

COP29 Comprehensive Article 6 Debrief: Operationalizing the full set of Article 6 of the Paris Agreement

A balancing act between bottom-up flexibility and top-down governance

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COP29 in Baku marked a significant achievement in international climate governance, finalizing the rules for Article 6 of the Paris Agreement. These rules define the frameworks for cooperative approaches (Article 6.2), the Paris Agreement Crediting Mechanism ('PACM,' Article 6.4), and non-market approaches ('NMA,' Article 6.8). This debrief provides a detailed analysis of the outcomes, highlighting technical advancements, structural gaps, and future implications.¹



Article 6.2 negotiations of the first week in the plenary. Picture: author

In summary

COP29 fully operationalized all Article 6 mechanisms, providing a technical foundation for international carbon markets and non-market solutions. The PACM's adoption of standards removed the last legal barrier – Article 6.4 can now be implemented once the Article 6.4 Supervisory Body (SBM) has finished its work on accepting methodologies based on the COP29 adopted standards and the registry infrastructure is ready. First, credits based on the PACM can be expected to be issued by the end of 2025-2026 as the newly appointed chair for 2025 of the SBM announced in an official side event at COP29. This is novel, as Article 6.4 was not operational yet before COP29. Article 6.2, however, has been operational since 2021, with the Glasgow decision complemented by the Sharm el-Sheikh decision from COP27. The new rules for Article 6.2 agreed in Baku now finalize the first ruleset needed to fully implement Article 6.2 until its revision in 2028 (revision period from 2028 – 2030). Finally, the continuous establishment of the NMA platform (Article 6.8) demonstrates a commitment to integrating broader climate and development objectives beyond market-based approaches.

¹The debrief is based on the official decision texts of COP29 Baku ([Article 6.2](#), [Article 6.4](#) and [Article 6.8](#)), as well as previous decision texts from COP26 Glasgow (2021) ([Article 6.2](#), [Article 6.4](#) and [Article 6.8](#)), COP27 Sharm el-Sheikh (2022) ([Article 6.2](#), [Article 6.4](#) and [Article 6.8](#)) and COP28 Dubai (2023) ([Article 6.8](#)) and observations made by the author in the negotiations and at COP29.

However, weak enforcement mechanisms under Article 6.2, mainly the voluntary nature of addressing inconsistencies and non-mandatory disclosure elements, have the potential to undermine compliance and transparency. Similarly, the inclusion of low-quality legacy credits (CDM-transition credits) in the PACM threatens to dilute its credibility. Altogether, the decisions made at COP29 demonstrate progress in global climate governance but also highlight the need for sustained effort and collaboration to address remaining gaps. Realizing the full potential of Article 6 mechanisms hinges on translating these frameworks into concrete actions that achieve equitable and impactful climate outcomes while applying them with the highest possible ambition. This is especially crucial given the bottom-up flexibility enshrined in the Paris Agreement, as reflected in Article 6. As the frameworks evolve and are now being implemented until their revision in 2028, success will hinge on political will, innovative solutions, and strong multilateral engagement.

In detail

Article 6.2: Cooperative Approaches

Authorization Framework

What it is about:

When implementing Article 6, host governments authorize project initiatives by granting a letter of authorization (LoA). The authorization triggers essential central elements, such as corresponding adjustments (assuring that the host country will not count the mitigation outcomes towards its own GHG accounting balance in the national GHG inventory). In summary, the authorization framework under Article 6.2 provides a structure for approving cooperative approaches (crediting undertakings under Article 6.2), internationally transferable mitigation outcomes (ITMOs, or the sold/purchased/traded carbon credits itself), and participating entities (e.g. the host country and buyer country in a bilateral approach or a corporate in the case of a unilateral approach).

What happened at COP29:

COP provided additional guidance on the process and timing, content, format, and changes to the authorization of cooperative approaches. Regarding the process and timing, countries can now choose between a consolidated or sequential authorization process, reflecting flexibility in governance. Regarding the content, parties decided in Baku to add mandatory elements in the authorization (LoA), such as the date and duration of the authorization, including the final date for mitigation outcomes to be issued, used, or canceled. The decision to make the disclosure of participating entities optional (“if known”) represents a setback for transparency, potentially allowing private entities to participate without public accountability. The new rules decided at COP29 allow for the revocation of authorizations under predefined terms, ensuring that changes do not result in double counting. However, the consequences of revocation, particularly for social and environmental safeguards, remain unclear. This area requires further refinement to provide certainty for market participants and ensure robust governance.

What it means in practice:

The optional disclosure of participating entities weakens accountability, especially in transactions involving private entities. While the flexibility of the authorization framework allows countries to adapt processes to their needs, it also creates variability in governance. Countries may face challenges ensuring that cooperative approaches meet transparency and accountability standards, particularly in contexts where private sector involvement is significant. The ability to change (or often referred to as

"revoke") authorizations under predefined terms adds flexibility to manage changes in cooperative approaches and certainty for market participants. Changes in cooperative approaches under predefined terms between the participating parties and entities in the cooperative approach shall not lead to double counting of mitigation outcomes, which is a considerable win for the atmosphere and climate.

First Transfer and Corresponding Adjustments

What it is about:

The first transfer under Article 6 of the Paris Agreement refers to the initial exchange of an ITMO between participating countries and/or entities. This process allows the host Party to transfer a portion of its verified GHG emission reductions to another, enabling the recipient to apply these reductions toward its own NDC or use towards other international mitigation purposes. Key Components of the First ITMO Transfer:

- Generation of Mitigation Outcomes: A country implements projects or policies that result in measurable GHG emission reductions or removals.
- Authorization and Transfer: The country where the reductions occur (the "host country") authorizes the transfer of these outcomes to another country.
- Corresponding Adjustments: Both countries adjust their GHG inventories to reflect the transfer, ensuring that the emission reduction is counted only once and preventing double counting.
- Reporting and Transparency: Parties involved must report the details of the transfer to the UNFCCC, maintaining transparency and environmental integrity.

The first ITMO transfer marks the operationalization of market-based cooperation under Article 6.2.

What happened at COP29:

The "first transfer" was clarified as the point where corresponding adjustments are triggered. This ensures ITMOs are accounted for within national inventories, addressing concerns about outdated or improperly accounted credits. COP29 defined the timing of the first transfer as the earlier of either the first international transfer of the mitigation outcome or the authorization or issuance or use/cancellation of the mitigation outcome specified by the first transferring Party. Furthermore, COP decided on matters regarding the first transfer to the Adaptation Fund and the overall mitigation of global emissions.

What it means in practice:

The new rules provide stringent rules on the application of first transfer, addressing a significant loophole in case of authorizations for Article 6 carbon market uses. It prevents that 'zombie ITMOs' could emerge years or decades after the mitigation has actually taken place. The rule clarity on the first transfer ensures that ITMOs cannot be double-counted, a vital safeguard for market credibility. However, variability in defining the first transfer across cooperative approaches could complicate accounting and introduce inconsistencies. Countries must establish robust frameworks to standardize the application of first transfer rules to ensure alignment with national and international reporting obligations.

Transparency

What it is about:

Reporting: Parties participating in cooperative approaches are required to disclose specific information, through 3 central reporting elements ([Decision 2/CMA.3](#), annex, para. 18ff):

- 1) Initial report: the rules say that each participating Party shall submit an initial report, and its submission shall occur when the Party gives authorization for the use of ITMOs or in conjunction with the Biennial Transparency Report (BTR).
- 2) Annual information: Parties must annually submit detailed details by April 15 on the authorization, transfer, use, and cancellation of ITMOs, including data on cooperative approaches, sectors, activities, and unique identifiers, for recording in the Article 6 database. This ensures transparency and traceability of ITMO transactions and their contributions to NDCs or other mitigation purposes.
- 3) Regular information: the rules decided that participating Parties must include detailed updates on their participation in cooperative approaches as annexes to biennial transparency reports, submitted by December 31, covering topics such as ITMO authorizations, corresponding adjustments to avoid double counting, and contributions to NDCs and sustainable development. Annual data on emissions, ITMOs, and metrics must also be submitted to the Article 6 database, ensuring transparency and consistency in tracking progress toward NDC targets. Non-confidential information will be made publicly accessible via a centralized accounting and reporting platform (CARP).

Recording and tracking: Participating Parties must maintain or access registries to track ITMO transactions, including authorization, transfers, use, and cancellations, with the Secretariat providing an international registry for Parties lacking their own. The Secretariat will also implement an Article 6 database and the CARP to record, check, and publish non-confidential information on cooperative approaches and ITMOs, ensuring transparency and consistency. Annual reports will be provided to the CMA, summarizing activities, ITMOs, and emission balances. ([Decision 2/CMA.3](#), annex, para. 18ff)

What happened at COP29:

Transparency remains one of the most contentious aspects of Article 6.2. While the framework has introduced improvements in reporting requirements, significant gaps undermine the mechanism's credibility.

For example, the text introduces enhanced reporting requirements for initial and annual reports, including requirements for information on mitigation outcomes, corresponding adjustments, and cooperative approaches. Parties are requested to incorporate transparency-enhancing elements in the initial report; however, they are only "requested" to do so. Furthermore, the Parties decided to include more elements in the content authorization, such as unique identifiers or date and duration of the authorization, as well as clarify that the CARP will provide a public repository for each authorization copy and any changes to it. However, in the end, parties could only agree to add "(...) name(s) of participating Party(ies) and/or entities, if known, covered by the authorization," making it non-mandatory to disclose a complete list of who is participating in the authorized cooperative approach. Essential transparency elements were added at the last minute of negotiations to be included in the agreed electronic format, including adaptation contributions and overall mitigation of global emissions.

What it means in practice:

The inclusion of enhanced reporting obligations is a step forward, but the lack of binding enforcement of the initial report (only "requests") for transparency measures creates significant risks, potentially undermining those parties' efforts that excel in implementing Article 6.2. Parties must voluntarily disclose information, leaving room for non-compliance. This undermines the potential for third-party verification and public scrutiny, making it difficult to hold entities accountable for their actions. The "if known" which was added last minute in the content of the authorization section, on the one hand,

creates less bureaucracy, not requiring parties to investigate all the involved stakeholders participating in the authorized cooperative approach; however, it has the potential to undermine full transparency by not disclosing all the actors involved (particularly creating a potential loophole for those actors who do not want to be disclosed).

Registry Design

What it is about:

Definition and Purpose:

- Registries are secure databases countries use to track all activities related to ITMOs.
- Their primary purpose is to ensure accurate recording of emissions reductions that are traded or transferred between countries.
- There are three relevant registry types in the Article 6 world: the Article 6.2 international registry, the Article 6.4 mechanism registry, and the host party registry (national or private registry).
- All parties engaging in cooperative approaches under Article 6.2 must have, or have access to, a registry.

Functions:

- Authorization: Records approval of ITMOs by the host country.
- Tracking: Monitors the life cycle of ITMOs (from issuance to retirement).
- Corresponding Adjustments: Tracks adjustments to national GHG inventories to avoid double counting.

What happened at COP29:

COP29 adopted a dual-layer registry system for Article 6.2. This reflects a compromise between centralized and decentralized preferences. A centralized UN international registry will ensure transparency by serving as a data repository and enabling transactions, including optional registry services by the UNFCCC Secretariat for countries without sufficient infrastructure to manage ITMO trades independently, which shall implement interoperability arrangements with the international registry. Additionally, host party registries, whether national or private, are equally acknowledged under the dual-layer approach established in Baku.

Interoperability: the connection of the Article 6.4 mechanism registry and host Party registry with the Article 6.2 international registry shall enable:

- Pulling and viewing data and information on holdings and action history of authorized A6.4ERs
- Enable the transfer of the authorized Article 6.4 Emission Reductions (A6.4ERs) as ITMOs

What it means in practice:

The dual-layer registry system balances the needs of countries with varying capacities. For transparency-related issues, pulling and viewing data between the registries enables an important tracking-enabling instrument. Developing countries may ask the Secretariat to provide them with registry services, instead of creating their own registry or using a private registry service provider (e.g. VERRA) – however, the latter may be able to offer improved services to developing countries, including the transfer of credits an issue which the decision text of Baku does not specify (the text only refers to "issue mitigation outcomes as

units", not specifically "transfer" those), potentially weakening the international registry over private registry providers. The Secretariat will need to sufficiently empower these additional registry services to enable them to compete effectively with private providers.

Inconsistencies and Enforcement

What it is about:

Before COP29, there was no straightforward process for notifying and correcting inconsistencies within Article 6.2 international trading, including the consistency checks of annual information submitted by the parties, Article 6 technical expert reviews, and how to address such inconsistencies.

What happened at COP29:

COP29 adopted additional guidance related to inconsistencies when entering Article 6.2 trade deals. Automated consistency checks will flag discrepancies, and the CARP will make their results publicly available. However, there are no binding measures to correct these inconsistencies; instead, Parties are merely requested to refrain from using ITMOs flagged as inconsistent. This lack of enforcement risks market integrity and undermines the credibility of the mechanism. However, similar to the revocation of the authorization, COP29 decided to highlight inconsistencies leading to double counting in the first section of the Article 6 technical expert review report and that the COP will be notified through the annual report required from the parties, including making the inconsistency publicly available.

What it means in practice:

The new guidance is a significant improvement to the previous existing ruleset before COP29 – providing a transparent process for the Article 6 review team for identifying, notifying, and correcting inconsistencies. However, the voluntary nature of addressing inconsistencies undermines the integrity of Article 6.2. If discrepancies flagged through automated consistency checks are not corrected, it could lead to the use of invalid ITMOs. In short, there is no compliance or "blocking of ITMOs" element, particularly for ITMOs used for other international mitigation purposes, which are expected to be used by the private sector. This creates risks for both environmental integrity and market trust.

Article 6.4: Paris Agreement Crediting Mechanism (PACM)

Operationalization and Standards

What it is about:

Article 6.4 was not yet operational before COP29 in Baku due to the absence of necessary standards. Prior to COP29, the SBM [adopted standards on methodologies and removals](#), which serve as the foundation for developing the required methodologies. However, these methodologies could not progress further without formal adoption by the COP, which was a prerequisite for their development and, hence, the full operationalization of the PACM.

What happened at COP29:

The PACM was officially fully operationalized with the adoption of key standards, with the [decision made on the first day](#) of COP29, including the standards for [methodologies](#) and [removals](#).

What it means in practice:

The adoption of robust standards addresses past criticisms of carbon crediting mechanisms but requires continuous refinement. The necessary registry to track and transfer credits under the

mechanism has yet to be operational and is expected to be developed by 2025. Although the methodological framework and requirements are now in place, the mechanism must approve specific carbon project methodologies before any Article 6.4 units can be issued or traded. Once the SBM will effect those outstanding approvals, the PACM will be fully functional, and interested stakeholders will be able to start using it.

Interoperability with Article 6.2

What it is about:

The lack of interoperability between Article 6.2 and 6.4 created challenges for seamless UN carbon crediting mechanisms. Notably, the authorization process and recording and tracking through registries still needed to be fully interoperable. A similar authorization process ultimately would enable A6.4ERs to be treated as ITMOs (the credits used under the Article 6.2 mechanism). This disconnect could hinder the integration of these mechanisms, reducing their overall effectiveness.

What happened at COP29:

At COP29, decisions enhanced interoperability between the Article 6.4 mechanism registry, host Party registry, and Article 6.2 international registry, enabling the seamless transfer of authorized A6.4ERs as ITMOs and providing access to their holdings and action history data. Additionally, the authorization guidance for Article 6.4 was aligned with the elements decided under the Article 6.2 authorization section through cross-references, ensuring consistency across both frameworks. The Article 6.4 decision text from COP29 mirrors this, where Parties decided that participating Party registries may voluntarily connect to the Article 6.4 mechanism registry – with the connection having to enable the transfer of authorized A6.4ERs and the ability to pull and view data and information of authorized A6.4ERs.

What it means in practice:

The COP29 decision establishes a clear process for A6.4ERs to be converted into ITMOs upon authorization by a participating Party. To facilitate this process, the UNFCCC secretariat has been tasked with developing a standardized template that incorporates the applicable authorization elements from the Article 6.2 decision. This template will enable the identification and tracking of authorized A6.4ERs within the Article 6.4 registry, ensuring transparency and consistency. Combined with the enhanced interoperability of the Article 6.4 mechanism registry, host Party registries, and the Article 6.2 international registry, these decisions create a more integrated framework for managing carbon credits. This alignment strengthens the operational synergies between Article 6.2 and 6.4, enabling seamless data sharing, reducing administrative complexities, and fostering trust and accountability in the global carbon market.

Authorizations

What it is about: see above in Article 6.2 (Authorization – What is it about)

What happened at COP29:

Mitigation Contribution A6.4ERs (MCUs), Article 6.4 credits not subject to corresponding adjustments, can now be authorized post-issuance under the PACM. This allows host countries to grant authorizations for MCUs even after their issuance, provided the credits remain within the PACM registry and still need to be transferred. COP29 introduced flexibility by allowing host countries to authorize MCUs after issuance, offering them greater control over mitigation outcomes generated within their borders. However, to avoid delays that could destabilize the market, the SBM was tasked with developing guidance on setting time limits for post-issuance authorizations.

What it means in practice:

This new flexibility provides host countries with additional time to assess whether to authorize their non-transferred MCUs, empowering them to manage their mitigation outcomes more effectively. At the same time, the establishment of time limits for post-issuance authorizations will be critical to ensuring timely market operations, preventing uncertainty, and maintaining stability in the global carbon market. However, it will be critical to not devalue MCUs in practice, by pre-judging that they are less valuable than correspondingly adjusted A6.4ERs.

Transition of CDM Projects

What it is about:

Although the COP27 decision in Sharm el-Sheikh established the process for transitioning Clean Development Mechanism (CDM) activities to the Article 6.4 mechanism, the specific activities eligible for transition have yet to be approved.

What happened at COP29:

Afforestation and reforestation projects under the CDM are now eligible to transition to the Article 6.4 mechanism per the decision from COP29, following the defined process from COP27 in Sharm el-Sheik. Developers of these projects must submit transition requests by December 31, 2025, ensuring they have host country approval and adhere to the updated rules and standards for removal activities under the mechanism. The decision at COP29 did not cover other activity types such as renewable energy or energy efficiency, and it remains to be determined whether those will be eligible to transition to Article 6.4.

What it means in practice:

Afforestation and reforestation activities can begin transitioning to Article 6.4, preserving ongoing investments. However, NGOs and CSOs raised concerns regarding the potential inclusion of low-quality legacy credits, which could undermine the credibility of the PACM. The removal of additionality checks for transitioning activities amplified these concerns. Nevertheless, such activities must comply with the newly developed standards for removals and methodologies and additional requirements set by the SBM, ensuring they do not receive a “free pass” into the PACM.

Adaptation Finance Contributions

What it is about:

Under the "Share of Proceeds" provision outlined in Article 6.4 rules, modalities, and procedures, a mandatory 5% levy on Article 6.4ERs will be directed to the Adaptation Fund. This rule ensures that carbon crediting initiatives contribute additional financing for adaptation efforts.

What happened at COP29:

On the one hand, at COP29, LDCs and SIDS were made exempt from mandatory levies to the adaptation fund, reflecting equity considerations but potentially reducing the financial volume of the overall adaptation fund. Additional guidance to encourage levies for national adaptation efforts was removed from the text, raising concerns about decreased funding for adaptation projects in these LDCs and SIDS. On the other hand, as outlined above in the authorization section of the Article 6.4 analysis, MCUs (Article 6.4 credits not subject to corresponding adjustments) can now be authorized post-issuance under the PACM. The decision text requests the Secretariat to establish guidelines so that the share of proceeds

comprises correspondingly adjusted authorized A6.4ERs (those expected to be more valuable) than MCUs (those expected to be less valuable due to the absence of a corresponding adjustment).

What it means in practice:

Requiring correspondingly adjusted credits to support adaptation finance (through the adaptation fund) enhances efforts to strengthen climate resilience. However, exemptions for LDCs and SIDS may limit the overall funding pool. Additional guidance encouraging LDCs and SIDS to instead charge a levy for their national adaptation efforts was part of an earlier text in Baku; however, it did not make it to the end of the decision text. A key positive development from COP29 is the provision allowing countries to forward MCUs to the Adaptation Fund instead of the (expected) more valuable correspondingly adjusted A6.4ERs. This ensures that the Adaptation Fund receives credits of the highest value, representing a significant step forward in securing robust financing for adaptation initiatives.

Article 6.8: Non-Market Approaches

What it is about:

Article 6.8 of the Paris Agreement focuses on **non-market approaches** to international cooperation for addressing climate change. Unlike Articles 6.2 and 6.4, which deal with market-based mechanisms such as the trade of carbon credits, Article 6.8 emphasizes collaboration that does not involve direct financial transactions or the exchange of mitigation outcomes. It aims to support sustainable development and mitigation/adaptation efforts through mechanisms like capacity building, technology transfer, and/or policy coordination. After COP27's [decision](#), Article 6.8 went into full implementation mode. Now, the implementation work is taking place.

What happened at COP29:

The decision text from the Subsidiary Body for Scientific and Technological Advice (SBSTA) outlines the progress and future direction of the work program under the framework for NMAs. It acknowledges the completion of the first phase (2023–2024), during which relevant elements of the work program were identified, and the NMA Platform was developed to facilitate the recording and sharing of NMAs. The document emphasizes the transition to the second phase (2025–2026), focusing on the full implementation of activities through a learning-by-doing approach, enhanced stakeholder engagement, and the continuation of modalities such as in-session workshops and spin-off groups to further develop and implement NMAs combined with increased capacity-building initiatives.

What it means in practice:

This decision encourages Parties to utilize the NMA Platform for recording and sharing their approaches. The emphasis on a learning-by-doing approach suggests that experiences and lessons learned during the initial phase will inform and improve the execution of NMAs in the second phase. The continuation of modalities such as workshops and spin-off groups provide structured avenues for Parties to collaborate, share best practices, and address challenges, thereby aiming to strengthen the overall implementation efforts for NMAs under the Paris Agreement.

References

United Nations Framework Convention on Climate Change. (2021). *CMA decision on Article 6.2*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2021_L18_adv.pdf

United Nations Framework Convention on Climate Change. (2021). *CMA decision on Article 6.4*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2021_L19E.pdf

United Nations Framework Convention on Climate Change. (2021). *CMA decision on Article 6.8*. Retrieved from https://unfccc.int/sites/default/files/resource/cma3_auv_12c_PA_6.8.pdf

United Nations Framework Convention on Climate Change. (2022). *Draft CMA decision on Article 6.2*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2022_L15_adv_1.pdf

United Nations Framework Convention on Climate Change. (2022). *Draft CMA decision on Article 6.4*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2022_L14_adv.pdf

United Nations Framework Convention on Climate Change. (2022). *Draft CMA decision on Article 6.8*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2022_L13_adv.pdf

United Nations Framework Convention on Climate Change. (2024). *Draft CMA decision on Article 6.2*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2024_L15_adv.pdf

United Nations Framework Convention on Climate Change. (2024). *Draft CMA decision on Article 6.4*. Retrieved from https://unfccc.int/sites/default/files/resource/cma2024_L16_adv.pdf

United Nations Framework Convention on Climate Change. (2024). *Subsidiary Body for Scientific and Technological Advice (SBSTA) draft conclusions on Article 6.8*. Retrieved from https://unfccc.int/sites/default/files/resource/sbsta2024_L15a01E.pdf