



## Article 6 of the Paris Agreement: A Comprehensive Review of Mechanisms, Progress, and Persistent Challenges

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### Abstract

*The Paris Agreement represents a transformative shift in global climate governance to limit temperature rise and climate change by introducing Article 6 as a cornerstone for international cooperative action. The paper provides a comprehensive review and critical analysis of Article 6, with a dedicated focus on its three core operational pathways: Article 6.2 [decentralised cooperative approaches], Article 6.4 [centralised UN-supervised crediting mechanism - Paris Agreement Crediting Mechanism (PCMS)], and Article 6.8 [non-market approaches]. The paper examines the foundational principles underpinning Article 6, including internationally transferred mitigation outcomes (ITMOs), mitigation contribution units (MCUs), Article 6.6 emission reductions (A6.4ERs), corresponding adjustments (CAs) to prevent double counting, the Share of Proceeds (SOP) to the Adaptation Fund (AF), and the requirement for overall mitigation in global emissions (OMGE). The paper assesses early implementation efforts, such as bilateral agreements under Article 6.2 and the operationalisation of the Article 6.4 mechanism, while highlighting persistent challenges, including methodological rigour, compatibility, additionality, and the integration of nature-based solutions. Drawing on insights from recent Conference of the Parties (COP) meetings and key stakeholder perspectives, the analysis identifies critical gaps in governance, transparency, and environmental integrity. The paper also addresses significant criticisms, such as the risk of nature-based emission reductions, REDD+ activities, greenwashing, the oversupply of low-quality credits, and the complex interplay between compliance and voluntary carbon markets. Ultimately, this study underscores the potential of Article 6 to lower mitigation costs, channel finance to developing countries, and raise global ambition, while cautioning that its success hinges on robust implementation, unwavering environmental integrity, and the resolution of outstanding technical and political hurdles.*

**Keywords:** Climate change; Paris Agreement; Article 6.2; Article 6.4; Conference of the Parties (COP); Nationally Determined Contributions (NDCs); Internationally transferred mitigation outcomes (ITMOs); Mitigation contribution units (MCUs); Corresponding adjustments (CAs); Double counting; Share of Proceeds (SOP); Adaptation fund (AF); Overall mitigation in global emissions (OMGE); REDD+

### INTRODUCTION

The Paris Agreement of 2015 is one of the most significant international treaties offering a new approach to the problem of climate change and has the potential to contribute significantly to reducing greenhouse gas (GHG) emissions. It was adopted by 196 countries at the 21<sup>st</sup> session of the Conference of Parties (COP21) under the United Nations Framework Convention on Climate Change (UNFCCC) held from November 30 to December 11, 2015, in Paris, France. The historic Paris Agreement set a long-term temperature goal (Article 2) of “holding the increase in the global average temperature to well below 2°C (3.6°F) above pre-industrial

levels and pushing efforts to limit the temperature increase to 1.5°C (2.7°F) above pre-industrial levels” by setting global GHG emission reduction plans and targets (UNFCCC, 2015; Deswal, 2025a).

The Paris Agreement represents a landmark shift in global climate governance, moving from a top-down, prescriptive regime to a bottom-up, nationally determined structure. Thereby, providing countries a way to collaborate in achieving their Nationally Determined Contributions (NDCs), invest in actions beyond their borders, and increase global ambition to limit temperature rise and combat climate change. But negotiating at the global level is not always easy. As

Ambassador Líliam Chagas, Brazil's chief climate negotiator for COP30 and the Director of the Climate Department at the Ministry of Foreign Affairs (MRE) – Itamaraty, aptly said, “*Clearly, we are living through challenging times with increasing concerns about the multilateral rules guiding international coexistence. This places significant pressure on UN negotiations, especially given the urgent climate crisis affecting regions worldwide. Additionally, we are not navigating through peaceful times of great international cooperation and collective problem-solving.*”

To encourage national involvement and a local problem-solving approach – ‘each Party submits Nationally Determined Contributions (NDCs) every five years and is obliged to pursue domestic measures to achieve its emission reduction (mitigation) targets set in NDCs’ (UNFCCC, 2015). However, recognising the cost-effectiveness and potential for enhanced ambition that cross-border cooperation can offer, the Paris Agreement’s architects embedded Article 6 – a complex provision for voluntary cooperative approaches.

Article 6 is not merely a technical chapter on carbon trading; it is a multifaceted instrument designed to save the Agreement’s aim to strengthen the global response to the threat of climate change by enabling higher ambition in mitigation and adaptation, promoting sustainable development, and fostering integrated, holistic approaches (Held and Roger, 2018; Moe and Rottereng, 2018). Its successful implementation could lower the global cost of achieving NDC targets, channel finance to developing countries, and incentivise private sector investment in low-carbon technologies. Conversely, poorly designed or implemented cooperation could undermine environmental integrity, create perverse incentives, and erode trust in the multilateral climate regime.

This year saw the Article 6.4 Supervisory Body, the UN body in charge of operationalising an international carbon market under the Paris Agreement, approve its first new methodology, detailing how emissions reductions from a particular project can be measured (UNFCCC, 2025). While major negotiations for Article 6 were concluded after last year’s United Nations Climate Change Conference (COP29), the recent COP30, which took place in November 2025, did provide a forum for the Article 6.4 Supervisory Body to present its report and to meet with the political coalitions of countries that make decisions on Article 6.

The author had the privilege to attend closed-door media discussions as part of the Belém Desk initiative, led by the Institute for Climate and Society (iCS), the Nature4Climate Coalition, and its members, The Nature Conservancy (TNC) and the UN Environment Programme (UNEP) (Deswal, 2025b). While COP30 did not have Article 6 on the formal negotiation agenda, it did mark the 10<sup>th</sup> anniversary of the Paris Agreement, and climate financing remained the focus of the discussions. As Article 6 and carbon markets remain not just a cost-effective way to reduce emissions, but a key financing lever. It is, therefore, important to review Article 6 to identify where operational gaps lie.

### Objectives of the Study

The objectives include –

- To provide a comprehensive review and critical analysis of Article 6 of the Paris Agreement, focusing on its three operational pathways/mechanisms (Articles 6.2, 6.4, and 6.8).
- To examine the foundational principles, rules, and governance structures underpinning Article 6.
- To assess early implementation progress, pilot activities, and emerging challenges associated with each Article 6 mechanism.
- To identify and analyse key criticisms and unresolved issues.
- To evaluate outcomes from the recent Conference of the Parties (COP) meetings related to Article 6 and discuss their implications for future implementation and global climate ambition.

The paper also contains quotes from key opinion leaders, including the voices from the COP30 presidency, which were said during and/or provided as part of the Belém Desk discussions.

### ARTICLE 6: BACKGROUND AND SIGNIFICANCE

Article 6 of the Paris Agreement serves as the cornerstone for international cooperative climate action, emerging from a contentious process that aimed to reconcile market-based mechanisms with principles of equity and environmental integrity. Its roots lie in the Kyoto Protocol’s flexibility mechanisms – the Clean Development Mechanism (CDM) and Joint Implementation (JI) – which were criticised for methodological flaws and failing to ensure net global emission reductions (Michaelowa *et al.*, 2019). Article 6 was designed to evolve beyond these predecessors, embedding cooperation directly within the Agreement’s bottom-up, nationally determined architecture. Its significance is profound: it provides a framework to potentially lower the global cost of achieving climate targets, channel finance to developing nations, and incentivise private sector investment, thereby serving as a critical tool for raising collective ambition. Article 6 is reproduced hereunder, as per the Paris Agreement (UNFCCC, 2015).

#### Article 6

*Article 6.1: Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions (NDC) to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.*

*Article 6.2: Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes (ITMOs) towards nationally determined contributions (NDC), promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the*

*Parties to this Agreement.*

*Article 6.3: The use of internationally transferred mitigation outcomes (ITMOs) to achieve nationally determined contributions (NDC) under this Agreement shall be voluntary and “authorized” by participating Parties.*

*Article 6.4: A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties (COP) serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim:*

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

*Article 6.5: Emission reductions resulting from the mechanism referred to in paragraph 4 of this Article (that is, Article 6.4) shall not be used to demonstrate achievement of the host Party’s nationally determined contribution (NDC) if used by another Party to demonstrate achievement of its nationally determined contribution (NDC).*

*Article 6.6: The Conference of the Parties serving as the meeting of the Parties to this Agreement shall ensure that a share of the proceeds from activities under the mechanism referred to in paragraph 4 of this Article (that is, Article 6.4) is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.*

*Article 6.7: The Conference of the Parties serving as the meeting of the Parties to this Agreement shall adopt rules, modalities and procedures for the mechanism referred to in paragraph 4 of this Article (that is, Article 6.4) at its first session.*

*Article 6.8: Parties recognize the importance of integrated, holistic and balanced non-market approaches being available to Parties to assist in the implementation of their nationally determined contributions (NDC), in the context of sustainable development and poverty eradication, in a coordinated and effective manner, including through, inter alia, mitigation, adaptation, finance, technology transfer and capacity-building, as appropriate. These approaches shall aim to:*

- a. Promote mitigation and adaptation ambition;*
- b. Enhance public and private sector participation in the implementation of nationally determined contributions (NDC); and*

- c. Enable opportunities for coordination across instruments and relevant institutional arrangements.*

*Article 6.9: A framework for non-market approaches to sustainable development is hereby defined to promote the non-market approaches referred to in paragraph 8 of this Article (that is, Article 6.8).*

Article 6 enables international cooperation to tackle climate change and to unlock financial support for developing countries through its three operational paragraphs, namely Article 6.2, Article 6.4, and Article 6.8, which offer three distinct pathways, as shown in Fig. 1. The diagram (Fig. 1) visualizes the core structure of the three distinct cooperative pathways under Article 6, and highlights the key differences in governance (decentralised vs. centralised vs. non-market), and the critical accounting rule (Corresponding Adjustments, CAs) that underpins the market-based elements. Article 6.2 provides accounting and reporting guidance for Parties to use internationally transferred mitigation outcomes (ITMOs) towards nationally determined contributions (NDC). Article 6.4 establishes a new UNFCCC mechanism which can be used to trade high-quality carbon credits. Article 6.8 provides opportunities for non-market-based cooperation for enhancing climate action.

### **Foundational Principles and Rules of Article 6**

The operationalisation of Article 6 required a detailed “rulebook”, which was largely finalized at COP26 held in Glasgow, Scotland, United Kingdom in 2021 after years of contentious negotiations. The “Rulebook for Article 6” was further refined at COP 28 (Dubai, UAE, 2023), and technically operationalised at COP29 (Baku, Azerbaijan, 2024).

The Article 6 framework is built upon several non-negotiable principles designed to protect the environmental integrity of the Paris Agreement. The key principles are discussed hereunder.

#### *Corresponding Adjustments (CAs) and avoiding double counting*

The cardinal rule of Article 6 is that emission reductions must be counted only once towards a single NDC to ensure environmental integrity. To address this double counting, Article 6 utilises an accounting measure, corresponding adjustments (CAs), that prevents two countries from counting the same emissions reductions (ERs) twice. Double counting of ERs occurs when a single GHG emission reduction is counted more than once towards mitigation strategies. As a consequence of double counting, countries (entities) could appear to meet their mitigation targets, while the actual total GHG emissions exceed the reported levels (Schneider *et al.*, 2015). To prevent this, when carbon credits under Article 6.2 (termed as ITMOs) or under Article 6.4 activities (termed as A6.4ERs) are transferred internationally (including from conditional targets and sectors outside an NDC), countries must apply CAs – that is, the host country must add the transferred credits/units to its emission inventory (NDC), while the acquiring country must subtract it (Michaelowa *et al.*, 2019). This ensures a net-zero effect on the global ledger, transferring mitigation achievement from one NDC to

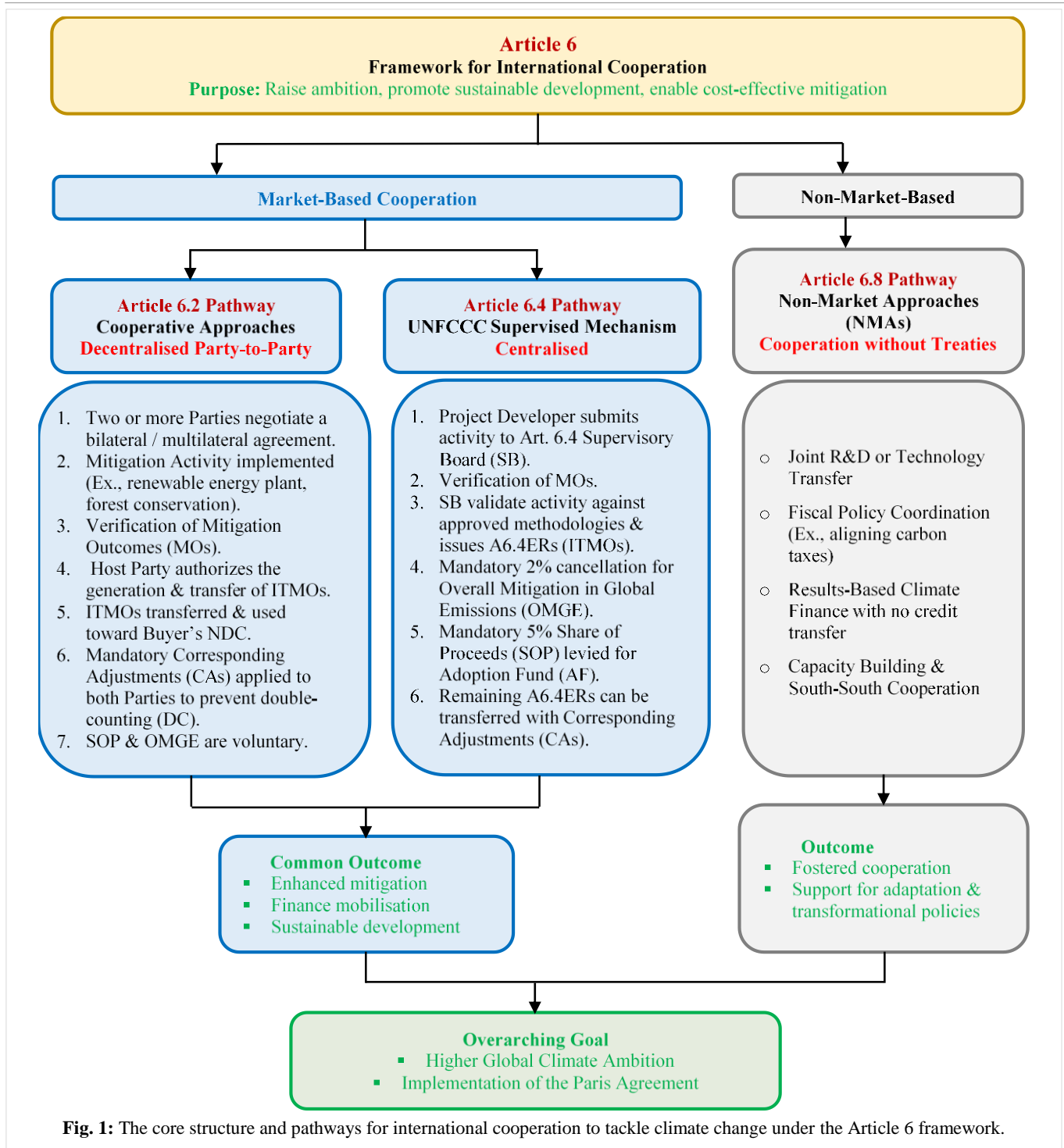


Fig. 1: The core structure and pathways for international cooperation to tackle climate change under the Article 6 framework.

another.

Double counting can occur in three ways (UNFCCC, 2012; Hood *et al.*, 2014; Schneider *et al.*, 2016a; Schneider *et al.*, 2016b) –

1) *Double claiming*: It occurs if the same emission reductions are counted/claimed by both parties – the host country (transferring country where the project occurs) through reporting of its reduced GHG emissions and the buying country (acquiring country or entity) using the transferred units towards meeting its mitigation targets. Thus, inflating global progress and rendering the markets

meaningless.

2) *Double issuance*: In a fragmented carbon market, there are multiple mechanisms under international, bilateral, national, or non-governmental governance. As a consequence, double issuance could occur if multiple mechanisms issue units for the same emission reductions.

3) *Double use*: It occurs if the same issued units are used twice to achieve a mitigation target. For example, an issued unit(s) is duplicated in registries, or the country uses the same unit(s) in two different years to achieve its mitigation target.

While corresponding adjustments (CAs) are applied to units transferred under both Article 6.2 and Article 6.4 mechanisms, there are some exceptions to the application of CAs in Article 6. These are:

- *Pre-2020 units*: CAs are not required for pre-2020 Certified Emissions Reductions (CERs), which were under the CDM mechanism of the Kyoto Protocol. These may be transferred to Article 6.4 but can only be used to meet the seller country’s first NDC. It is important to note that the CERs used towards first NDC are not considered ITMOs. ITMOs by definition are generated in 2021 or later, whereas eligible CERs are from 2013-2020.
- *Mitigation Contribution Units (MCUs)*: Introduced in 2020, MCUs are the emission reduction units under Article 6.4 (A6.4ERs) that can be used to mobilise climate finance for domestic climate action. These units do not require CAs.

*Share of Proceeds to Adaptation Fund (AF)*

A key equity provision in Article 6 is the contribution of a Share of Proceeds to the Adaptation Fund (AF) for financing climate resilience in vulnerable developing countries. The provisions are outlined under Article 6.2 (voluntary contributions) and Article 6.4 (mandatory contributions, 5% of A6.4ERs). This ensures that market activities contribute to addressing the full spectrum of climate impacts.

*Overall Mitigation in Global Emissions (OMGE)*

The mechanism under Article 6.4 introduced a novel concept of Overall Mitigation in Global Emissions (OMGE) by mandating a cancellation of a portion (2%) of issued credits. Furthermore, Parties are encouraged to apply a voluntary cancellation of credits for OMGE under Article 6.2. This ensures that the system should not be a zero-sum game but should result in a net decrease in atmospheric greenhouse gases. The mechanism thus directly addresses the criticism of the Clean Development Mechanism (CDM) under the Kyoto Protocol, which often transferred emission reductions without ensuring a net global benefit (Schneider *et al.*, 2019).

The purpose and/or fee for SOP and OMGE, along with discounts, under Article 6 are given in Table 1.

*Authorisation*

The concept of “authorisation”, introduced in Article 6.3, requires countries to “authorise” the use of ITMOs. It is a key component of Article 6, which triggers a commitment by the seller country to apply a corresponding adjustment (CA), and adhere to reporting requirements. Article 6 establishes three types of authorisations – authorisation of ITMOs, authorisation of cooperative approaches, and authorisation of entities, consolidated into one single process. Generally, these authorisations facilitate a classical country-to-country cooperative approach where two countries negotiate and authorise ITMOs together.

As per Decision 4/CMA.6 (UNFCCC, 2025b), the host country can only change or revoke authorisation before ITMOs have been first transferred, unless otherwise stipulated in the bilateral agreements or letters of authorisation. All authorisations must be made publicly available on the UNFCCC’s Centralised Accounting and Reporting Platform (CARP).

*Sustainable development and environmental integrity*

All the activities under Article 6 aim to promote sustainable development and ensure environmental integrity, including avoiding double counting and leakage (that is, shifting emissions elsewhere) and ensuring robust monitoring, reporting, and verification (MRV). The responsibility for safeguarding sustainable development primarily lies with the host country under Article 6.2, and with the dedicated Supervisory Board (SB) under Article 6.4.

**ARTICLE 6.2: COOPERATIVE APPROACHES – A DECENTRALISED MARKETPLACE**

Article 6.2 provides an overarching framework for Parties to engage in voluntary cooperative approaches involving the ITMOs. It is decentralised, Party-driven, and flexible, allowing for bilateral or multilateral agreements. The eligible mitigation outcome (MO) activities may include renewable energy projects (solar, wind and hydro), energy efficiency initiatives (industrial, building, lighting and appliances), waste management and circular economy (waste-to-energy, methane capture from landfills, recycling and resource recovery systems), carbon capture and storage (CCS), transport sector, agriculture and forestry (afforestation/reforestation, climate-smart agricultural practices).

**Table 1:** SOP and OMGE – purpose, use and fee under Article 6.

Name	Destination and purpose	Applied as	Values	Remarks
SOP	Adaptation Fund (AF) for all activities / credits	Volume contribution of all types of issued units.	5% of Art 6.4 units at the time of issuance.	<ul style="list-style-type: none"> <li>▪ Mandatory for all issued units under Art. 6.4 trades, including MCUs.</li> <li>▪ Voluntary under Art. 6.2 trades.</li> <li>▪ Due at issuance by the seller country, not at transfer.</li> <li>▪ LDC and SIDC are exempt from paying SOP.</li> </ul>
	Adaptation Fund (AF) for specific activities	Monetary contribution.	3% of the issuance fee paid for each request for issuance of Art. 6.4 units and transferred annually to the AF.	
	Supervisory Board for administrative expenses		Set of 5 different fees (2%) charged for registration, issuance, renewal, inclusion of CPAs, and approval of post-registration charge.	
OMGE	Cancellation Account to increase ambition	Volume of all types of issued units.	Minimum 2% of Art. 6.4 units at the time of issuance.	

**Table 2:** Pros and cons of Article 6.2.

Aspect	Host Party/Country (Seller)	Buying Party/Country
Pros	Attracts investment and finance for low-carbon projects.	Lower the cost of achieving NDC targets by sourcing abatement where it is cheapest.
	Technology transfer and capacity building.	Provides flexibility to manage emissions trajectories.
	Can provide monetary benefits for excess mitigation beyond its NDC target.	Can foster diplomatic and economic partnerships.
	Promotes sustainable development co-benefits.	
Cons	Risk of ‘selling cheap’ and locking away low-cost mitigation options, making future NDCs more expensive.	Risk of purchasing low-integrity ITMOs if host country governance is weak, leading to reputational and environmental integrity risks.
	Significant administrative burden to set up authorization, MRV, and accounting systems.	Dependency on external mitigation can disincentivize domestic transformation.
	Potential for domestic opposition if projects lack legitimacy or cause local harm.	Price and supply volatility.
	Liable for the integrity of ITMOs; reputational risk if issues arise.	

**Mechanics and Governance**

Under Article 6.2, two or more Parties agree to cooperate on a GHG emissions mitigation activity. The ITMOs generated (measured in metric tonnes of CO<sub>2</sub> equivalent) by the host Party can be used by the acquiring (buying) Party towards its NDC or other international mitigation purposes. The governance is light-touch at the international level but requires strong domestic institutions. The key requirements include –

- *Authorisation:* The host Party must authorise the transfer of ITMOs for use by the buying Party towards its NDC or other international mitigation purposes.
- *Robust Accounting:* Parties must establish and apply robust accounting rules to avoid double-counting using CAs, ensure transparency, and promote sustainable development.
- *Reporting and Review:* Parties must regularly report on their cooperative approaches through the Biennial Transparency Reports (BTRs), which are subject to international technical expert review.

Article 6.2 enables a seller (host) country that is on track to exceed its NDC target to trade units (ITMOs) to attract investments and access to technologies that might not be available domestically. Whilst providing the buyer country with a cost-effective way to meet its NDC by purchasing these units (ITMOs).

Article 6.2 provides both the buyer and seller with significant flexibility in their cooperation. There are no restrictions on the sectors or methodologies that can be used, as long as Article 6.2 requirements are followed. As a consequence of such flexibility, cooperation between countries has taken different approaches and already includes links with the private sector and some regulated markets. Each country is responsible for designing its own systems for implementing trades and for establishing rules that define/govern how cooperation will work in practice.

**Pros and Cons for Participating Parties**

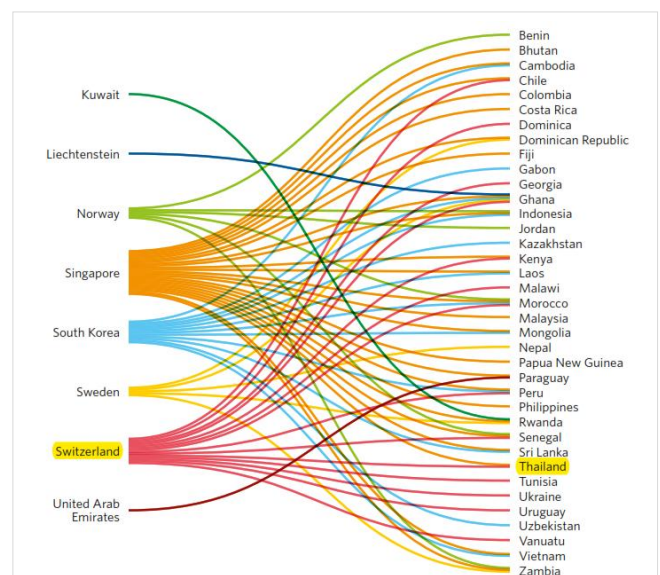
The pros and cons of Article 6.2 for the participating Parties – host and buying countries are presented in Table 2.

**Early Projects and Emerging Difficulties**

Several countries and coalitions have launched early pilot transactions under Article 6.2 to test the practical application of authorisation, CAs, and reporting. Notably, Switzerland has signed bilateral agreements with Ghana, Peru, Senegal, and others, focusing on projects like clean cookstoves and renewable energy (Kachi *et al.*, 2019). Japan is engaging through its Joint Crediting Mechanism (JCM).

Article 6.2 has been operational since 2021, and there has been growing momentum. As of December 2025, 49 countries have signed over 100 bilateral cooperation agreements amongst them (IETA, 2025). Fig. 2 shows the bilateral agreements signed as of May 2025 (Granziera *et al.*, 2025). However, the progress has been symbolic (Granziera *et al.*, 2025)–

- only one country-to-country trade has been concluded till-



**Fig. 2:** Article 6.2 bilateral agreements.

date, between Switzerland and Thailand;

- several transactions between the Government of Guyana and international airlines for CORSIA compliance.

The key difficulties emerging include –

- *Lack of domestic frameworks and uncertainties around NDC progress:* The slow progress due to the lack of domestic frameworks to implement Article 6. This is further complicated by uncertainty around NDC progress. As without strong national policies, countries have struggled to create mechanisms needed for international carbon markets.
- *Authorisation strategies:* Host countries face complex decisions on what to authorise – whether to allow ITMOs for “over-achievement” of their NDC or only for mitigation not covered by their NDC. Stringent authorisation conserves domestic mitigation potential but may reduce market interest.
- *MRV and standardisation:* While Article 6.2 is decentralised, a lack of standardization in baselines, additionality testing, and MRV risks creating a fragmented market with varying quality, undermining trust and liquidity.

#### ARTICLE 6.4: SUSTAINABLE DEVELOPMENT MECHANISM – A CENTRALISED CREDITING SYSTEM

Article 6.4 establishes a centralized UNFCCC-supervised international carbon crediting mechanism – Paris Agreement Crediting Mechanism (PACM) – for the issuance of mitigation outcomes that also contribute to sustainable development. It is the successor to the CDM mechanism operated under the Kyoto Protocol. The key differences between the two mechanisms are presented in Box 1.

The eligible mitigation outcome (MO) activities may include renewable energy deployment (solar, wind, hydro, biomass),

##### Box 1

#### Article 6.4 (PACM) and the CDM mechanism: How are they different?

- The Clean Development Mechanism (CDM) was the UNFCCC-managed carbon crediting mechanism established under the Kyoto Protocol, 1997. It ceases to be operational, and discontinued issuing Certified Emission Reduction (CER) units (i.e., carbon credits) at the end of 2020.
- The Article 6.4 mechanism (Paris Agreement Crediting Mechanism, PACM) is also a UNFCCC-managed (through Supervisory Board) carbon credit mechanism established under the Paris Agreement, 2015. It has replaced the CDM.
- The CDM only allowed projects between Annexure 1 Parties (developed countries, who invest in emission-reduction projects) and Non-Annexure 1 Parties (developing countries, who host the project); whereas, Article 6.4 (PACM) has no such restrictions.
- Article 6.4 (PACM) requires greater Host country involvement due to the need to approve projects seeking registration and to authorise the transfer of ITMOs generated by such projects.

industrial decarbonisation (low carbon fuel, energy efficiency), carbon sequestration (forestry and land-use projects, soil carbon enhancement), emerging technologies (hydrogen production from renewable sources, advanced battery storage systems), and community-based projects (rural clean cooking solutions, decentralized renewable energy for rural and remote areas).

#### Structure and Supervision

The PACM mechanism is overseen by a Supervisory Board (SB), which develops methodologies, approves activities, registers projects, and issues carbon credits termed as “A6.4ERs”. Units (A6.4ERs) issued can follow two paths –

- become ITMOs when authorised as per Article 6.2 for NDC use, CORSIA, or other purposes (such as voluntary claims); or
- become MCUs (mitigation Contribution Units) when not authorised, and can be used for domestic climate action and to mobilise climate finance.

Aside from the accounting requirements, ITMOs and MCUs are identical units.

The PACM mechanism is designed to be more rigorous and transparent than the CDM. However, significant work lies ahead to fully operationalise the PACM (Article 6.4). Its key features include –

- *Methodology development:* The SB approves standardised and project-specific methodologies that must demonstrate additionality, establish baselines, and define monitoring plans.
- *Additionality and baseline setting:* The burden of proof for “additionality” is high. Activities must not be required by law, regulation, or already financially attractive. Baselines must represent a conservative, plausible business-as-usual scenario.
- *SOP and OMGE implementation:* For all units issued under Article 6.4, a levy of 5% of the volume of issued carbon units will be transferred to the Adaptation Fund (AP) as a Share of Proceeds (SOP). This 5% cancellation applies to all A6.4ER units (ITMOs as well as MCUs). An additional 2% cancellation of all issued A6.4ERs to the OMGE - intended to increase ambition by ensuring a net global reduction in emissions. However, as decided at COP29, the Least Developed Countries (LDCs) and the Small Island Developing States (SIDS) are exempted from the levy as a SOP. Nevertheless, LDCs and SIDS have the option to contribute voluntarily, if they wish.

#### Pros and Cons for Participating Parties

The pros and cons of Article 6.4 for the project developers (investors) and host Parties are presented in Table 3.

#### Projects and Critical Challenges

The PACM is not yet fully operational. The initial supply of Article 6.4 units is expected to come in 2025 onwards from transitioned CDM projects. A cookstove project in Myanmar became the first CDM transition project (Reference number: PoA 10415) to officially transition into Article 6.4 in February of 2025 (UNCC, 2025). However, in a Carbon

**Table 3:** Pros and cons of Article 6.4.

Aspect	Project Developer/Investor	Host Party
Pros	Access to a potentially large, standardized market.	Reduced administrative burden compared to Article 6.2, as the SB oversees key integrity functions.
	Credibility from UN oversight.	Potential for a more trusted and liquid credit class.
	Structured process for credit issuance.	
Cons	Likely higher transaction costs and stricter requirements than under Article 6.2.	Less control over methodologies and approval processes.
	Uncertainty during the SB’s start-up phase.	Must still provide the host Party approval and authorization for international transfer.
	Potential for regulatory delays.	

Market Watch report, this project has been criticised for the possibility of over-crediting analysis – likely set to issue 26.3 times more credits than it should have (Faecks, 2025).

New projects might have to wait until 2026, once updated methodologies are approved and the registry is operational (Granziera *et al.*, 2025). The critical challenges for Article 6.4 are –

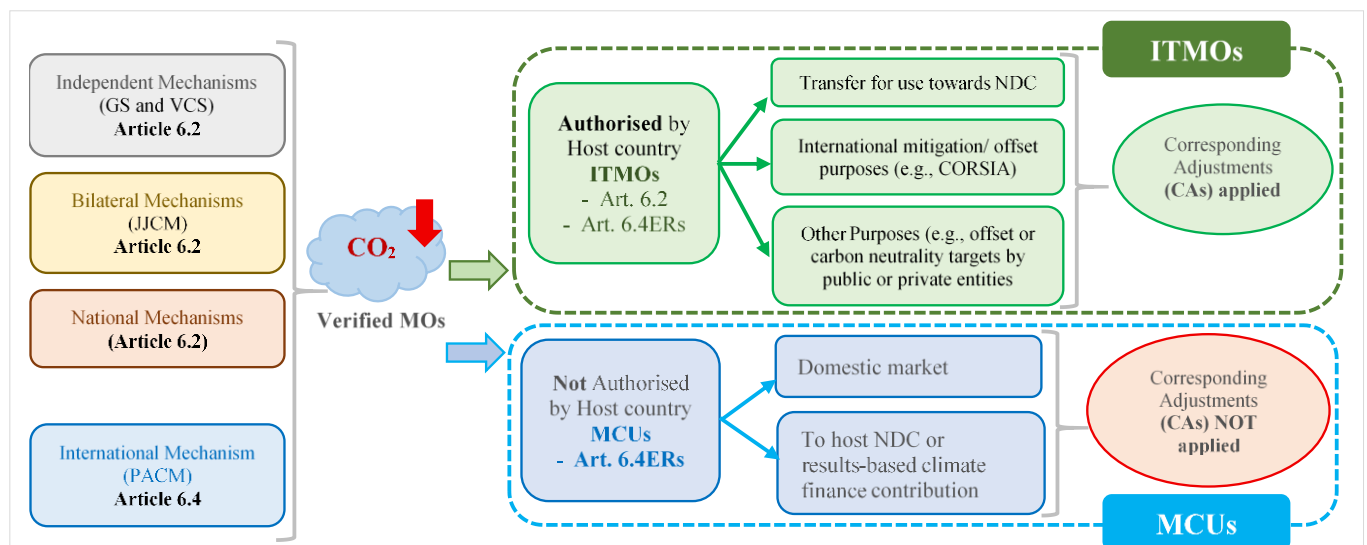
- *Methodological rigour vs. scalability:* Striking a balance between bulletproof environmental integrity and a process agile enough to scale up rapidly is a fundamental tension. Learning from CDM bottlenecks is essential (Cames *et al.*, 2016).
- *Additionality in a Paris world:* In an era where all countries have NDCs and climate policies are expanding, proving that a project is “additional” – that is, beyond what would happen anyway – becomes increasingly complex.
- *Treatment of removal activities:* COP 26 tasked the SB with developing recommendations for carbon removal activities (e.g., DACCS, BECCS). The methodological challenges here – regarding permanence, liability for reversal, and accurate measurement – are profound and unresolved (Carton *et al.*, 2023).
- *Transition from CDM:* A major sticking point has been the

inclusion of pre-2020 CDM credits. COP26 largely restricted this, allowing only those registered after 2013, but the issue of ‘zombie CERs’ and methodologies persists. However, the CDM projects allowed to transition to Article 6.4 can continue to use their original CDM methodologies until December 2025.

- *Over-crediting analysis:* The critics of ‘transitioning CDM projects to Article 6’ point towards the possibility of over-crediting analysis in such projects. For instance, an independent study reported that “Analysis of the available document has found that PoA 10415 (cookstove project in Myanmar) is likely set to issue 26.3 times more credits than it should have....” (Faecks, 2025).

**PROCESS OF ITMOs AND MCUs GENERATION AND THEIR USES**

Under Article 6, the term “Mitigation Outcomes (MOs, measured in tonne of CO<sub>2</sub>eq)” has replaced most forms of international carbon credits (which is a generic term). When MOs generated in a country (seller) are transferred to another country (buyer), they become “Internationally Transferred Mitigation Outcomes (ITMOs, measured in tonne of CO<sub>2</sub>eq)”. Thus, ITMOs are a specific type of carbon credits, created by Article 6, that are real, verifiable, and additional emissions reductions or removals (MOs) that have been authorised by the relevant Host country and can be used in



**Fig. 3:** Process of ITMOs generation and use under Article 6.2 and 6.4.

three ways – towards NDC achievements, for international mitigation/offset purposes (e.g., by international airlines under the CORSIA scheme), or for other purposes (e.g., voluntary climate commitments established by either public or private entities) as specified. The ITMOs can represent both emission reductions and removals from all sectors, and they must originate from MOs achieved from 2021 onwards.

ITMOs are generated from verified MOs, as shown in Fig.3, and can be issued under Article 6.2 (cooperative approaches) and Article 6.4 (centralized UNFCCC international mechanism) by a carbon crediting mechanism, including –

- independent mechanisms (e.g., the Gold Standard or the Verified Carbon Standard) under Article 6.2;
- bilateral mechanisms (e.g., Japan’s Joint Crediting Mechanism) under Article 6.2;
- national mechanisms under Article 6.2; or
- international mechanism (i.e., PACM) under Article 6.4.

The units issued under Article 6.4 (A6.4ERs) can follow two paths –

- Authorised MOs (ITMOs): A6.4ERs become ITMOs when they are authorised by the host country to be transferred internationally for NDC use, CORSIA, or other international mitigation schemes and other purposes. Corresponding Adjustments (CAs) are to be applied mandatorily to avoid double-counting. They must also meet standards and follow methodologies approved by Article 6.4 SB.
- Non-authorised MOs (MCUs): Mitigation Contribution Units (MCUs) are A6.4ERs generated without a CA, and can be used to mobilise finance for domestic climate action. Unlike ITMOs, MCUs are not authorised for international transfer by the host country but instead stay within the seller country to help meet its own climate targets. However, a buyer may purchase MCUs to support the mitigation efforts in the host country without making any corresponding offsetting claims towards its NDC.

The key distinction between ITMOs and MCUs is authorisation by the host country. The process of ITMOs and MCUs generation, along with purpose and use, is presented in Fig. 3.

**ARTICLE 6.8: NON-MARKET APPROACHES – COOPERATION BEYOND TRADING**

Often overlooked, Article 6.8 provides a framework for non-market approaches (NMAs) to promote mitigation and adaptation. These are cooperative actions of countries and

entities to support other countries, financially or technically, that do not involve the transfer/trading of carbon credits. The cooperation actions may include climate finance (grants, concessional loans), technology transfer (renewables, adaptation tools), capacity building (training, institutional strengthening), and policy coordination (tax incentives, regulations).

**Scope and Purpose**

The NMAs aim to foster cooperation on sustainable development and climate resilience through means such as finance, technology transfer, and capacity-building. The examples of NMAs could include –

- Joint research and development programmes for clean technology.
- Fiscal policies coordinated to phase out fossil fuel subsidies.
- South-South cooperation on climate-resilient agriculture.
- Results-based climate finance not tied to credit transfers.

**Potential and Pitfalls**

Article 6.8 is less defined than Articles 6.2 and 6.4. Furthermore, there is not much clarity on how the mechanism will influence existing NMAs, such as philanthropic initiatives. The potential and pitfalls of NMAs (Article 6.8) are tabulated in Table 4.

Article 6.8 is in phase 2 of its work programme, and a review is planned for 2026.

**AIMS FOR COMPLIMENTARY OUTCOMES**

Although the pathways differ, all three articles aim for complementary outcomes – mobilising action and resources (Articles 6.2 and 6.4) and fostering direct cooperation (Article 6.8), to serve the overarching goal of achieving higher global climate ambition under the Paris Agreement. The key features of Articles 6.2, 6.4, and 6.8 are summarised and equated in Table 5.

**Is Nature Included in Article 6**

As is the case for all sectors, the land sector is not explicitly referred to in the text of Article 6; however, nature-based activities could be eligible for Article 6 trades provided the project fulfils the Article 6 guidance. Thus, natural climate solutions (NCS), including REDD+ activities, are indeed included in Article 6 (Granziera *et al.*, 2025). NCC encompasses protecting, restoring, and managing natural ecosystems, such as forests, mangroves, croplands, grasslands, and peatlands – all of which fall under the IPCC definitions of emissions reductions or removals.

**Table 4:** Potential and pitfalls of Article 6.8.

Pros	Cons
Addresses criticism that markets commodify nature and distract from transformative policy.	Vaguely defined, making it difficult to operationalise and measure effectiveness.
Can facilitate direct support for adaptation, which is difficult to monetise in markets.	Risk of becoming a “talking shop” without clear deliverables or accountability.
Encourages holistic, cooperative partnerships.	Struggles to attract private sector investment without a revenue model.

**Table 5:** Comparison of Articles 6.2, 6.4 and 6.8.

Feature	Article 6.2	Article 6.4	Article 6.8
Nature	Decentralised cooperative approaches, country-to-country agreements	Centralised, UN-supervised mechanism	Non-market cooperation
Oversight / Governance	National governments	UNFCCC Supervisory Body	Framework for cooperation / support measures
Flexibility	High – allows bilateral/multilateral deals without UNFCCC oversight	Lower – standardized rules under the UNFCCC	High, but non-tradable
Instruments	ITMOs (carbon credits) issued by a crediting mechanism.	<ul style="list-style-type: none"> <li>▪ ITMOs: A6.4ERs (carbon credits) issued by UNFCCC crediting mechanism, and authorized as ITMOs under Article 6.2.</li> <li>▪ MCUs: A6.4ERs (carbon credits) not authorized as ITMMOs.</li> </ul>	No credits
Issuing / Crediting Mechanism	<ul style="list-style-type: none"> <li>▪ Independent mechanisms (e.g., the Gold Standard or the Verified Carbon Standard);</li> <li>▪ Bilateral mechanisms (e.g., Japan’s Joint Crediting Mechanism); or</li> <li>▪ National mechanisms.</li> </ul>	International mechanism – Paris Agreement Crediting Mechanism (PACM), that is, Article 6.4 mechanism.	No specific crediting mechanism.
Utility	Countries can transfer ITMOs to meet their climate targets.	Establishes a global carbon market where emission reduction (ER) projects are registered and credits are issued.	Cooperation without carbon trading.
Transparency	Requires robust accounting rules to avoid double-counting of emissions reductions.	Stronger monitoring, reporting, and verification (MRV) requirements.	Focused on documenting cooperation, not credits.
Credibility	Depends on national systems	Stronger due to UNFCCC oversight	Depends on implementation
Transaction costs	Lower, as countries can negotiate directly.	Higher due to centralized oversight, fees and administrative charges.	Lower, but no tradable credits
Adaptation Fund (AF)	Voluntary contributions to AF	Mandatory 5% Share of Proceeds (SOP) levied for AF contribution	
OMGE contribution	Voluntary contributions	Mandatory 2% of credit cancellation to the OMGE	
Participants	Primarily Governments. Private entities can be indirectly involved through national frameworks.	Both governments and private entities can directly participate/register projects.	Primarily Governments. Private entities’ participation is limited, mostly through support.
Pros	Faster implementation, more flexible, tailored to national needs.	Higher credibility, standardized rules, better environmental integrity.	Inclusive, supports sustainable development, avoids market risks.
Cons	Risk of inconsistent standards and weaker oversight.	More bureaucratic, slower, potentially higher transaction costs.	Less direct incentive for emission reductions, harder to measure outcomes

ITMOs (Article 6.2) include both emission reductions and removals, regardless of the sector where they come from and there are no limitations on the types of units that can be traded. Consequently, nature-based activities that lead to either emission reductions and/or removals can be eligible, provided they meet Article 6.2 guidance.

Similar to Article 6.2, there are no limitations on the sectors or activities under Article 6.4 for which methodologies can be submitted or approved as long as the methodologies are relevant and are approved by the Supervisory Board. As a result, emission reductions and removals from all sectors (including nature) could generate A6.4ERs (Granziera *et al.*, 2025).

Nature-based solutions have high mitigation potential and relatively low cost, so they could represent a significant share of the Article 6 credit market. It is up to the parties (countries) to decide if they want to include nature activities as part of their Article 6 agreements. Several countries, including Japan, South Korea, Singapore, Guyana and Ghana, have already expressed intent to include nature in their cooperative approaches (Granziera *et al.*, 2025).

**KEY ISSUES AND CRITICISM**

Article 6, which governs the international carbon markets and non-market cooperation, is one of the most technically complex and contentious parts of the Paris Agreement. critical issue. The “Rulebook for Article 6” was finalised at COP26 (Glasgow, UK, 2021), refined at COP 28 (Dubai, UAE, 2023), and technically operationalised at COP29 (Baku, Azerbaijan, 2024). However, unresolved issues and criticism of potential loopholes of Article 6 persist.

**Linkage of Markets and the Risk of Over-supply**

A critical issue is the interaction between Article 6 markets, voluntary carbon markets (VCMs), and domestic compliance markets. The demand for CAs from the VCM could shrink the supply available for NDC compliance under Article 6. Conversely, a future decision to allow linkages of emissions trading systems (ETSs) via Article 6.2 could create a vast, liquid market but requires impeccable accounting to prevent leakage or double-counting (Cames *et al.*, 2016).

**The Integrity Trilemma: Environmental Rigour, Cost, and Scale**

Article 6 faces a fundamental trilemma – “it is difficult to simultaneously achieve maximum environmental integrity, low transaction costs, and large-scale mitigation impact”. Prioritising rigour (e.g., conservative baselines) raises costs and slows scaling. Prioritising scale and low-cost risks integrity failures. The rulebook attempts to navigate this, but its practical resolution will play out in individual projects and host country decisions.

### **Nature-based Emission Reductions Carry a Risk of Reversal**

The standard on removals endorsed at COP29 applies not only to carbon removal activities, but also to emission reduction activities that carry a risk of reversal. It is a key provision that can directly affect nature-based activities, and has gone largely unnoticed.

### **Can Emission Reductions from REDD+ be Traded under Article 6.2?**

REDD+ stands for Reducing Emissions from Deforestation and Forest Degradation in developing countries. The ‘+’ stands for additional forest-related activities that protect the climate, namely sustainable management of forests and the conservation and enhancement of forest carbon stocks (UNFCCC, 2025c). It is a mechanism that is considered “*a collection of UN decisions, taken over many years, which regulate, measure, and incentivise forest conservation activities*” and is part of the Paris Agreement to serve as a major incentive for the developing countries for their efforts to reduce deforestation. Under this framework, the developing countries can receive result-based payments for emission reductions through REDD+ activities.

If REDD+ activities meet the requirements of Article 6 (for example, a forest project generating emission removals), it can be considered under Article 6.2 or 6.4. However, some concerns have been raised over the compatibility between REDD+ activities and Article 6 for several reasons (WI, 2022; CMW, 2024), such as –

- *Definition of ITMOs under Article 6.2:* Some experts interpret ‘emission reduction from deforestation and forest degradation’ as essentially “avoidance”, which is not covered under the definition of ITMOs. Hence, they are of the view that REDD+ credits should not be traded under Article 6.2.
- *Differences in requirements:* The requirements of both mechanisms are different. For instance, quantification requirements for ITMOs must be aligned with IPCC guidance, whereas REDD+ credits do not need to be aligned with IPCC guidance and additional requirements. In view of this, it is emphasised that only such emission reduction REDD+ activities be traded under Article 6.2 which meet its requirements.

Further, the critics of the REDD+ framework argue that the REDD+ activities “*have been repeatedly proven to not always lead to real, additional, and permanent emissions reductions, which make them ill-suited for carbon credits*” (CMW, 2024).

### **Greenwashing**

Greenwashing is the practice of making misleading or unsubstantiated claims about the environmental benefits of a country, company, or product to appear more climate-friendly and ambitious in emission reductions than they actually are. Greenwashing may manifest in many ways, such as –

- Overstating emission reduction achievements or under-reporting emissions in national inventories;
- Setting distant, vague net-zero targets (say, 2050) without credible short-term plans or policies to achieve them;
- Relying heavily on questionable carbon offsets (e.g., purchasing cheap, non-additional forest conservation credits) rather than decarbonising core operations.
- Highlighting small, symbolic green initiatives while continuing or expanding high-emission activities (e.g., a company advertising a small renewable investment while continuously increasing its GHG emissions from production/operations).

The critics view greenwashing not just as false advertising, but as a systematic risk to the global cooperative framework under Article 6 of the Paris Agreement. It could flood international carbon trading markets with low-quality and/or cheap carbon credits that do not represent real, permanent, and additional emission reductions. Consequently, the primary criticism from civil society is that Article 6 provides a license for polluters to continue emitting domestically by purchasing cheap offsets abroad, thereby delaying urgent and systemic decarbonisation at the source. This is seen as a distraction from the core goal of phasing out fossil fuels, and making entities’ net-zero claims based on these credits essentially meaningless.

### **Concentration of Projects**

There is a risk that carbon markets may focus on a few countries and project types (e.g., renewable energy in middle-income countries) that offer the cheapest carbon credits, rather than driving transformation in harder-to-abate sectors or reaching the least developed countries.

In addition to the above-discussed issues and criticism, there are transparency and reporting challenges, social and environmental safeguards issues (such as land grabs, impacts on Indigenous Peoples’ rights, local environmental damage from large-scale carbon offset projects), and unresolved technical and implementation hurdles, which need to be debated and addressed at the COP platform.

Future decisions and further guidance around these issues will significantly shape the nature of activities allowed in Article 6.

### **KEY OUTCOMES OF COP28, COP29 AND COP30 RELATED TO ARTICLE 6**

Since the establishment of Article 6 under the Paris Agreement in 2015, a series of yearly COP meetings have resulted in the outcomes related to the finalisation of rules and operationalisation of Article 6.2 and 6.4 (Granziera *et al.*, 2025). A summarised timeline is shown in Fig. 4.

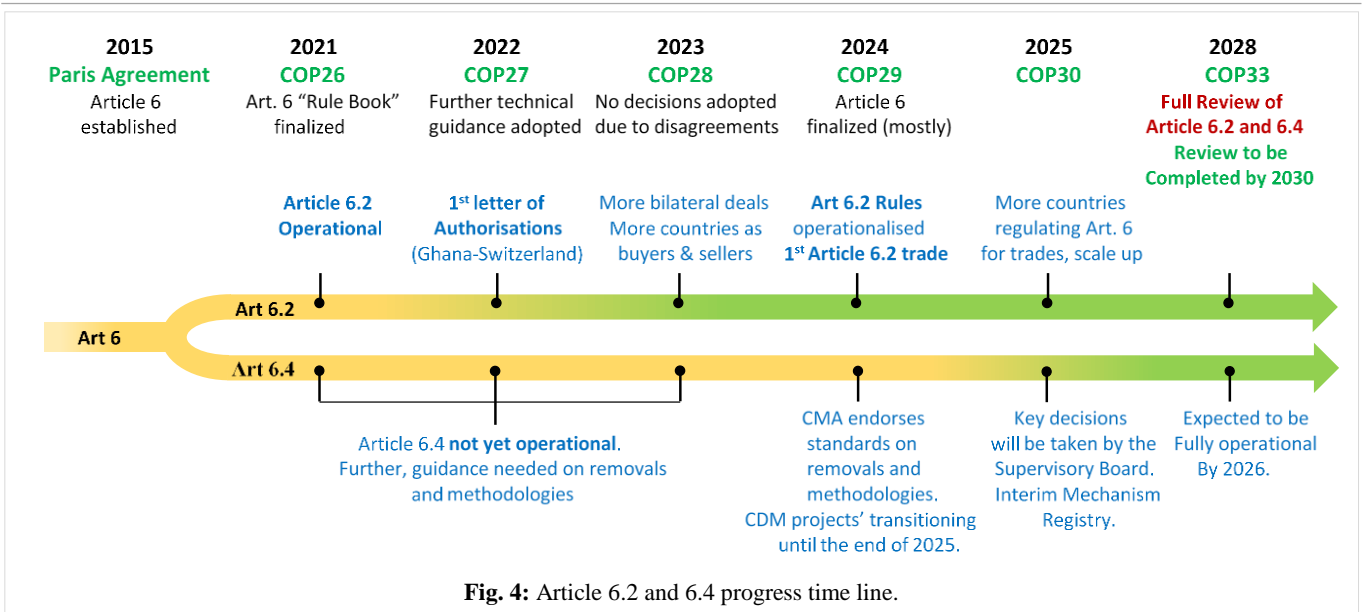


Fig. 4: Article 6.2 and 6.4 progress time line.

The key outcomes of the three recent COP conventions are summarised hereunder. However, unresolved issues and criticism of potential loopholes of Article 6 persist, and the ultimate success or failure will depend on implementation in the coming years.

**COP28 (Dubai, UAE, 2023)**

COP28 (UNCC, 2024) achieved crucial operationalisation milestones. Parties adopted the “Article 6.4 Mechanism Registry” rules and the “first recommendations on carbon removals”, a critical step. Parties also agreed on guidance for the “first global stock-take”. This will inform future NDCs and thus shape demand for Article 6 cooperation. However, many detailed methodological decisions were pushed to the SB, indicating that the technical work is just beginning.

**COP29 (Baku, Azerbaijan, 2024)**

COP29 (Granziera *et al.*, 2025) marked a historic milestone for Article 6 as it achieved full operationalisation of Article 6 rules for cooperative approaches (Art. 6.2) and the centralised mechanism (Art. 6.4) for a stable framework for carbon trading. Clarified processes for authorised ITMOs and mandatory CAs to prevent double-counting. Technically operationalised the Paris Agreement Crediting Mechanism (PACM) under Article 6.4, with a planned registry and tracking system to be built in 2025. The Least Developed Countries (LDCs) and Small Island Developing States (SIDS) are exempted from the levy (Share of Proceeds) for PACM.

**COP30 (Belam, Brazil, 2025)**

COP30 had a clear focus on not creating new initiatives but to work on those that already exist and delivering as much impact as possible (Deswal, 2025c). The COP30 was also unique in that it did not have a headline mandate, but it distributed 600 initiatives across 30 objectives.

The key outcomes of COP30, held in Belam, Brazil, from November 10-21, 2025, related to Article 6 are:

- The near-term finance signal for nature under Article 6

remains limited, even though the broader system stays open. Integrity rules are now clearer, arrangements for funding transfers have been agreed, and uncertainty surrounding governance has eased. However, decisions on permanence, reversal risk, and all nature methodologies have been postponed to 2026, and guidance on jurisdictional REDD+ has fallen down the agenda (Matta, 2025). Despite this, there have been significant advancements outside the negotiating halls for high-integrity carbon markets, particularly in –

- Eight countries endorsed the “Coalition to Grow Carbon Markets” for *shared principles for growing high-integrity use of carbon credits*, to set a global benchmark for credible corporate use of carbon credits. It aims to bridge Article 6 and voluntary carbon markets, and unlock an estimated USD 50 billion annually in climate finance.
- The “Open Coalition for Compliance Carbon Markets” was formed to strengthen mutual understanding, promote transparency across MRV systems and accounting methodologies, and explore long-term interoperability among compliance schemes.
- The “Scaling J-REDD+ Coalition” was announced, bringing together seven governments, Indigenous Peoples and local communities, civil societies, and the private sector to expand high-integrity forest carbon finance.
- The “CDR Mutirão” initiative to advance national Carbon Dioxide Removal (CDR) strategies and Article 6 cooperation. It includes a ‘Government Policy Launchpad’ led by the Group of Negative Emitters (GONE) that aims to secure USD 250 million – 1 billion in high-integrity removals. However, there was scepticism around what it could achieve, Clare Shakya, Global Managing Director for Climate, TNC, stated, “despite the best efforts of the Brazilian Presidency, plus 87 countries calling for a roadmap out of the fossil fuel age, the mutirão text’s lack of explicit references to the core cause of the climate crisis

– whether phasing-out or transitioning away – risks making fossil fuels of us all.”

It was reported that the “Partnership for Market Implementation Facility (PMIF)”, unveiled on the sidelines of COP25 and officially launched in 2021 by the World Bank, is helping over 35 countries in designing and implementing carbon pricing instruments and market mechanisms. Thus, laying the groundwork for credible markets aligned with Article 6.

Some of the key negotiation mandates have been postponed, leaving gaps to be further addressed. A couple of such topics are –

- How to apply CAs for single-year versus multi-year NDC targets to avoid double-counting. This is a critical issue to reduce the risk of overselling by countries and to prevent “surprises” in 2030, where countries might fall short of meeting their NDCs because they “oversold” ITMOs.
- Decisions on permanence, reversal risk, and all nature methodologies have been pushed to 2026, and guidance on jurisdictional REDD+ has slipped down the agenda.

COP 30 may not have delivered the transformative breakthroughs, but it has moved the needle in crucial areas – adaptation, finance, Indigenous rights, and nature-based solutions. The momentum generated, particularly in private sector engagement and Indigenous-led initiatives, offers hope. The challenge ahead is translating these announcements into tangible action at scale (Matta, 2025).

## CONCLUSION

Article 6 of the Paris Agreement stands as a pivotal, yet complex, instrument designed to foster international cooperation, enhance climate ambition, and mobilise finance through market and non-market pathways. This paper has critically examined its three core mechanisms, namely Article 6.2 (decentralised cooperative approaches), Article 6.4 (centralised crediting system), and Article 6.8 (non-market approaches), each offering distinct yet complementary routes to support nationally determined contributions and sustainable development.

The analysis reveals that while Article 6 holds significant promise for reducing global mitigation costs and channelling resources to vulnerable nations, its implementation is fraught with challenges. The decentralised nature of Article 6.2 offers flexibility but risks inconsistent standards and weak oversight, whereas the centralised Article 6.4 mechanism promises higher integrity but faces bureaucratic delays and methodological hurdles. Article 6.8, though crucial for fostering direct cooperation beyond carbon trading, remains vaguely defined and struggles to attract private investment.

Key issues persist, including the integrity trilemma—balancing environmental rigour, low cost, and scale—which remains unresolved in practice. The risk of greenwashing looms large, threatening to flood markets with low-quality credits and undermine the credibility of global climate efforts. Furthermore, the integration of nature-based solutions and REDD+ into Article 6 frameworks remains contentious, with concerns over permanence, reversal risks, and

methodological compatibility.

Recent COPs have achieved incremental progress: COP28 advanced rules for the Article 6.4 registry and carbon removals; COP29 fully operationalised Article 6 rules; and COP30 fostered coalitions for high-integrity carbon markets and Indigenous-led initiatives. However, critical decisions on permanence, reversal risks, and jurisdictional REDD+ have been deferred to 2026, leaving gaps in the regulatory framework.

The success of Article 6 ultimately depends on rigorous governance, transparent reporting, and unwavering commitment to environmental integrity. Without robust corresponding adjustments, stringent additionality criteria, and equitable benefit-sharing, Article 6 risks perpetuating historical flaws of earlier mechanisms like the Clean Development Mechanism. Moreover, achieving the Paris Agreement’s temperature goals requires that Article 6 complement - not substitute - domestic decarbonisation and transformative climate policies.

In conclusion, Article 6 represents both a critical opportunity and a formidable challenge for global climate governance. Its potential to unlock finance, enhance ambition, and foster cooperation is undeniable. Yet, realizing this potential demands continued vigilance, international collaboration, and a steadfast focus on delivering real, additional, and permanent emissions reductions. As the mechanism evolves, ongoing scrutiny, adaptive governance, and inclusive stakeholder engagement will be essential to ensure that Article 6 fulfils its role in securing a sustainable and climate-resilient future.

## Nomenclature

Symbol / Term	Description / Full Form
A6.4ERs	Article 6.4 emission reductions
AF	Adaptation Fund
BECCS	Bioenergy with Carbon Capture and Storage
BTRs	Biennial Transparency Reports
CAs	Corresponding Adjustments
CARP	Centralized Accounting and Reporting Platform
CDM	Clean Development Mechanism
CDR	Carbon Dioxide Removal
CERs	Certified Emission Reductions
CMA	Conference of the Parties serving as the Meeting of Parties of the Paris Agreement
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
DACCS	Direct Air Carbon Capture and Sequestration
ETs	Emissions Trading Systems
GHG	Greenhouse Gases
ITMOs	Internationally Transferred Mitigation Outcomes
GS	Gold Standard
JJCM	Japan’s Joint Crediting Mechanism
MCU	Mitigation Contribution Units

MOs	Mitigation Outcomes
MRV	Measurement, Reporting, and Verification
NCC	Natural Climate Solutions
NDC	Nationally Determined Contributions: Commitments made by countries under the Paris Agreement to reduce GHG emissions and adapt to climate change impacts.
NMAs	Non-market Approaches
OMGE	Overall Mitigation in Global Emissions
Party	A state or country that has signed the Paris Agreement and is a party to the UNFCCC
PACM	Paris Agreement Crediting Mechanism
PMIF	Partnership for Market Implementation Facility
SB	Supervisory Body
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCMs	Voluntary Carbon markets

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## Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/ or falsification, double publication and/or submission, and redundancy, have been completely observed by the author.

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