



Strengthening global environmental governance in the era of climate change: Pathways to a sustainable future

Dr. Shabana S¹, Dr. B Indirapriyadharshini²

¹ Assistant Professor, Department of B.Com PA & AF, Nehru Arts and Science College, Tamil Nadu, India

² Assistant Professor, Department of Commerce (CA), NGM College, Pollachi, Tamil Nadu, India

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Abstract

The accelerating climate crisis has exposed the limits of the existing system of global environmental governance and made its reform an urgent priority. This analytical paper asks how global environmental governance can be strengthened in the era of climate change so as to secure a sustainable future. It reviews the widening gap between the goals of the Paris Agreement and the world's current trajectory, diagnoses the principal deficits of the present governance system — insufficient ambition, inadequate finance, weak enforcement and fragmentation — and identifies concrete pathways to strengthen it, including more ambitious and accountable national commitments, a reformed climate-finance architecture, stronger compliance and transparency mechanisms, better coordination among state and non-state actors, and an equitable, just transition. Drawing on recent data and the outcomes of the COP29 and COP30 summits, it argues that a strengthened, better-financed and more equitable governance system can still align climate action with the Sustainable Development Goals and chart a pathway to a sustainable future.

Keywords: Global environmental governance, climate change, governance reform, Paris Agreement, climate finance, accountability, just transition, sustainable future

Introduction

The era of climate change has placed the international community under a test it has never before faced: to govern a shared atmosphere on which all life depends, across nearly two hundred sovereign states with divergent interests and unequal capacities. Over three decades, an elaborate system of global environmental governance has been built to meet this test, centred on the United Nations Framework Convention on Climate Change and its landmark treaties. Yet the science has continued to outpace the response. The year 2024 became the warmest on record and the first to breach 1.5°C of warming, while current policies point towards warming of 2.6°C to 3.1°C by the end of the century — far beyond the limits the world has agreed to observe.

This widening gap between commitment and reality has made one conclusion inescapable: the existing system of global environmental governance, for all its achievements, must be strengthened if it is to deliver a sustainable future. The question is no longer whether such governance is necessary, but how it can be reformed and reinforced to close the gaps in ambition, finance, accountability and coordination that now imperil the Paris goals and, with them, the wider agenda of sustainable development.

This paper addresses that question directly. It reviews the case for strengthening governance in the light of recent climate data and negotiations, diagnoses the deficits of the present system, and sets out concrete pathways through which global environmental governance can be strengthened. It concludes by considering how a reinforced governance system can align climate action with the

Sustainable Development Goals and open a pathway to a sustainable future.

Objectives and Methodology

The paper has four objectives: to establish the case for strengthening global environmental governance; to analyse the existing governance architecture and its deficits; to identify concrete pathways for strengthening it; and to connect these reforms to the pursuit of a sustainable future. The study is analytical and descriptive and relies on secondary data from authoritative sources, including the United Nations Environment Programme, the UNFCCC and reputable analyses of recent climate summits. It uses conceptual synthesis, trend analysis and comparative interpretation, supported by selected quantitative evidence presented in figures and a table.

The Case for Strengthening Governance

The scientific and developmental case for reform is compelling. Human-induced warming has already destabilised the climate, and the symbolic breaching of 1.5°C in 2024 signals how little room remains. According to the United Nations Environment Programme, prevailing policies place the world on course for warming of 2.6°C to 3.1°C this century, dramatically higher than the Paris Agreement's targets, as Figure 1 shows. Returning to a 1.5°C pathway would require global greenhouse-gas emissions to fall by roughly 42 per cent by 2030 and 57 per cent by 2035 — a pace of change that the current governance system has manifestly failed to deliver.

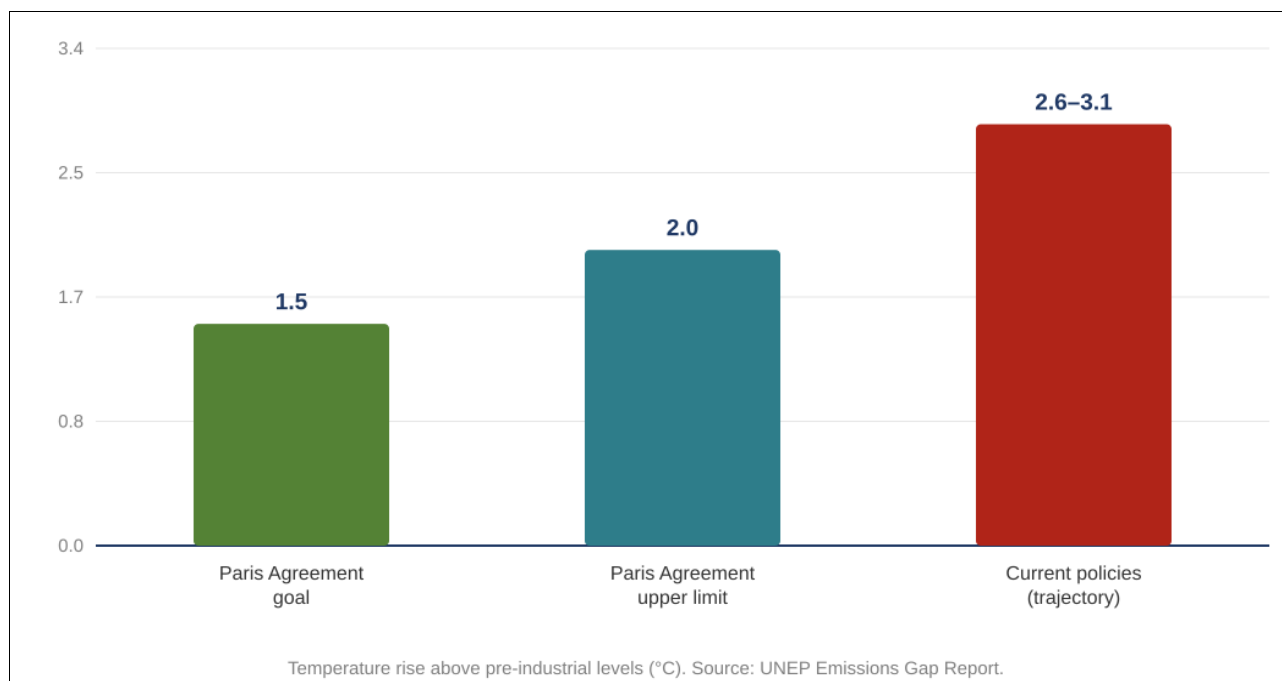


Fig 1: The gap between the Paris Agreement goals and the current-policy trajectory.

This shortfall is not merely an environmental concern but a threat to sustainable development itself. Climate impacts erode progress across the Sustainable Development Goals and fall most heavily on the poorest countries and communities, which have contributed least to the problem yet possess the fewest means to adapt. The persistence of these gaps, despite three decades of negotiation, is evidence that incremental adjustment is no longer sufficient and that the governance system requires deliberate strengthening if a sustainable future is to remain attainable.

It is important to stress that the case for strengthening governance does not imply that the existing system has failed outright. On the contrary, the UNFCCC process has achieved near-universal participation, normalised the goal of net-zero emissions, catalysed national climate laws and mobilised vast flows of investment towards clean energy. The problem is one of pace and scale rather than direction: the system moves, but too slowly for the closing window that the science describes. Strengthening governance therefore means building on a functioning foundation rather than replacing it, accelerating and reinforcing what already works while remedying its structural weaknesses.

The Existing Architecture and Its Deficits

The present system rests on a sequence of agreements. The 1992 UNFCCC established the framework and the principle of "common but differentiated responsibilities"; the 1997 Kyoto Protocol imposed binding targets on developed countries; and the 2015 Paris Agreement created a universal, bottom-up regime in which all states pledge Nationally Determined Contributions (NDCs) and strengthen them through a five-yearly ratchet and global stocktake, aiming to hold warming well below 2°C while pursuing 1.5°C. This treaty core is embedded in a wider, polycentric ecosystem

including the IPCC, the United Nations Environment Programme, the annual Conferences of the Parties and the 2030 Agenda for Sustainable Development.

Despite its breadth, this architecture suffers from well-defined deficits. Its ambition is insufficient, since aggregate NDCs fall far short of the 1.5°C pathway. Its finance is inadequate, with pledged resources dwarfed by needs, especially for adaptation. Its enforcement is weak, resting on voluntary, self-determined commitments with no mechanism to compel compliance. And its structure is fragmented, dispersing authority across many actors without a central point of accountability. These deficits, rather than any absence of institutions, are what a strengthened governance system must address.

Recent Negotiations: Progress and Limits

Recent summits illustrate both the resilience and the inadequacy of the system. At COP29 in Baku in 2024, parties agreed a New Collective Quantified Goal committing developed countries to mobilise at least US\$300 billion per year for developing countries by 2035, within a broader aspiration of US\$1.3 trillion — an outcome many developing nations judged insufficient. At COP30 in Belém in November 2025, held amid acute geopolitical strain, parties adopted a package known as the "Global Mutirão," or collective effort, agreeing to call for a tripling of adaptation finance by 2035 and establishing a two-year work programme on finance.

Yet COP30 also revealed the system's limits: its central decision contained no roadmap for transitioning away from fossil fuels, which was deferred to separate processes towards COP31, and the adaptation-finance gap remained stark, with developed nations providing only about US\$26 billion in 2023 against estimated annual needs of some

US\$310 billion, as Figure 2 illustrates. The contrast between the summit’s cooperative spirit and its substantive shortfalls

captures precisely why the governance system must be strengthened.

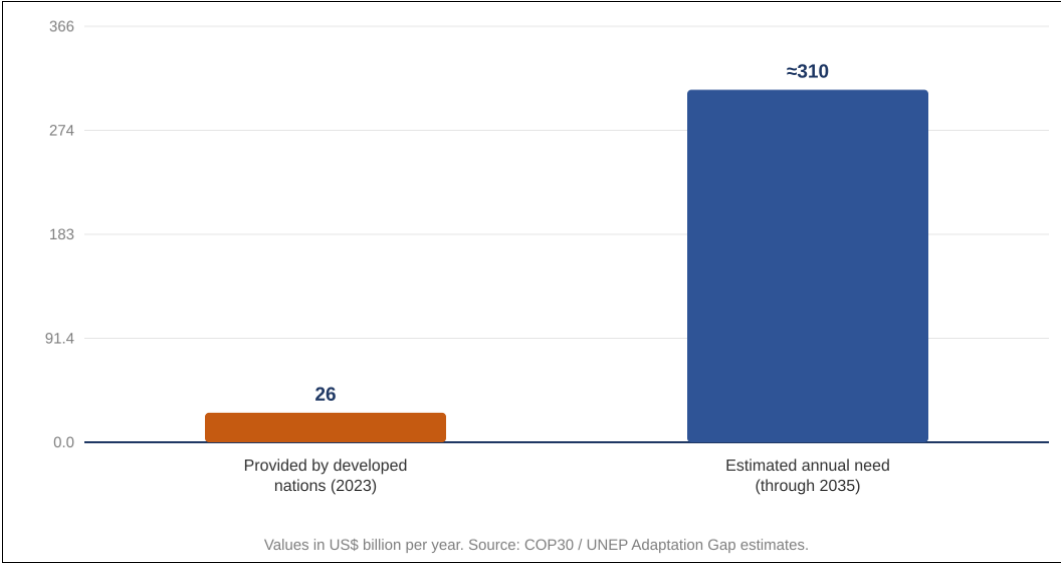


Fig 2: The gap between adaptation finance provided and estimated needs.

Table 1: Key Facts on Climate Change and Governance

Indicator	Value / Status
Global temperature (2024)	Warmest on record; first year above 1.5°C
Current-policy warming trajectory	2.6–3.1°C by 2100
Emission cut needed for 1.5°C	42% by 2030; 57% by 2035
COP29 climate-finance goal (NCQG)	≥ US\$300 bn/yr by 2035 (towards US\$1.3 tn)
COP30 adaptation-finance pledge	Call to triple by 2035
Adaptation finance gap (2023)	US\$26 bn provided vs ≈US\$310 bn needed

Sources: UNEP Emissions Gap Report; Copernicus; COP29/COP30 outcomes.

Pathways to Strengthening Global Environmental Governance

Addressing these deficits requires reform along several complementary pathways:

These pathways are best understood not as isolated fixes but as elements of a coherent programme of reform, each addressing one of the diagnosed deficits while reinforcing the others. Taken together, they aim to convert a system that has proven durable but under-powered into one capable of matching the scale and urgency of the crisis.

1. Raising Ambition and Aligning National Commitments

The first pathway is to strengthen the ambition mechanism at the heart of the Paris Agreement. Successive Nationally Determined Contributions must be made consistent with the 1.5°C pathway, informed by the global stocktake, and translated into credible domestic policies and investment plans. Strengthening the ratchet — through clearer expectations, common timeframes and independent assessment of adequacy — can help convert pledges into a genuine, rising trajectory of action.

2. Reforming the Climate-Finance Architecture

The second pathway is to reform and scale up climate finance. This means not only meeting and exceeding existing goals but reshaping the financial architecture — reforming multilateral development banks, mobilising private capital through green finance and carbon markets, and prioritising grant-based adaptation finance for the most

vulnerable. Closing the finance gap, especially for adaptation, is indispensable to the credibility and equity of the whole system.

3. Strengthening Accountability and Compliance

The third pathway is to reinforce accountability. Because the Paris regime relies on voluntary commitments, its effectiveness depends on robust transparency, monitoring, reporting and verification, and on the reputational pressure generated by the global stocktake. Strengthening these mechanisms, and complementing them with independent review and civil-society scrutiny, can raise the cost of inaction and improve compliance without abandoning the universal, bottom-up model.

4. Coordinating Polycentric and Non-State Action

The fourth pathway is to harness the polycentric nature of climate governance. Cities, regions, businesses, financial institutions and civil society are increasingly powerful climate actors, and better coordination among them and with the formal UN process can accelerate action and fill gaps left by national governments. Recognising, tracking and integrating these commitments strengthens the overall system.

5. Embedding Equity and a Just Transition

The fifth pathway is to place equity at the centre of governance. Honouring the principle of common but differentiated responsibilities, supporting vulnerable nations, and ensuring a just transition that protects affected

workers and communities are essential both to fairness and to the political durability of climate action. A governance system perceived as equitable is far more likely to command the trust and cooperation on which its success depends.

Towards a Sustainable Future

Strengthening governance along these pathways is not an end in itself but a means to a sustainable future. The reforms proposed here are mutually reinforcing: greater ambition requires greater finance; finance flows more readily where accountability is strong; accountability is enhanced by the participation of non-state actors; and all of this is sustainable only if it is equitable. Together they can transform a governance system that has struggled to keep pace into one capable of driving the rapid decarbonisation the science demands.

Crucially, such a strengthened system can align climate action with the wider Sustainable Development Goals. The clean-energy transition, now economically compelling as the costs of solar, wind and storage fall, can simultaneously cut emissions, expand energy access, create employment and improve health. Green finance, technology and nature-based solutions offer further avenues to reconcile development with decarbonisation. A well-governed, well-financed and equitable climate response can therefore serve not as a brake on development but as its engine, opening a credible pathway to a sustainable, resilient and just future.

Policy Recommendations

In summary, the following measures are recommended to strengthen global environmental governance:

- Align every successive Nationally Determined Contribution with the 1.5°C pathway and strengthen the ratchet and global stocktake.
- Scale up and reform climate finance, prioritising grant-based adaptation support and mobilising private capital through a reformed financial architecture.
- Reinforce transparency, monitoring and compliance mechanisms to convert voluntary pledges into accountable action.
- Coordinate and integrate the commitments of cities, businesses and civil society within the formal governance process.
- Embed equity and a just transition as organising principles, supporting vulnerable countries and communities.
- Integrate climate governance with the Sustainable Development Goals to maximise co-benefits across development sectors.

Conclusion

In the era of climate change, the strengthening of global environmental governance has become a precondition for a sustainable future. The evidence is stark: a warming world already past 1.5°C, a current-policy trajectory towards 2.6°C to 3.1°C, and a governance system whose ambition, finance, accountability and coherence have all fallen short. The outcomes of COP29 and COP30 — real cooperation shadowed by inadequate finance and an unfinished reckoning with fossil fuels — confirm that incremental progress alone will not suffice.

Yet the pathways to a stronger system are clear and mutually reinforcing: higher and better-aligned ambition, a reformed and scaled-up finance architecture, stronger

accountability, better coordination of polycentric action, and equity embedded throughout. Pursued together, and connected to the Sustainable Development Goals, these reforms can transform global environmental governance from a system that lags the crisis into one that leads the response. The task is formidable, but it is not beyond the reach of a community of nations willing to act with resolve, fairness and urgency. In that resolve lies the pathway to a sustainable future.

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