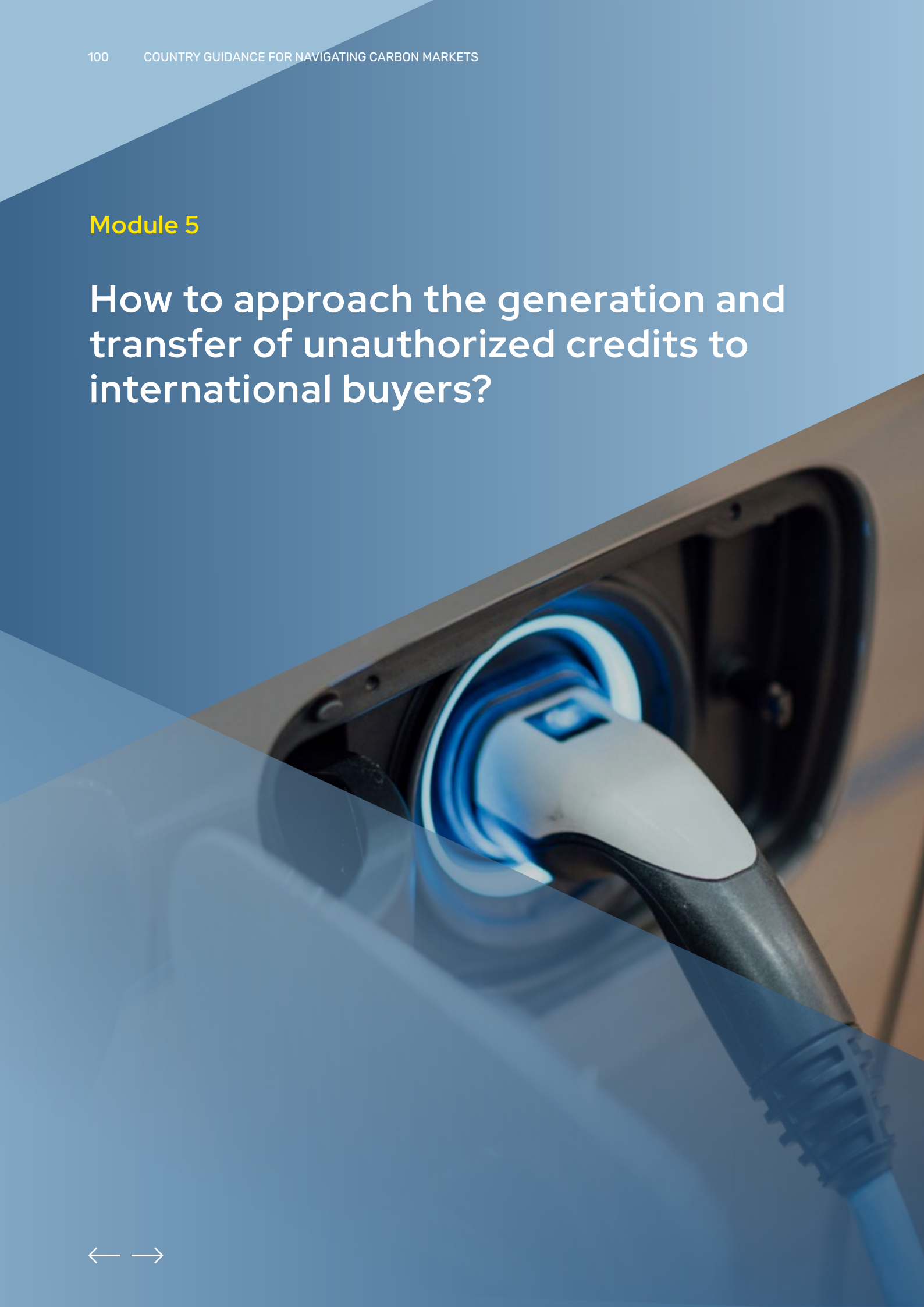
9. **Voluntary Carbon Markets Integrity Initiative. 2024b.** 'Claims Code of Practice Version 2.1'. *https://vcmintegrity.org/vcmi-claims-code-of-practice/*.

10. **Ward, John, Christine Gerbode, Britta Johnston, and Suzi Kerr. 2024.** 'Advancing Effective and Equitable Crediting: Natural Climate Solutions Crediting Handbook'. Environmental Defense Fund. *https://www.edf.org/sites/default/files/2024-02/EDF-NCS-Handbook-Final.pdf.*



Module 5

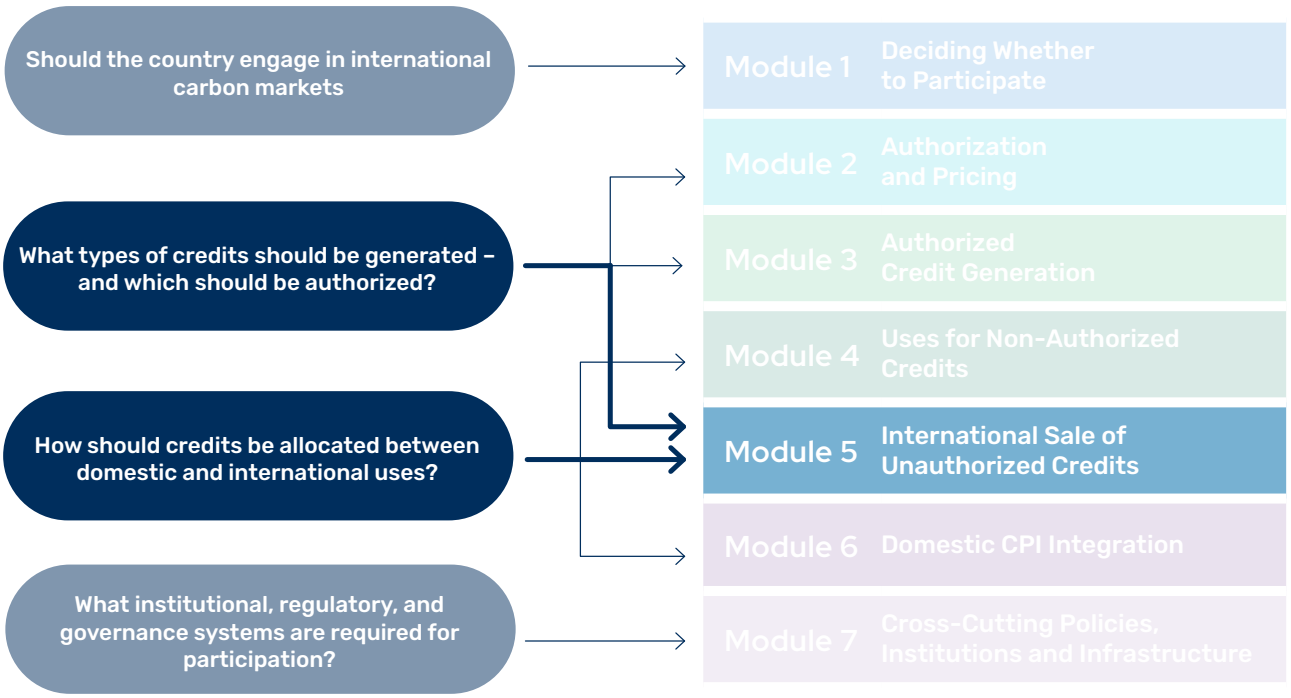
How to approach the generation and transfer of unauthorized credits to international buyers?



This Module focuses on how host countries can operationalize – or support private sector actors to operationalize – the transfer of unauthorized credits internationally. Specifically, this module addresses:

- **Question 5.1:** What role might the government play in generating and owning unauthorized credits?
- **Question 5.2:** Might a host country make use of the PACM to generate unauthorized credits?
- **Question 5.3:** What crediting approaches can be used for generating and issuing unauthorized credits?
- **Question 5.4:** Might a country adopt their own crediting mechanism and methodologies to generate unauthorized credits or rely on those provided by others?
- **Question 5.5:** How might a host country avoid any reputational risks from selling unauthorized credits internationally?

For issues that overlap with the operationalization of authorized credit sales, this module refers to the relevant discussion in Module 3.



Question 5.1 What role might the government play in generating and owning unauthorized credits?

What are the key actions or options host countries may consider?

The three organizational models for generating authorized credits (discussed in Module 3) also apply to unauthorized credits:

- **Government-led:** The government organizes activities and owns the resulting credits. For example, Guyana generated and sold credits from reduced deforestation to a voluntary buyer (Hess Corporation 2022).
- **Private sector-led (with approval):** The private sector and/or other actors lead the organization of the credit-generating activities but are required to obtain government approval to undertake these activities. This is the model that will apply when the host country decides to generate unauthorized credits (MCUs) under Article 6.4 / PACM.
- **Market-led:** The private sector organizes activities without needing prior government approval, a model historically common when selling to international voluntary buyers.

What factors might shape decision-making?

Some of the pros and cons discussed in relation to the organization of activities generating authorized credits apply. A government-led model is often necessary for policy or sectoral/jurisdictional crediting and may make it easier to channel rents from sales into development objectives. However, private-sector-led/market-led approaches can leverage expertise and support innovation, place little or no demand on limited fiscal resources, and, through competition between different activity proponents, can help make credits more attractive to buyers.

The market-led model is generally more feasible and attractive for unauthorized credits than for authorized ones. As credits are not generated with the expectation that they will be converted into ITMOs, host countries need not be concerned about the impact on NDC attainment; similarly, because subsequent credit authorization is not contemplated, private sector developers involved in credit-generating activities will not be discouraged by uncertainty about whether such an authorization will be granted. As a result, the market-led model may be more attractive, especially since this may be the model that makes the host country most attractive to international project developers seeking to implement carbon credit-generating activities.

That said, the market-led model comes with risks. Governments may lose visibility over carbon market activities, making it harder to monitor for poor implementation or negative impacts on local communities, although this can be at least partly managed through the introduction of reporting obligations. It may be more also difficult to implement if a host country wishes to differentiate between activities that lead to the sale of credits internationally and those that lead to the sale of credits domestically.

How does responding to question 5.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook does not place any constraints or obligations on host countries.

Links and dependencies to other questions in the Guidance

The key dependencies to other elements of the Guidance are:

if the host country only wants to allow certain activities to generate credits that will be sold internationally, discussed as an option in question 4.1, then the market-led model may be difficult to implement;

the use of the PACM to generate unauthorized credits (question 5.2 below) requires that host countries consent to the activities that will generate credits i.e. it is inconsistent with the market-led model;

the implementation of policy-based and sectoral/jurisdictional crediting (question 5.3) for generating unauthorized credits will likely require the government-led model.

Question 5.2 Might a host country make use of the PACM to generate unauthorized credits?*

What are the key actions or options host countries may consider?

Many host countries already have experience hosting activities that generate unauthorized credits purchased by voluntary buyers or international partners providing RBCF. These transactions typically use crediting mechanisms provided by independent standards such as Verified Carbon Standard, Gold Standard, American Carbon Registry, or Climate Action Reserve. RBCF payments could either use one of these (or similar) standards, or use protocols mutually agreed upon by the host country and the development partner.

Host countries – possibly in conjunction with the expected credit buyer - now also have the option to encourage or require[51] the generation of unauthorized credits using the PACM. The process mirrors that for authorized credits, except that the host country does not provide authorization, meaning no corresponding adjustment is required. These unauthorized PACM credits are known as Mitigation Contribution Units (MCUs).

What factors might shape decision-making?

Table 5.1 below highlights some of the key considerations that a host country might consider when deciding how it wishes to generate unauthorized credits. This has some similarity to Table 7 in relation to Module 3 (question 3.2), although the focus on unauthorized credits leads to some differences.

The key trade-off for host countries is whether the expected price premium from using the PACM—driven by its reputation for higher-quality credits—outweighs its disadvantages. Some independent standards have faced criticism for producing lower-quality credits with limited additionality, which has weakened prices in the voluntary market (World Bank 2024c). While initiatives like the Core Carbon Principles can improve minimum benchmarks for credit quality in the independent carbon crediting space (see Box 5.1), credits issued under PACM methodologies may still be considered as higher quality and command better prices. Depending on who is responsible for credit generation and/or the fiscal regime, these higher prices could make more mitigation activity viable or generate larger rents for reinvestment elsewhere in the economy. Further, in some cases, buyers may be attracted by the automatic application of OMGE and SOP contributions required under the

51 For example, the host country could not provide consent to activities that will generate credits other than through the PACM (subject to the approach taken on question 5.1) or it could provide incentives and guidance to encourage project developers and others to make use of the PACM.

Table 5.1 Comparing the use of Article 6.4 (PACM) and independent market mechanisms for generating unauthorized credits

Mechanisms for generating unauthorized credits	Pros	Cons
PACM i.e generating MCUs	↑ May be perceived as leading to higher quality credits, and also deliver sustainable development benefits, attracting higher prices (see Table 3.3 in Module 3 for more details) ↑ May be easier to attract international investors if methodologies become globally recognized ↑ Some buyers may favour the automatic application of OMGE and SOP ↑ Establishing the processes for engaging in PACM will build capacity and could encourage a more strategic approach to carbon market engagement	↓ Restricted to methodologies approved by the Supervisory Body (although requests to approve methodologies can be made) ↓ Speed at which the PACM develops remains unclear ↓ The obligatory application of OMGE & SOP contributions will likely reduce revenues (these are not required for LDCs/SIDS) ↓ Requires host country to have set up institutions for engaging in Article 6, which could be time consuming
Use of independent standards	↑ Market familiarity allows quick credits generation ↑ Wide range of methodologies available – at different scales – offering significant flexibility ↑ Not necessary to make OMGE & SOP contributions	Potentially varying methodological requirements for the same type of projects

PACM. In addition, the decisions taken at COP29 have confirmed that MCUs can be subsequently converted into authorized credits; this additional flexibility further increases their appeal. However, these benefits must be weighed against some drawbacks: the methodologies immediately available under Article 6.4 may not fit well with the activities host countries wish to use to generate credits; the speed of decision-making within the PACM remains uncertain; and the required application of OMGE and SOPs that applies to MCUs generated through the PACM, in the same way that is required authorized credits, may reduce the revenues received by those responsible for credit generation, all else being equal (see question 3.7).

Box 5.1 The role of the CCPs in Enhancing the Credibility of Independent Mechanisms

The Core Carbon Principles (CCPs), developed by the Integrity Council for the Voluntary Carbon Market (ICVCM), aim to establish a minimum global benchmark for high-integrity carbon credits. These principles are looking to enhance transparency, environmental integrity, and market confidence by ensuring that carbon credits deliver real, additional, and verifiable emissions reductions or removals.

The CCPs consist of ten fundamental principles across three key areas: governance, emissions impact, and sustainable development. They require carbon crediting mechanisms/programs to demonstrate robust governance frameworks, transparent methodologies, and adherence to international best practices. Activities must produce measurable climate benefits, avoid double counting, and ensure the permanence of emissions reductions. Additionally, the Principles emphasize contributions to sustainable development, requiring safeguards to protect local communities and biodiversity.

To operationalize the Core Carbon Principles, the ICVCM has developed an Assessment Framework that sets clear eligibility criteria for crediting mechanisms/programs and methodologies. The framework establishes a process for evaluating whether carbon credit programs align with CCP standards. It includes requirements on:

- Carbon credit governance (ensuring transparency, accountability, and effective oversight).
- Robust quantification of emissions reductions and removals (requiring scientific credibility and conservative baselines).
- Sustainability and social safeguards (ensuring equitable benefit-sharing and community engagement).

This multi-step assessment process aims to support the identification of mechanisms and methodologies that will lead to high-quality carbon credits. Independent carbon crediting programs that are deemed eligible can label credits issues under eligible methodologies as CCP-approved.

The CCPs and the Assessment Framework can be used by any crediting mechanism as a reference for generating high-integrity carbon credits regardless of their use case, including to help demonstrate compliance with the environmental integrity criteria in Article 6.2.

How does responding to question 5.2 relate to the obligations or opportunities countries have under Article 6 Guidance?

Host countries that choose to make use of the PACM to generate unauthorized credits will need to comply with the rules, procedures and reporting requirements associated with its use. However, the Rulebook does not establish any obligation on host countries to use this mechanism.

Links and dependencies to other questions in the Guidance

This question links to question 5.1. If a host country explicitly wishes to encourage the use of PACM then it will be easier to do this if it requires those undertaking carbon market activity in a country to acquire consent for those activities before they commence.

A host country that decides to make extensive use of the PACM for generating unauthorize credits is more likely to also use the same mechanism to generate authorized credits (question 3.2).

Question 5.3 What crediting approaches can be used for generating and issuing unauthorized credits?

The considerations that apply for Question 3.3 in Module 3 also apply for this question.

Question 5.4 Might countries adopt their own crediting mechanisms or rely on those provided by others?

The considerations that apply for Question 3.4 in Module 3 also apply for this question.

Question 5.5 How might a host country reduce any reputational risks from selling unauthorized credits internationally?

What are the key actions or options host countries may consider?

In recent years, some elements of the international carbon market, especially as it relates to claims made by voluntary buyers of carbon credits, have come under criticism. One of the main concerns has been that a considerable proportion of credits from some types of activities may not necessarily represent additional tons of (permanent) emission reductions and removals. If these credits are then used for compensation, i.e. treated as equivalent to the buyer reducing its own emissions, there is a possibility, depending on the context, that global emissions will increase compared to a situation where the use of credits is not allowed. There have also been other controversies involving certain carbon market activities that have proceeded in ways that are detrimental to, or ignore the concerns of, local communities where credit-generating activities take place.

Much of the reputational damage from transacting low-quality carbon credits resides with buyers; accordingly, a number of these issues are being addressed by them. For example:

- As discussed in relation to question 5.4, the ICVCM's Core Carbon Principles are helping to identify the carbon-crediting mechanisms and methodologies that generate high-integrity credits. It is likely that credit buyers will increasingly prefer purchasing credits that have received a CCP label. Credit buyers are also likely to increasingly reference the principles for baseline setting that have been adopted under the PACM.
- The Voluntary Carbon Markets Integrity Initiative (VCMI) has developed a 'Claims Code of Practice' to enhance the credibility of claims that credit buyers make.

As well as having a direct interest in ensuring that credit-generating activities do not harm local communities, host countries may also suffer reputational damage if they become known as sources of poor-quality credits. This could undermine their ability to attract future investment and engage effectively in the carbon market over time.

To mitigate these risks, there are several options that host countries can consider:

- Host countries could consider requiring that relevant carbon crediting activities in their country to develop benefit-sharing plans and/or comply with key safeguards on environmental and social impacts. For example, the Mexican state of Yucatan has developed a best practice guide that sets out its expectations for all actors as they develop credit generating projects in the state (that would likely result in the generation of unauthorized credits), including the principles that it expects project developers to follow, the relevant legal and regulatory frameworks that projects need to work within, requirements around benefit sharing and how these interact with credit purchase contracts and prices (Inclan et al. 2024). These issues are discussed further in Module 7.
- Host countries could require that only credit-generating activities associated with carbon crediting programs and methodologies that are, for example, approved by the ICVCM as CCP-eligible and/or through the PACM, are used within the country, as discussed in question 5.2 above.
- Host countries could seek to limit credit sales to buyers they trust will make claims that are responsible and aligned with national priorities (although this may be difficult to implement in cases other than where the government itself seeks to sell the credits). Alternatively, or in

addition, host countries could endorse, highlight, or promote high integrity end use via, for example, support for VCMI Carbon Integrity Claims and Scope 3 guidance (Voluntary Carbon Markets Integrity Initiative 2024b).

What factors might shape decision-making?

The decision to implement any of these options involves a fundamental trade-off: their effectiveness in mitigating reputational and direct risks must be weighed against the potential short-term decline in carbon market activity, revenues, and financing. For some options - compliance with key safeguards - the benefits of implementing these measures are likely to significantly outweigh the costs/risks and for other measures, the balance is more nuanced. Host countries may need to assess factors such as their long-term carbon market strategy, the price premiums available for higher-quality credits, and their current attractiveness to buyers and developers, which affects their bargaining power.

How does responding to question 5.5 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook does not place any constraints or obligations on host countries.

Links and dependencies to other questions in the Guidance

Many of these options will be difficult to implement unless the host country government retains some degree of visibility and has the position to approve those activities that are expected to generate (unauthorized) credits (question 5.1).

Many of the options for reducing reputational risks are discussed in more detail in Module 7 (question 7.3) on ensuring that carbon markets generate high social value.

Further resources

The *'Best Practices Guide for Developing Carbon Market projects in Yucatan'* provides a compelling example of how host country governments can seek to harness the opportunities provided by purchases of unauthorized credits by voluntary credit buyers, while mitigating key risks.

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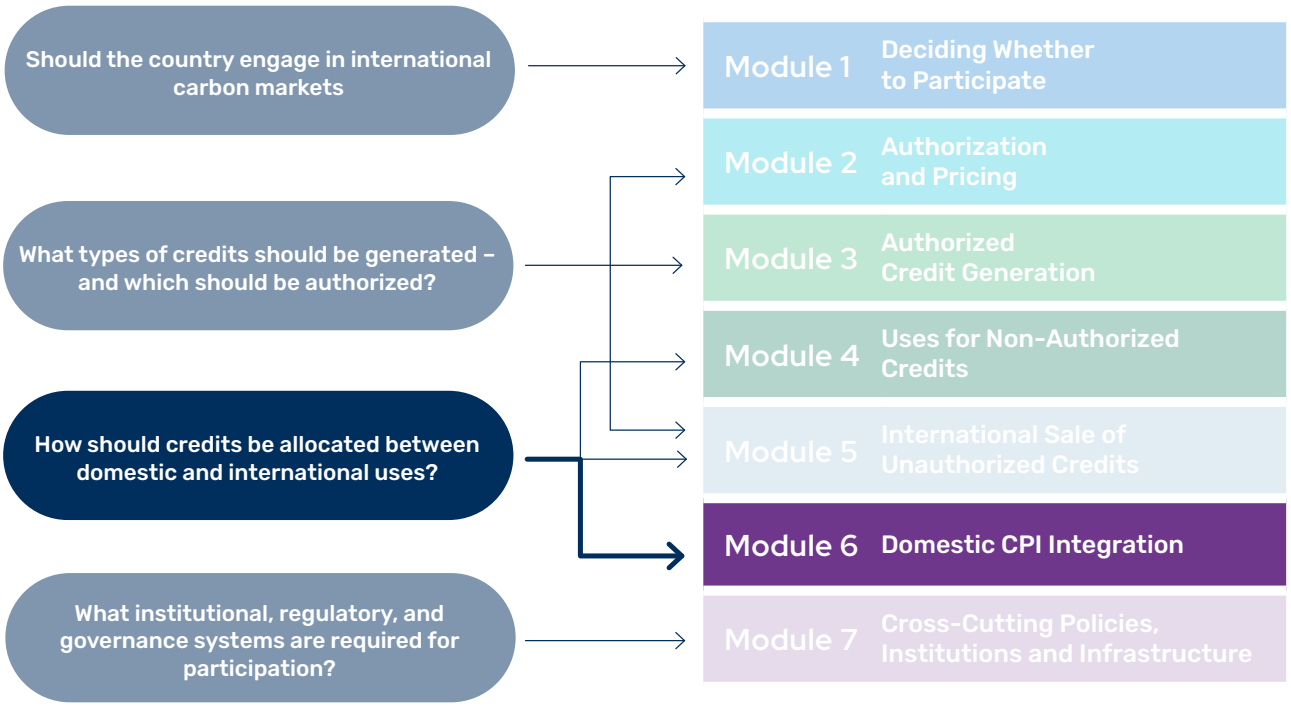
Module 6

How to incorporate domestically generated credits into domestic carbon pricing instrument design?

This module focuses on some of the key issues that arise if a country wishes to make use of unauthorized credits, at least from some sectors or activities, for domestic purposes. As discussed in Module 4, this approach can help introduce or enhance a domestic carbon pricing instrument (CPI). The module assumes that host countries have already determined which activities will generate domestic credits and which will be used for international sales (possibly drawing on the discussion in Module 4).

In this context, there are three key questions that host country policy makers may wish to consider (two of which are considered in depth):

- **Question 6.1:** might a host country make use of its own crediting mechanisms or rely on existing international crediting mechanisms for generating domestic credits for domestic use?
- **Question 6.2:** if the host country does make use of international crediting mechanisms, should it make use of PACM or those provided by independent mechanisms?
- **Question 6.3:** what quantitative or qualitative limits might a host country wish to place on the domestic credit use?



If a host country decides to operate its own crediting mechanisms, there are several more detailed questions and design issues that it would need to address. These include, for example, the length of crediting periods; the processes for developing, adopting, reviewing, and revising methodologies; the role of auditors; and broader governance issues. More detailed resources, as indicated at the end of each question, may assist in addressing these issues. Some of these are also addressed in Module 7.

While this Module focuses on how countries can generate domestic demand for domestically generated credits through a CPI, there are also options for countries to stimulate domestic demand through encouraging the voluntary purchase of credits by entities within their jurisdiction. Box 6.1 discusses some of the policy tools that countries can consider.

Box 6.1 Options for stimulating demand for unauthorized credits

While many countries will prioritize participation in international markets for the sale of domestically generated carbon credits, there may also be strategic value in fostering domestic demand for the voluntary purchase of unauthorized credits. This approach can serve as a mechanism to support the financing and implementation of a country's Nationally Determined Contribution (NDC). This strategy depends on the presence of a sufficiently large and engaged corporate sector with latent interest in carbon credit use. In these cases, some of the key tools countries can use include:

- Publicly signaling political support for the high-integrity voluntary use of carbon credits and endorsing the use of credible claims, such as those aligned with the Voluntary Carbon Markets Integrity Initiative (VCMI) Codes of Practice;
- Promoting credible corporate environmental claims by encouraging adherence to consumer protection regulations that ensure transparency and accountability;
- Supporting corporate climate action by advancing greenhouse gas (GHG) emissions reporting, the formulation of transition plans, and the adoption of climate-related financial disclosures

In addition, complementary actions outlined in other sections of this Guidance—such as establishing domestic carbon pricing mechanisms (as discussed in the remainder of this Module) and promoting the financial integrity of carbon markets (see question 7.2 in Module 7)—can play a critical role.

Source: Voluntary Carbon Markets Integrity Initiative 2024b; International Financial Reporting Standards 2023

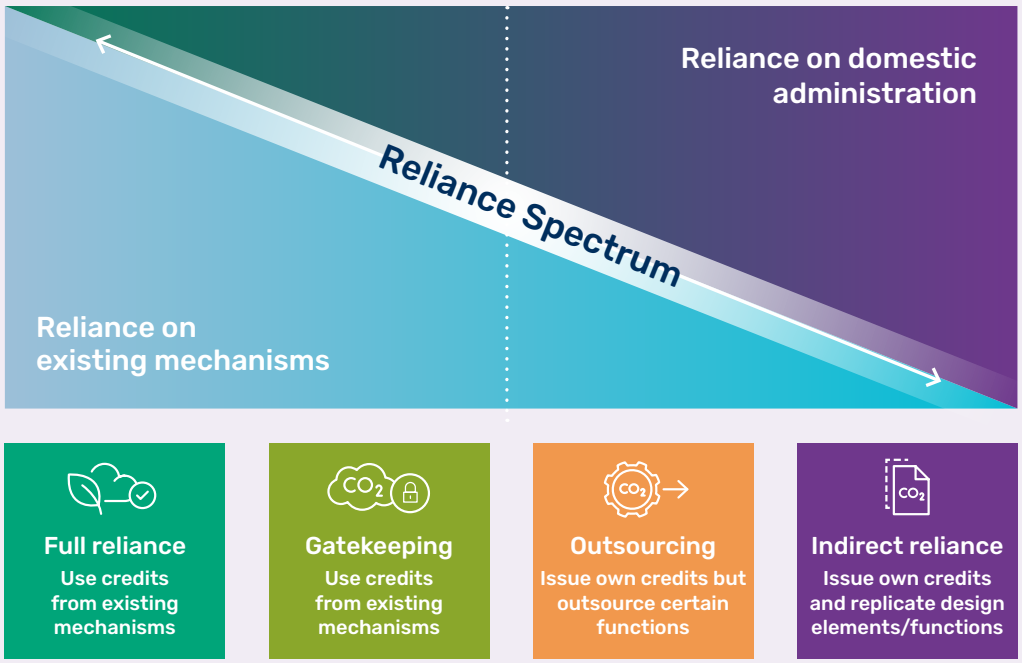
Question 6.1 Might a host country make use of its own crediting mechanisms or rely on existing international crediting mechanisms?

What are the key actions or options host countries may consider?

Figure 6.1, drawn from previous World Bank work (World Bank 2021a), outlines four main approaches for integrating international crediting mechanisms that generate domestic credits into a domestic carbon pricing instrument (CPI):

- Full reliance: all credits issued by an international mechanism are eligible for domestic CPI use.
- Gatekeeping: where credits issued by an international crediting mechanism are eligible for use, but further restrictions are added before the credits can be used. This might be that the credit must come from a certain sector – the model that

Figure 6.1 Different options for using international crediting mechanisms within a domestic CPI



Source: World Bank 2021a

South Africa applies in its domestic carbon tax – or it could, in principle, be that additional quality/integrity requirements are added on top. For example, credit use within the Singapore's carbon tax is based on the Memoranda of Understanding that the Government of Singapore has signed with various independent crediting mechanisms alongside a more specific Eligibility List outlining.

- Outsourcing: the country manages its own crediting system but incorporates principles, standards, or methodologies from international mechanisms. The Republic of Korea, for example, operates its own scheme while allowing projects to be developed using CDM methodologies.

- Indirect reliance, where a country manages its own mechanism, issues its own credits but replicates/learns from the experiences from the experience of international mechanisms e.g. adapting methodologies, replicating project cycle definitions etc.

What factors might shape decision-making?

Table 6.1 categorizes the four crediting options into two higher-level categories based on whether the host country issues its own credits or relies on international mechanisms, highlighting the key trade-off: cost, speed and the greater likelihood of avoiding credit integrity risks that can attract the international private sector versus the ability to tailor the system to national policy priorities. This mirrors the trade-offs involved in selecting mechanisms for authorized (question 3.3) and unauthorized (question 5.3) foreign sales. However, for domestic crediting, the ability to customize the system is particularly valuable, as it directly influences the effectiveness and impact of the domestic carbon pricing instrument (CPI). However, this may only be an option for larger countries that are well positioned to cover the administrative investment that will need to be incurred.

Table 6.1 Advantages and disadvantages of relying on international crediting mechanisms within a domestic CPI

Extent of reliance on international crediting mechanisms	Pros	Cons
High (full reliance or gatekeeping)	↑ Faster credit generation, supporting CPI ↑ Lower administrative cost ↑ Likely greater appeal to the international private sector due to familiarity and confidence in market integrity	↓ Limited ability to tailor crediting to domestic priorities ↓ Restricted long term capacity development
Low (outsourcing or indirect reliance)	↑ Greater flexibility to align with domestic policy goals: for example, host countries can adopt methodology that reflect the preferred scale of crediting ↑ Strengthens domestic capacities	↓ Higher time and cost investment ↓ May be less attractive to international private sector if credit integrity is perceived to be a risk

Host country approaches may evolve over time. Countries may start by using international mechanisms before transitioning to a domestically managed system if international frameworks fail to align with national priorities. For example, China's experience with the CDM (though not for domestic crediting) illustrates this approach, as it played a key role in shaping the country's own domestic crediting system.

How does responding to question 6.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook does not place any constraints or obligations on host countries.

Links and dependencies to other questions in the Guidance

The key dependencies with other elements of the Guidance are:

If a host country decides to develop its own domestic crediting mechanism, then it will be more feasible to use this mechanism in relation to authorized (Module 3- question 3.3)[52] and non-authorized (Module 5- question 5.3) international credit sales.

A host country can adopt a 'gatekeeping' approach to the use of international crediting mechanisms only after deciding whether to impose qualitative restrictions on the types of credits allowed for domestic use. This issue is explored in question 6.3 below.

Further resources

Previous World Bank resources discuss these issues in considerable depth including:

The World Bank's

'Guide to Developing Domestic Carbon Crediting Mechanisms' ; and

The PMR's note exploring *'Options to Use Existing International Offset Programs in a Domestic Context'*

GGGI's guide on *'Using Article 6 with carbon pricing instruments'* also looks at this question.

52 So long as the integrity requirements associated with Article 6.2 transactions are satisfied as discussed in question 3.3.

Question 6.2 If the host country recognizes international crediting mechanisms in its CPI, should it make use of the PACM or independent crediting mechanisms?

The considerations that apply for Question 5.2 in Module 5 also apply for this question.

Question 6.3 What quantitative or qualitative limits might a host country wish to place on the use on domestic credit use?

What are the key actions or options host countries may consider?

A key consideration for host countries using unauthorized domestically generated credits within their carbon pricing instrument (CPI) is whether to impose restrictions on their use. These restrictions can take two main forms:

- Qualitative restrictions: which limit the types of credits eligible for use in the CPI to those from specific activities or sectors.[53]
- Quantitative restrictions: which cap the number or percentage of credits that covered entities can use for compliance.

What factors might shape decision-making?

Table 6.2 outlines the factors influencing whether to impose restrictions on the use of domestically generated credits within a carbon pricing instrument (CPI). It examines the impacts on credit-generating activities and the functioning of the CPI (carbon tax / ETS), distinguishing between quantitative and qualitative restrictions where relevant.

Allowing unrestricted use of credits maximizes the perceived benefits of incorporating credits into the CPI. The main advantage is cost reduction for regulated entities, which may be critical for political acceptance when launching a CPI. Additionally, unrestricted credit use supports higher demand thus prices for credits, strengthening incentives for credit-generating activities. The upper limit on credit prices would be set by the CPI's prevailing carbon price.

However, many countries—including the Republic of Korea, where offsets can only cover up to 10% of compliance obligations—have implemented quantitative restrictions within their CPI. Restricting credit use ensures stronger incentives for direct emission reductions by regulated entities, helping the CPI to drive long-term decarbonization and investment in low-carbon technologies. A host government could also choose to limit the demand for credits from its CPI as part of a policy package to attract foreign buyers.

Qualitative restrictions can also address concerns about credit quality, especially if some sectors or activities lack robust verification. If low-quality credits (i.e., those not reflected in the national emissions inventory) are allowed within the CPI, they could undermine the host country's ability to meet its NDC.

53 For a domestic carbon pricing instrument (CPI) to function effectively, eligible credits must come from sectors not already covered by the CPI. This prevents double counting and ensures the environmental integrity of the system. Any qualitative restrictions imposed would apply in addition to this fundamental requirement, further refining which credits can be used within the CPI. When qualitative restrictions are applied to credits from international crediting mechanisms, this is a form of gatekeeping (question 6.1).

Table 6.2 Advantages and disadvantages of introducing restrictions on credit use within a CPI

Perspective	Reasons for not introducing restrictions	Reasons for introducing restrictions
Impact on CPI functioning	Maximises the benefits of allowing credit use within CPI i.e. cost containment for covered entities, which may be crucial for CPI legitimacy	Maintains incentives for covered entities to reduce their own emissions, supporting long-term low-carbon development (applies particularly to **quantitative** restrictions). Ensures that local co-benefits (e.g. improved air quality) from covered entities reducing their emissions are realized (applies particularly to **quantitative** restrictions). Addresses residual concerns about credit quality that could undermine CPI integrity (applies particularly to **qualitative** restrictions).
Impact on credit generating activities	Maximises domestic demand for credits, strengthening price incentives for credit generation.	Increases the likelihood of securing international support for credit generating activities (applies to both **quantitative** and **qualitative** restrictions).

How does responding to question 6.3 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook does not place any constraints on host countries in this regard.

Links and dependencies to other questions in the Guidance

Whether or not to place restrictions on the extent of demand for credits from domestic CPI entities is linked to – and one way to implement – decisions around using unauthorized credits domestically or selling them internationally (Module 4- question 4.1).

A 'gatekeeping' approach to using international crediting mechanisms (question 6.1) would be one way to implement qualitative restrictions on the use of credits within a domestic CPI.

Further resources

Chapter 7 of the World Bank/International Carbon Action Partnership ETS Handbook discusses quantitative and qualitative restrictions within ETSs in more detail. This discussion would apply equally to the use of domestically generated credits within a carbon tax.

References for Module 6

1. **International Financial Reporting Standards. 2023.** 'IFRS S2 Climate-Related Disclosures'. 2023. *https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures/#about.*

2. **Voluntary Carbon Markets Integrity Initiative 2024b.** 'Claims Code of Practice Version 2.1'. *https://vcmintegrity.org/vcmi-claims-code-of-practice/*.

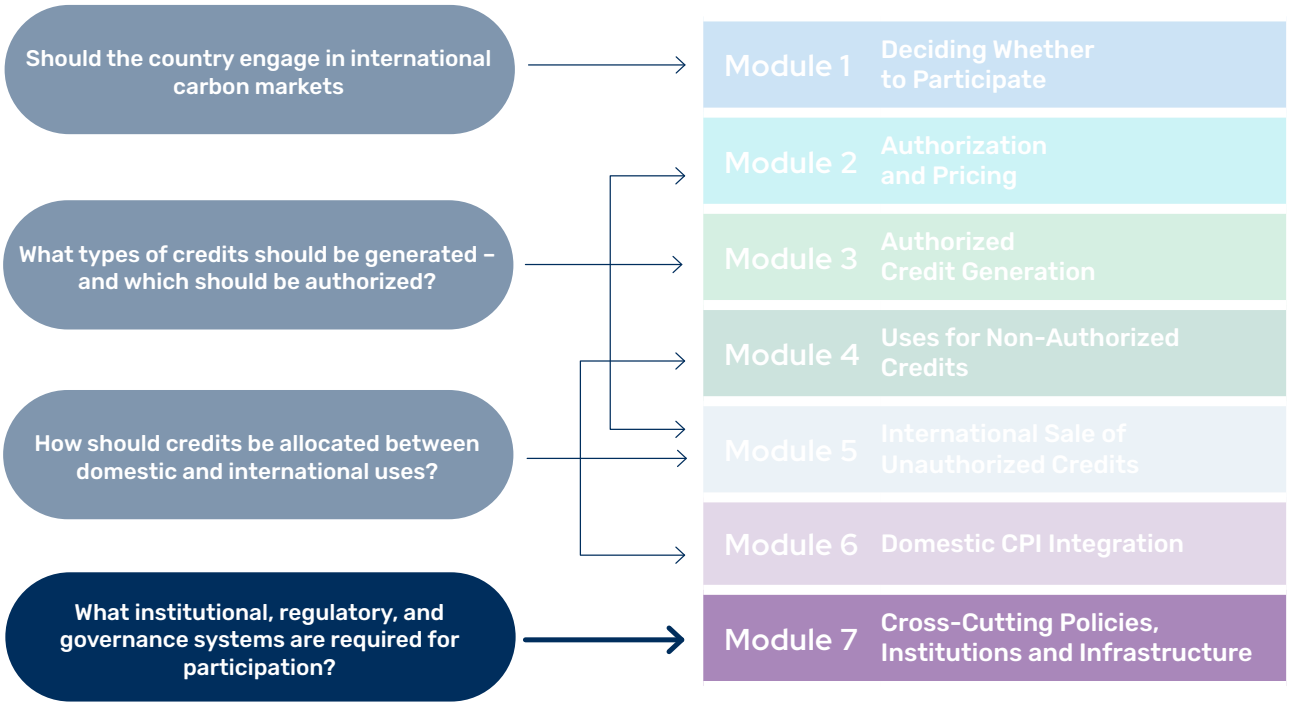
3. **World Bank 2021a.** 'A Guide to Developing Domestic Carbon Crediting Mechanisms'. Washington, DC: World Bank. *https://documents1.worldbank.org/curated/en/182511615783768643/pdf/A-Guide-to-Developing-Domestic-Carbon-Crediting-Mechanisms.pdf*.

Module 7

What are the key cross cutting issues that need to be considered?

Module seven addresses several questions and issues that host countries may wish to consider as they seek to maximize the opportunities and minimize the risks of international carbon market engagement. These apply regardless of whether the country decides to sell authorized or non-authorized credits (Module 2), how it chooses to operationalize these sales (Modules 3 and 5), or the relative weight to international versus domestic use of credits (Modules 4 and 7). **It addresses five key questions:**

- **Question 7.1:** What institutional and regulatory arrangement can countries establish?
- **Question 7.2:** How can host countries support the financial integrity of carbon credit markets?
- **Question 7.3:** How to ensure that carbon crediting activities generate high social value and comply with robust environmental standards?
- **Question 7.4:** How might countries make use of any surplus revenues raised from carbon market activity?
- **Question 7.5:** How can host countries measure the effectiveness of their carbon market strategy?



Question 7.1 What institutional and regulatory arrangements can countries establish? *

What are the key actions or options host countries may consider?

Host countries must establish effective institutions, decision-making processes, and governance frameworks to engage in international carbon markets. Key areas/decisions requiring such frameworks include:

- **Strategic direction**: defining sectoral and technological focus, international partnerships, and the balance between domestic and international crediting.
- **Approval framework**: establishing processes for approving or rejecting activities expected to generate authorized credits.
- **Implementation and reporting**: applying the framework to authorized credits, including pricing, corresponding adjustments, and reporting under Article 6 and 13 of the Paris Agreement.
- **Domestic crediting mechanisms**: setting up registration, verification, issuance, and tracking processes where national mechanisms are used, or integrating existing international processes. There will also be a need to consider how much emphasis to place on stimulating voluntary domestic demand for unauthorized credits (see Box 6.1 in Module 6).
- **Revenue management**: collecting and allocating revenues from credit sales.

Across these decisions and activities, there are different functions/functional roles:

- oversight and coordination/setting of strategic direction
- rulemaking/executive
- implementation
- technical advisory
- auditing

The range of national circumstances and historical experiences means that there are not a small number of discrete options for host countries to choose between. Instead, the key issues on which countries must decide on include:

- whether to establish new institutions or adapt existing ones (e.g., CDM-designated national authorities);
- how best to secure co-operation across different ministries/agencies and the mechanisms that can be put in place to resolve differing perspective between these bodies; the role of civil society and the private sector in governance and advisory functions;
- the alignment between international and domestic carbon market governance;
- whether rulemaking and implementation should be managed by the same entities; and
- the most appropriate way to give legal effect to these decisions.

What factors might shape decision-making?

Given the complexity of designing institutional frameworks for international carbon markets, and the difficulty in identifying discrete alternatives, host countries may benefit from a structured approach. Key steps can include:

1. **Mapping existing roles and capacities**: identifying institutions currently responsible for climate policy.

2. **Assessing mandate scope**: determining if institutional mandates require modification to accommodate international carbon markets.

3. **Evaluating institutional capacity**: assessing whether existing institutions can effectively manage carbon market-related activities.

4. **Developing a legal and governance framework**: defining decision-making processes, assigning responsibilities across existing or new institutions, and ensuring coordination among key ministries (e.g., Finance, Environment). A coordinating entity may enhance efficiency. Host countries will need to decide how to best give legal effect to these frameworks.

5. **Implementing capacity-building measures**: preparing training programs and leveraging development partner support. This capacity building can focus both on the regulatory bodies themselves as well as on the wider carbon market ecosystem of stakeholders, such as domestic validation and verification bodies so as to improve medium/long term regulatory decision-making.

6. **Ongoing monitoring and evaluation**: evaluating performance and refining structures as needed

Case studies provide valuable insights. Ghana's institutional framework (Box 7.1) for example, clearly separates strategic oversight, policy implementation, and technical administration. Many countries may adopt a similar structure to enhance accountability and specialization.

How does responding to question 7.1 relate to the obligations or opportunities countries have under Article 6 Guidance?

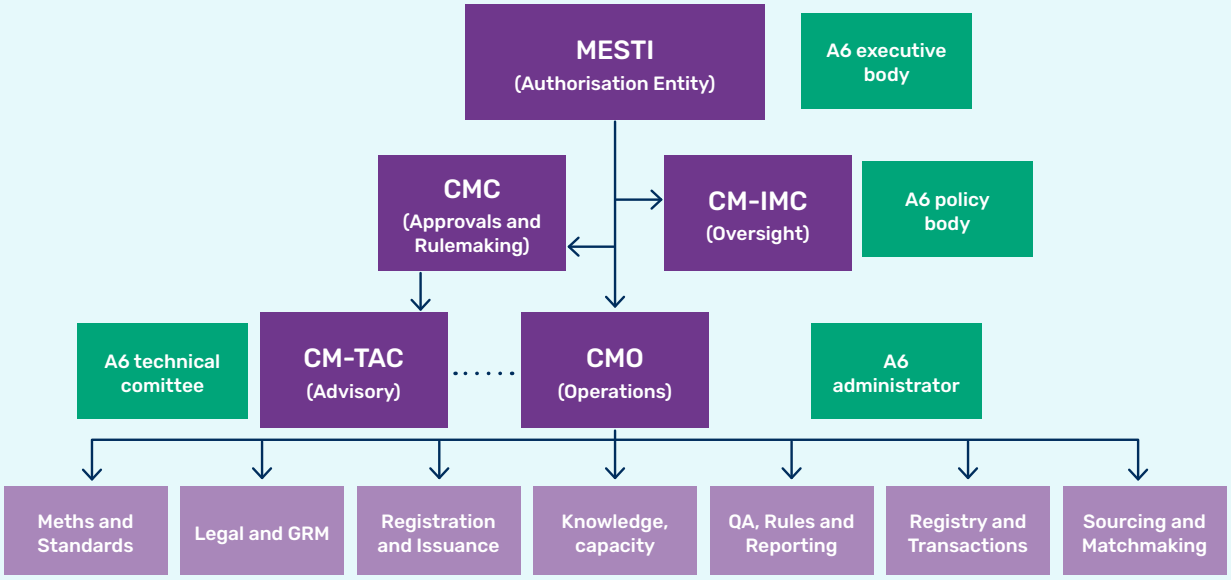
The decision to participate in Article 6 – both Article 6.2 trades and the PACM – creates a series of obligations on host countries, as explored elsewhere in the Guidance. These include to making authorization decisions (Module 2- question 2.1) and for which purpose (Module 3- question 3.5), to access and provide the relevant information to registries (question 3.6), to apply corresponding adjustments (question 3.8) and to undertake regular reporting (question 7.5). However, it does not place any restrictions or obligations on how host countries satisfy these requirements.

Box 7.1 Institutional and regulatory arrangements in relation to international carbon markets in Ghana

Figure 10 shows how different functions are split across different bodies:

- Policy-direction and oversight is provided by an interministerial committee (the Article 6 policy body)
- There is a distinction between the executive/decision-making body - the Carbon Market Committee (CMC) - and those responsible for implementation of these decisions - the Carbon Markets Office (CMO)
- There is a specific forum – the Technical Advisory Committee (CM-TAC) - to ensure policymakers are supported with the right expertise.

Figure 10 Institutional arrangements concerning international carbon market engagement in Ghana



Source: GGGI 2023a

Links and dependencies to other questions in the Guidance

The decisions taken in relation to this question will shape the process by which most of the questions identified in this Guidance will be answered. Establishing these frameworks early is particularly crucial before determining whether to authorize credits and implementing risk mitigation measures (Module 2). Similarly, well-defined governance structures will be essential for effectively operationalizing authorized credit sales (Module 3). Host countries will also have to determine how their institutional frameworks for international credit sales interact with any existing or planned frameworks for supporting domestic credit demand (Module 6).

What resources are available for those wishing to explore these issues in more detail?

There is a growing literature that host countries can use to explore these issues in more detail including:

- A World Bank publications on '*Country Processes and Institutional Arrangements for Article 6 Transactions'* & *'Country Policy Framework for Cooperative Approaches under Article 6.2'*
- GGGI guidance on both *'Host Party Institutional Frameworks'* and *'Governance Models for Host Country Engagement in Article 6'*
- The GGGI document *'A collection of case studies from 6 host countries'* explains, and provides a comparative analysis of, the different institutional and regulatory arrangements that have been adopted by *Cambodia*, *Ghana*, *Rwanda*, *Tanzania*, *Zambia* and *Zimbabwe*.
- The A6IP Center's *'A6IP Capacity Building Tools: Article 6 Introductory Guide'* provides an overview of key participation responsibilities for countries participating in Article 6 cooperative approaches.

Question 7.2 How can host countries support the financial integrity of carbon credit markets?*

What are the key actions or options host countries may consider?

Host countries will benefit from a deep, liquid secondary market for (different types of) carbon credits - where there is a high volume of trading, a wide range of participants, and the ability to trade credits quickly without significantly affecting their price. This will attract more buyers, helping to drive up prices and, typically, making prices more stable. This will provide a stronger incentive to generate further ERRs. It will also mean that host countries will benefit from greater price transparency and easier access to derivative products, to help manage remaining price volatility. Some host countries will benefit economically from capturing some of this trading activity and related professional services.

However, these markets come with financial integrity risks that could undermine confidence in carbon credit trading. Recent analysis by the Board of the International Organization of Securities Commissions (IOSCO) (2024) highlight several risks, including:

- weak registry architecture and integrity standards, which could lead to data security breaches, tracking inconsistencies, and governance issues;
- the potential for fraud, insider trading and other fraudulent activities carbon trading;
- conflicts of interest, such as verifiers being paid by the credit-generating entities they assess;
- a lack of contract standardization, creating uncertainty in legal jurisdiction and dispute resolution.

To balance market growth with risk mitigation, host countries may consider:

- defining the legal nature of carbon credits to ensure clarity for investors and regulators and the provision of complementary guidance on tax and accounting;
- strengthening registry regulations to improve data security, transparency, and oversight;

- implementing anti-money laundering (AML), Know Your Customer (KYC), and anti-corruption measures to ensure the integrity of trading activities (for host countries looking to develop trading activities); and
- establishing strong governance and risk management frameworks to prevent conflicts of interest and fraudulent activities.

What factors might shape decision-making?

Uncertainty about the legal status of carbon credits can hinder market development by creating confusion around their regulatory, tax, and accounting treatment. To facilitate a deep and liquid market, host countries should establish clear legal recognition of carbon credits, ideally by granting them property rights**.**

Different jurisdictions have adopted varying approaches. The United States and Canada classify carbon credits as commodities (non-financial intangibles), while Brazil and Egypt recognize them as securities. While each country will want to align its approach with its own legal framework, granting property rights offers significant benefits. It ensures exclusive ownership, the ability to transfer credits, and legal protection against disputes. This clarity enhances investor confidence, facilitates international trade, and encourages long-term capital investment in carbon credit generation (World Bank 2024c). Future guidance from UNIDROIT on the legal nature of carbon credits may help guide host countries on this issue. To complement clarity over their legal status, host countries could also issue guidance clarifying the tax and accountancy treatment of carbon credits including, for example, expectations regarding how credits, and their sale/transfer, will be treated for income, capital gains and other taxes (and when this liability arises), and how credits and revenues from sales should be reflected within financial statements.

Box 7.2 provides information about the approach being taken in Egypt.

Box 7.2 Registry-related rules in Egypt

Egypt's Financial Regulatory Authority (FRA) requires that those issuing carbon credits disclose the full data of the credits and the project on the registry website, and that validation and verification reports should be made available for the public. It also requires that the owner of a carbon credit must promptly inform the exchange material information that could significantly affect the trading of such credits. The FRA also conducts IT audits and inspection of local registries to make sure that data is being reported and recorded accurately and that governance systems are in place.

Furthermore, to gain regulatory approval to establishing a registry, the FRA requires, among others, that:

- The registry meets the registry requirements endorsed by the International Carbon Reduction and Offset Alliance (ICROA)
- Mandates various governance requirements especially related to IT and cybersecurity
- Places various other requirements on registries relates to validation and verification processes, the minimum information that must be provided by the registry, and field inspection protocols

Source: Board of the International Organization of Securities Commissions 2024

A critical step in building financial market integrity – and a key driver in supporting carbon market growth - is to ensure that registries are robust, independent and well-governed. For example, recent guidance (Board of the International Organization of Securities Commissions 2024), identifies options/good practice in terms of:

- requiring registries to maintain accurate, up-to-date records with mandatory minimum information standards;
- establishing IT audit and inspection regimes to verify data accuracy and registry governance; and
- introducing regulatory standards for governance, risk management, and transparency in registry operations

Host countries must balance financial market integrity with regulatory efficiency when determining the necessity of carbon market regulations. The approach should align with national carbon market strategies, particularly regarding reliance on local versus international registries. Regulations should mitigate risks while ensuring they do not deter international participation by imposing excessive burdens.

For jurisdictions with strong financial services sectors and anticipated private sector-led carbon credit generation, developing carbon trading platforms or exchanges can enhance market transparency and credibility. The IOSCO Guidelines (Board of the International Organization of Securities Commissions 2024) suggest several measures to support financial market integrity for countries with carbon trading platforms or exchanges:

- restricting eligible credits to those recognized by credible mechanisms such as Article 6 (PACM) or the ICVCM;
- encouraging or requiring trading platforms to establish and disclose listing, de-listing, and trading policies;
- implementing record-keeping policies to ensure the accuracy and timeliness of information;
- requiring or encouraging trading platforms to publish trading data, including, prices, volumes, bid-ask spreads, and credit deliveries.
- For host countries aiming to position themselves as reputable carbon trading hubs, adopting these measures proportionally can enhance market trust and attract investment.

Finally, host countries can consider embedding requirements for best practice governance and risk management practices and requirements across all carbon market participants. This could include requirements that all relevant entities develop:

- comprehensive governance frameworks with clear lines of responsibility and accountability;
- enterprise risk management frameworks to address any potential operational or technological risks;
- business continuity disaster recovery plan and operational resilience safeguards;
- policies and procedures to prevent, address, and mitigate conflicts of interest; and in the case of regulators, enforcement procedures to support the above.

How does responding to question 7.2 relate to the obligations or opportunities countries have under Article 6 Guidance?

While the Article 6 Rulebook does not directly focus on many aspects related to financial market integrity, it does establish requirements around reporting and recording of transactions of authorized credits that are intended to promote market transparency.

- For example, under Article 6.2, to facilitate transparency and prevent double counting, host countries must have access to a registry as specified in Decision 6/CMA.4 annex I, para 1. Furthermore, host counties need to provide various reports in order to ensure market transparency. This includes initial reports that provide information about each cooperation agreement entered (including the arrangements in placing for tracking the

authorized credits and how environmental integrity is ensured); annual information concerning the transfer of authorized credits; and related regular information. Full details, including references to the underlying Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) decisions, are provided in the Article 6.2 Reference Manual (UNFCCC 2024b).

- Similarly, under Article 6.4, all transactions must be reflected in the mechanism's registry while the host country Designated Operating Entity (DOE) is tasked with a wide range of responsibilities related to the validation and verification of activities intended to promote transparency and promote integrity(UNFCCC 2024g; 2024f).

Links and dependencies to other questions in the Guidance

The decisions that host countries take with regard to how it will generate authorized credits and the extent to which it will focus on high quality independent mechanisms (Module 3- question 3.4) as well as to whether and how it will influence which mechanisms generate unauthorized credits (Module 5- question 5.2) can help influence the financial market integrity. The decision taken which registry will be used in relation to authorized credits generated under Article 6.2 (Module 3- question 3.6), and the subsequent detailed design of this option, can set a precedent for other registries operating in a host country.

Further resources

- **Key further resources include:**

  Ongoing work from the International Institute for Unification of Private Law (UNIDROIT) on *Draft Principles / Guidelines* for determining the legal nature of verified carbon credits (UNIDROIT 2023)

- IOSCO-World Bank Note on *Financial Market Integrity Considerations*

- IOSCO report on *Voluntary Carbon Markets*

Question 7.3 How to ensure that carbon crediting activities generate high social value and comply with robust environmental standards?*

What are the key actions or options host countries may consider?

Many credit-generating activities - especially those related to natural climate solutions - can have a profound impact on the Indigenous peoples and local communities (IPLC) living where the credit-generating activities take place. Often these impacts will be positive, such as when credit-generating activities also provide employment opportunities or reduce vulnerability to climate impacts. Occasionally, however, IPLC groups may be at risk of harm. For example, a 2017 analysis of REDD+ crediting activities found that in some cases IPLCs were not able to participate in decision-making processes, or that crediting activities undermined the rights of indigenous peoples to establish and maintain their own systems of governance and decision-making (Barletti and Larson 2017).

To safeguard IPLC interests and ensure high-quality crediting, several core requirements should be met (as set out in the ICVCM's Assessment Framework). These include:

- Indigenous Peoples give *'Free, Prior and Informed Consent'* (FPIC) when credit-generating activities use their lands, resources, knowledge or intellectual property, and that Indigenous Peoples' rights are recognized accordingly.

- *Stakeholder engagement* and consultation should take place before any activities take place, treating IPLCs as partners rather than passive beneficiaries

- Credit generating activities should be governed by environmental and social *standards and safeguards* (such as the Cancun Safeguards in relation to REDD+ activities), that any negative

environmental or social impacts should be minimized or addressed, and that activities should preserve and protect cultural heritage in accordance with IPLC protocols or United Nations Educational Scientific and Cultural Organization (UNESCO) conventions.

- That a *Grievance Mechanism* should be in place to address any concerns which should be transparent, impartial and (where appropriate) confidential.

Increasingly, market expectations go beyond eliminating the risk of harm from crediting activities to ensuring that IPLCs and others can benefit positively from these activities. There are several ways to secure this:

- By explicitly designing crediting activities to deliver Sustainable Development Goal (SDG) benefits. For example, Verra offers the possibility of designating those crediting activities (projects) in the land use sector that meet climate, community, and biodiversity criteria. To meet this standard, project proponents must demonstrate net positive community and biodiversity impacts, as well as apply the processes and safeguards listed above.
- IPLCs can become activity proponents – designing, developing, and implementing activities and receiving the revenue that this provides. For example, the Yurok Tribe in California manages three forest carbon projects on forested land the tribe purchased from a timber company (Ward et al. 2024).
- Through benefit-sharing plans, whereby IPLCs secure monetary or non-monetary benefits before/during (as part of the ERR mechanism) or after the generation and sale of credits. There are a variety of ways in which benefit-sharing plans can be designed, including whether the focus is on monetary or non-monetary benefits, who receives the benefits, how the benefits are differentiated, and how the benefits are linked to the price at which credits are sold. For example, in land restoration projects developed under the Gold Standard in Humbo and Sodo in Ethiopia, the financial benefits from carbon credit sales are allocate to a fund managed by local forest cooperatives. This project also provide non-monetary benefits including training on forest conservation for local communities (Hynes and Salway, 2025).

Box 7.3 Countries making Article 6 authorization decisions contingent on demonstrating that activities are of high social value

Cambodia identifies three categories of projects, reflecting national priorities, each with a series of criteria. Projects seeking authorization must meet these criteria. Cambodia also identifies negative criteria which will automatically cause crediting activities to not be authorized.

In Zambia, crediting activities must identify their contribution to national SDG priorities, through a prior assessment using one of four approved external tools. Performance must then be tracked annually.

In Ghana, those developing activities intended to generate authorized credits must show that they are aligned with Ghana's SDG objectives. Developers can either use approved external tools or, for new methodologies, propose a bespoke approach to SDG impact monitoring. Stakeholder consultation must also include SDG impacts.

In Kenya, projects requesting authorization must show how they are aligned to Kenya's sustainable development priorities.

Source: Hynes and Salway, 2025

Host country governments can play a key role in facilitating these practices in those cases where they are appropriate (most notably crediting activities relating to land use). While safeguards and benefit-sharing mechanisms are typically implemented at the project level, governments can:

- regulate, or provide guidance on these issues, for example by refusing to give consent to activities (or, in the context of Article 6 crediting activities, authorize entities/activities) that do not demonstrate that these practices have been implemented – this is the approach adopted in, for example, Cambodia, Zambia, Ghana and Kenya, see Box 7.3;
- make credit authorization decisions - and the higher prices that come with them - conditional on evidence of implementation; or
- take direct responsibility for these practices in sectoral, policy and jurisdictional crediting schemes.

Another option that host countries might consider is to require that a certain proportion of revenues from all transactions be allocated to local communities and/or to the government (with the expectation that this will result in local benefits). Kenya provides an example of this approach, as one component of its overall strategy that it is considering for ensuring carbon market activities generate high social value (see Box 7.4 below).

Box 7.4 Kenya's approach to using carbon market activities to generate high social value

Kenya's Cabinet Secretary for Environment Climate Change and Forestry gazetted the Climate Change (Carbon Markets) Regulations in May 2024. As well as setting out an approval process that carbon market projects must follow, it also introduces provisions to try and ensure that these projects generate high social value:

- Carbon crediting projects that will be undertaken on community land will require a Community Development Agreement (CDA), jointly agreed between by the project proponent and the community. The CDA must outline how the project proponent will ensure that benefits flow to the community while ensuring that the project is economically viable. It envisages that each relevant project will register a Community Development Agreement Committee (CDAC) comprising of both representatives of the community and the project proponent. The CDAC will be responsible for monitoring and evaluation of the project and resolving grievances arising from project implementation.
- It further specifies that when carbon projects are undertaken by a public entity and/or implemented in a public and community land then an annual social contribution of 40% of the annual aggregate profit shall be required to be paid as an annual social contribution in the case of land-based projects, falling to 25% for non-land based projects. A private carbon project on private land shall not be required to disburse the annual social contribution.

Source: Dentons Hamilton Harrison and Mathews 2024

What factors might shape decision-making?

In addition to the core rights-based arguments for the importance of considering social benefits, failure to follow good practices in this regard poses several risks:

- Market expectations: credit generating activities that can (cannot) demonstrate that these practices have been adopted are likely to secure higher (lower) prices. For example, the observed price differences between credits that are certified to Climate, Community and Biodiversity Standard versus those that are not is reported to be as high as 78% (Ecosystem Marketplace 2023).

- Less sustainable activities: evidence from Payment for Ecosystem Services models suggests that activities that empower local community stakeholders and facilitate a sense of autonomy have higher success rates. Activities that do not incorporate IPLC into their design may be more likely to fail because stakeholders have little incentive to engage (Ward et al. 2024).

The detailed design of any benefit sharing scheme will vary by context but a number of design principles can help guide their development (Forest Carbon Partnership Facility and BioCarbon Fund Initiative for Sustainable Forest Landscapes, n.d.; Hamrick, Myers, and Soewito 2023):

- **Participatory process:** ensuring IPLCs help shape the design so that benefits outweigh any opportunity costs

- **Differentiation**: Recognizing different rights and contributions to ensure fair distribution and broad participation

- **Fair, transparent, and robust to future market changes**: clarity about how the mechanism will work on initiation, and the implications from plausible future changes, for example if credit prices turn out to be higher or lower than expected.

- **Incentive-based or linked to conditions:** encouraging continued emissions reductions by linking benefits to sustained climate action

- **Leverage existing institutions:** this has been associated with higher levels of success.

- **Adaptive:** a clear process should be put in place to review and update as necessary

A key decision often relates to the balance between monetary and non-monetary benefits with a benefit sharing plan. Table 7.1 below outlines some of the key factors to consider.

However, while ensuring that carbon crediting activities provide for benefit sharing where appropriate, governments may wish to carefully consider whether to set a statutory minimum share of revenues for this purpose, or to establish other relevant regulations (that may be perceived as burdensome). On the one hand, this could be an effective strategy to ensure that local communities receive an appropriate share of the benefits. On the other hand, it could slow down activity or encourage (international) proponents to seek opportunities in other countries. Policymakers will want to consider this option in the context of how competitive the host country is otherwise for hosting carbon market activities and the extent to which it wishes to use international actors to develop carbon credit-generating activities. The same considerations apply to the taxation of revenues or profits from carbon market activities.

Table 7.1 Advantages and disadvantages of monetary and non-monetary approaches to benefit sharing

Approach to providing benefits	Pros	Cons
Monetary	↑ Efficient to administer if beneficiaries have bank accounts ↑ Transparent ↑ Quick to deliver ↑ Easy to ensure all beneficiaries receive share ↑ Empowers beneficiaries ↑ Can incentivize change in behaviors (if large enough)	↓ Inefficient to administer if beneficiaries do not have bank accounts ↓ Spending may increase emissions, reducing emission benefits ↓ Hard to focus benefits on specific activities e.g. capacity building ↓ Requires robust governance structures and financial management processes to avoid elite capture ↓ Smaller benefits packages may not be perceived as significant
Non-monetary	↑ Easy to target benefits towards specific activities e.g. training for new revenue generating activities ↑ Can support community engagement ↑ Benefits may be sustained after crediting activity concludes e.g. new school	↓ May be challenging and costly to deliver ↓ May take a long time to achieve community agreement on what focus should be, and may not be appreciated by some community members ↓ May take a long time for benefits to materialize ↓ More difficult for local communities to understand the cost/value of the benefits provided which may generate mistrust

How does responding to 7.3 relate to the obligations or opportunities countries have under Article 6 Guidance?

Host countries that choose to participate in Article 6.2 transactions must be able to demonstrate that these activities deliver high social value. For example, further to paragraph 22 of the Annex to *Decision 2/CMA.3*, host countries participating in Article 6.2 transaction must provide information on how these transactions *'reflect the eleventh preambular paragraph of the Paris Agreement that … Parties should when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity'*.

Similar requirements apply for Article 6.4. For example, the Supervisory Body for the PACM is also required to operate the mechanism in a way that that takes account of the same considerations as stated above (Annex to *Decision 3/CMA.3*, paragraph 24). It further requires that any crediting activities under Article 6.4 'Shall undergo local and, where appropriate, subnational stakeholder consultation consistent with applicable domestic arrangements in relation to public participation and local communities and Indigenous peoples, as applicable' (Annex to Decision 3/CMA.3, paragraph 31).

Links and dependencies to other questions in the Guidance

Fundamentally, potential host countries are likely to participate in international carbon markets only if they are confident that the activities will generate high social value (Module 1).

The importance of ensuring that carbon market activities generate high social value is one of the main ways in which host countries can reduce any reputational risk associated with the international sale of unauthorized credits (Module 5- question 5.5).

Further resources

Several further resources are available to help host countries maximise the social value from carbon credit generating activities:

- The Forest Carbon Partnership Facility and BioCarbon Fund Initiative for Sustainable Forest Landscapes has developed a comprehensive set of tools, resources and case studies in relation to *Designing Benefit Sharing Arrangements* for credit generating activities in land use sectors. The FMO has developed similar guidance in relation to both *benefit sharing* and *stakeholder engagement* in relation to household energy access projects.
- The *'Best Practices Guide for Developing Carbon Market projects in Yucatan'* (also discussed above in question 5.5) provides a practical example of how host country governments can shape the design of benefit sharing arrangements.
- The Nature Conservancy report *'Beyond Beneficiaries'* looks at current benefit-sharing approaches, identified gaps, discusses current guidance in standards and proposes a range of solutions for delivering robust IPLC partnerships while *'Unlocking Local Value: Rethinking Benefit Sharing in African Carbon Projects'* considers some of the specific issues that arise in these contexts .
- The UNFCCC's PACM *Sustainable Development tool* while focused at the project level, can help countries understand key issues that they might wish to consider in any national guidance/ regulation.
- Criteria 7.1-7.11 of the *I CVCM Assessment Framework* sets out mechanism-level requirements for sustainable development safeguards and benefits to ensure that mechanisms have robust procedures for assessment and mitigation of risk and reporting structures around social and environmentalimpacts of credit-generating activities.

Question 7.4 How might countries make use of any surplus revenues raised from carbon market activity?

What are the key actions or options host countries may consider?

Host country participation in international carbon markets might generate revenue for host country governments in several ways:

- Charging fees for approving credit-generating activities proposed by activity proponents and, in the case of Article 6 transactions, for authorizing associated credits. These fees may partly relate to the costs incurred by the government in conducting the associated activities, but in the case of authorized credits, as discussed in Module 2, they could also include a contribution reflecting the additional ERRs that the host country needs to generate to meet its NDC. These fees and levies need to be adopted and implemented within the context of national laws.

- Host country governments could receive proceeds from the sale of credits more than the costs incurred in conducting the credit-generating activities. The government will receive this directly if it owns the carbon rights, otherwise it may tax the revenues/profits realized by private sector and third-party activity proponents. This could be either on a general basis - as a tax applied to the revenues and profits of all carbon crediting activities - or on a more selective basis, applied to those transactions that generate significant rents. As an example of the former, regulations in Zimbabwe require that 30% of revenues from the first 10 years of carbon credit generation activities be deposited into the country's Environmental Fund (Rumble 2024)[54]

Governments must decide how to make use of these proceeds. Key options include:

- Supporting further mitigation effort: potentially through a dedicated fund.

- Support climate adaptation efforts: this could also be implemented through the same fund structure, but through a different 'window'.

- Earmarked for other specified development investments.

- General budget allocation, where it would be impossible to distinguish how the funds are used, i.e. no earmarking or hypothecation. With a larger budget, governments would be able to increase general government spending, reduce taxes or reduce debt.

What factors might shape decision-making?

There is a compelling argument for host countries to ensure that revenues associated with the transfer of authorized credits, particularly any "opportunity cost" fees, are allocated to additional mitigation activities. This aligns with the rationale for using opportunity cost pricing to reduce overselling risk. The host country is also more likely to find a willing buyer for its authorized credits if the buyer is assured that the funds will be used for this purpose. The host country could achieve this goal by adding the revenues to its consolidated budget and then relying on its public financial management (PFM) processes to ensure that additional mitigation is financed. This approach is likely to have low transaction costs. However, the transparency associated with an explicit fund may be favored by both host countries and buyers. For example, 90% of the corresponding adjustment fee levied by Ghana will be allocated to Ghana's Mitigation Ambition Fund to be reinvested in additional mitigation within the country (Hoffman, Spalding-Fecher, and Marcias Diaz 2025).

54 As discussed in relation to question 7.3, host countries will want to consider carefully whether the benefits of these types of tax, especially at high rates, are sufficient to compensate for a potential loss of competitiveness in hosting carbon market activities.

In terms of any additional revenues, host countries must first decide how extensively they wish to access these revenues. As with any economic activity, the more heavily it is taxed, the greater is the risk that decisions will be distorted. Greater tax rates will increase the risk that the country will be less attractive to international developers of carbon credit generating activities.

Key considerations for how any revenues raised might be used include:

- Earmarking for adaptation may be attractive to the host country on the grounds of the urgent need to increase adaptation finance in many host countries. This use of revenues may also make associated credits more attractive to buyers[55]. However, there will be transaction costs associated with setting up a mechanism to allocate funds for this purpose, and there may be difficulties in identifying and developing a pipeline of activities that all stakeholders agree support climate adaptation.

- Earmarking funds to specific, identified development investments will ensure the visibility of the use of funds, while providing more flexibility to the host government than earmarking revenues for adaptation activities only. However, there may still be some transaction costs involved in ensuring that the revenues support the specific investments, and there may be cases where the identified investments are controversial.

Allocating revenues to the general budget without earmarking is the least costly approach and provides the host government with the most flexibility to respond to macroeconomic shocks. However, the lack of visibility on how the revenues will be used may make it less attractive to both in-country stakeholders and credit buyers, especially in contexts where there are concerns about the efficiency and transparency of public financial management (PFM) processes.

These options are not mutually exclusive: host countries could allocate revenues among these different uses to achieve a balance of advantages and disadvantages. However, most of the costs associated with developing a fund for allocating earmarked revenues will be incurred regardless of how much revenue is channelled through the fund.

How does responding to question 7.4 relate to the obligations or opportunities countries have under Article 6 Guidance?

The Article 6 Rulebook does not place any constraints or obligations on host countries.

Links and dependencies to other questions in the Guidance

The amount of revenues to be allocated will depend on whether the country implements an opportunity cost pricing model for ITMO transfer (Module 3-Question 3.2). It will also depend on the approaches used to try and ensure carbon market activities generate high social value (Question 7.3).

Further resources

The World Bank publication *'Developing an Article 6 Strategy for Host Countries'* also discusses how the government could use engagement in international carbon markets to establish a fund to support further mitigation activity.

Although the focus is on the use of revenues from the implementation of domestic carbon pricing instruments, much of the discussion in the World Bank technical note, *Using Carbon Revenues*, also applies to revenues raised from international carbon market activity.

55 As discussed in Module 3 (question 3.7), this mutual benefit opens up the possibility that, in some Article 6.2 transactions, a SOP could be earmarked to the host country.

Question 7.5 How can host countries measure the effectiveness of their carbon market strategy?

What are the key actions or options host countries may consider?

It is important for host countries to develop a results framework that will help them assess the success of their carbon market strategy. Building on the issues discussed in this guide, host countries can consider quantitative and/or qualitative targets for a wide range of issues such as (but not limited to):

- the number of authorized and unauthorized credits generated and sold by sector and crediting mechanism;
- investment mobilized by these sales;
- revenues generated by these sales;
- targets related to the ambitions as to how this revenue will be used;
- activity levels in non-authorised credit sales, and their contribution to the NDC;
- implementation and effectiveness of governance and regulatory structures; and
- establishment and operation of safeguards and grievance mechanisms

In developing this results framework, host countries should consider the reporting requirements related to Article 6.2 and 6.4, as well as broader reporting requirements to the UNFCCC.

The precise nature of this results framework, and the arrangements for assessing progress, will be highly context specific. It will be heavily informed by the institutional regulatory arrangements discussed in relation to question 7.1.

Regular monitoring of progress against the results framework enables host countries to update the core elements of their carbon market strategies in a transparent and predictable manner. Such predictability in the evolution of carbon market strategies helps build confidence among all stakeholders—including investors, project proponents, beneficiaries, and development partners. While it is essential for countries to assess progress and adjust as needed, establishing, for example, clear, pre-announced intervals for performance reviews and potential policy updates can allow stakeholders to anticipate changes, align their planning processes, and make informed investment decisions.

What factors might shape decision-making?

N/A

How does responding to question 7.5 relate to the obligations or opportunities countries have under Article 6 Guidance?

When developing any framework, host countries may wish to take account of the reporting requirements associated with Article 6.2 that are available in the *Reference Manual for the Accounting, Reporting and Review of Cooperative Approaches* (UNFCCC 2024b) and for Article 6.4 in the *Article 6.4 Guide or Manual for Host Country Participation in the Mechanism* (UNFCCC 2024c).

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