

# COUNTRY GUIDANCE FOR NAVIGATING CARBON MARKETS

## MODULE 3

# How to approach the generation and transfer of authorized credits?



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1818 H Street NW, Washington, DC 20433  
Telephone: 202-473-1000

Internet: [www.worldbank.org](http://www.worldbank.org)

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## Abbreviations

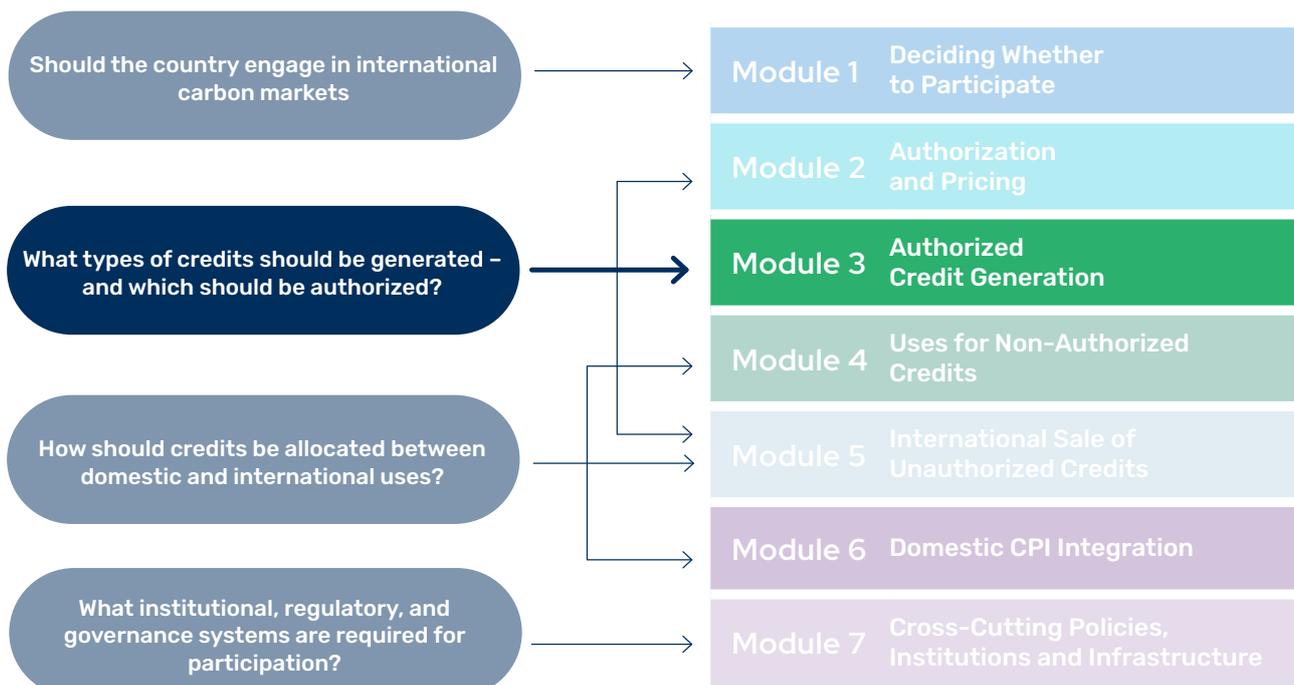
A6.2	Article 6.2 of the Paris Agreement
A6.4	Article 6.4 of the Paris Agreement
AML	Anti-Money Laundering
ART	Architecture for REDD+ Transactions
CCP	Core Carbon Principles
CDA	Community Development Agreement
CDAC	Community Development Agreement Committee
CDM	Clean Development Mechanism
CMA	Conference 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 <sub>2</sub> e	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



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):<sup>1</sup>

- **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).**

<sup>1</sup> 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.<sup>1</sup>
- 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

<sup>1</sup> 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
<b>Government - led model</b> 	<ul style="list-style-type: none"> <li>↑ Enables scaled-up crediting approaches such as policy/sectoral crediting, potentially harnessing institutional support from international partners such as MDBs</li> <li>↑ Facilitates allocating surplus revenues to support development goals or additional mitigation activity</li> </ul>	<ul style="list-style-type: none"> <li>↓ Does not harness the knowledge and skills of the private sector</li> <li>↓ Limited competition may reduce credit attractiveness to buyers</li> <li>↓ Investment costs of credit generating activities will likely need to draw on scarce fiscal resources</li> </ul>
<b>Private sector led but with government consent</b> 	<ul style="list-style-type: none"> <li>↑ Leverages expertise of private actors</li> <li>↑ Promotes competition, increasing credit attractiveness</li> <li>↑ Can be used to direct revenues to local communities</li> <li>↑ Allows government to guide activities throughout the lifecycle</li> </ul>	<ul style="list-style-type: none"> <li>↓ Difficult to implement policy-based and sector/jurisdictional crediting</li> <li>↓ Potential for corruption in some contexts</li> <li>↓ 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</li> </ul>
<b>Market-led</b> 	<ul style="list-style-type: none"> <li>↑ Maximizes competition among credit suppliers, in theory improving alignment with buyer preferences</li> </ul>	<ul style="list-style-type: none"> <li>↓ Government cannot shape authorized credit pipeline</li> <li>↓ Private actors unlikely to invest without clear authorization signal</li> <li>↓ Not possible under Article 6.4 (PACM)</li> </ul>

## 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]’<sup>1</sup>

## 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<sup>2</sup> 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).

<sup>1</sup> This approval of the activity is required regardless of whether the credits will be authorized or not.

<sup>2</sup> 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)
<p><b>Flexibility</b> – 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.</p>	<p><b>Lower in-country transaction costs</b> – PACM absorbs much of the cost of developing market infrastructure.</p>
<p><b>Pace of execution can be controlled by Parties</b> – The speed at which any transactions take place will be determined only by the Parties participating in the transaction.</p>	<p><b>Potential for (perceived) higher integrity</b> – 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.<sup>1</sup></p>
<p><b>Foreign policy integration</b> – 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.</p>	<p><b>Provides opportunity to support global mitigation and adaptation goals:</b> 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).</p>
<p><b>Not necessary to include SOP and OMGE contributions</b> – 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)</p>	<p><b>Attracting private/foreign direct investment (FDI)</b> – Use of internationally approved methodologies may help attract foreign investors.</p>
	<p><b>More flexibility over when to provide authorizations</b> – Countries can convert MCUs into AERs later, unlike Article 6.2, where buyers typically seek early authorization assurance (as discussed above).</p>

<sup>1</sup> 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<sup>1</sup>;
- 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<sup>2</sup> 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).

<sup>1</sup> Recognising that host countries and buyers may choose to emulate these rules and standards in A6.2 transactions, should they choose.

<sup>2</sup> 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.<sup>1</sup>** 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.

<sup>1</sup> 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
<b>Project</b>	<ul style="list-style-type: none"> <li>↑ Simple, with many existing methodologies providing flexibility</li> <li>↑ Easily enables private-sector transactions</li> </ul>	<ul style="list-style-type: none"> <li>↓ Hard to scale given transaction costs</li> <li>• <b>Risk of – and requires accounting for – potential increase in emissions beyond crediting boundary (leakage)</b></li> <li>↓ Some difficulties in assessing additionality</li> </ul>
<b>Programmatic</b>	<ul style="list-style-type: none"> <li>↑ Simple, with many existing methodologies</li> <li>↑ Achieves scale through aggregating similar activities</li> <li>↑ Supports small- and micro-scale activities</li> </ul>	<ul style="list-style-type: none"> <li>↓ Risk of – and requires accounting for – potential increase in emissions beyond crediting boundary (leakage)</li> <li>↓ May be difficult to assess additionality</li> <li>↓ May be difficult to predict ERR/credit volume as activities added over time</li> </ul>
<b>Policy</b>	<ul style="list-style-type: none"> <li>↑ Large scale potential with higher revenues</li> <li>↑ Policy change can drive transformative impact (beyond the credited ERRs)</li> </ul>	<ul style="list-style-type: none"> <li>↓ Complex and associated with high transaction costs, especially for robust baseline setting and demonstrating additionality</li> <li>↓ Relies on high quality GHG inventory in order to be confident in tracking policy to changes in emissions</li> <li>↓ Cannot involve private sector in crediting transaction (although it can/will support policy implementation)</li> <li>↓ Impact on the number of corresponding adjustments needed, and potential challenges for NDC attainment, will be greater</li> </ul>
<b>Sector/ jurisdictional</b>	<ul style="list-style-type: none"> <li>↑ Large scale potential with higher revenues and high systemic change potential</li> <li>↑ Reduced risk of leakage (compared to project based approaches)</li> <li>↑ Supports small- and micro-scale activities</li> <li>↑ May be better able to avoid or reduce adverse impacts on local populations</li> </ul>	<ul style="list-style-type: none"> <li>↓ Require long-term planning and coordination, and robust governance</li> <li>↓ Host country may struggle to control delivery of ERRs</li> <li>↓ Cannot involve private sector in crediting transaction</li> <li>↓ Some challenges around assessing additionality and challenges with interaction with certain project based carbon market activities</li> <li>↓ Impact on the number of corresponding adjustments needed, and potential challenges for NDC attainment, will be greater</li> </ul>

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.<sup>1</sup>

<sup>1</sup> 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.<sup>1</sup>
- **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)<sup>2</sup> 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.<sup>3</sup> CORSIA's Technical Advisory Board (TAB)<sup>4</sup> 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).

<sup>1</sup> These models are explored in more detail in Module 6.

<sup>2</sup> This is discussed further in module 5.

<sup>3</sup> The assessment status of carbon crediting mechanisms (or "programs"), as well as categories of credits, is available at: <https://icvcm.org/assessment-status/>.

<sup>4</sup> See [https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/TAB2024/Summary%20Table\\_2024.pdf](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:

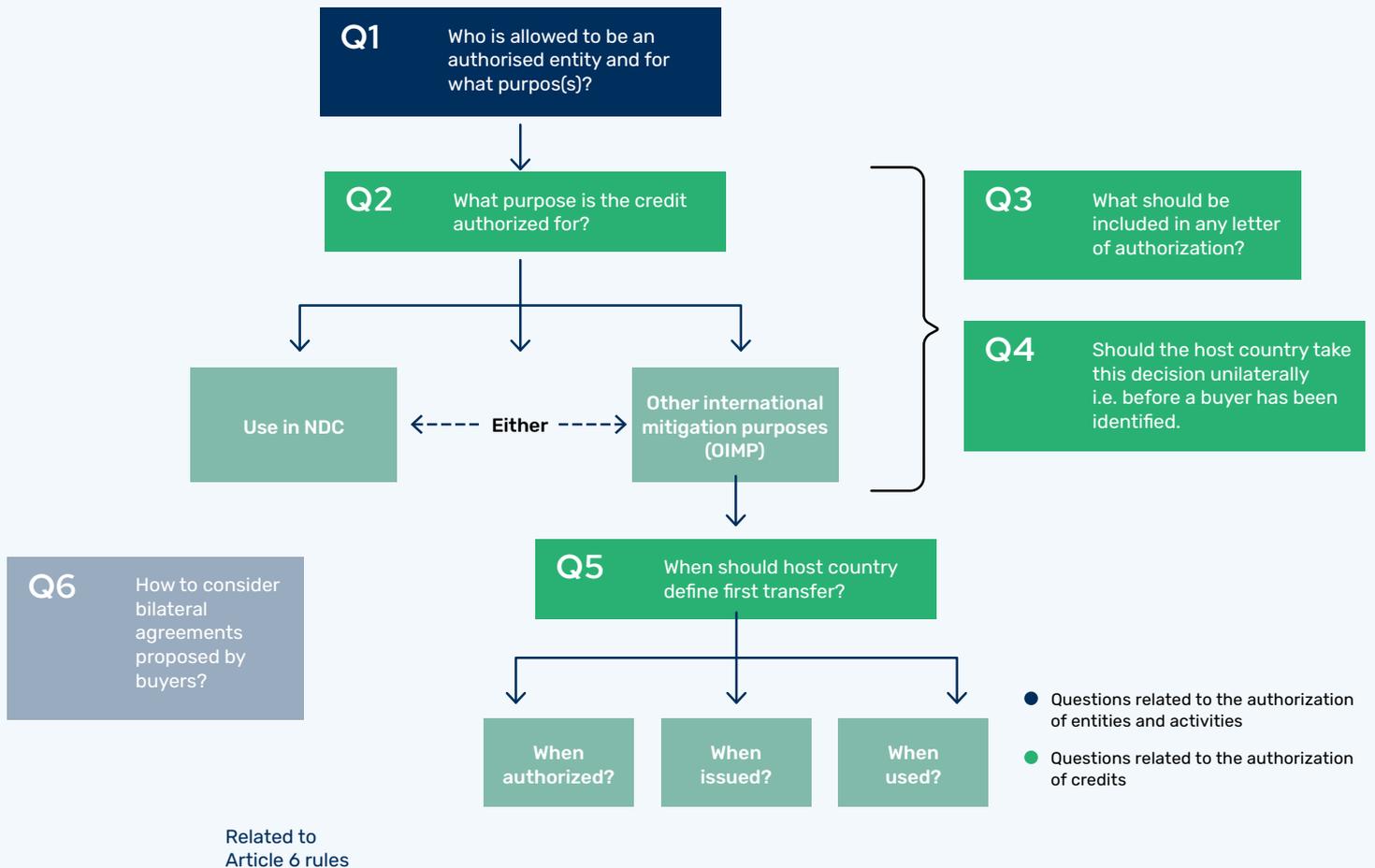
- **Authorization of entities and activities:** Host countries must confirm which entities have been authorized to participate in Article 6 transactions and in relation to which activities (cooperative approaches).
- **Purpose of use:** In relation to the authorization of credits, host countries must 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)<sup>1</sup>

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<sup>2</sup>, 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.

<sup>1</sup> 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.

<sup>2</sup> 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 (Fearnough 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<sup>1</sup>, 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.

<sup>1</sup> 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.<sup>1</sup> 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 be 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

<sup>1</sup> 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 31<sup>st</sup> 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 *Switzerland'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
<ul style="list-style-type: none"> <li>↑ Builds trust, supporting long-term cooperation and transactions</li> <li>↑ May allow host country to leverage buyer country investments in methodologies/ crediting systems</li> <li>↑ Reduces uncertainty over future revenue from sale of authorized credits</li> <li>↑ May include technical/financial assistance to support transactions</li> </ul>	<ul style="list-style-type: none"> <li>↓ Reduces host country flexibility (e.g., choice of crediting mechanisms)</li> <li>↓ May limit ability to engage other buyers, reducing competition and pricing leverage</li> </ul>

### 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 country 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.

## 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	<ul style="list-style-type: none"> <li>↑ Strong national ownership</li> <li>↑ Customizable to country context e.g. accommodate domestic CPIs</li> <li>↑ Scalable/ modifiable over time</li> </ul>	<ul style="list-style-type: none"> <li>↓ Highest upfront costs</li> <li>↓ Requires strong technical/legal capacity</li> <li>↓ Ongoing security and interoperability responsibilities</li> </ul>	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	<ul style="list-style-type: none"> <li>↑ Limited technical expertise needed</li> <li>↑ Likely to be interoperable with other registries</li> <li>↑ Likely to offer flexibility to purchase different levels of functionality</li> </ul>	<ul style="list-style-type: none"> <li>↓ Provider owns source code</li> <li>↓ Limited back-end customization</li> <li>↓ Inter-operability with other registries determined by third party</li> <li>↓ Ongoing fees may be high</li> <li>↓ Use tied to provider's methodologies</li> </ul>	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)	<ul style="list-style-type: none"> <li>↑ Lowest cost option</li> <li>↑ Full technical support</li> <li>↑ Will be designed to be interoperable with other registries</li> </ul>	<ul style="list-style-type: none"> <li>↓ Need to follow rules, processes and requirements specified by the UNFCCC</li> </ul>	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<sup>1</sup> 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 (Fearneough 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
<ul style="list-style-type: none"> <li>↑ Provides a way of host countries demonstrating their commitment to greater ambition in global mitigation and adaptation</li> <li>↑ 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)</li> <li>↑ SOP contribution could be negotiated to support adaptation funding within the host country</li> </ul>	<ul style="list-style-type: none"> <li>↓ Will still need to apply corresponding adjustment for the total number of authorized credits</li> <li>↓ If buyers are price sensitive, much of the cost burden associated with these adjustments will be borne by host countries</li> </ul>

<sup>1</sup> 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

Fearneough 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<sup>1</sup>;
- **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<sub>2</sub>) 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.

<sup>1</sup> 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 <sub>2</sub> e)	120	115	105	100	95	90	80	70
Authorized credits (ITMOs) first transferred by vintage year <sup>1</sup> (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 <sub>2</sub> e	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	<ul style="list-style-type: none"> <li>↑ Most robust – minimizes double-counting and reputational risk</li> <li>↑ Can provide greater comfort on NDC attainment even if target year emissions rise unexpectedly</li> </ul>	<ul style="list-style-type: none"> <li>↓ Technically complex</li> <li>↓ May be seen as weakening the original single-year NDC intent</li> </ul>
Averaging	<ul style="list-style-type: none"> <li>↑ Easy to apply</li> <li>↑ May allows potential for extra carbon revenues if ITMO transfers rise over time</li> </ul>	<ul style="list-style-type: none"> <li>↓ Higher risk of double-counting and reputational damage</li> <li>↓ Raises risk of NDC non-achievement if target year emissions are higher than expected</li> </ul>

<sup>1</sup> 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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