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The Paris Agreement Turns 10:

Is It (Still) Delivering on Its Promises?

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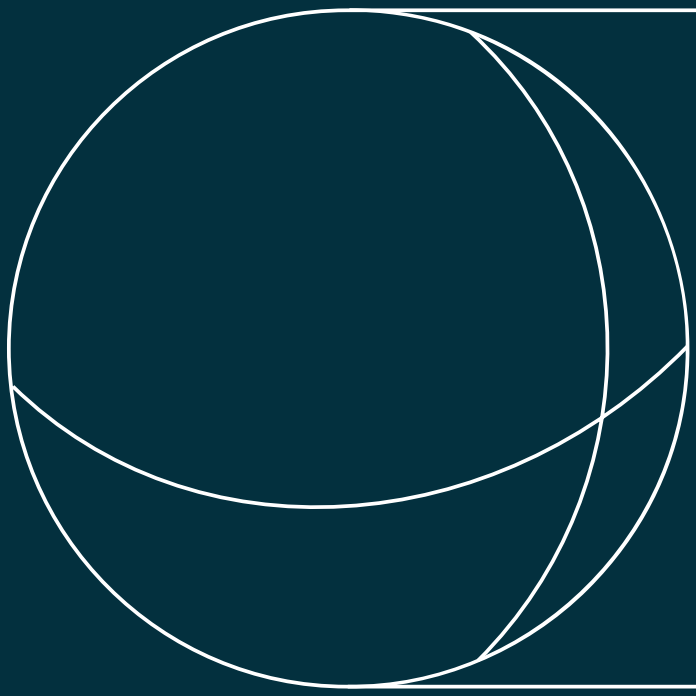

Abstract

Ten years after its adoption, the results of the Paris Agreement have been mixed. While its institutional framework has been largely operationalised, the implementation of both this framework and its parties' climate pledges reveal persistent gaps in ambition, equity, and outcomes. The Paris Agreement was built on the premise that robust procedural rules – anchored in transparency, soft peer pressure, and inclusive participation – would catalyse deeper cooperation. This deliberate trade-off, embedded in the agreement's design, ensures institutional robustness through flexibility – but often at the expense of effectiveness. This report analyses how structural trade-offs between democracy, robustness, and effectiveness continue to shape the function of the Paris Agreement's five core mechanisms: Nationally Determined Contributions and the Global Stocktake, mitigation pathways, the Enhanced Transparency Framework, voluntary cooperation under Article 6, and the financial mechanism.

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Table of Contents

List of Acronyms

Abbreviation	Definition
AOSIS	Alliance of Small Island States
BASIC	Brazil, South Africa, India, and China
BRICS	Brazil, Russia, India, China, and South Africa
BTR	Biennial Transparency Report
CBAM	Carbon Border Adjustment Mechanism
CBDR-RC	Common But Differentiated Responsibilities and Respective Capabilities
CDM	Clean Development Mechanism
CMA	Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
CRT	Common Reporting Tables
CTF	Common Tabular Formats
ENB	Earth Negotiations Bulletin
ETF	Enhanced Transparency Framework
ETS	Emissions Trading System
EIT	Economies in Transition
FMCP	Facilitative Multilateral Consideration of Progress
GCF	Green Climate Fund
ICTU	Information to Facilitate Clarity, Transparency, and Understanding
IPCC	Intergovernmental Panel on Climate Change
IMO	International Maritime Organization
LDCs	Least Developed Countries
LEDS	Low Emission Development Strategies
LMDCs	Like-Minded Group of Developing Countries
MPG	Modalities, Procedures, and Guidelines

MRV	Measurement, Reporting, and Verification
MWP	Mitigation Work Programme
NCQG	New Collective Quantified Goal
NDCs	Nationally Determined Contributions
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SB	Subsidiary Body
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SIDS	Small Island Developing States
TER	Technical Expert Review
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
WTO	World Trade Organization

Introduction

When it was agreed under the United Nations Framework Convention on Climate Change (UNFCCC) in 2015, the Paris Agreement was widely celebrated as a major success. It offered a way out of the political impasse that had exposed deep dissatisfaction with the global climate architecture of the time (Barrett et al. 2015; Dubash and Rajamani 2010). The agreement quickly entered into force – less than one year after adoption – and achieved near-universal participation with 195 parties to the agreement, making it one of the most widely adopted international agreements to date. The Paris Agreement set out three main goals: (1) limit global temperature rise to well below 2°C above pre-industrial levels, and pursue efforts to limit it to 1.5°C by achieving net-zero emissions in the second half of this century; (2) enhance adaptive capacity and resilience to climate impacts, including loss and damage; and (3) make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development, including technology transfer and capacity building.

In 2024, global average temperature surpassed the 1.5°C threshold for the first time.

A decade later, however, the outlook is mixed. In 2024, global average temperature surpassed the 1.5°C threshold for the first time (Bevacqua et al. 2025), despite more optimistic assessments made just a few years earlier (Höhne et al. 2021). Current climate commitments have been projected to exceed the 2°C limit and to lead to a global temperature rise of around 3°C, while global emissions continue to increase (UNFCCC 2024a). Many countries have pledged to achieve net zero emissions by mid-century, but their implementation pathways often remain insufficient and fragmented (IEA 2025; Climate Watch n.d.; Climate Action Tracker 2025; Net Zero Tracker n.d.). Although the goal of achieving US $100 billion in climate finance annually has finally been met – albeit with delays – climate finance flows from developed to developing countries remain insufficient and are increasingly uncertain (OECD 2024). Furthermore, the UNFCCC process is increasingly overwhelmed by an expanding agenda and the ever-growing size of the annual Conferences of the Parties (COPs), among other factors (Petri and Karlas 2025).

This report analyses the implementation of the Paris Agreement 10 years after its inception. For the purposes of this report, we understand implementation in two interrelated senses: the operationalisation of the Paris Agreement as an institutional framework, and the implementation of Nationally Determined Contributions (NDCs) by the parties to the agreement. Empirically, this report focuses on the former, analysing the implementation and function of what scholars have described as a set of interacting sub-regimes (Oh 2022; Raiser et al. 2020) or 'mechanisms,' which is the term we use in this report (Gehring and Spielmann 2023): (1) NDCs and the Global Stocktake, (2) the Enhanced Transparency Framework (ETF), (3) mitigation pathways, (4) cooperation under Article 6, and (5) the UNFCCC's financial mechanism.

This analysis builds on the ENSURED framework (Choi et al. 2024) to assess each of these mechanisms. Effectiveness serves as the key yardstick,

focusing on both policy outputs (e.g., ambition, responsiveness) and outcomes (e.g., rule adherence). We examine robustness mainly in terms of rule stability and resource adequacy across the selected mechanisms. The democracy of the UNFCCC negotiation process was assessed in Petri and Karlas (2025). In our report, democracy is primarily understood through the lens of the agreement's bottom-up approach, questions of transparency and representation, and the framing of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) across the five mechanisms.

Overall, our findings show that while the Paris Agreement's institutional framework has been largely operationalised, the implementation of both this framework and the parties' NDCs has revealed persistent gaps in ambition, equity, and outcomes. The agreement was built on the premise that robust procedural rules – anchored in transparency, soft peer pressure, and inclusive participation – would catalyse deeper cooperation. This deliberate trade-off, embedded in its design, secures institutional robustness through flexibility and CBDR-RC, but often at the expense of effectiveness.

The Paris Agreement secures institutional robustness through flexibility, but often at the expense of effectiveness.

This report is based on qualitative analysis of three types of data: (1) a review of the literature; (2) official documents, including (a) 108 Earth Negotiations Bulletin (ENB) reports from COPs 21–29 (held between 2015 and 2024), (b) submissions to the UNFCCC and party speeches (focusing on COP29 and SB60 in 2024), and (c) technical papers, reports, and notes prepared by the UNFCCC Secretariat; and (3) seven expert interviews and reflections gathered during a closed-door roundtable in May 2025 (see the List of Interviews and Events). This data was subjected to a qualitative content analysis using NVivo software, guided by a codebook, which was elaborated to reflect the core elements of the ENSURED conceptual framework (Choi et al. 2024).

The structure of the report is as follows: the next section outlines the core challenges identified across the five 'mechanisms' and locates them within the ENSURED conceptual framework. The third section analyses the positions of key parties and actors, while the fourth section examines past reform efforts and ongoing discussions on the remaining challenges, including untapped potential for structural or incremental reform. The fifth section explores the EU's role in implementation, and the conclusion summarises our main findings, highlighting key conceptual interrelations and trends in global climate governance.

What's at Stake: The Remaining Challenges

In an effort to learn from the failures of the Kyoto Protocol, the Paris Agreement intentionally adopted a decentralised, soft, sovereignty-sensitive architecture (Thompson 2024). The key novelty of the Paris Agreement is its bottom-up architecture, whereby parties to the agreement submit NDCs – voluntary, domestically formulated pledges across the areas of mitigation, adaptation, finance, technology transfer, and capacity building. These pledges are updated every five years by means of the so-called 'ratchet mechanism,' which is designed to ensure progressive ambition over time. Collective progress towards the agreement's goals is assessed every five years via the Global Stocktake. These substantive obligations are operationalised and monitored through the ETF, which establishes common procedures, guidelines, and methodologies for reporting emissions, tracking NDC implementation, and conducting review processes.

Implementation is guided and supported by various UNFCCC bodies. The agreement is governed by the Conference of the Parties (COP), which serves as the meeting of the parties to the Paris Agreement (CMA).[1] It is supported by two permanent UNFCCC subsidiary bodies – the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI). The COP/CMA and the Subsidary Bodies (SBs) are in turn supported by the UNFCCC Secretariat, which has its headquarters in Bonn, Germany (for an overview, see Petri and Karlas 2025).

The Paris Agreement is entering a phase of full implementation – yet key challenges remain.

As of 2025, most of the outstanding issues – some of which required lengthy negotiations – have been resolved, and the agreement is entering a phase of full implementation (Schwarte and Tattarletti 2024). Yet key challenges remain: gaps between ambition and implementation in national pledges; a transparency framework that is flexible but underenforced and limited in terms of capacity; persistent disagreements over emissions-reduction pathways; delays in finalising voluntary cooperation mechanisms; and inadequate climate finance.

NDCs and the Global Stocktake

These two mechanisms are central to the architecture of the Paris Agreement, yet their effectiveness is undermined by gaps in ambition and implementation. The first of these gaps, the ambition gap, stems from (1)

1 This report uses 'Conferences of the Parties (COPs)' to refer broadly to annual UN climate conferences, including CMAs. Mentions of 'COP decisions' may therefore also refer to CMA decisions taken during the same COPs.

insufficiently ambitious, inflated, 'hot air,' or conservative pledges made by the parties; (2) limited NDC transparency and comparability; and (3) the domestic processes undergirding NDC formulation.

The scope and depth of many parties' pledges remain inadequate.

To address the first of these factors, the scope and depth of many parties' pledges remain inadequate to achieve the goals of the Paris Agreement. The agreement's bottom-up design allows each country to determine its own contribution, which is nevertheless expected to reflect its "highest possible ambition" (UNFCCC 2016). Yet this approach has been insufficient to drive higher levels of ambition. The first Global Stocktake at COP28 (2023) confirmed that emissions trajectories remain off track (Olhoff et al. 2024). Although peer and social pressure have driven some gains in ambition (Jernnäs 2023), they have also led to pledges that are overinflated, conservative, or misaligned with implementation capacity. Additionally, because the Global Stocktake proceeds in a five-year cycle and relies on retrospective data, its responsiveness to NDC formulation is limited (Sun et al. 2022).

Concerning the second factor contributing to the ambition gap, NDC transparency and comparability remain significant challenges. Currently, the NDC guidance (UNFCCC 2020a) adopted at COP24 in 2018 applies only to mitigation, with no agreed rules for adaptation or means of implementation (finance, capacity building, technology), which consequently remain voluntary and inconsistently reported. The Information to Facilitate Clarity, Transparency, and Understanding (ICTU) guidance, adopted as part of NDC guidance, sets out the elements the parties should include in their NDCs, but – as a compromise – left developing countries room for flexibility. As a result, wide disparities persist in how the parties define NDC baselines, target years, and methodologies. Reporting flexibility benefits countries in terms of their national circumstances, but it complicates cross-country assessments. Even with this flexibility, capacity constraints remain a significant obstacle, especially in Least Developed Countries (LDCs) and Small Island Developing States (SIDS), as does the requirement that NDCs should be submitted in official UN languages, preferably English (UNFCCC 2020b).

NDCs remain highly susceptible to domestic political shifts.

With regard to the third factor, the formulation of NDCs is left entirely to domestic policymaking. While this decentralised design enhances participation, it leads to significant variation in content, ambition, and stakeholder engagement. There are no safeguards for non-party-stakeholder inclusion, and NDCs remain highly susceptible to domestic political shifts, as we have seen in Australia, Brazil, South Korea, and the US. Changes to NDCs ultimately undermine both the credibility and the predictability of the ambition cycle.

In comparison, the implementation gap has two key dimensions: (1) many NDCs rely on inadequate external support; and (2) the mechanisms designed to ensure rule adherence (both substantive and procedural compliance) are weak.

Concerning the first dimension, implementation is closely tied to national capacities. The Paris Agreement permits developing countries to submit

conditional NDCs that depend on finance, technical assistance, and capacity building. By 2024, 111 of the 195 parties to the agreement had submitted such NDCs (Jordan 2024; Pauw et al. 2019). This has introduced uncertainty into the process, since many of these pledges hinge on support from developed countries.

As of mid-2025, only 25 parties had submitted 2035 NDCs.

To address the second dimension, the effectiveness of NDCs and the Global Stocktake depends on the parties' adherence to rules, for which there is no enforcement mechanism. Parties are expected to raise their ambitions over time, but no binding benchmarks or legal obligations enforce this. Instead, compliance relies on transparency, peer pressure, and voluntary follow-through (Interview 2; Weikmans et al. 2019). This flexibility may foster participation by avoiding political resistance to legal obligations (Victor 2015), but it also undermines stringency (Keohane and Oppenheimer 2016). Even procedural compliance is eroding. As of mid-2025, only 25 parties had submitted 2035 NDCs (Climate Action Tracker 2025), with delays stemming from capacity constraints in SIDS and other vulnerable states – some of which still rely on pledges made in 2016 – as well as delays from major emitters such as the EU, China, and India. Civil society and COP presidencies have applied only limited pressure (Interview 2), and the lack of enforcement continues to weaken both ambition and implementation.

Enhanced Transparency Framework

The Paris Agreement marked a shift from the rigid, compliance-based Kyoto model to a more flexible, 'managerial' approach rooted in transparency and peer pressure (Dimitrov et al. 2019). Instead of penalising non-performance, the ETF aims to foster mutual trust and incremental improvement. The underlying assumption is that robust reporting and review processes will gradually grow ambition and support compliance – capturing the idea that "trust is the glue" (Deprez 2019).

The ETF replaces previous differentiated reporting obligations under the UNFCCC, where Annex I countries[2] were subject to more stringent reporting rules, with a more symmetrical system that applies to all countries. Beginning in 2025, all parties must submit Biennial Transparency Reports (BTRs) covering emissions, NDC implementation, adaptation, and support provided or received. These BTRs undergo a two-tiered review. First, the Technical Expert Review (TER), conducted by independent experts nominated by the parties and coordinated by the UNFCCC Secretariat, assesses data consistency and transparency. Second, under the SBI, the Facilitative Multilateral Consideration of Progress (FMCP) offers a peer-review system in which parties discuss one another's progress in a non-adversarial format. The outcomes of this process are made public and feed into the Global Stocktake, which aims to enhance mutual trust, accountability, and peer pressure.

2 These consist of OECD countries and economies in transition (EIT) as of 1992.

Although the ETF was operationalised at COP24 in 2018 and finalised at COP26 in 2021, it still faces three major challenges. First, while the ETF aims for symmetry, it allows developing countries to identify areas in which they require flexibility, based on capacity constraints and CBDR-RC. While these flexibilities are 'bounded' – thus requiring explicit justification and plans to overcome the obstacles – no enforcement or oversight mechanisms exist to monitor how the parties address these issues. Variations in the scope of reporting translate into weaker transparency and comparability. Flexibility per se may also be insufficient to address the parties' weak institutional capacities, as technical reporting is resource-intensive and capacity-building support remains limited (Weikmans et al. 2019).

Second, the scale and complexity of the BTR review process presents operational challenges. With nearly 200 parties submitting reports every two years, bottlenecks have emerged, especially in terms of the availability of qualified reviewers and the administrative capacity of the TER-FMCP review process. These pressures constitute a threat to timely and robust evaluation, and – much like the Global Stocktake – the ETF risks being undermined by time lags, reducing its responsiveness to evolving risks.

While the Paris Agreement intentionally centred transparency, structural changes have produced an incomplete system.

Third, the ETF's heavy reliance on technical reviews and soft peer pressure, as well as its lack of stronger enforcement mechanisms or reputational consequences for non-compliance, raise doubts about its ability to drive real-world ambition. This in turn echoes concerns about the NDC and Global Stocktake processes.

These challenges point to broader trade-offs within the ETF. While the agreement intentionally centred transparency in an effort to enhance effectiveness, structural changes have produced an incomplete system that is functional but falls short of its potential to meaningfully accelerate ambition and implementation.

Equitable Mitigation Pathways

One key innovation of the Paris Agreement was the shift from quantified global emissions targets to a temperature-based goal. Grounded in the link between cumulative CO_2 emissions and long-term temperature rise, this impact-focused approach replaced the output-focused logic of the UNFCCC and the Kyoto Protocol. While this shift was a response to the failure of the top-down Kyoto Protocol, it also introduced new complexities: translating national pledges into global temperature outcomes by means of the Global Stocktake entails scientific uncertainty, which complicates assessments of the agreement's impact.

The Paris Agreement's mitigation architecture allows for diverse pathways to net zero, encouraging all parties to adopt economy-wide emissions reduction targets. Developed countries are expected to take on absolute reduction targets, while developing countries – consistent with the CBDR-RC principle – retain flexibility when it comes to the form and ambition of their contributions. However, developing countries have contested the

attempts made at COPs 26, 27, 28, and 29 to further align or streamline the ambition of national mitigation trajectories by means of more stringent pathways – such as mid-term targets and earlier emissions peaks – arguing that these infringe on CBDR-RC and the principle of national discretion in mitigation pathways. Other proposals on emissions reductions have stalled as well.

In recent years, scholars have engaged in an extensive discussion of how more specific sectoral approaches at the global level could drive system transformations (Oberthur et al. 2021). While many pledges have emerged from coalitions of the willing and domestic policies have scaled up mitigation ambition, progress on more specific international target breakdowns has stalled, as evidenced by the modest outcomes of recent COPs. This raises questions about the extent to which international institutions can drive this transition (Obergassel et al. 2022), and whether the Paris Agreement and its mechanisms are suited to supporting more detailed and differentiated target setting.

Article 6: Voluntary Cooperation Mechanisms

To enhance cooperation between the parties in achieving their mitigation strategies and to reflect differences in capacity and abatement costs in mitigation, the Paris Agreement introduced voluntary cooperation mechanisms under Article 6. International carbon credits may be exchanged either bilaterally between parties (Article 6.2) or via a centralised mechanism (Article 6.4). Article 6.8 allows for non-market approaches such as capacity building, although its operational meaning remains unclear (Interview 1).

Negotiations over Article 6 proved politically and technically contentious.

Negotiations over Article 6 proved politically and technically contentious, delaying its finalisation until 2024 and deferring several unresolved issues to a 2028 review. More specifically, while high-integrity standards were finally agreed under Article 6.4 in 2024, the decision about emission avoidance credits – credits for avoiding the production of emissions rather than reducing existing ones – faced long deliberations and ultimately was postponed until the 2028 review.

The Article 6 rulebook, agreed at COP26 in 2021, adopted robust rules to avoid double counting emissions by requiring cooperating parties to make corresponding adjustments between NDCs. We have yet to see how this will take place in practice, as varying NDC structures may complicate the process. Transparency and democratic oversight were additional points of contention, which resulted in limited non-party stakeholder involvement and also risks generating non-disclosed low-integrity credits. Even after transparency safeguards were agreed, Article 6.2 still relies on state-led bilateral deals with inconsistent project disclosures, minimal UNFCCC oversight, and a lack of independent oversight and grievance mechanisms (Interview 1).

Article 6.4 offers a more robust institutional structure, with the grievance mechanism created in 2024. Yet operational guidelines were not finalised until COP26 in 2021, and full standards for Article 6.4 were only completed at COP29 in 2024. Despite notable interest – as of early 2025, 104 parties, mainly from Africa and Asia, had established national authorities to issue credits (UNFCCC 2022; UNEP-CCC 2025) – major capacity and awareness gaps persist, particularly for smaller developing countries. Private sector involvement is hindered by technical complexity, low awareness, certification costs, and scepticism around motives (IGES 2024). Implementation delays, regulatory uncertainty, and capacity asymmetries will likely limit the effectiveness of Article 6 – at least in the short term. A formal review in 2028 may allow for course correction, but for the moment, uncertainty remains (Interview 1; ENB, SBI-SBSTA60#Summary).

Implementation delays, regulatory uncertainty, and capacity asymmetries will likely limit the effectiveness of Article 6 – at least in the short term.

The Financial Mechanism

The core provisions of the UNFCCC also include a mechanism for the provision of financial resources to developing countries. The challenges that accompany this mechanism can be grouped into three dimensions: (1) mobilising climate finance; (2) transparency in climate finance; and (3) the function of multilateral climate-finance institutions.

Beginning with the mobilisation of financial flows, the UNFCCC established the obligation for OECD (Annex II) countries to provide developing (non-Annex I) countries with 'new and additional' financial resources to assist the latter in fulfilling their reporting obligations under the convention and implementing other commitments (Bodansky 1993). A collective financial target was only agreed in 2009, when COP15 in Copenhagen adopted the goal for developed countries to mobilise US $100 billion in climate finance annually by 2020. The COP decision which accompanied the Paris Agreement merely reiterated this goal (Castro and Betzold 2016; Van Deursen and Gupta 2024; Yamineva 2016). One partial change introduced under the agreement was an invitation for developing countries to contribute voluntarily to climate finance and to report ex-ante and ex-post on their contributions, but still only on a voluntary basis.

After the Paris Agreement was adopted, climate-finance mobilisation faced several challenges (Bergsvik et al. 2024; Ciplet et al. 2022). First, developing countries increasingly argued that US $100 billion target was quantitatively inadequate. Second, they criticised the overwhelming focus on mitigation and limited investment in adaptation, as well as excessive reliance on loans rather than grants. Third, as 2020 approached, developed countries were still far from achieving the US $100 billion target, and progress remained incremental. According to a 2024 OECD report, they finally met the annual goal in 2022 by mobilising US $115.9 billion.

Turning to issues of transparency, international rules governing the measurement, reporting, and verification (MRV) of climate finance are still underdeveloped. Even after three decades of UNFCCC processes, no universally accepted definition of climate finance exists. This persistent

ambiguity in definitions and methodologies undermines the robustness, and more specifically the stability of climate finance rules (Bergsvik et al. 2024; Weikmans and Roberts 2017). As long as states apply different standards for measuring and reporting on finance provided and received, then no stable, harmonised rules apply across national contexts. This significantly complicates compliance assessment. Consequently, the lack of precise compliance information increases uncertainty and reduces trust among parties.

After three decades of UNFCCC processes, no universally accepted definition of climate finance exists.

Finally, we turn to the problems connected with the function of multilateral climate-finance institutions. Three principal channels for climate finance exist: bilateral flows, multilateral development banks, and UNFCCC funds (Browne 2022; Ciplet et al. 2022; Watson et al. 2025). Although bilateral flows have traditionally dominated climate finance, their share has recently decreased to 45 percent of overall financial flows (OECD 2024), while the share of multilateral development banks has risen to approximately 51 percent. Multilateral climate funds continue to represent only about 4 percent of climate finance, although several recent developments have strengthened their overall share. Funding for the multilateral Green Climate Fund (GCF) has grown substantially, and in 2016 the Adaptation Fund was accredited to serve the Paris Agreement. At COP27 in 2022, the parties also agreed – after many years of resistance on the part of developed countries – to establish a new loss and damage fund.

Despite these positive developments, the function of multilateral institutions continues to face challenges in terms of both robustness and democracy. With regard to robustness, the figures above indicate that a significant share of climate finance still flows through bilateral channels (Browne 2022; Castro and Betzold 2016; Roberts et al. 2021; also Interview 7). This enables individual donors to retain substantial control over disbursed funds, thereby reducing the robustness of climate finance generally, and of governance autonomy more specifically. Democratic governance – and specifically participation – in multilateral development banks also remains constrained, as donor countries retain formal control over decision-making via their financial contributions, which determine representation and vote share. Informal donor control over these institutions also persists (Ballesteros et al. 2010; Browne 2022; Ciplet et al. 2022). In contrast, UNFCCC funds provide comparatively greater decision-making power to recipient countries (Moore 2012), yet donors can still exercise informal influence. Furthermore, civil society organisations are able to participate in climate finance only to a limited extent; they are generally permitted to attend board meetings as observers, but they lack formal decision-making powers (Kalinowski 2020).

Party Positions on the Paris Agreement

While the parties' positions on implementing the Paris Agreement – both in terms of operationalising its institutional framework and fulfilling their own commitments – may vary substantially, equitable implementation remains a central fault line that is rooted in the historic North–South divide. In the climate regime's early years, many developing countries viewed limits on emissions as constraints on growth (Najam 1994). To secure consensus, developed countries assumed primary responsibility for reductions and pledged climate finance, embedding the CBDR-RC principle (Heimann et al. 2024).

Since 1992, both emissions and geoeconomic dynamics have shifted significantly. Developed countries then accounted for more than 60 percent of global emissions, but by 2015, developing countries had become the majority emitters. By 2023, China alone contributed one-third of global emissions, with BASIC countries (Brazil, South Africa, India, and China) also taking a higher share (Figure 1). Cumulative emissions from developing countries (non-Annex I countries) have also risen sharply (Figure 2). Despite economic and strategic gains, emerging powers largely maintained their stance in climate negotiations, continuing to rapidly increase emissions, requesting concessions on finance and technology, and increasingly acting as skilled veto players (Hurrell and Sengupta 2012). In response, developed countries – especially after COP15 in 2009 – have rejected Kyoto-style asymmetrical commitments unless major developing emitters are subjected to comparable obligations.

By 2023, China alone contributed one-third of global emissions.

The Paris Agreement replaced the UNFCCC's fixed Annex categories with self-differentiation, reaffirming CBDR-RC but leaving development status to be self-determined in party submissions.[3] This ambiguity, alongside the rising cumulative emissions and growing geopolitical-economic influence of the BASIC group and middle powers, fuels ongoing disputes over equity and responsibility. While some convergence in the parties' positions has emerged (see the following section), deep divisions persist over peak emissions and reductions targets, NDC conditionality, implementation capacity, reporting flexibility, and the freedom to choose mitigation pathways. We analyse the stances of selected parties – both group and individual[4] – across the five core mechanisms, based on the three key concepts in the ENSURED conceptual framework, as summarised in Table 1.

3 No consistent classification of development status exists, either across the UN system or beyond (see Farias 2023).

4 This study focuses on the positions of states. Non-party stakeholders' involvement in the UNFCCC process is covered in the 2025 ENSURED report by Petri and Karlas.

Figure 1: Share of Global Emissions, 1850–2023

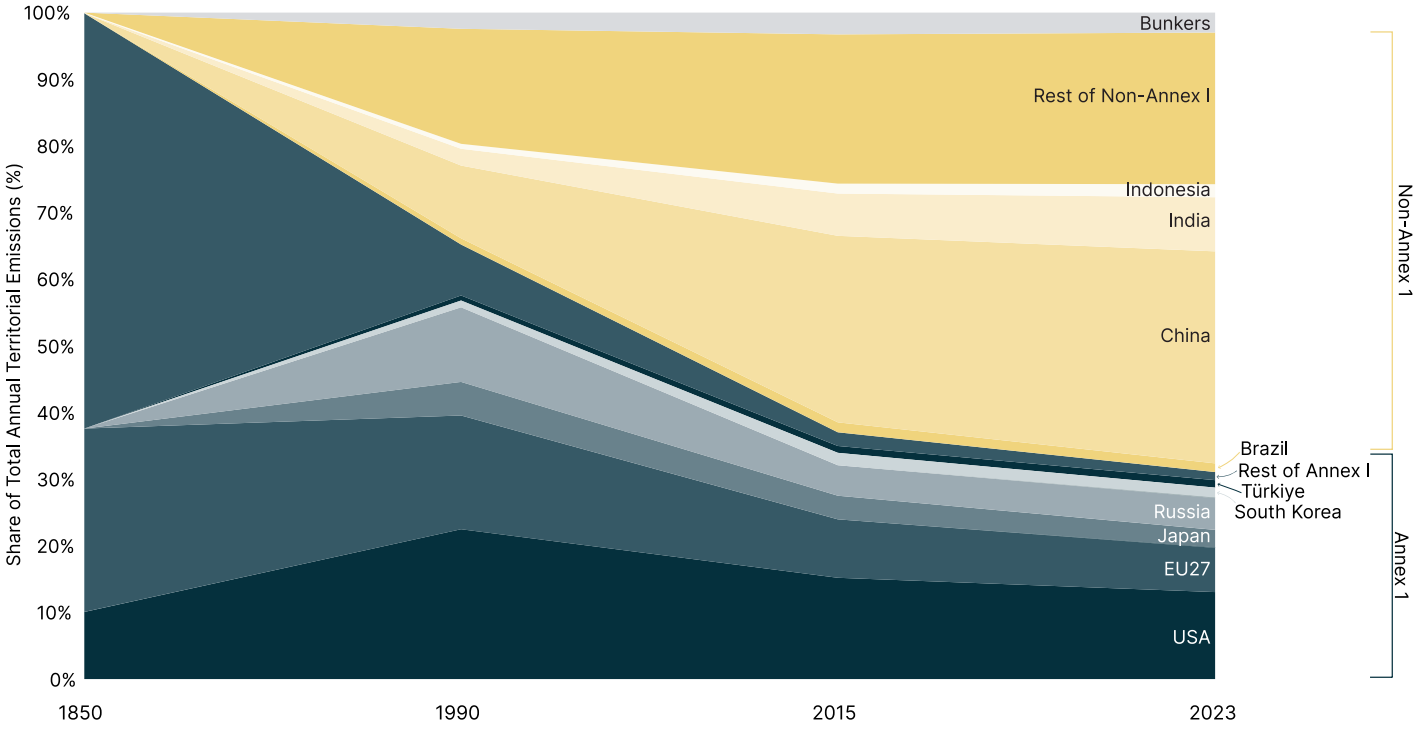
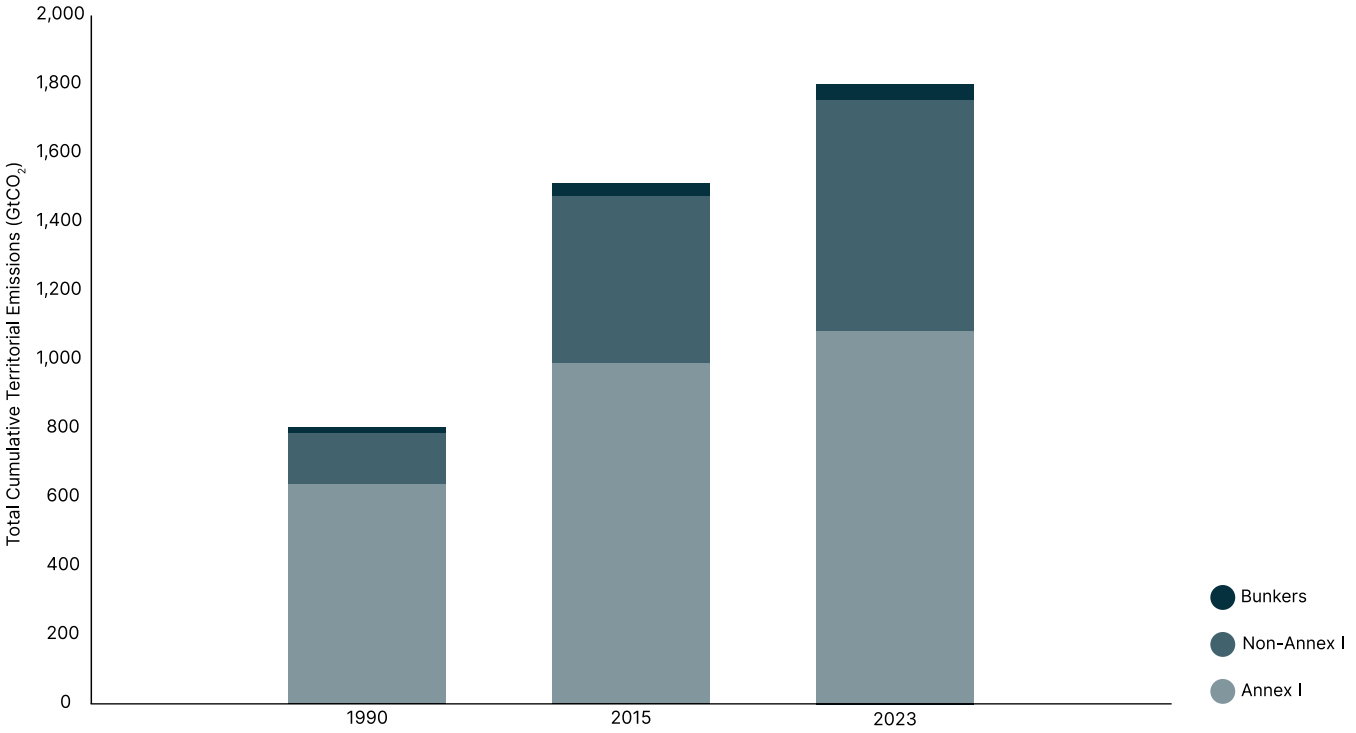


Figure 2: Total Cumulative Historical Emissions, 1990, 2015, 2023



Note: Bunkers include emissions from fuels used for international aviation and maritime transport that are not allocated to territorial emissions.

Source: Authors' elaboration of data based on the Global Carbon Project (2024)

Table 1: Actors' Positions on Global Climate Governance

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Indicators	Positions
European Union	
Democracy	Supports inclusive, rules-based climate governance, broad participation (including non-party stakeholders), and transparency though uniformity in pledges, reporting, and international credits.
Effectiveness	Advocates closing the ambition gap, urging all parties – especially major emitters – to increase their efforts; prioritises achieving net zero by 2050 and economy-wide targets with flexibility for developing countries, acknowledging CBDR-RC; advocates broadening the climate-finance donor base.
Robustness	Supports more stringent mitigation targets and emissions-reduction pathways, strong environmental integrity for international credits, and a uniform transparency framework (ETF and Global Stocktake).
Overall position	Positions itself as an advocate of ambitious, inclusive, and rules-based climate governance, acknowledging CBDR-RC, but faces internal debates over the pace of its own climate ambition.
United States	
Democracy	Supported the Paris Agreement under the Obama and Biden administrations, albeit with caution concerning overly stringent or uneven accountability mechanisms; withdrew and disengaged from the agreement twice, under the first and second Trump administrations.
Effectiveness	The Biden administration aimed to restore credibility by rejoining the Paris Agreement, pledging to achieve net zero by 2050, supporting the 2035 NDCs and Article 6, and leading the Global Methane Pledge; the Trump administration rolled back mitigation efforts and cancelled climate-finance pledges.
Robustness	Alternates between engagement and compliance under the Obama and Biden administrations, and withdrawal under the Trump administrations.
Overall position	Recently a highly volatile actor, swinging between cooperative leadership and disengagement, depending on the political administration.
China	
Democracy	Supports the Paris Agreement as long as this aligns with Party-driven processes and national sovereignty concerns.
Effectiveness	Advocates CBDR-RC, the right to determine mitigation pathways nationally, and flexibility for developing countries; urges developed countries to lead on ambition, including emissions reduction and finance; opposes phasing out coal and fossil fuels.
Robustness	Supports ambition, transparency, and participation when this aligns with Party-driven control; resists efforts that may dilute CBDR-RC or expand institutional burdens; presents itself as a defender of multilateral climate cooperation after US withdrawal(s) from the agreement.
Overall position	Increasingly presents itself as the guardian of multilateral climate governance (particularly as the US has disengaged) while emphasising CBDR-RC and national sovereignty; opposes uniform requirements.

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India	
Democracy	Emphasises climate justice and equity; criticises procedural unfairness and limited access; calls for differentiated treatment based on national circumstances.
Effectiveness	Pledges increased ambition, but in line with CBDR-RC and conditional on finance; emphasises development priorities and capacities; opposes phasing out coal and fossil-fuel subsidies.
Robustness	Advocates differentiated, flexible transparency linked to national capacities; demands more clarity on accounting rules.
Overall position	Stresses climate justice, linking ambition to national capacity and responsibility in line with CBDR-RC.
Brazil	
Democracy	Calls for inclusive governance in climate finance and transparency; stresses fairness and adequate reporting as well as implementation support for developing countries.
Effectiveness	Supports higher ambition under the Lula administration, but calls for a balance between mitigation, adaptation, and means of implementation; urges developed countries to scale up climate finance via established funds.
Robustness	Adheres to transparency requirements while highlighting insufficient funding for compliance; supports environmental integrity and robust verification for Article 6.4, as well as carbon sink activities under Reducing Emissions from Deforestation and Forest Degradation (REDD+).
Overall position	Positions itself as a constructive actor supporting higher ambition and environmental integrity under the Lula administration, while insisting on balanced implementation and inclusive, adequately financed governance.
South Africa	
Democracy	Grounds its position in equity and CBDR-RC, advocating fair treatment of developing countries.
Effectiveness	Sees its own ambition in line with CBDR-RC and ties this to external support; highlights the major gap between ambition and available means of implementation.
Robustness	Adheres to transparency requirements but highlights data gaps and capacity constraints; stresses developing countries' need for simplified modalities.
Overall position	Emphasises equity and capacity-based ambition in line with CBDR-RC, with a focus on implementation support.

Continued from the previous page.

Alliance of Small Island States (AOSIS)[5]	
Democracy	Criticises the lack of transparency in negotiations on phasing out coal and fossil-fuel subsidies; walked out of COP29 over the perceived inadequacy of climate finance commitments.
Effectiveness	Advocates high ambition aligned with science; calls for phasing out coal and fossil fuels, and related subsidies; pushes for Article 6 to ensure environmental integrity and real mitigation outcomes, and to allocate proceeds to adaptation.
Robustness	Demands strong governance for cooperation under Article 6; stresses the need for simplified and flexible transparency rules, supported by targeted capacity building.
Overall position	Pushes for high NDC ambition, ETF transparency, and integrity, capacity-building and adequate finance; links climate action to their own survival.
Least Developed Countries (LDCs)	
Democracy	Stress inequities in participation and transparency, highlighting capacity and access barriers; advocate flexibilities and capacity building in the ETF, and reporting for LDCs.
Effectiveness	Call for ambitious NDCs aligned with science, while prioritising adaptation as well as loss and damage finance, citing acute development and resilience needs; link their own ambition to external support; criticise the inadequacy of current finance pledges.
Robustness	Call for Article 6 rules to ensure real mitigation outcomes, and for proceeds to be channelled to adaptation efforts; demand simplified, flexible transparency rules that reflect their limited institutional capacity, as well as relevant capacity-building support.
Overall position	Advocate high ambition aligned with fairness and structural support; call for simplified rules, capacity building, and equitable participation to reflect their own vulnerability and national capacities.

5 AOSIS is a UNFCCC negotiating group primarily made up of SIDS.

Past Reforms and Unexploited Potential

While most Paris Agreement mechanisms have been operationalised, their implementation trajectories diverge. NDCs and the Global Stocktake are entering their second cycle, whereas Article 6 and the ETF have only recently become operational and have yet to yield concrete outcomes. Certain issues (ICTU requirements, NDC structure, the Global Stocktake, and the ETF) have experienced gradual convergence and procedural progress, while others have stalled (e.g., mitigation pathways), been postponed (e.g., emissions avoidance credits), or been resolved with minimal consensus (e.g., the New Collective Quantified Goal [NCQG]). This section traces the implementation process (Table 2) and subsequently reflects on the agreement's untapped potential for reform.

Table 2: Milestones of Paris Agreement Implementation

Continued on the next page.

Event (Year)	Development and Reform Proposals
COP21 (2015)	Paris Agreement adopted.
COP22 (2016)	Paris Agreement enters into force (4 November). Paris Rulebook deadline set for 2018. Countries urged to make progress in fulfilling the US $100 billion target and achieving a greater balance between adaptation and mitigation. Developed countries commit to double finance for the GCF.
COP23 (2017)	Talanoa Dialogue launched (2017–2018). Adaptation Fund integrated into Paris Agreement. Discussions on loss and damage funds lead to weak decisions.
COP24 (2018)	NDC guidance, including ICTU guidance, adopted. 'Bounded' flexibility under the ETF adopted as a compromise. Global Stocktake modalities agreed. Agreement to define a new collective financial target by 2025.
SBSTA/SBI (2019/2021)	Proposals for dual CRT/CTF templates rejected. Discussions on how to expand pool of experts for TER. Calls for improvements in Global Stocktake modalities.
COP25 (2019)	Developing countries continue to emphasise the need to increase finance for adaptation as well as loss and damage, but no significant decisions accepted.

Continued from the previous page.

Event (Year)	Development and Reform Proposals
COP26 (2021)	Common 5-year NDC cycle, single CRT/CTF formats, TER and FMCP guidance and training modules adopted. ETF review deferred until 2028. Glasgow Climate Pact includes commitments to "phase down" unabated coal power and phase out inefficient fossil-fuel subsidies, and to double adaptation finance. 5 percent adaptation levy on international credit transfers adopted. Integrity provisions in Article 6.2 and 6.4 adopted. New financial base for the Adaptation Fund agreed.
COP27 (2022)	MWP adopted as a voluntary framework, non-binding in scope, to run through 2026. Discussions on various aspects of finance continue, with little progress. Loss and damage fund established.
COP28 (2023)	'Transition away' from fossil fuels agreed. Operationalisation of the loss and damage fund agreed. No financial target included in the Global Goal on Adaptation framework.
SB60 (2024)	Decisions on emission avoidance credits postponed to 2028.
COP29 (2024)	Final text includes only vague language on phasing out fossil fuels. Article 6.4 becomes operational. NCQG adopted (US $300 billion annually by 2035), along with a non-binding call to raise climate finance to US $1.3 trillion annually by 2035.

NDCs and the Global Stocktake

As the climate regime moves into its implementation phase, the central challenge remains how to strengthen effectiveness in terms of both outputs (NDC formulation) and outcomes (NDC implementation). Incremental peer dialogue was first tested in the Talanoa Dialogue, which was launched by Fiji as president of COP23 to enhance levels of ambition in NDCs. These dialogues did help to facilitate more ambitious NDCs, but deep, long-standing divisions persist. Science-aligned targets and stronger ambitions on the part of major emitters – endorsed by AOSIS, LDCs, and the EU (AOSIS and LDC Group 2020; AOSIS 2023; ENB, COP26#10, COP26#Summary; European Commission and Spain 2023; European Commission and Belgium 2024; European Commission 2025) – were largely opposed by the BASIC group and Like-Minded Developing Countries (LMDCs) because these were seen to undermine flexibility and CBDR-RC. The BASIC and LMDC groups also rejected "cherry-picked" Global Stocktake outcomes and standardised targets that lacked financial guarantees (ENB, COP23#7, COP27#11, COP29#10). In particular, China has insisted on party-led control, resisting any actions that may undermine CBDR or establish new obligations (ENB, COP21#3).

More ambitious NDCs were also directly tied to guaranteed financial support from developing countries (South Africa 2021; AOSIS 2022; ENB, COP29#3; India 2022), with AOSIS and LDCs stressing that implementation hinges on clearer support structures (AOSIS 2022; ENB, COP29#3). As South Africa explained, the "ambition gap" is often the result of the "means of implementation gap" (ENB, COP28#10). Closing the implementation gap depends on adequate climate finance – a challenge in itself, as discussed in the relevant sections above. Better alignment between conditional NDCs and the support commitments made in developed countries' 'comprehensive' NDCs could help. However, many developed countries avoid disclosing their contributions, treating finance as complementary rather than integral to their pledges. The legal flexibility in NDC content allows for varied interpretations of "comprehensiveness" (Sun et al. 2022), which fuels disputes over finance provision and transparency.

NDC implementation will largely depend on how the Paris Agreement helps to spur changes in national policy.

In this context, NDC implementation will largely depend on how the Paris Agreement helps to spur changes in national policy (Guérin and Tubiana 2025; Net Zero Tracker n.d.). Some practical solutions include improved methodologies to map needs and to track finance and technology flows, such as via AI or satellite monitoring (Sun et al. 2022). Technology use can enhance transparency and improve responsiveness for both the NDC and the Global Stocktake, but sovereignty concerns will likely block many such initiatives, as in the case of China's resistance to EU-based ship-emissions tracking (ENB, COP21#3). Another feasible step forward might be regularly updating Low Emission Development Strategies (LEDS) (Interview 2). While LEDS were intended to outline the parties' long-term pathways, many of these strategies have remained unchanged since COP26. Regular updates could enhance clarity and transparency, although progress depends on domestic capacity and political will.

On the institutional side, NDC implementation advanced with the adoption of the Paris Rulebook at COP24, which established guidance on NDCs, the ICTU, and the Global Stocktake process. Yet ICTU negotiations in particular have exposed persistent divides. LMDCs and the BASIC group objected to uniform metrics and baselines for comparability, as proposed by the EU and AOSIS, on the basis of CBDR-RC flexibility. As a compromise, flexible ICTU standards were retained (ENB, COP24#Summary). Partly for this reason, discrepancies in NDCs persist. Developed countries often submit quantifiable targets, while many developing countries offer broader, development-oriented plans (Savin et al. 2025), which are sometimes deliberately vague in order to avoid establishing any binding expectations (Weikmans et al. 2019).

A single 10-year NDC timeframe, with updates every five years, was broadly agreed at COP26 in 2021. Certain parties and non-party actors proposed more frequent submissions (such as annual NDC updates), but these proposals were rejected due to concerns over their feasibility and the anticipated administrative burden (ENB, COP26#Summary). The modalities for the Global Stocktake were agreed in 2018, establishing that this process would occur every five years. Certain developing countries and observers

flagged insufficient guidance on equity in the Global Stocktake process, in terms of both inputs and outputs (ENB, COP24#Summary). Non-party stakeholders "lamented what they felt was a near-exclusion of non-party stakeholders from the process," raising concerns over accountability and inclusiveness in NDC ambition cycles (ENB, COP24#Summary). During the SBI/SBSTA sessions from 2019 to 2023, some parties (such as the EU and AOSIS) and NGOs called for improved transparency, broader participation, and stronger links to enhanced ambition, but these discussions remained inconclusive, as the parties at COP29 failed to agree on how to embed Global Stocktake findings into future NDCs (ENB, COP29#Summary).

Ultimately, the NDC and Global Stocktake framework reflects political choices to prioritise participation and flexibility over enforceability. Without stronger links between ambition, support, and implementation, these processes risk falling short of their transformative potential. The 2028 review offers an opportunity to revisit these issues.

Enhanced Transparency Framework

The ETF was operationalised through the Modalities, Procedures, and Guidelines (MPGs) adopted at COP24 in 2018 and was completed at COP26 in 2021, with the finalisation of Common Reporting Tables (CRT), Common Tabular Formats (CTF), and training protocols. Despite this relatively rapid progress, the ETF required a careful balance between transparency on the one hand, and flexibility and equity on the other (Deprez 2019) – an effort which has ultimately limited its effectiveness.

First, the 'bounded flexibility' in ETF reporting agreed at COP24 represented a political compromise. While developed countries and AOSIS advocated common unified metrics, many developing countries insisted on 'self-determined flexibility' as a safeguard against capacity constraints. This risked creating parallel reporting systems. As a compromise, 'bounded flexibility' allowed parties to apply flexibility to specific elements as long as they provide justification and plans for improvement. Yet this compromise lacks enforcement mechanisms to ensure future compliance with these commitments (UNFCCC 2019). Another attempt to introduce de facto bifurcation in ETF reporting occurred during SBI/SBSTA discussions beginning in 2019, when developing countries tabled a proposal to create differentiated CRT/CTF templates for developed and developing parties (ENB, Bonn 2019). This proposal was rejected and, in line with the MPG's emphasis on maintaining a common reporting system, a single CRT/CTF format was reaffirmed at COP26 in 2021 (ENB, COP26#Summary).

At times, flexibility in ETF reporting has resulted in underreporting or merely symbolic submissions.

This single ETF reporting system is certainly a step forward, but the quality of BTRs still varies widely. At times, flexibility has resulted in underreporting or merely symbolic submissions, and some parties and observers are increasingly expressing concerns that procedural compliance is replacing substantive transparency. As a response to such concerns, developing countries argue that the ETF still presumes that parties have an equal baseline in terms of capacity, which is not the case in practice, and that this creates a disproportionate burden on countries with weaker capacities

(Van Deursen and Gupta 2025). AOSIS and LDCs have highlighted the need for simplified processes and stronger support, citing barriers such as language, institutional fragmentation, and lack of technical staff (ENB, COP22#Summary, COP28#9; AOSIS 2022; AOSIS and LDC Group 2020). South Africa (2024) and India (ENB, COP22#5, COP26#8, COP29#5) have echoed these concerns over procedural complexity and advocate flexible, differentiated transparency requirements, while Brazil warns that funding remains insufficient to meet ETF demands (Brazil MSTI 2024; ENB, COP29#20).

The ETF rules will be reopened for discussion in 2028, but few expect significant changes, given that flexibility remains tightly linked to CBDR-RC (China 2023a; ENB, COP22#6, COP29#3). Thus, to date, reform has focused on capacity building: the UNFCCC, the United Nations Development Programme, the World Resources Institute, and the Centre for Multilateral Negotiations (CEMUNE), among others, deliver technical support and national-level workshops, while the Partnership on Transparency – renamed and incorporated under the Paris Agreement in 2016 – supports peer learning.

The ETF rules will be reopened for discussion in 2028, but few expect significant changes.

Second, the ETF review process which consists of TERs and FMCP, was adopted at COP24 in 2018. With nearly 200 BTRs expected biennially from 2025, participants anticipate capacity and resource bottlenecks related to insufficient reviewer pools, overly detailed formats, and delays in processing and publication (Interview 2; ENB, COP28#Summary). The SBI/SBSTA sessions held between 2019 and 2021 included discussions on how to expand expert pools for TERs, including better regional and gender representation and streamlining processes (COP26, UNFCCC 2021). Based on these proposals, COP26 (2021) adopted the TER and FMCP guidance and training modules (UNFCCC 2021). The Secretariat has initiated reforms to streamline reviewer recruitment and explore new review formats (UNFCCC SBSTA/SBI reports, 2023–2025). However, scaling up remains challenging given the limited financial resources available.

Third, ETF compliance relies on peer pressure exerted through FMCP, deadline-based accountability, and institutional capacity building rather than sanctions (Sun et al. 2022). Various capacity-building initiatives, such as the Universal Participation in the ETF initiative, aim to ensure that reporting complexity does not hinder developing countries from producing high-quality BTRs and effectively participating in review processes. Yet the lack of follow-through like a forum to reflect on BTR synthesis reports remains a concern (Interviews 2, 5, and 6), and the ETF risks becoming a procedural step rather than generating momentum for policy change. Encouraging better links between transparency and implementation by more strongly integrating ETF outcomes with the Global Stocktake and embedding both into COP agendas, as endorsed by the EU and AOSIS (Interviews 2, 3, and 4; European Commission and Poland 2025; AOSIS 2022), could ensure that ETF findings effectively guide climate ambition.

Equitable Mitigation Pathways

Insufficient NDC ambition remains closely tied to debates about equitable mitigation, although some parties have also noted an excessive focus on mitigation in recent years, with Brazil encouraging "balance between mitigation, adaptation, and means of implementation" (ENB, COP24#2).

Many developing countries assert their right to set their deadlines for peak emissions at a later date due to their development needs and claim that industrialised countries must "take the lead by increasing ambition" (China 2023a, 2023b; India 2022, 2023; ENB, COP28 Summary). The BASIC group and Russia (via BRICS) increasingly argue for consumption-based accounting, pointing out that emissions in the Global South often serve Northern consumption (Interview 1). Others, such as Rwanda and the EU, stress that "major emitters have major responsibility" (ENB, COP25#10, COP26#10). The EU has promoted sectoral approaches and economy-wide net-zero strategies with mid-century targets for major emitters, offering timeline flexibility for developing countries (European Commission 2025; ENB, COP21#5, COP26#10; Obergassel et al. 2022).

However, many developing countries resist such measures, viewing them as top-down reinterpretations of CBDR-RC. Thus, the proposals made at COP27 (2022) to introduce medium-term targets under the Mitigation Work Programme (MWP) – backed by the EU and AOSIS, among others – met with strong opposition. LMDCs warned that this would "introduce new elements beyond the Paris mandate" and preferred to end the MWP by 2023. A compromise extended the MWP to 2026, with no new mandates (ENB, COP27#Summary). Similarly, proposals made at COP27 to introduce a global emissions peak date of 2025 – based on findings by the Intergovernmental Panel on Climate Change (IPCC) – were also blocked. This outcome reflected widespread frustration: many parties criticised the decline in ambition after COP26, while others cautioned that "ambition" rhetoric was masking inadequate support for developing countries (ENB, COP27#Summary).

Better alignment between parties' energy transition pathways also remained contentious. Although the Paris Agreement leaves energy choices to national governments, some parties – such as the EU and AOSIS – have pushed for specific mitigation measures. At COP26 in 2021, the proposal included phasing out fossil-fuel subsidies and coal (ENB, COP26#Summary). China and especially India, joined by a number of developing countries, strongly opposed any "phase-out" language, and the final text was softened to "phasing down unabated coal" (ENB, COP26#Summary). AOSIS, often joined by LDCs, consistently demanded science-aligned targets and phasing out fossil fuels, citing existential threats such as sea-level rise (AOSIS and LDC Group 2020; AOSIS 2023), and also criticised opaque and exclusive negotiation processes when it came to the final text (ENB, COP26#Summary). After COP26, LMDCs, India, China, and Saudi Arabia all opposed stronger phase-out language. At COP28, the strongest language the parties agreed was "transitioning away from fossil fuels…in a just, orderly, and equitable manner" (ENB, COP28#Summary). The dissatisfaction with this language, which was perceived as lacking ambition, was softened by the launch of voluntary

pledges to triple renewables and to double energy efficiency by 2030, with aspirational goals of achieving "net zero energy systems [...] well before or by mid-century" (ENB, COP28#Summary). Nevertheless, opposition to specific mitigation targets intensified. COP29's final text "barely whispered about fossil fuels" (ENB, COP29#Summary). LMDCs, the COP Presidency (Azerbaijan), and the Arab Group, particularly Saudia Arabia, made proactive efforts in this area, as they saw energy-specific fossil fuel phase-out discussions as "attempts to pull and creatively re-weave threads of the Paris Agreement," which would ultimately undermine nationally determined approaches and equity principles (ENB, COP29#Summary). Apparently, this outcome resulted in much disappointment, as explicitly expressed by AOSIS (ENB, COP29#Summary).

Article 6: Voluntary Cooperation Mechanisms

Even though the Article 6 rulebook has been finalised, implementation remains uneven. Article 6.4 credits will start being issued from 2025, but uncertainty over methodologies and eligibility after the planned review in 2028 persists, deterring private-sector uptake (UNFCCC 2024b; SBI-SBSTA60#Summary; Interview 1). Only a few countries are involved in bilateral projects under Article 6.2, with Japan (132 projects) and Switzerland (22 projects) accounting for almost all of the 158 total projects, but information about these projects remains fragmented and opaque (UNEP-CCC 2025; Interview 1).

Even though the Article 6 rulebook has been finalised, implementation remains uneven.

Disagreements also persist over the finalisation of the mechanism. Environmental integrity remains a core concern and has driven lengthy negotiations. Some parties – particularly the EU, driven by past failures under the Kyoto-era Clean Development Mechanism (CDM), which led to an oversupply of low-quality credits in the EU Emissions Trading System (ETS) – feared repeating the same mistakes (Interviews 1, 2, 3, 4, and 6; ENB, COP25#9). The Environmental Integrity Group opposed CDM carryovers to Article 6.4 (ENB, COP25#2, COP25#Summary, COP26#Summary), insisting that Article 6 should deliver additional mitigation outcomes with strong environmental integrity and governance. AOSIS stressed that carbon markets must move "beyond offsetting to contribute to overall mitigation outcomes" (ENB, COP22#8). In contrast, Brazil and other forest-rich countries backed legacy CDM and REDD+ projects, while the Coalition for Rainforest Nations rejected emission-avoidance credits, citing unverifiable baselines and weak additionality (Interview 2; ENB, SBI-SBSTA60#Summary). While certain legacy CDMs were accepted after extended negotiations, the parties agreed on robust integrity provisions for credits under Articles 6.2 and 6.4. Yet the deadlock over emission avoidance led to a 2024 agreement "to postpone further consideration of emission avoidance to 2028 and maintain the status quo until then" (ENB, SBI-SBSTA60#Summary). While this compromise enabled the finalisation of Article 6.4 in 2024 and was seen as a win for integrity, it adds long-term uncertainty that may deter early investment.

While Article 6 accounts for strong integrity provisions, governance and transparency have remained an issue. Despite the push for more flexibility in bilateral oversight under 6.2 prior to COP26 on the part of LMDCs and Brazil, bilateral deals under Article 6.2 remain opaque, lacking uniform public disclosure. Experts suggest aligning credits under 6.2 more directly with integrity standards under 6.4 once scaling begins (Interviews 1 and 2). With regard to Article 6.4 credits, a grievance mechanism – largely backed by groups of vulnerable countries – was finally adopted at COP29, providing a channel for local community participation. Yet concerns remain about accessibility – such as English-only documentation – and the limitations imposed by weak legal infrastructure in many host countries (Interview 1). Without proactive support, the mechanism may prove symbolic rather than substantive.

Without proactive support, the Article 6 grievance mechanism may prove symbolic rather than substantive.

AOSIS and LDCs have consistently argued that a mandatory share of proceeds from Articles 6.2 and 6.4 should support adaptation finance for the most climate-affected countries. Although they secured a minimum 5 percent share of proceeds for the Adaptation Fund, this obligation applies solely to Article 6.4 and remains voluntary under 6.2, despite contentious debate (AOSIS 2021; ENB, COP26#Summary; LDC 2021; Morgan 2021).

Furthermore, uptake of Article 6.4 credits remains uncertain. Political alignment among major economies, especially the BASIC group and developed nations, could boost confidence in Article 6.4 (Interview 2). Coalitions of committed buyers and public finance could increase demand and liquidity by reducing reputational and investment risks (Interviews 1 and 2). The EU's recent openness to using international credits to meet its emissions-reduction targets may signal a shift towards practical engagement (Interview 1). Conversely, the US – long the major driver of Article 6 mechanisms – is now disengaged from the process. After its first withdrawal under the first Trump administration, efforts to shape rules "that the US will not be subject to unless it rejoins the Agreement" faced pushback from other parties (ENB, COP25#Summary). Yet the US remained influential in technical talks in the past (ENB, COP29#3). Its disengagement is likely to affect the roll-out of Article 6, although to what extent remains uncertain.

Robust standard-setting is critical for credits under Article 6.4. The Article 6.4 Supervisory Body draws on voluntary carbon market (VCM) initiatives and their informal benchmarks on integrity and permanence (Interview 1). Aligning its standards with VCM practices could improve investor confidence, while capacity building remains essential to enable equitable participation in Article 6 mechanisms.

The Financial Mechanism

Developing countries consider the effectiveness of climate finance to be the key priority (e.g., ENB, COP28 #Summary, COP29 #Summary; Ruiz-Campillo 2024). They stress that climate finance provided by developed countries must be 'new and additional,' with a strong preference for public over private financing. Their criticism often centres on the inadequate

volume of finance and the long-term failure of developed countries to meet collective targets. Developing countries also advocate balanced allocations between mitigation and adaptation.

Developing countries' criticism often centres on the inadequate volume of finance and the long-term failure of developed countries to meet collective targets.

With respect to the quantity of climate finance, there is some potential for limited increases of available resources in the near future. The standard package-deal approach could provide a basis for such increases: developed countries would raise their financial contributions in exchange for stronger mitigation efforts on the part of developing countries. However, three important limitations simultaneously constrain this possibility. First, independent experts estimate that developing countries (excluding China) would require at least US $1 trillion annually to implement the necessary reforms (Obergassel et al. 2025). It is unrealistic to expect that a collective target could fully meet such enormous financial needs (Pauw et al. 2022). Second, current financial reserves and political conditions do not allow OECD countries to scale up their financial commitments substantially. Third, the fact that emerging economies insist on the principle of CBDR-RC further limits the prospects of raising the collective target (Chandrasekhar et al. 2024; Obergassel et al. 2025). When it comes to mitigation, emerging economies have gradually accepted international commitments; however, they continue to reject formal financial obligations within the UNFCCC, citing the historical responsibility of industrialised countries.

At COP29 in Baku in 2024, the parties adopted the NCQG, with the goal of mobilising US $300 billion in climate finance annually by 2035. Once again, developing countries have criticised this target as insufficient. In fact, this decision does not represent much real growth, because the current level of finance provided (taking inflation into account) is already close to the new target (Interview 7). Although COP29 also stipulated that climate finance should be raised to US $1.3 trillion annually by 2035, this language was non-binding. Moreover, it did not reiterate that this financing should be "new and additional" (Pauw 2025). The 2024 decision also lacked specific provisions to improve finance distribution, such as balancing grants and loans or ensuring equitable allocation between mitigation and adaptation. This has led to growing dissatisfaction, particularly among the LDCs and SIDS, who even temporarily walked out of the finance negotiations at COP29, expressing frustration that the proposals for a new NCQG were too low and too vague (ENB, COP29#Summary).

Additionally, developing countries consistently demand improved robustness and democracy in climate finance. Historically, they favour creating UNFCCC-administrated funds (Dingwerth et al. 2024) and support strong MRV rules (Van Deursen and Gupta 2024). In terms of the democratisation of decision-making on climate finance, developing countries advocate direct access, which would enable these countries and their national institutions to assume full responsibility for implementation at the national level (ENB, COP22#Summary, COP23#4, COP25#3).

Regarding MRV rules, the Paris Agreement introduced several important climate-finance reporting obligations for both developed and developing parties and mandated the development of modalities for financial

accounting. However, in 2018 COP24 failed to adopt common accounting rules and methodologies (Van Deursen and Gupta 2024). Instead, it merely identified which information donor countries should report. Although MRV rules for finance was a prominent topic during the negotiations on the Paris Agreement and the Paris Rulebook, our analysis of the ENB minutes from more recent COPs shows a lack of calls for reform in this area. Moreover, tighter MRV rules do not automatically yield benefits in terms of effectiveness: while such rules might increase the pressure on states to comply, they could also raise concerns about exposing deficiencies in implementation, which could reduce states' willingness to commit to larger contributions.

Significant obstacles also persist when it comes to increasing the robustness of multilateral climate funds and the democratisation of decision-making within multilateral climate-finance institutions. Only a small proportion of finance is funnelled through multilateral climate funds, while the overwhelming majority is channelled through bilateral flows. Although donors generally acknowledge the importance of more balanced governance structures, they also have an interest in retaining a certain degree of control (de Sépibus 2015). Crucially, this control is often a condition for their willingness to provide finance through multilateral channels. The chances for recipients to obtain direct access to funds (without intermediaries) also remain limited. While the Adaptation Fund has actively promoted direct access, the GCF has been slower to adopt this principle (Ciplet et al. 2022; Pauw et al. 2022).

Climate finance continues to face challenges in all three areas: effectiveness, democracy, and robustness.

Overall, climate finance continues to face challenges in all three areas: effectiveness, democracy, and robustness. Moreover, the interactions among these three dimensions involve both synergies and trade-offs. For example, strengthening the robustness of climate finance by means of increased MRV standardisation could enhance one aspect of effectiveness (compliance) while simultaneously undermining another (donors' willingness to increase their commitments). Similarly, making multilateral institutions more democratic could improve effectiveness by ensuring a more balanced distribution of financial investments while potentially (once again) reducing donor countries' willingness to contribute more funds.

Unexploited Potential for Reform

Incremental reforms and unresolved issues will continue to shape debates around the Paris Agreement. The 2028 review will revisit longstanding challenges, including the Global Stocktake, the ETF, and Article 6 – all discussed above. To date, the regime has become increasingly inward-looking, focused on technical operationalisation. Actual delivery of the agreement's goals remains elusive – but by design, it lacks operational mandates (Guérin and Tubiana 2025). This sparks broader reflections on the trade-offs the climate regime is making between robustness and effectiveness.

The climate regime has shown surprising robustness, adapting to contestation without fracturing (Eckersley 2007; Hjerpe and Nasiritousi 2015; Van Asselt 2007; Vihma 2009). Even after the crisis at COP15 in Copenhagen in 2009, "legitimation practices" (von Allwörden 2023) enabled the regime to rebound. The Paris Agreement's deliberate ambiguity on enforcement enabled the parties to use contestation mostly as a tool for bargaining rather than outright rejection (Sommerer et al. 2022). Even most sceptical parties remained formally engaged and saw the UNFCCC as a default venue for global climate governance. The UNFCCC Secretariat's proactive response to the US withdrawal from the agreement in 2017 further illustrates its resilience (Dijkstra et al. 2025).

Yet this adaptability has diluted the climate regime's ambition to a certain extent. The regime is productive in terms of policy outputs, but as Alexander Thompson warns (2024, 2): "[f]rom a problem-solving perspective, the [climate regime] has been largely ineffective." Rather than a design flaw, this may simply reflect the trade-offs deemed necessary after the Kyoto Protocol (Dimitrov et al. 2019; Falkner 2016; Hermwille et al. 2015; Tørstad 2020). The Paris Agreement rested on the hope that procedural cooperation would automatically evolve into deeper alignment – but that dynamic has yet to materialise.

"There is a growing realisation that the current institutional setup may ultimately not deliver." Roundtable Participant

As a result, the system has fostered an inward-looking structure, focused on the negotiation process itself rather than the outcomes it is supposed to deliver (Roundtable May 2025). Some experts see the decline of the Kyoto Protocol around its tenth year as a troubling historical parallel (Roundtable May 2025). As one roundtable participant observed: "there is a growing realisation that the current institutional setup may ultimately not deliver." Yet structural reform is likely politically implausible: amending the agreement requires a three-quarters majority, and key actors who benefit from the status quo resist relevant changes (Petri and Karlas 2025; Nasiritousi et al. 2024). China, for instance, has emphasised the need "to implement the Paris Agreement, and not rewrite it," while LMDCs reject any reforms they perceive as undermining CBDR-RC and flexibility (ENB, COP27 #11, COP23 #7).

EU Support for the Paris Agreement

The EU has long positioned itself as a pioneer and a leader in global climate governance (Delreux 2014; Pavese and Torney 2012; Oberthür and Dupont 2021; Teebken and Jacob 2023). Under the Paris Agreement, it has advocated environmental integrity, stringent rules, transparency, and increased ambition in both emission reduction and finance. It has backed this with material support and is still one of the largest contributors to the UNFCCC budget. With the US currently disengaged from the agreement, the EU is increasingly viewed – including by Brazil, which holds the COP30 Presidency – as a key actor and is expected to take on a more assertive leadership role (Interview 4; Weise 2024). The 2028 review and the conclusion of the Global Stocktake at COP33 will be an opportunity for the EU to revisit its positions on the Paris Agreement's core mechanisms.

The EU is increasingly viewed as a key actor and is expected to take on a more assertive leadership role.

The EU's approach to multilateral climate negotiations within 'Team EU' is highly coordinated (Delreux and Keukeleire 2017; Earsom and Delreux 2023), which allows the EU to speak largely with one voice. However, as multilateral environmental agreements fall under the EU's shared competence, this unity relies on internal consensus – and it becomes fragile during periods of political strain. The EU has yet to submit its updated NDC for 2035, which is tied to the 2040 target under the European Climate Law. The Commission's proposal to cut emissions by 90 percent by 2040 has triggered contentious debate, driven by macroeconomic strains, concerns over competitiveness and defence priorities, and intra-EU divisions, notably on the part of Poland and the Czech Republic (Interview 4).

This updated NDC is a litmus test for EU credibility, and it now hinges on the EU's ability to balance domestic economic interests with sustained climate ambition. It must also avoid the risk that an ambitious 2035 pledge will merely mask insufficient follow-through. Domestically, climate action continues to be framed as a driver of growth (Draghi 2024), yet in the absence of a level playing field globally, stringent climate regulations risk undermining the EU's competitiveness and fuelling accusations of green protectionism. Responsible for approximately 6 percent of global emissions, the EU cannot shift global emissions trajectories alone (European Commission and JRC 2024). Nevertheless, arguments citing legacy responsibility, lower per-capita emissions, and the principle of CBDR-RC – as invoked by major developing-country emitters, including the BASIC group – are likely to stall the debate.

In terms of supplying climate finance, the EU performs relatively well in many respects. With its annual contribution hovering near EU €30 billion, it provides approximately 30 percent of global climate finance (Larsen et al. 2024; OECD 2024). About half of the funds from the common EU budget are disbursed as grants, and the EU has made substantial pledges to UNFCCC funds. However, macroeconomic conditions may limit further

increases in contributions. Member states also vary widely in terms of their contributions, adaptation shares, and grant-based financing (Larsen et al. 2024). Since approximately 75 percent of EU climate finance is based on contributions made directly by member states through bilateral or multilateral channels, performance discrepancies among member states significantly impact overall effectiveness. In addition, despite its commitment to regime robustness, the EU has not recently advocated for improvements in the standardisation of MRV rules. Equally, although the EU has exercised significant leadership in facilitating the establishment of loss and damage funds in the past, it did not develop similar reform efforts concerning funding operations, particularly replenishment levels and access barriers. In particular, the EU did not promote any simplification of finance mobilisation at the national level (Interview 7).

Given the limited fiscal headroom within the EU, better use of existing climate resources is essential. Capacity-building initiatives such as NDC partnerships represent low-hanging fruit that would yield high returns (Interviews 3 and 6; Steinebach and Limberg 2021). For many developing countries, especially SIDS, capacity building is crucial to accessing finance and preparing viable project proposals (Interview 2; CEPS 2025). It is also essential for the uptake of cooperation under Article 6, with many countries being strongly interested in starting to offer credits (Interview 2) but facing serious administrative capacity constraints (Steinebach and Limberg 2021). Without such support, Article 6 may end up replicating the inequalities of the Kyoto CDM.

Pragmatic, issue-specific partnerships can reinforce multilateralism in a fragmented world.

Coalition building may help to navigate this constrained landscape, given the low likelihood of a major EU-led financial upscaling. Strengthening partnerships with like-minded countries offers a pragmatic avenue in light of the US retreat (Interviews 2 and 4). Collaborating with developing countries – for example, via High Ambition Coalitions (Earsom 2023) – to shape mutually beneficial agendas is equally critical (Interview 3). North–South divides, as evidenced throughout the last decade of negotiations, are likely to persist. Yet going the extra mile in coalition building could yield dividends (Interview 3), as many parties – such as India – feel sidelined by dominant voices, particularly given how effectively China has been leveraging BASIC consensus to its advantage (Interview 2).

Beyond traditional negotiation alliances, pragmatic, issue-specific partnerships can reinforce multilateralism in a fragmented world (Petri 2024). Despite broader tensions, China could be a key partner when it comes to Article 6 implementation. Gradual alignment on MRV systems and carbon standards could open pathways for future links under the ETS (Interview 1). However, the EU's 'let's-fight-about-everything-but-talk-on-climate' stance (EEAS 2025) risks undermining this potential.

Beyond the UNFCCC, the EU plays a proactive role in promoting ideas and mutual influence across the "international climate regime complex on climate change" (Earsom and Delreux 2023) – that is, various multilateral environmental forums, regimes, and international organisations. For example, in 2025 the EU aligned with China and Brazil in the International Maritime Organization (IMO) to counter an obstructive US position,

supporting a compromise solution (Telling and Bryan 2025). While scholars note substantial progress in the EU's use of different forums to streamline its influence, internal compartmentalisation between EU institutions in the formulation of climate diplomacy has been cited as a significant obstacle (Delreux and Earsom 2022).

Meanwhile, unilateral actions taken by the EU to export its climate regulations have drawn criticism. The Carbon Border Adjustment Mechanism (CBAM), for instance, was labelled discriminatory at COP26 (ENB, COP26#Summary), and China opposed applying EU standards in IMO negotiations (ENB, COP21#3). Whether these instruments can incentivise cooperation heavily depends on their framing (Petri 2024). If properly combined with initiatives such as Global Gateway, CBAM may stimulate clean industrial partnerships with developing countries (Lentschig et al. 2025).

Finally, the EU is embedding climate clauses in new-generation free trade agreements, which raise the cost of backtracking (Bertram and Van Coppenolle 2024). It has attempted to drive a more ambitious climate agenda within the World Trade Organization (WTO), even though international trade and climate agendas often exist in silos, and potential links remain underexploited (Weinhardt et al. 2025; Interview 3). With US tariff wars underway at the time of writing, the future of global trade looks increasingly uncertain (Williams 2025).

Conclusion: The Future of the Global Climate Regime

The core idea of the Paris Agreement was that robust procedural rules, pledge-and-review mechanisms implemented via soft peer pressure, procedural obligations, transparency, and inclusion would catalyse deeper cooperation. This resulted in a trade-off deliberately designed by the architects of the agreement (Guérin and Tubiana 2025): the flexibility of its rules sustains its overall robustness. Yet this trade-off has often come at the expense of effectiveness. The regime falls behind on delivering both substantive outcomes (ambitious NDCs effectively implemented) and procedural functionality (timely, transparent reporting and NDC submission). Resource constraints in terms of climate finance and capacity building, as well as strains on the UNFCCC Secretariat's budget, further undermine the adequacy of support under the Paris Agreement, eroding trust and discouraging active participation. In terms of democracy, the attempt to blur the distinction between developed and developing countries has fuelled dissatisfaction across the spectrum: for some, flexibility erodes transparency and ambition; for others, it has threatened equitable responsibility-sharing under CBDR-RC. Yet a more positive outlook on the agreement entails a long-term view: the key idea is to send signals to motivate states to change their behaviour, aligning domestic policies with climate goals (Guérin and Tubiana 2025).

As it enters its implementation phase, the Paris Agreement seems to be struggling to deliver on its promises.

As it enters its implementation phase, the Paris Agreement seems to be struggling to deliver on its promises. One reason for this is that the COP process was "not designed for implementation" (Guérin and Tubiana 2025, 79), and the UNFCCC is not an executive agency (Interview 2). Brazil's call for a UN Climate Change Council, floated at the 2024 G20 summit and reiterated as part of Brazil's COP30 Presidency, is one example of discontent with implementation capacity under the agreement (Paraguassu 2025).

Indeed, a fresh agreement under the UNFCCC or a counter-institution outside the UNFCCC may be an appealing pathway to finally reconciling democracy, effectiveness, and robustness. However, these options appear unlikely due to entrenched divisions between developed and developing countries, deepening disagreements among major actors like China, the EU, and the US, and path dependencies associated with abandoning existing frameworks. Realistically, any new institution would likely struggle to reconcile the enduring trade-offs between inclusiveness, robustness, and effectiveness that have long challenged the UNFCCC, the Kyoto Protocol, and the Paris Agreement alike. Rather than reinventing the wheel, the Paris Agreement should be viewed as "the central node of the global climate regime" (Guérin and Tubiana 2025, 65), driving cooperation and climate action across diverse forms of governance, including: civil society (Newell et al. 2022); sub-national efforts, such as climate-ambitious US states (Dias and Antunes 2024); and other multilateral environmental

agreements within the climate-regime complex (Dubash 2021; Pattberg et al. 2022; Teebken and Jacob 2023; Zhang and Bai 2023). Strengthening synergies and overcoming institutional silos among these parallel efforts should be the primary focus for those who seek to enhance the global climate regime (Streck 2023).

The rise of minilateralism, however, may reflect growing frustration with the UNFCCC's slow pace and entrenched divisions. In an increasingly fragmented global order, powerful states may also prefer less-democratic forums outside the COP process, where developing countries hold significant sway (Thompson 2024). Rising trade frictions, especially around clean tech, are fuelling interest in industrial and trade alliances that align with domestic climate policy, such as climate clubs (see, e.g., Nordhaus 2021). Concerns about the equity and WTO compatibility of such clubs remain, but frustration with global trade governance (Parizek and Weinhardt 2025) may contribute to easing them. Similarly, BRICS countries are exploring carbon market linkages – which are still in their infancy, but which signal a potential shift in climate-engagement dynamics in the Global South. To remain meaningful, the UNFCCC regime needs to pair in-depth multilateralism under the Paris Agreement with a more outward-facing, action-oriented agenda – one path forward would involve breaking out of policy silos and embedding climate governance in trade, finance, and industrial policy frameworks (Roundtable May 2025).

In sum, despite emerging discontent and strong contestation from the US, the Paris Agreement will likely avoid suffering a cascading withdrawal effect. However, if it is unable to catalyse transformational change, the agreement risks increasing stagnation and marginalisation – becoming a platform primarily for high-profile COPs, but facilitating only marginal climate action. It may become what Julia Gray (2018) terms a "zombie institution": bureaucratically persistent, widely accepted, yet failing to deliver on its core mission. Taking a broader outlook, as geopolitical rivalries deepen – within the G20, as well as between BRICS countries and the Global North – the regime risks becoming a spillover arena for broader systemic tensions, especially if it becomes more closely associated with the liberal international order (Lake et al. 2021; Thompson 2024; Thakur 2024). Finally, technological breakthroughs, such as solar geoengineering (Meier and Traeger 2023) may significantly reshape global climate governance. Despite the IPCC critique that geoengineering masks symptoms instead of addressing root causes – namely greenhouse gas emissions (IPCC AR6, cited in Chandrasekhar et al. 2022) – such technologies are increasingly floated as potential tools to stabilise global temperatures without actually requiring emissions reductions. However, their application and alignment with the Paris Agreement remains contentious. Whether the Paris Agreement can adapt to all these challenges will be the defining test of its second decade – and of the UNFCCC regime as a whole.

Whether the Paris Agreement can adapt to all these challenges will be the defining test of its second decade.

List of Interviews and Events

Number	Date	Interviewee	Location
1	05/16/2025	Non-party stakeholder	Online
2	05/21/2025	Party stakeholder	Online
3	05/23/2025	Party stakeholder	Online
4	05/23/2025	Party stakeholder	Online
5	05/23/2025	Party stakeholder	Online
6	05/27/2025	Party stakeholder	Online
7	05/28/2025	UNFCCC-affiliated institution	Online
8	05/27/2025	Closed-door roundtable	Hybrid

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