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Climate Change: The Critical Decade

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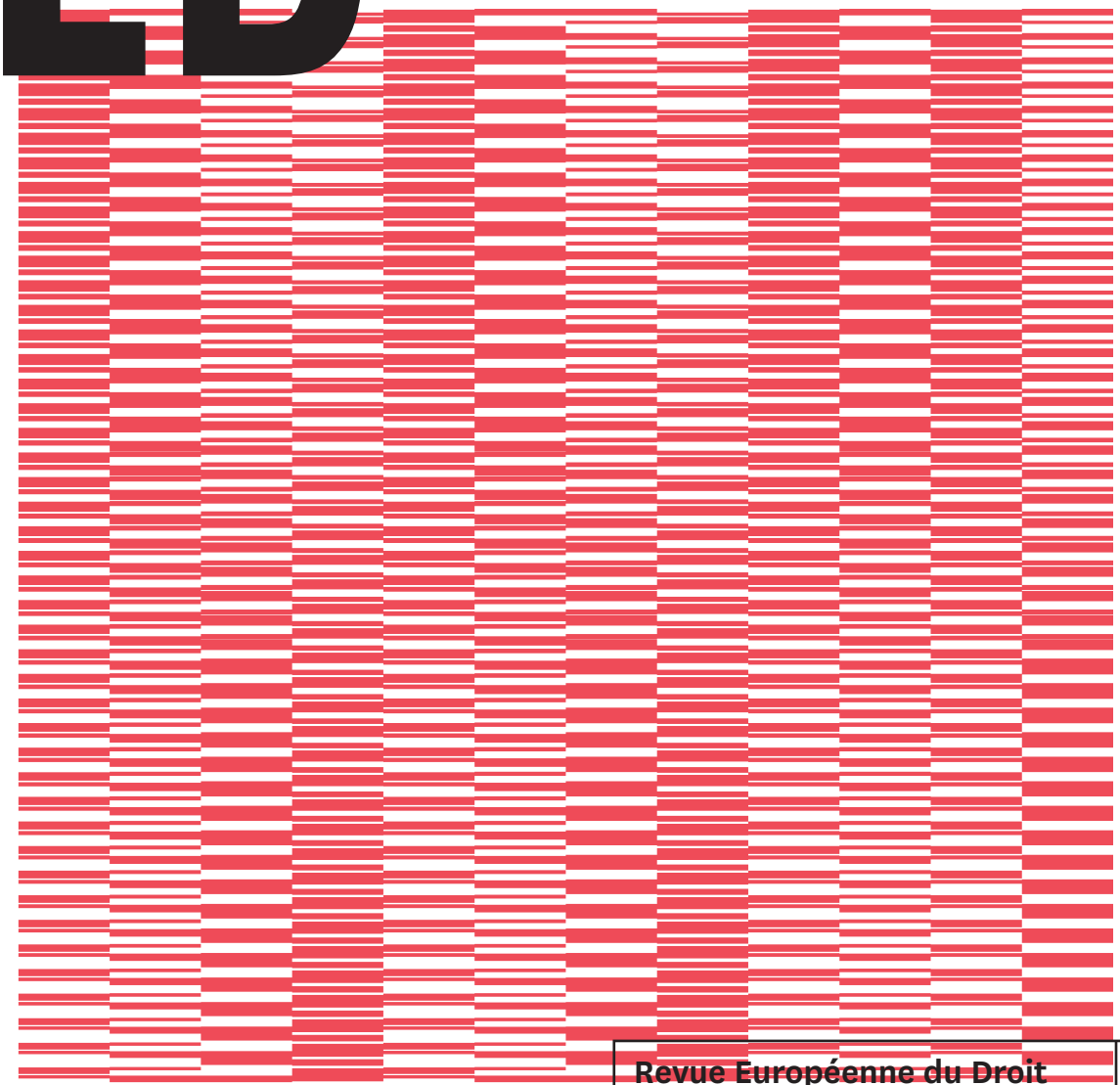

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Climate Change: A Critical Decade of Legal Progress and Backlash

Ten years after the Paris Agreement, the numbers leave no room for illusion. The year 2024 was the hottest ever recorded, and the first to surpass, on average, +1.5°C above pre-industrial levels. 2025 has continued the trend, with abnormally warm oceans and record-breaking summers across southern Europe. The curves are no longer abstractions but scars: blackened forests, overheated seas, suffocating cities. What was once a statistical projection has become a tangible, almost intimate experience. Climate change is no longer a prospect; it is now the framework within which all public policy must operate.

Paradoxically, just as the crisis has become undeniable, its political centrality has diminished. In the United States, the 2024 election was followed by a dramatic reversal: a notice of withdrawal from the Paris Agreement was issued on January 20, 2025, and a sweeping regulatory rollback began, targeting the legal foundations of federal climate policy—including a proposal to repeal the 2009 Endangerment Finding, the very act that recognized greenhouse emissions as a threat to public health. Simultaneously, the EPA began stripping GHG standards from vehicle regulations. These developments unfold within a jurisprudential context that constrains agency action. In 2022, *West Virginia v. EPA* expanded the reach of the major questions doctrine, and in 2024, *Loper Bright* overturned Chevron, curtailing judicial deference to expert administrative interpretations absent explicit congressional authorization. Administrative law—once a discreet instrument of transition—has become an obstacle.

Europe, meanwhile, hesitates and stumbles. Emmanuel Macron's call for a "pause" in environmental regulation carried more than symbolic weight—it gave shape to the overall political fatigue. Euro 7 automotive standards have been diluted, the 2035 targets postponed to future negotiations, and national capitals now speak more of competitiveness than sustainability. The European Commission still calls for a 90% cut in net emissions by 2040, yet member states are already retreating. What once looked like a voluntary race has turned into a reluctant journey. Hans Jonas argued in his book *The Imperative of Responsibility* that the power to act creates a new obligation towards future generations. We are seeing the opposite: the power to delay, to procrastinate, to put off until tomorrow what should be done today. Politicians are choosing to pause, while the climate is only accelerating.

In this climate of wavering political will, courts have emerged as the metronome of the Paris Agreement. The European trajectory has taken shape through successive rulings. *Urgenda Foundation v State of the Netherlands* (Supreme Court of the Netherlands, 20 December 2019) compelled the Dutch state to cut emissions by at least 25% by 2020 under Articles 2 and 8 of the European Convention on Human Rights. *Neubauer v Germany* (German Federal Constitutional Court, 24 March 2021) constitutionalized intergenerational equity. In France, the *Commune de Grande-Synthe* saga (Conseil d'État, 1 July 2021 & 10 May 2023) inaugurated continuous judicial monitoring of the government's trajectory and its short-term corrective actions. And in April 2024, the European Court of Human Rights marked a turning point: in *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* (ECtHR, 9 April 2024), the Grand Chamber recognized a right to effective protection against the serious effects of climate change under Article 8, and condemned policy insufficiency. This hybrid jurisprudence—merging fundamental rights with positive obligations—places climate at the core of Europe's rule-of-law litigation.

International law, too, has grown more encompassing. On 21 May 2024, the International Tribunal for the Law of the Sea held that greenhouse gas emissions constitute marine pollution and required states to take all necessary measures based on the best available science. Two months later, on 23 July 2025, the International Court of Justice issued a landmark advisory opinion: states have a legal duty to protect the climate system, to cooperate, and to regulate emissions, including those from private actors; failure to do so may entail liability and reparations. Without creating a new global climate judge, the ICJ has laid the normative groundwork that already anchors national and regional litigation. The judiciary—never meant to govern—has become a tenacious watchdog, a silent compass at the heart of the storm.

At the same time, deregulation is reshaping the economics of private environmental commitments. In June 2025, the EU put the Green Claims Directive—designed to standardize and verify corporate environmental assertions—on hold. The European Commission also proposed narrowing the scope of sustainability reporting, exempting a large share of companies. True, ISSB (IFRS S2) reporting has gathered momentum since 2024, and the Corporate Sustainability Due Diligence Directive (2024/1760) is being phased in. Yet the overall framework remains asymmetrical: disclosure obligations are tightening even as

uncertainty grows over the enforceability of voluntary commitments.

What does this decade reveal? First, the Paris Agreement has succeeded in universalizing metrics—emission inventories, assessments, and trajectories—mobilizing markets, and creating a shared language for climate-focused policy. Second, political erosion, through regulatory dismantling in the United States and defensive compromises in Europe, now threatens the shift from language to action. Finally, judges—national, European, and international—have become the central actors, keeping ambition alive as political commitments shrivel.

Should we rejoice? Judges are not social planners, and no court order can substitute for policymaking. The transition demands credible industrial strategies, an investing state, price signals consistent with social justice, and stable rules for capital. To prevent climate litigation from descending into a litigation of impotence, governments must re-internalize the ambition set by judges—translating it into binding carbon budgets, quantifiable sectoral pathways, and verifiable investment schedules.

We are living in a suspended moment of unfulfilled promise. In 2015, the world believed it had found a shared purpose—a way to treat climate change not as a domestic issue but as a collective one. There was an illusion of unity, as if nations could still, in Hannah Arendt's words, "act in concert" to give substance to the common good. While politics has chosen to pause, the law advances: through judgments and advisory opinions, it tightens the grip of legal commitments. Europe must now decide whether this movement remains curative—limited to sanctions—or becomes preventive, through legal planning. Otherwise, the center of gravity of climate action will drift further toward the courts, reducing this decisive decade to a judicial chronicle of feebleness. The Paris Agreement provided the grammar; the syntax of implementation remains to be created. For now, it is the judge who holds the pen.

THE PARIS AGREEMENT: TEN YEARS LATER

CRITICAL DECADE AND INTERNATIONAL DYNAMICS

NEW IMAGINARIES AND LEGAL INNOVATIONS

Laurent Fabius · Former President
of COP21/Paris Agreement.
Chair of the Circle of COP Presidents

Climate change: The Critical Decade. Foreword

Ten years since the Paris Agreement.

Like any anniversary, this is an opportunity to take stock of the protection of what is undoubtedly the most significant existential challenge of this century–the climate and the environment–and to consider future prospects. Assessing the current situation and outlining goals for climate and environmental protection ten years after the Paris Agreement: this is the dual challenge the *Revue européenne du droit* has set for distinguished contributors–presidents of institutions, court leaders, public decision-makers, diplomats, academics, and lawyers–each of whom, in their respective fields, has responded admirably. I want to express my deepest gratitude to them.

In 2015, faced with the urgency and severity of climate change, the international community decided to join forces to forge a major legal instrument that would serve as a universal reference in the fight against climate change, for the benefit of humanity's prosperity and posterity.

In 2015, France had the privilege of hosting COP21. I remember the somewhat unusual circumstances surrounding this decision. We were in Warsaw in 2013 to decide which country would host COP21 two years later. France was the only candidate, which reflected the somewhat limited enthusiasm at the time for its chances of success. I can still see the embarrassed smiles of the delegates who, when the decision was announced, came up to me and said, "Mr. Fabius, good luck."

Luck may have played a part, but above all, it was the result of intense diplomatic preparation, which I commend, aided by the alignment of three essential planets: that of scientists, to whom I express my deep gratitude–especially the IPCC–that of civil society–citizens, associations, businesses, cities, and regions–and that of governments, which were united at the time. This crucial combination unfortunately contrasts with the current situation, where science and factual truth are sometimes challenged, even at the highest levels, where civil society is often divided, and where several governments, rejecting multilateralism and favoring force, forget that humus (earth) and humility share a common root, that greenhouse gases do not need a passport, and that, as successive UN Secretaries-General have reminded us, there is no planet B. Those who, in good or bad faith, propose a narrative of failure must be countered with the truth of the facts, which highlight the benefits of the Paris Agreement.

Thanks to the 29 articles and 140 paragraphs of decisions in the Paris Agreement, as well as successive COPs and their implementation, the long-term trend of average temperature rise has been slowed by several decimal points. But each decimal point carries the weight of millions of lives. The decarbonization targets of the Paris Agreement have become a guiding framework for governments, local authorities, businesses, and citizens, with most adopting carbon neutrality goals. Technologies have advanced significantly, the emphasis on adaptation, not just greenhouse gas reduction, has progressed, and funding has been made available.

But–and this is a significant "but"–the facts also show that the world is far from meeting all of the Paris targets and commitments, especially the well-known +1.5°C limit, achieving carbon neutrality by 2050, and the essential responses outlined by COP 21 and subsequent COPs. Adaptation efforts are not yet adequate. The transformation of economies remains incomplete, uneven, and too slow. Funding mobilization falls short of both ambitions and needs. And powerful forces exist that deny scientific evidence and promote dangerous short-term thinking.

The most favorable scenarios envision a target of "net zero emissions" by 2050, which would require very ambitious emission reductions and profound structural changes starting today. The paradox of paradoxes is that several pathways for climate action seem to be reaching a plateau just as climate change and its harmful effects are setting new records.

So, what does the future hold?

As chair of the Circle of COP Presidents, established on the initiative of André Corrêa do Lago, President of COP30, I want to highlight three key messages. First, the Paris Agreement has been and continues to be highly valuable. Second, its implementation has not yet been thorough enough to meet its essential goals. Third, in line with the Agreement, we must strengthen policies to reduce global warming, cut GHG emissions, and adapt to climate change, allocating the necessary resources to achieve this.

If we do not hammer home these three messages simultaneously and quickly translate them into action, we risk not only failing to meet the goals of the Paris Agreement but also allowing the Agreement to be called into question and, as a result, accepting or even exacerbating climate change and its impacts on humanity as a whole.

Among the changes to be made, the famous "transitioning away from fossil fuels," adopted by COP28 in Dubai, must be respected and enforced, whether it pertains to CO2 or methane emissions. Funding must be increased and clarified, as we are still far from reaching the goal, especially regarding developing countries. Carbon pricing, energy efficiency, and renewable energy sources must continue to gain ground, and social justice should always remain a top priority. Like businesses, local actors play a crucial role. They possess two key characteristics: they concentrate the vast majority of harmful gases within their regions, and it is elected officials, mayors, and governors, including in the United States, who feel and face the challenges of the necessary changes most directly. Finally, there is a strong expectation that policy results be evaluated against the set objectives, based on the progress made and the pace of implementation.

Faced with mounting and looming challenges, Galileo's warnings in Bertolt Brecht's eponymous play resonate: "Who does not know the truth, is simply a fool... Yet who knows the truth and calls it a lie is a criminal." Under these circumstances, it is not surprising that courts and tribunals in an increasing number of countries are punishing violations of environmental law and the requirements of the Paris Agreement.

International justice, through the prominent voices of the European Court of Human Rights, the Inter-American Court of Human Rights, and the International Court of Justice, among others, is also speaking out in strong terms. First, climate change treaties impose strict obligations on states to protect the climate system. Second, states must use all available means to fulfill their climate obligations. Third, failure to do so constitutes an "unlawful act" for which they can be held liable.

I am often asked to summarize the spirit of the Paris Agreement. Ten years later, my answer remains the same: "better, faster, together." It is this threefold message that we must turn into action.

Jorge E. Viñuales · Harold Samuel Professor of Law and Environmental Policy, University of Cambridge; Professor of International Law, LUISS, Rome.

The Paris Agreement turns 10 in the middle of a critical decade

In the decade since the adoption of the Paris Agreement in December 2015, international relations have changed beyond recognition. It would be tempting to see such change as a mere epiphenomenon, belonging to what Fernand Braudel famously dismissed, borrowing François Simiand's terminology, as mere changes in the short-term history of 'events' (*histoire événementielle*), to contrast it with the deeper processes unfolding in the 'longue durée'.[1] Yet, two fundamental differences should serve as warning. First, the Paris Agreement was adopted to confront something genuinely new under the Sun, to borrow the title of John McNeill's environmental history of the XX Century.[2] Humanity, or more accurately certain parts of it,[3] have become a force of geological proportions affecting the dynamics of the climate and, more generally, the Earth system.[4] This is new at any human timescale, even beyond those that separate human 'history' and 'pre-history'. Second, the 'events' of this critical decade 2020-2030[5] will loom large on the deep future, as they may trigger and lock-in processes defining the very environmental conditions within which future generations will live and struggle for thousands of years.

As lawyers, our role is to organise the collective efforts to rise to this 'unprecedented challenge of civilisational proportions'[6], and a key milestone in such efforts was the adoption of the Paris Agreement. As former COP21 President and co-editor of this special issue Laurent Fabius knows all too well, the text of the Paris Agreement is the expression of many complex compromises, often papered over in ambiguous formulations. But the esprit de Paris was and remains clear. In his own words 'better, faster, together'. In a recent advisory opinion, the International Court of Justice, acting unanimously, breathed new life into this understanding of the Paris Agreement. It emphasised, in the clearest terms, that the Paris Agreement sets 'stringent' obligations of due diligence, in particular in relation to mitigation.[7]

As I write these introductory lines for our special issue, it has become inescapable that this spirit of Paris needs to find expression not only in the negotiations of COP30 in Belém, but also in international and domestic climate litigation, financial decision-making, global governance processes on issues as diverse as human rights, health, trade, investment and even international security, and of course also in domestic policies. There are significant synergies between achieving reductions of emissions of greenhouse gases and economic performance. To take two examples, in 2024, the 'net zero' sectors grew three times as fast as the wider economy in countries such as the UK[8] or China.[9] Much of this growth can be explained by purposive and deliberate policies, enshrined in law, in support of specific technologies.[10]

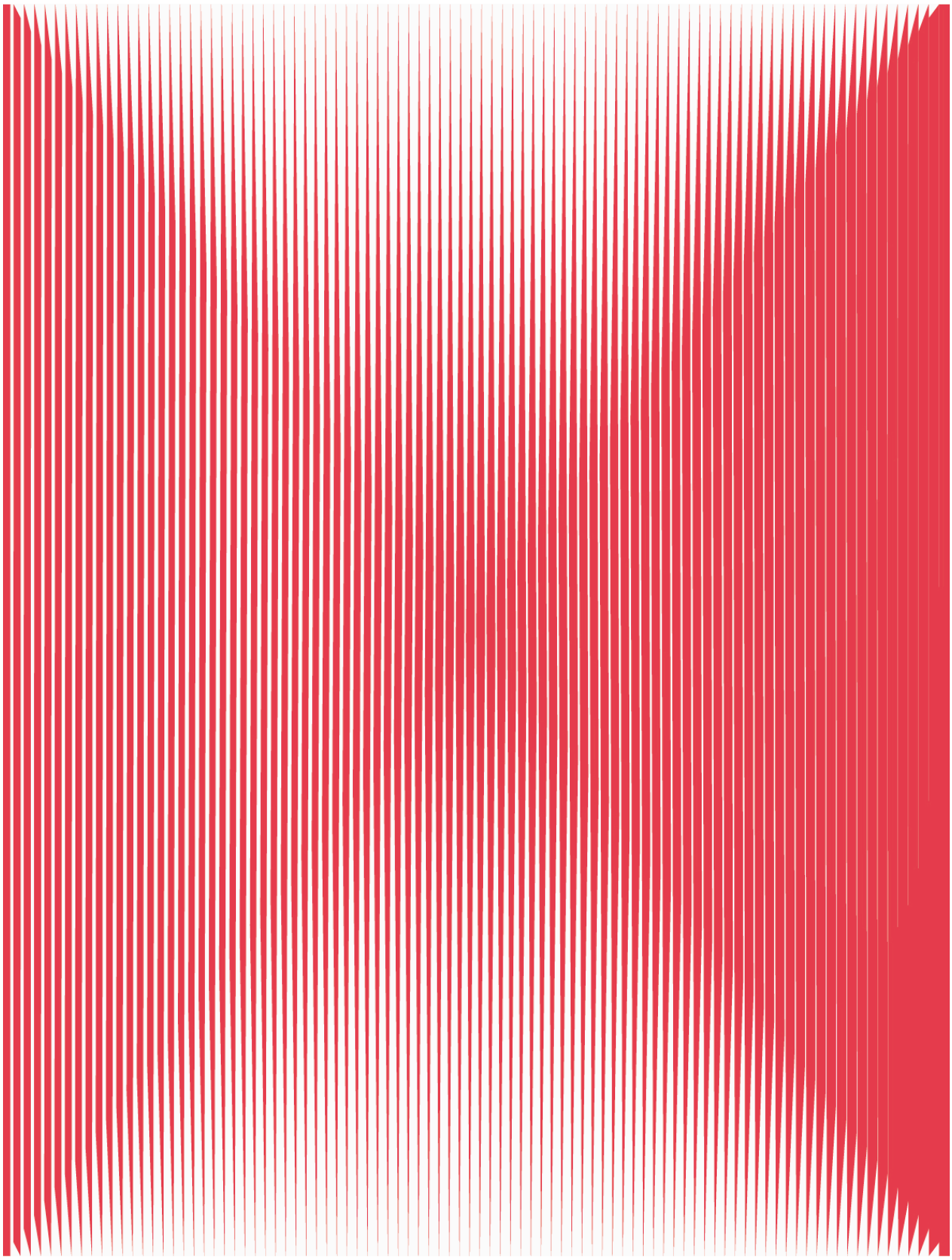
Law permeates and structures the organisation of society. It is only one part of such organisation. As the International Court of Justice observed in the closing paragraph of its recent advisory opinion on climate change: 'the questions posed by the General Assembly represent more than a legal problem: they concern an existential problem of planetary proportions that imperils all forms of life and the very health of our planet. International law, whose authority has been invoked by the General Assembly, has an important but ultimately limited role in resolving this problem. A complete solution to this daunting, and self-inflicted, problem requires the contribution of all fields of human knowledge, whether law, science, economics or any other'.[11] But law is an important part, because it sets the overall bounds within which socio-economic processes unfold.

From this wider perspective, it appeared timely to devote a special issue of *RED* to the 10th anniversary of the adoption of the Paris Agreement, and to situate it in the current critical decade 2020-2030, where much of

1. F. Braudel, 'Histoire et sciences sociales: La longue durée' (1958) 13(4) *Annales. Économies, Sociétés, Civilisations* 725.
2. J. R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (2000). See W. Steffen, W. Broadgate, L. Deutsch, O. Gaffney, C. Ludwig, 'The trajectory of the Anthropocene: The great acceleration' (2015) 2 *The Anthropocene Review* 81.
3. J. E. Viñuales, *The Organisation of the Anthropocene – In Our Hands?* (The Hague, Brill, 2018), at 32-56.
4. K. Richardson et al, 'Earth beyond six of nine planetary boundaries' (2023) 9/37 *Science Advances* eadh2458
5. O. Hailes, J. E. Viñuales, 'The energy transition at a critical juncture' (2023) 26 *Journal of International Economic Law* 627.
6. UN General Assembly Resolution 77/276: 'Request for an advisory opinion of the International Court of Justice on the obligations of States in respect of climate change', 29 March 2023 (adopted by consensus), A/RES/77/276, preambular paragraph 1.
7. *Obligations of States in respect of climate change*, Advisory Opinion (23 July 2025), ICJ General List No. 187, para. 246.
8. Confederation of British Industry (CBI) Economics, *The Future is Green. The Economic Opportunities brought by the UK's Net Zero Economy* (February 2025), Executive Summary.
9. Ember, *China Energy Transition Review* (9 September 2025), Executive Summary.
10. EEIST Consortium, *Economics of Energy Innovation and System Transition: Synthesis Report* (2024), Executive Summary.
11. *Obligations of States in respect of climate change*, para. 456.

humanity's future is at stake. The contributions to this issue represent different viewpoints. In some cases, they give expression to how key decision-makers, political or otherwise, see the challenge and their role in it. In other cases, they clarify the legal and institutional architecture in which the struggle between stability and change unfolds. In yet other cases, they provide perspectives from beyond law to shed light on the scientific and economic fundamentals constraining the choices to be made. In all cases, they provide actionable insights on what the *esprit de Paris* is and what it could achieve in this critical decade.

The Paris Agreement: Ten Years Later



Marko Bošnjak · Former President
of the European Court of Human Rights

Climate Change: The Role of Judges

> "...[I]t should be recalled that the Convention is a living instrument which must be interpreted in the light of present-day conditions, and in accordance with developments in international law, so as to reflect the increasingly high standard being required in the area of the protection of human rights, thus necessitating greater firmness in assessing breaches of the fundamental values of democratic societies..."[1]

International and regional human rights bodies, including courts, are increasingly tasked to address or adjudicate whether governments have taken adequate mitigation and adaptation measures to address climate change.[2] Systemic climate change litigation – legal challenges for failing to combat climate change – has surged globally since the adoption of the Paris Agreement in 2015 by 196 (now 195[3]) States.[4] As of April 2025, more than 3,000 climate-change cases have been identified in at least 55 jurisdictions, before international or regional tribunals and domestic courts[5], and their number is expected to increase.

Since the United Nations ("UN") Human Rights Council recognised the link between climate change and human rights in 2008[6] – a connection later reinforced by other UN Treaty bodies in 2019[7] – courts have been increasingly called upon to adjudicate climate change related claims from a human rights perspective. Individuals, who generally lack access to transnational tribunals reserved for States,[8] have been invoking international human rights instruments to challenge the effects of climate change on their fundamental rights.

Despite some initial scepticism toward a human-rights based approach to climate change litigation,[9] and the lack of explicit provisions in the Paris Agreement linking climate change to human rights,[10] judicial responses have steadily expanded. Today, human rights violations rank among top three prevailing causes of action in domestic and some international climate change cases.[11]

1. The revolution of *Verein KlimaSeniorinnen*?

Between September 2020 and January 2021, three climate change cases – *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland*, no. 53600/20, *Duarte Agostinho and Others v. Portugal and 32 Others*, no. 39371/20, and *Carême v. France*, no. 7189/21 – were brought before the European Court of Human Rights by individuals, including members of vulnerable groups such as elderly women and young people, who considered their governments' efforts to combat climate change insufficient. In the first case, the applicant was also an association of elderly women, along with four of its individual members.

On 9 April 2024 the Grand Chamber of the Court delivered a near-unanimous judgement in *Verein KlimaSeniorinnen*.[12] Notably, it ruled that the applicant association had standing to act on behalf of its members and bring the case before the Court. However, at the same time, it declared the complaints of the association's four individual members inadmissible due to a lack of victim status.

The Court further found that Switzerland had violated the right to private and family life under Article 8 of the Convention by failing to implement and effectively enforce mitigation measures necessary to safeguard individuals within its jurisdiction from the adverse effects of climate change on their life and health. It also found a violation of the right of access to a court under Article 6 § 1 of the Convention on account of the Swiss courts' failure to provide convincing reasons for refusing to examine the merits of the complaints about inadequate implementation of climate-change mitigation measures under the domestic law.

1. The Grand Chamber in *Verein KlimaSeniorinnen*, § 434 (citing *Demir and Baykara v. Turkey* [GC], no. 34503/97, § 146, ECHR 2008)
2. *Verein KlimaSeniorinnen,* § § 215-222, 225, 231, 235-272; see also Francesco Sindico, Makane Moïse Mbengue, eds., "Comparative Climate Change Litigation: Beyond the Usual Suspects", Springer Nature Switzerland AG 2021.
3. The United States withdrew from the Paris Agreement on 20 January 2025.
4. Setzer J and Higham C (2024) Global Trends in Climate Change Litigation: 2024 Snapshot. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, p. 2; UN Environment Programme, Global Climate Litigation Report: 2023 Status Review, pp. XI-XII; and Report of the Intergovernmental Panel on Climate Change ("IPCC") 2022 "Climate Change 2022 Mitigation of Climate Change", p. 1376.
5. Climate Case Chart; see also Press-Release of 19 April 2023 of International Court of Justice; Advisory Opinion of 21 May 2024 of International Tribunal for the Law of the Sea; and Request of 9 January 2023 for an advisory opinion of Inter-American Court of Human Rights by Colombia and Chile.
6. UN Human Rights Council's resolutions 7/23 and 10/4.
7. Joint statement of 16 September 2019 by five UN Human Rights Treaty Bodies.
8. IPCC's Report 2022, p. 1509.
9. Dimitris Efthymiou, "Climate Change, Human Rights and Distributive Justice", Finnish Yearbook of International Law, Jan Klabbers, Åsa Wallendahl, Paavo Kotiaho, eds., pp. 110–142, at p. 110.
10. Tim Eicke, Human Rights and Climate Change: What Role for the European Court of Human Rights?, European Human Rights Law Review, 2021, pp. 262–273, at p. 264.
11. Climate Case Chart
12. *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* [GC], no. 53600/20, 9 April 2024

The case of *Duarte Agostinho and Others* was declared inadmissible for failure to comply with the requirement to exhaust domestic remedies in respect of Portugal, and for lack of territorial jurisdiction in respect of the remaining respondent States[13]. The *Carême* case was declared inadmissible for the applicant's lack of victim status[14].

Climate activists and legal experts largely hailed the *Verein KlimaSeniorinnen* judgment as groundbreaking, reinforcing the connection between climate change and erosion of human rights on the international stage, and marking a turning point in climate change litigation.[15]

However, some reactions in Switzerland and beyond were far less enthusiastic. The judgment was denounced as an example of excessive judicial activism with critics accusing the Court of inventing a new right not based in the Convention and of breaching the principles of separation of powers and subsidiarity.[16] Calls even emerged in Switzerland[17] – and fuelled the existing ones in the United Kingdom[18] – for withdrawal from the Convention.

The negative perception of *Verein KlimaSeniorinnen* judgment was rooted in a general opposition of the respondent Government to the very idea of the Court's taking up the issue at all, a view which was reflected in their observations in the case:

"… the system of individual application under the Convention [is] not the appropriate means to [put pressure on the authorities to address climate change] given, in particular, the principle of subsidiarity. The democratic institutions in the political system of Switzerland provid[e] sufficient and appropriate means to address concerns relating to climate change, and a "judicialisation" of the matter at the international level [will] only create tension from the perspective of the principle of subsidiarity and the separation of powers. In any event, the Court [can] not act as a supreme court for the environment, given, in particular, the evidentiary and scientific complexity of the matter."[19]

Similar concerns were echoed by all eight third-party intervening States.[20]

To address and perhaps, alleviate such criticisms, and to reaffirm that the Court's legitimacy hinges on its "strict adhering to adjudicating the direct wrong to individuals and non-meddling with the government's policy in a broader sense",[21] it may be useful to provide a nuanced interpretation of the *Verein KlimaSeniorinnen* judgment, taking also into account the inadmissibility decisions in *Duarte Agostinho* and *Carême*.

2. Understanding the three climate change cases

Before addressing the admissibility of the application in *Verein KlimaSeniorinnen*, the Court made several preliminary findings. First, it recognised that climate change is an empirically established fact and that its major drivers are anthropogenic, that is, caused by human activity.[22] Second, it established that climate change poses a serious current and future threat to the enjoyment of human rights, a conclusion supported by the solid body of scientific evidence, recent international legal developments and domestic legislative standards. Third, the Court affirmed that the States are aware of these risks and capable of taking effective measures to address them.[23] Their actions in that field are therefore subject to the Court's scrutiny.[24]

The idea that the Court's competence, as a regional human rights judicial body, cannot, in principle, be excluded[25] from matters traditionally within the domain of national parliaments and governments, remains the least acceptable among the *Verein KlimaSeniorinnen*'s sceptics and legal "originalists" who favour a strict reading of the Convention. Concerns about judicial overreach in climate change litigation predate this judgment and coincide with the surge in the climate-change litigation in 2015.[26] However, critics of *Verein KlimaSeniorinnen* tend to overlook some key principles.

The Contracting Parties to the Convention have agreed and committed to a system of collective enforcement of human rights.[27] The Court's supervisory (and compulsory[28]) jurisdiction operates within the framework of subsidiarity and margin of appreciation enjoyed by the States.[29] Moreover, while the "living instrument" doctrine necessitates dynamic interpretation of the Convention in the light of the present-day conditions,[30] it too has its limits.[31]

13. *Duarte Agostinho and Others v. Portugal and 32 Others* (dec.) [GC], no. 39371/20, 9 April 2024.
14. *Carême v. France* (dec.) [GC], no. 7189/21, 9 April 2024.
15. Sarah Schug, How a Human Rights Case Brought by Swiss Women Could Reignite Climate Policy, The Parliament Magazine.eu, 12 April 2024.
16. Corina Heri, "KlimaSeniorinnen and its Discontents: Climate Change at the European Court of Human Rights", European Human Rights Law Review 4 (2024), pp. 317–331, at pp. 320 and 326 (with further references).
17. *Ibid.*
18. Jonathan Sumption, "ECHR's climate change ruling is its boldest intrusion yet", The Times, 14 April 2024.
19. *Verein KlimaSeniorinnen*, § 338.
20. *Ibid.*, § § 366-375.
21. George Letsas, The European Court's Legitimacy After *KlimaSeniorinnen*, European Convention on Human Rights Law Review 5 (2024), pp. 444–453, at p. 446.
22. *Verein KlimaSeniorinnen*, § 436.
23. *Ibid*, § § 103-120, 121-272, 431-436, and 542.
24. *Ibid*, § § 436 and 451; see also Ivana Jelić and Etienne Fritz, "The 'Living Instrument' at the Service of Climate Action: The ECtHR Long-Standing Doctrine Confronted to the Climate Emergency", Journal of Environmental Law, 2024, 36, pp. 141–158, at pp. 143–144.
25. *Verein KlimaSeniorinnen*, § 451.
26. Laura Burgers, "Should Judges Make Climate Change Laws?", Transnational Environmental Law, 9:1 (2020), pp. 55–75, at pp. 56 and 58.
27. The European Convention on Human Rights (Preamble); Jelić and Fritz, at p. 148 (with a further reference).
28. Marko Bošnjak and Kacper Zajac, "Judicial Activism and Judge-Made Law at ECtHR", Human Rights Law Review, 2023, pp. 1–15, at p. 13.
29. The European Convention on Human Rights (Preamble)
30. *Tyrer v. the United Kingdom*, 25 April 1978, § 31, Series A no. 26, and *Verein KlimaSeniorinnen*, § 434.
31. Jelić and Fritz, at p. 147.

Some of those limits concern the Court's role as an international tribunal and may be described as "functional". Others are procedural and substantive restrictions imposed by the Convention on the Court's jurisdiction to adjudicate claims brought before it. The following analysis will examine how the Court navigated these constraints in the cases at hand.

(a) Functional limits to the Court's adjudicatory function

(i) Subsidiarity

Subsidiarity remains the cornerstone of the Convention system and the functioning of the Court.[32] In *Verein KlimaSeniorinnen* the Court reaffirmed its long-standing position that, in matters of policy, "the national authorities have direct democratic legitimation and are in principle better placed than an international court to evaluate the relevant needs and conditions"[33] and reiterated its substantial deference to the national authorities, including the domestic courts, whose scope of review may be considerably wider than its own.[34]

In *Duarte Agostinho*, the applicants, relying on the Court's seemingly flexible and non-formalistic approach to the exhaustion of domestic remedies,[35] argued that they were not required to have exhausted such remedies because either no effective remedies were available in the respondent States or special circumstances existed absolving them of the exhaustion requirement.[36] The Court assessed the remedies available within the Portuguese legal system and concluded that at least four remedies existed, including the possibility of bringing an *actio popularis*. It further found no special reasons for exempting the applicants from the requirement to exhaust domestic remedies.[37]

In *Verein KlimaSeniorinnen* the Court also reaffirmed its reluctance to act as a "fourth instance" court and substitute its own assessment of the facts for that of the domestic courts unless that is rendered unavoidable by the circumstances.[38]

(ii) Separation of powers

Separation of powers is another functional constraint on the Court's ability to adjudicate climate-change cases. In *Verein KlimaSeniorinnen*, the Court emphasized that in a democratic society the judiciary plays a complementary role in combating climate change and its adverse effects. It made clear that judicial intervention, including its own, cannot replace or provide any substitute for the action which must be taken by the legislative and executive branches of government. The Court also explicitly reaffirmed the limits of its competence under Article 19 of the Convention which mandates it "to ensure observance of the engagements undertaken by the High Contracting Parties".[39]

At the same time, the Court underscored that "democracy cannot be reduced to the will of the majority of the electorate and elected representatives, in disregard of the requirements of the rule of law" stating that "the task of the judiciary is to ensure the necessary oversight of compliance with legal requirements".[40] The idea that "a judge may oppose the democratic majority when the democratic system itself is brought into danger and may intervene when the breach of a fundamental right violates democracy",[41] takes on particular significance under the Convention system. It means that when a State's policy is alleged to adversely affect life, health or well-being of an individual or a group of individuals, thereby affecting Convention rights, such policy also becomes "a matter of law having a bearing on the interpretation and application of the Convention".[42] Under Article 32 of the Convention, such matters fall within the Court's exclusive jurisdiction. As the body tasked with overseeing compliance of democratic actors with their legal obligations toward individual applicants, the Court has the authority and duty to assess the admissibility of such claims and, if required, to rule on the merits.

In *Verein KlimaSeniorinnen* the Court has thus consistently exercised self-restraint and avoided interventionism.[43] However, it also demonstrated that that judgement is about upholding the rule of law in as much as it is about the climate change. It reaffirmed that it would defer to the member States' policies as well as to domestic courts' findings so long as they represent a rational and responsible action to address the current and future challenges posed by climate change, in full compliance with the requirements of the Convention. In this context, the Court reiterated that States retain a wide margin of appreciation in selecting the means to fulfil their positive obligations. However, given the scientific evidence regarding the urgency of combating the adverse effects of climate change on human rights, the margin of appreciation afforded to the States as to whether to act or not is reduced.[44] The Court, acting within its mandate under Articles 19 and 32 of the Convention, plays a role in defining the contours of their obligations.[45] Its oversight ensures

32. Bošnjak and Zajac, at p. 13.
33. *Verein KlimaSeniorinnen*, § 449.
34. *Ibid*, § § 412 and 450.
35. Practical Guide on Admissibility Criteria; see also Mattias Guyomar, "Une Saga Climatique Devant La Cour Européene des Droits de l'Homme", Revue Internationale de Droit Comparé, 4-2024, at p. 51; for more specific discussion on exhaustion in climate change cases, see Helen Keller and Abigail Pershing, "Climate Change in Court: Overcoming Procedural Hurdles in Transboundary Environmental Cases", European Convention on Human Rights Law Review 3 (2022), pp. 23–46 at pp. 32–36.
36. *Duarte Agostinho*, § § 128-134
37. *Duarte Agostinho*, § § 218-228.
38. *Verein KlimaSeniorinnen*, § 430.
39. *Ibid*, § § 411-412; Guyomar, at pp. 56–57.
40. *Verein KlimaSeniorinnen*, § 412.
41. Burgers, at pp. 63 and 70.
42. *Verein KlimaSeniorinnen*, § § 450-451, and 454 and see also Robert Spano, "Should the European Court of Human Rights become Europe's Environmental and Climate Change Court?", pp. 87–91, at p. 90.
43. Heri, at p. 327.
44. *Verein KlimaSeniorinnen*, § § 541-543.
45. *Ibid*, § § 451, 519, and 544-554.

that the rights under the Convention remain practical and effective rather than theoretical and illusory[46], and that the victims receive appropriate redress.

(b) Procedural and substantive jurisdictional limits

In addition to the above-described functional limits to the Court's ability to interpret the Convention in light of societal developments, the three climate cases have confirmed that, despite the unprecedented nature and gravity of the issues raised, climate change litigation remains subject to the same procedural and substantive jurisdictional constraints imposed by the Convention that apply to all cases before the Court. These include (i) the existence of a victim status (jurisdiction *ratione personae*) and inadmissibility of complaints brought in general public interest (*actio popularis*) and (ii) the scope of rights protected by the Convention (jurisdiction *ratione materiae*).

(i) Victim status

According to *Verein KlimaSeniorinnen*, to claim victim status under Article 34 in a climate-change case, individual applicants must demonstrate that they were "personally and directly affected by the impugned failures" by the State to combat climate change. This requires "a high intensity of exposure to the adverse effects of climate change" and a "pressing need to ensure the applicant's individual protection, owing to the absence or inadequacy of any reasonable measures to reduce harm"[47]. These criteria have been described as "stringent" and likely "prohibitive" for individual applicants[48], and the Court itself acknowledged that threshold for fulfilling them is exceptionally high.

However, these demanding criteria, together with the requirement to exhaust domestic remedies as reaffirmed in *Duarte Agostinho*, are designed to strike a delicate balance between two competing objectives: on the one hand, ensuring the effective protection of Convention rights, and on the other, respecting the principle of subsidiarity and preserving the separation of powers. This balance is particularly important in cases where the line between issues of law and questions of policy and political choices may not be evident.[49]

This approach effectively precludes *actio popularis* and, arguably, safeguards the Court's docket[50] from frivolous complaints. It also limits the possibility of bringing applications by "future" or "potential" victims, such as, for example, the applicant in *Carême*.[51] At the same time, in full observance of the right of individual application, the approach leaves room for recognising direct victim status in situations of exceptional vulnerability. Applicants who can substantiate significant adverse effects arising from a State inaction or insufficient action on climate change, may still have their complaints examined, if they complied with the exhaustion requirement.[52]

Under *Verein KlimaSeniorinnen*, forming or participating in a climate-focused non-governmental organisation ("NGO") or association which meets certain criteria[53] can be a strategic way forward for affected individuals to reach a regional human rights tribunal, given complex administrative obstacles commonly encountered in climate change litigation.[54]

While granting standing to the association of aggrieved applicants but denying victim status to its individual members have been criticised as a "paradox"[55] and an unclear[56] move which allowed some form of *actio popularis* or even introduced a new *de facto* admissibility criterion (because specialised NGOs will first filter potential applications before sending them to Strasbourg)[57], it nevertheless represents a fair and pragmatic compromise.

On the one hand, it prevents the Court from being flooded by an exponential number of individual applications from anyone who may claim to be affected by the climate change, thus avoiding excessive judicial interference in State-driven policy choices. On the other hand, it avoids denying justice to those who, like the four individual applicants in *Verein KlimaSeniorinnen*, may not meet the victim status threshold for climate cases[58] and who would otherwise be left to navigate the complexities of climate litigation, including those at the domestic level, on their own.

At the same time, concerns whether such associations have standing before domestic courts[59] and, by extension, whether they can satisfy the requirement of exhaustion of domestic remedies, merit a separate discussion. However, as the Court observed, in the vast majority of the thirty-eight member States it surveyed, environmental NGOs are entitled to bring environment-related cases to courts.[60] Most importantly, the Court held that granting standing to *Verein KlimaSeniorinnen* was in the interests of the proper administration of justice given that the Swiss Federal Supreme Court had left the question of the applicant association's standing unresolved.[61]

46. *Ibid.*, § 545.
47. *Ibid*, § 487.
48. Jelić and Fritz, at p. 151; and Heri, at p. 327.
49. *Verein KlimaSeniorinnen*, § § 449 and 484.
50. Julia Laffranque, "KlimaSeniorinnen – Climate Justice and Beyond", European Convention on Human Rights Law Review 5 (2024), pp. 433–443, at p. 435; Heri, at pp. 321 and 322.
51. *Verein KlimaSeniorinnen*, § § 468-471 and 485; *Carême* § § 67-71.
52. *Verein KlimaSeniorinnen*, § 488.
53. *Ibid*, § 502.
54. *Ibid*, § 489.
55. Letsas, at p. 448.
56. Andreas Hösli and Meret Rehmann, "Verein KlimaSeniorinnen Schweiz and Others v. Switzerland: the European Court of Human Rights' Answer to Climate Change", Climate Law 14 (2024), pp. 263–284, at pp. 267 and 283.
57. Kanstantsin Dzehtsiarou, "'KlimaSeniorinnen Revolution': the New Approach to Standing", European Convention on Human Rights Law Review 5 (2024), pp. 423–431, at p. 427.
58. Corina Heri, "KlimaSeniorinnen, the Prohibition of Actio Popularis Cases, and Future Generations – a False Dilemma?", European Journal of International Law blog article of 19 December 2024.
59. *Verein KlimaSeniorinnen*, dissenting opinion of Judge Eicke, § 47.
60. *Ibid.*, § 232.
61. *Ibid*, § § 53, 523, 618 and 636.

(ii) Scope of the Convention rights

The material scope of the rights protected by the Convention and the resultant limits on the Court's jurisdiction became another contentious issue following *Verein KlimaSeniorinnen*. The Court's finding that Article 8 encompasses a positive obligation of a State[62] and a corresponding right to effective protection from serious adverse effects of climate change has been criticised as amounting to "the creation of a new right"[63] and an example of judicial overreach. However, the Court did not radically depart from its well-established jurisprudence on policy matters, environmental protection, or the margin of appreciation afforded to States.

In its judgment, the Court validated internationally recognised scientific findings on the impact of climate change on human rights. It cautiously refined its case-law to reflect this reality, ensuring that its approach is aligned with the most recent scientific knowledge, relevant international and domestic developments, and the broader trend toward "greening" of human rights.[64]

As "a judicial body tasked with the enforcement of human rights",[65] the Court could not ignore these legal and scientific developments. Its response was measured and consistent with its established role in assessing the States' obligations under the Convention in light of the present-day conditions.

3. The influence of the three climate cases on international and domestic climate justice

In 2021-2022, shortly after the applications in *Verein KlimaSeniorinnen*, *Duarte Agostinho and Carême* were lodged, fourteen other climate change cases were brought before the Court.[66] Five of those cases were declared inadmissible, five were struck out at the request of the applicants, and four of them are still pending.

Around the same time, other notable but less-straightforward climate-related developments also emerged. These included applications by eleven climate activists who had been convicted for protesting governmental inaction on climate change by removing the portraits of the President of France from several town halls.[67] On 5 December 2022 the notice of these applications was given to the French Government, and they are currently pending before the Court.

Furthermore, in February and April 2024, the Court received - and rejected - two environment-related requests for interim measures brought by eco activists, including an NGO.[68]

Two months before the judgment in *Verein KlimaSeniorinnen* was issued, the Supreme Court of New Zealand had overturned the Court of Appeal's 2021 decision to strike-out a climate change case on the grounds that it was not amenable to judicial review. The ruling allowed the case to proceed to trial, where the country's obligations under international human rights law would be examined.[69]

Shortly thereafter the Court handed down its *Verein KlimaSeniorinnen* judgment that has, predictably, quickly found its way into judicial reasoning within and beyond the Council of Europe Member States. For many courts and claimants, it has become a guiding authority in climate litigation.

In Poland, for instance, a group of five claimants inspired by *Verein KlimaSeniorinnen* appealed a climate change case to the Supreme Court, where the proceedings are still pending.[70] Similarly, the European Free Trade Association ("EFTA") Court relied on *Verein KlimaSeniorinnen* in its ruling concerning an airline's obligation to pay greenhouse gas emissions fees.[71] Notably, the South Korean Constitutional Court has seemingly refined intergenerational and intersectional perspective established in *Verein KlimaSeniorinnen*, ruling that the constitutional right to a healthy environment of 19 young claimants, including a foetus was infringed by the government's insufficient emission reduction targets.[72]

While some courts will interpret *Verein KlimaSeniorinnen* differently and may not necessarily follow its precedent in every case, as demonstrated by the recent judgments from the United Kingdom and even the Court itself[73], its transversal findings have, in general, set a direction for addressing the complaints about inadequate climate change governance, and cannot be ignored.

Conclusion

The growing body of climate litigation, reflected in the Court's extensive inventory of domestic climate decisions in *Verein KlimaSeniorinnen*, illustrates a clear trend: climate plaintiffs are increasingly turning to courts to fill in

62. Guyomar, at pp. 55–56.
63. *Verein KlimaSeniorinnen*, dissenting opinion of Judge Eicke, § § 59-67.
64. Heri, at p. 325.
65. *Verein KlimaSeniorinnen*, § 413.
66. Factsheets—ECHR Press resources—ECHR—ECHR/CEDH.
67. *Ludes et Thonon v. France* and two other applications, no. 40899/22 (communicated on 5 December 2022).
68. *Viard-Seifert and Others v. France* (application no. 6024/24) and *Alsace Nature and Others v. France* (application no. 11833/24).
69. Judgment of 7 February 2024 (§ § 101 and 169).
70. Press-release of ClientEarth of 28 August 2024.
71. Judgment of EFTA Court of 9 August 2024 (§ 35).
72. https://climatecasechart.com/wp-content/uploads/non-us-case-documents/2024/20240829_NA_decision-1.pdf; see also, Aleydis Nissen, Green Court – South Korean Constitutional Court Rules Landmark Climate Judgement, European Journal of International Law blog article of 29 April 2025; and for more insight on intersectional approach, see Irthe de Jong, "Climate Justice Before International Human Rights Adjudicators Why Climate-Related Human Rights Cases Should be Approached with an Intersectional Lens", 2022 Stitching NJCM-Boekerij.
73. Judgment of 25 October 2024; *Cannavacciuolo and Others v. Italy*, nos. 51567/14 and 3 others, 30 January 2025

perceived or actual regulatory gaps. Courts have become notably responsive to the rapid evolution of climate litigation, and the Strasbourg Court has taken a prominent place in this process.

Unlike some other treaties or agreements establishing international or regional tribunals[74], the Convention empowers the Court to adjudicate grievances brought by individuals or groups of individuals at an international level, equipping it with necessary tools to examine issues arising from unprecedented circumstances, such as those posed by climate change.

Given the substantial number of environment-related cases the Court has examined and the undeniable reality of climate change, which even its most vocal sceptics may soon struggle to refute, it was only a matter of time before the first climate change case reached the Court's docket. With its compulsory jurisdiction – which in each case is informed by the findings and views of the national courts – its dynamic yet measured interpretation of the Convention as "a living instrument", the diverse legal expertise of its 46 judges, its extensive environmental and now emerging climate-change related jurisprudence, and the binding force of its judgments, the Court is well-equipped to identify when States' efforts to combat climate change have fallen short to the extent that they violate the human rights of those under their jurisdiction. After all, its mission is not different from but firmly aligned with the Council of Europe's States' undertakings to protect human rights, democracy, and the rule of law.

As the European Convention on Human Rights marks its 75th anniversary in 2025 and the execution of the *Verein KlimaSeniorinnen* judgment remains pending before the Council of Europe's Committee of Ministers[75], it can be said with confidence that the strings of "a living instrument" have so far been successfully fine-tuned to modern realities and have withstood stress test of time and history.

74. Fn 7; see also The UN Environment Programme, Environmental Courts and Tribunals – 2021: A Guide for Policy Makers, at p. 15.

75. Action Report of Switzerland of 24 October 2024.

Jim Skea • Chair, Intergovernmental Panel on Climate Change (GIEC)

The role of scientists in the fight against climate change

Scarcely a single intervention at meetings of the UN Framework Convention on Climate Change (UNFCCC) omits a reference to the role of science in informing and guiding climate action. These are not just ritual tippings of the hat. The work of the scientific community has been and will continue to be foundational in diagnosing the health of the planet and providing the evidence base for human responses.

The scientific ecosystem concerned with climate change is large and complex. The Web of Science database holds records on around 60,000 articles relating to climate change and global warming in 2024 alone. 5,000 articles per month and growing at around 10% per year. These articles, spread across all disciplines, cover human aspects of climate change and climate responses as well as the natural sciences. A rapidly growing proportion of these articles, now over a third, originates in developing countries led by China and India.

And the scientists who produce these articles are located in a range of institutional settings: universities of course, but also independent research institutes as well as government laboratories and offices. NGOs and business also contribute to the literature. Not all articles have equal impact of course. Science advances by filling in knowledge gaps and challenging conventional wisdom. Articles that report new, or alarming, findings will receive more citations and attract wider public attention. And scientists are also people with lives outside the laboratory and the lecture theatre. Many have acted as eloquent advocates for climate action.

Every individual scientific paper matters, but it is only when individual papers are placed in the context of the overall body of evolving knowledge that the picture becomes clearer. The Intergovernmental Panel on Climate Change (IPCC) was established to assess the overall body of knowledge, establish the level of confidence in key findings, draw out different perspectives and strands of thinking, and identify knowledge gaps. The IPCC also acts as a bridge between scientists and the policy world. It is a trusted body that forges consensus between representatives of the scientific world and policymakers, a prerequisite for informed and effective policy-making.

So, what specifically does science contribute to climate action and our understanding of climate change? Going back to basics, observation of the earth system – the atmosphere, the oceans and the biosphere–is foundational. Terrestrial observations of climate variables, such as temperature and precipitation, are supplemented by balloons, aircraft, ships and buoys. Remote satellite sensing is now an essential part of the armoury. This requires a formidable research infrastructure, and it does not come cheap. The challenge of curating and analysing the vast amounts of data created must not be under-estimated.

Monitoring of human systems is also essential to assess climate impacts and opportunities for climate action. Statistical agencies collect essential data on demographics, economic activity and settlement patterns. They also collect data on the activities that give rise to greenhouse gas emissions, such as burning fossil fuels, which then need additional scientific information on "emissions factors" estimating, for example, how many tonnes of carbon dioxide are emitted for every tonne of coal burned.

We should not forget the importance of basic theory. In the 19th century, scientists such as Arrhenius and Tyndall deduced the likely consequences of adding carbon dioxide to the atmosphere, arguing from basic physical and chemical principles. Their broad brush conclusions still stand up today.

Having relevant data is the start. Scientists then need to make sense of it. The IPCC has concluded that "human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming", but that does not mean that scientists have completed their work. Progress still needs to be made in terms of understanding processes relating to the atmosphere, including circulation and clouds, the water cycle, the cryosphere and the oceans, and the biosphere. There is a need for a better understanding of changes in sinks and sources of greenhouse gases and Earth system feedbacks. Improved understanding is needed, especially at the regional and local levels, where the impacts on human and natural systems are experienced.

It is becoming increasingly possible to attribute specific climate and weather events to human activities. For example, the IPCC Sixth Assessment Report concluded that there is a high level of confidence that human activities have caused observable increases in hot extremes and that it is likely that human activities have been the main driver of the intensification of heavy precipitation. However, there is lower confidence regarding human

influence on agricultural and ecological drought, partly as a result of a lower level of agreement in the assessed scientific studies. The attribution of losses and damage associated with the events is becoming more salient due to progress in dealing with losses and damage under the Paris Agreement. Climate scientists are working to fill these knowledge gaps.

Understanding how the world works now is just one part of the picture. We also need to understand where we are headed, contingent on the actions that we are prepared, or are not prepared, to take. That is where the construction of scenarios and modelling comes into play.

Working from a range of assumptions about social and economic developments that touch on demographic change, patterns of economic development, and technology deployment, social scientists and economists can project greenhouse gas emissions using global integrated assessment models as well as national and sectoral models. These results can be used to drive earth system models which project consequences for the climate system. Those studying climate impacts can then investigate the consequences for human and natural ecosystems. Such modelling efforts are delivering increasing levels of geographical detail that can support infrastructure and adaptation planning at the local level.

Modelling efforts across all these domains are being coordinated through "modelling intercomparison projects" which allow different models to be deployed using similar assumptions, thus exploring the degree of certainty in terms of climate outcomes. As a result, a variety of futures can be explored, ranging from those in which continued use of fossil fuels leads to increasing levels of emissions, through to those where global warming is limited to 1.5ºC in the long-term. The IPCC has developed a systematic approach to communicating the degree of certainty in scientific findings by assessing the level of evidence and the degree of agreement in underlying scientific literature.

Different emissions futures depend on assumptions about the actions that governments, business and society choose to take. Engineers, land use experts, economists and social scientists can study the technologies and response options available to reduce greenhouse gas emissions and adapt to climate change. They can identify the conditions that enable these options to be exercised, including research and technology development, institutional frameworks, policy packages, economic incentives and finance. Lessons can be learned from the success of existing policies. Such work provides practical guidance to decision makers in government and elsewhere.

Although huge amounts of progress have been made in the last few decades, much remains to be done, and new challenges are emerging. Interest has been growing in potential tipping points in the climate system, defined by the IPCC as "a critical threshold beyond which a system re-organises, often abruptly". While tipping points may have a low probability of occurring, the scale of the consequences for natural and human systems merit scientific attention. Examples include collapse of the Greenland or West Antarctic ice sheets, collapse of the Atlantic meridional overturning circulation ("the Gulf Stream"), melting of permafrost in Northern latitudes, dieback of low-latitude coral reefs and dieback of Amazonian rainforests.

As it appears ever more likely that global warming will exceed 1.5ºC within the next few years, there are major knowledge gaps associated with managing temperature "overshoot" by removing carbon dioxide from the atmosphere and bringing warming levels down in line with the Paris Agreement long-term temperature goal. In bio-geophysical terms, how will the Earth system respond to reduced carbon dioxide concentrations and consequent cooling? How reversible are climate change impacts? Is it feasible to deploy at scale novel carbon dioxide removal techniques? And what would be the wider social and economic consequences of their deployment?

And finally, there is a need for better understanding of the distributional consequences of climate responses, both adaptation and mitigation, and the implications for sustainable development and equity. These, and other issues have been scoped into the outlines of the next IPCC reports and will exercise the scientific community over the next few years.

The fight against climate change, and the effort to cope with climate change that is inevitable as a result of past and current human activities, has scarcely started. Science has already contributed much to understanding the nature of the crisis in which we find ourselves. Scientists stand ready to continue to communicate their existing findings and fill in knowledge gaps to support practical action at all levels.

Christophe Soulard · First President
of the *Cour de cassation*

The Judiciary and Climate: a decade of quiet development since the Paris Agreement[1]

The multifaceted nature, international scope, and intergenerational implications of the global climate crisis demand an institutional response of unprecedented scale. This inherent complexity compels States to adapt continuously their legal frameworks. Traditional legal doctrines often prove insufficient when confronted with systemic challenges irreducible to simplistic solutions. As Mireille Delmas-Marty emphasised, it is imperative to devise of novel pathways to transition from a chaotic pluralism to an ordered pluralism,[2] capable of addressing the challenges to our collective survival.

While environmental law is fundamentally a universal concern, its highly technical and complex nature appears to demand sustained engagement by legal professionals for full assimilation. This results in litigation that NGO reports have described as "*neglected*" and "*invisible*," accounting for less than 0.5% of all civil litigation and between 0.5% and 1% of cases handled by public prosecutors.[3] Despite these modest statistics, the judicial branch plays a significant role in safeguarding the environment and other rights that are balanced in cases involving pollution or the destruction of natural habitats. Without ever encroaching upon the prerogatives of the legislative and executive branches, the judiciary[4] ensures adherence to the rule of law, the Constitution, and the environmental principles it enshrines. Its contribution, while perhaps less extensively publicized than that of administrative or European courts, is no less essential. Its role is exerted less through high-profile decisions and more through the subtle evolution and modernization of established legal concepts.

The Paris Agreement of 2015 served as a catalyst, prompting judges to take into account environmental considerations more deeply and adopt a forward-looking and systemic approach. Consequently, a considerable body of judicial decisions and practices reflect an approach oriented towards anticipation and adaptation to necessary legal transformations, thereby contributing to the development of a climate law that balances economic interests, individual liberties, and environmental protection. This movement is supported by dialogue with other supreme courts and the European courts.

This article will examine this collective movement and its evolution since the Paris Agreement. It offers an analysis of how the French judicial branch has historically approached environmental and climate issues (1), then explores procedural developments in service of climate justice (2), before addressing the institutional dimension of this mobilization (3).

1. The French Judiciary's engagement with environmental and climate issues

The judiciary has actively engaged with environmental and climate challenges by adapting existing tools and integrating new legal instruments. This approach demonstrates a driving role, at times preceding the legislator, and leads the judiciary to undertake delicate balancing of interests – occasionally even between different aspects of the ecological imperative itself – not without raising notable legal difficulties, especially regarding causality.

1.1. The traditional approach of the judiciary: the evolution of existing legal concepts in light of environmental challenges

The judiciary has adapted established concepts to address environmental challenges, distinguishing between civil and criminal approaches. The judiciary has engaged with environmental and climate issues through pre-existing legal mechanisms, which it has shaped into genuine instruments of environmental justice.

Firstly, with legal ingenuity in environmental matters, the civil judge has progressively adapted the classic instruments of civil law to environmental concerns, offering a renewed and environmentally focused relevance to traditional concepts in the face of climate matters. This adaptation is notably manifested through two primary avenues: on the one hand, the enforcement against misleading commercial communications, and, on the other hand, the reparation for material nuisances.

Concerning the first avenue, the fight against greenwashing practices illustrates this approach. While the

1. Text written with Ms Clémence Bourillon, judge, special advisor to the First President and head of the international relations department, with the assistance of Mr James Geist-Mokhefi, jurist at the Cour de cassation's international relations department.
2. Delmas-Marty M., *Les forces imaginantes du droit*. Vol. II: *Le pluralisme ordonné*, Seuil 2006.
3. Report of the working group on environmental criminal law, chaired by Mr. François Molins, Prosecutor-General at the Cour de cassation, 2022.
4. The judicial branch in France comprises two sub-branches: the *Ordre administratif* that handles public law matters and the *Ordre judiciaire*, competent for private law (including criminal law). Their respective Supreme Courts are the *Conseil d'État* and the *Cour de cassation.*

repression of these practices frequently falls under criminal consumer law,[5] they can also engage the civil liability of their perpetrators based on the common law of tortious liability under Article 1240 of the Civil Code, provided its criteria are met. These criteria, though well-established, can be particularly difficult to establish in environmental matters.

Monsanto's "Roundup" packaging contained unfounded environmental claims that were characterised by criminal case-law as misleading commercial practices. In doing so, the judges defined a standard of conduct whose non-compliance constitutes a civil fault.[6] This approach, subsequently consolidated by the legislator, thus allows for the sanctioning of harm suffered by consumers or competitors who are victims of these unfair claims.

Concurrently, and in the realm of material harm to the environment, the civil judge has taken hold of the theory of abnormal neighbourhood nuisances. Originally a creation of case law[7] implicitly linked to the limits of property rights (Article 544 of the Civil Code), it constitutes a pivotal instrument given that it establishes a strict liability regime,[8] particularly suited to diffuse pollution or industrial nuisances. The trial judge autonomously assesses the abnormal nature of the nuisance,[9] by concretely balancing of the interests at stake, which may include consideration of the social utility of the activity in question, particularly in the context of the energy transition; for instance, the 2018 ruling by the Third Civil Chamber concerning nuisances from a wind farm.[10]

Indeed, this balancing mechanism finds direct application in the regulation of local environmental conflicts. Litigation concerning abnormal neighbourhood nuisances thus becomes an instrument for the judge to sanction forms of pollution (olfactory, noise) when they exceed a certain threshold, as illustrated by the conviction of a farmer in the Oise region at the end of 2023 for nuisances resulting from intensified agricultural activity.[11] This type of litigation is part of broader tensions surrounding agricultural models whose environmental and climatic impact remains debated. The controversy surrounding the "*Ferme des mille vaches*" ("*Farm of a Thousand Cows*"), which combined industrial bovine husbandry with a methanization unit, thereby crystallized the opposition of environmental protection associations against a project perceived as ecologically unsustainable. By arbitrating these conflicts, judges do not merely settle neighbourhood quarrels; they actively participate in defining the local environmental limits of economic activities that may bear climatic implications.

However, in our historical analysis, it seems pertinent to recall that the most significant progress in French civil case-law relating to the environment is the recognition of ecological damage. While the landmark "*Erika*" ruling was indeed rendered by the Criminal Chamber of the Cour de cassation on 25 September 2012,[12] it was precisely on the basis of the civil claims made by the civil parties that the principle of reparation for direct harm to the environment was enshrined. This ruling constituted a turning point, allowing compensation for objective damages, detached from traditional individual or collective damages. The Court thus fully embraced a non-anthropocentric vision of environmental law, rejecting the notion that environmental law should *only* be considered and measured through damages inflicted upon humans.

History has made this decision a pillar and a pivotal moment in French environmental law, as this jurisprudential innovation was rapidly followed by the legislator with Law no. 2016-1087 of 8 August 2016 for the reconquest of biodiversity, nature, and landscapes, which introduced a specific regime for the reparation of ecological damage in Articles 1246 to 1252 of the Civil Code. Article 1247 of the Civil Code defines it as "*a non-negligible harm to the elements or functions of ecosystems or to the collective benefits derived by humans from the environment*." In its decision concerning the constitutionality of this "*non-negligibility*" threshold, the Constitutional Council also highlighted the distinction between "*pure ecological damage*" (harm to nature *per se*) and "*collective damage*" (harm to human benefits derived from the environment), confirming the trajectory initiated by the Court of cassation in the "Erika" ruling.[13]

Since the creation of the civil regime for the reparation of this damage (with priority given to reparation in kind and restoration),[14] a body of civil case-law implementing it has progressively developed, illustrating the dialogue between the judiciary and the legislature that leads to the elaboration of a coherent body of new rules and practices that are protective of the environment.

In contrast to the dynamism observed on the civil side, the grasp of ecological issues by criminal law has historically proven more gradual and less "revolutionary." This gradual evolution is notably explained by the dual constraint of the principles of legality and proportionality of criminal offences and penalties, which requires precise legislative incriminations that have historically often been often delayed or initially incomplete in environmental

5. Article L121-2 of the Consumer Protection Code defines greenwashing as "allégations, indications ou présentations fausses ou de nature à induire en erreur [notamment le consommateur et les investisseurs sur] les caractéristiques essentielles du bien ou du service, à savoir: ses qualités substantielles, sa composition [...], ses propriétés et les résultats attendus de son utilisation, notamment son impact environnemental [et] la portée des engagements de l'annonceur, notamment en matière environnementale".
6. Crim., 6 October 2009, n°08-87.75.
7. Landmark ruling of the Civil Chamber, dated 27 November 1844.
8. Civ. 3rd, 4 February 1971, n° 69-12.739.
9. Civ. 2nd, 19 November 1986, n° 85-15.098.
10. Civ. 3rd, 13 September 2018, n° 16-23.694.
11. Civ 3rd, 7 December 2023, n° 22-22.137.
12. Crim., 25 September 2012, n° 10-82.938.
13. Constitutional Council, 5 February 2021, QPC n° 2020-881.
14. Article 1249 of the Civil Code states that: "la réparation du préjudice écologique s'effectue par priorité en nature. En cas d'impossibilité de droit ou de fait [...] le juge condamne le responsable à verser des dommages et intérêts, affectés à la réparation de l'environnement [...]". The emphasis is therefore placed on the concrete restoration of the altered environment, before any payment of monetary compensation.

matters, and by a prosecution policy that long remained below the stakes. This insufficiency is due to several factors highlighted by legal doctrine, as well as by associations and the institution itself. Indeed, the Molins report in 2022 underscored both the inadequacy of ordinary criminal law to the specific problem of environmental litigation and how environmental litigation represented "*only a very small part of the activity of criminal courts*," which mechanically limited the opportunities for the repressive judge to build as extensive a body of jurisprudence as its civil counterpart.

Historically, the criminal judge has thus relied on a dispersed corpus of offenses, mainly contained within special statutes and subsequently within the Environmental Code, targeting specific infringements such as water pollution offenses or non-compliant waste management. Faced with the inadequacy of these texts to apprehend the dangerousness of certain behaviours, public prosecutors and judges have at times indirectly mobilized general criminal law offenses, foremost among which is the offense of deliberate endangerment of another person (article 223-1 of the Criminal Code), although the Cour de cassation has ruled that the protection of the environment *per se* could not suffice to characterize this offense.[15]

The persistence of this anthropocentric vision of criminal law was a weakness highlighted by legal doctrine, which long called for the creation of an offense of endangerment of the environment, an offense that was slow to materialize.[16]

In this context of often timid public prosecution, the role of environmental protection associations was decisive, acting as veritable catalyst for repressive action. Relying on the provisions of the Criminal Procedure Code and on specific authorizations set out notably in Article L. 142-2 of the Environmental Code, these associations were able, by means of filing a complaint with a civil party claim, to trigger public action and present the voice of the collective interest before the courts. The Criminal Chamber has progressively consolidated the legitimacy of their intervention, characterizing their civil action as an "exceptional right" which must be "strictly confined within the limits set by the Criminal Procedure Code," yet recognizing their right to reparation for direct and personal moral damage resulting from the infringement upon the collective interests they defend.

The Court has thus repeatedly validated their right to join the proceedings as a civil party, whether for acts of pollution [17] or harm to wildlife,[18] consecrating their role as sentinels.

Nevertheless, this traditional body of law and these case-law advances, however significant, have progressively revealed their limitations when confronted with the systematization and exacerbation of environmental damage. It is important to recall that the judicial institution itself drew a severe assessment regarding the ineffectiveness of the traditional framework. The Molins report highlighted the highly technical nature of environmental criminal law, the fragility of the causal link, and sanctions deemed largely ineffective, dominated by "rather low" fines and "rare" imprisonment sentences typically accompanied by a suspended sentence. The report further underscored a trend towards "de facto decriminalization," where the widespread use of alternatives to prosecution (75% of the criminal response) and the scarcity of correctional judgments (5.4% of environmental offenses) create an impression of impunity, while public opinion and social disapproval steadily increased. This shared sentiment of a failure in the traditional criminal response highlighted the imperative need for a comprehensive overhaul of the repressive arsenal, an observation that justifies the emergence of the new legislative tools that we must now address.

1.2. Innovative legal tools: recent legislation addressing the challenges of new litigation

Confronted with the limitations of traditional legal instruments, the legislator has intervened to equip judges with novel tools, particularly in matters of corporate liability and reinforcement of the repressive arsenal.

This dynamic is notably showcased through the emerging duty of vigilance litigation, stemming from Law No. 2017-399 of 27 March 2017. A pioneering global statute, this text established an unprecedented mechanism for holding multinational corporations accountable. Its objective is to prevent severe infringements upon human rights, personal health and safety, as well as the environment, which could result not only from the parent company's activities but also from those of its subsidiaries, subcontractors, and established commercial suppliers. To achieve this, the law imposes an obligation on companies exceeding certain workforce thresholds (5,000 employees in France or 10,000 worldwide, including subsidiaries) to develop, publish, and implement a vigilance plan. This plan must include precise and effective measures: a risk mapping, regular assessment procedures for the situation of subsidiaries and partners, adapted risk mitigation actions, an alert mechanism, and a system for monitoring the effectiveness of the measures.

The legal architecture of this framework, which shifts corporate social responsibility (CSR) from a voluntary

15. Crim., 5 April 2011, n° 09-83.277, *Stocamine.*
16. See also in this regard: Faure, Michaël G., "Vers un nouveau modèle de protection de l'environnement par le droit penal", Revue Européenne de Droit de l'Environnement 9.1 (2005), Neyret, Laurent, "Pour la reconnaissance du crime d'écocide", Revue juridique de l'environnement 39.HS01 (2014), or Hurel, Benoist, "Droit pénal de l'environnement: une situation largement perfectible", Délibérée 8.3 (2019), among many others.
17. Crim., 5 October 2010, n° 10-80.278.
18. Crim., 25 June 2019, n° 18-83.420.

endeavour to a binding legal obligation,[19] has opened new avenues for litigation. The sanction regime, revised following the Constitutional Council's annulment of the initially stipulated civil fine, is underpinned by a two-tiered judicial mechanism, with exclusive jurisdiction vested in the 'tribunal judiciaire' of Paris (Tribunal of First Instance of Paris). On one hand, any person demonstrating a legitimate interest to act may, after formal notice, petition the judge to enjoin the company to comply with its obligations. On the other hand, and distinctly, failure to adhere to these obligations engages the civil liability of the company for the reparation of harm that could have been avoided by an adequate and effectively implemented plan.

The litigious implementation of this law has undergone a notable evolution. While a first instance decision in 2023 dismissed an action on procedural grounds,[20] rulings by the Paris Court of Appeal on 18 June 2024, marked a decisive turning point.[21] By declaring these actions admissible, the Court of Appeal clarified essential procedural points, specifying notably that the summons does not need to target the same vigilance plan if the shortcomings persist, and that an action based on the duty of vigilance can be combined with one relating to ecological damage. This emerging jurisprudence, by removing initial procedural obstacles, now appears to pave the way for a substantive examination of vigilance plans. This movement is further supported by the adoption of the Corporate Sustainability Due Diligence Directive (CSDDD),[22] which includes a climate due diligence obligation, promising an intensification of such litigation.

Beyond the specific regime established by the 2017 law, the very notion of duty of vigilance more broadly permeates general civil case-law. This underlying trend is illustrated by several rulings rendered by the Cour de cassation on 15 November 2023, within the context of the Mediator litigation. In these rulings, the Court held that a manufacturer's failure in its "*duty of vigilance and surveillance*," by maintaining a product in circulation despite knowing its risks, constitutes a distinct fault from a product's safety defect, thereby engaging its common law tortious liability.[23]

The scope of this solution, although rendered in the realm of public health, warrants emphasis. By thus enshrining the autonomy of an ordinary law fault for breach of a duty of vigilance in the face of a known risk, the Cour de cassation consolidates the contours of a general standard of prudent behavior for companies. Without prejudging the evolution of jurisprudence, this clarification naturally invites legal scholars to consider the scope of such liability for economic actors facing other types of proven risks, particularly environmental and climate-related ones.

From repressive reinforcement to the evidentiary challenge: the dual dynamic of climate litigation

Given the recurrent observation of the ineffectiveness of the criminal response in environmental matters, the legislator has recently undertaken a substantial reinforcement of the repressive framework. Law No. 2021-1104 of 22 August 2021, known as the "*Climate and Resilience*" law, which translates a portion of the proposals from the Citizens' Climate Convention,[24] constitutes the cornerstone of this new ambition. This ambition unfolds on several fronts, demonstrating a will to apprehend environmental litigation in its entirety, from the characterization of the offense to its judicial treatment.

On a substantive level, the law has recast the nomenclature of environmental offenses by creating a new hierarchy of incriminations. At its base now lies a general offense of environmental pollution, codified in Article L. 231-1 of the Environmental Code, which penalizes severe and lasting harm to ecosystems resulting from the manifestly deliberate violation of a duty of care, with five years of imprisonment and a one million euro fine. In addition, the legislator introduced an offense of endangerment of the environment in Article L. 173-3-1 of the same code. Conceived as an anticipatory offense, this provision allows for the criminalization of dangerous behaviour in itself, upstream of any proven pollution, thereby marking a desire for preventive intervention.

At the apex of this new repressive structure, the text enshrines the much-anticipated offense of ecocide in Article L. 231-3 of the Environmental Code. This is not an autonomous offense, but rather the intentional and, consequently, aggravated qualification of the general offense of pollution and certain waste-related damages, punishable by ten years of imprisonment and a 4.5 million euro fine. While this innovation had been long desired, its enactment has drawn significant doctrinal criticism. The choice of classifying it as a "*délit*" (serious offense) rather than a "*crime*", contrary to the recommendations of the Citizens' Convention, as well as its inclusion in the Environmental Code rather than the Criminal Code, have been perceived as diminishing its symbolic scope.[25] Furthermore, the complexity of its constituent elements, notably the criterion of "*durability*" of the harm, precisely set at "*at least seven years*," raises questions about the

19. Moreau, Marie-Ange, "L'originalité de la loi française du 27 mars 2017 relative au devoir de vigilance dans les chaînes d'approvisionnement mondiales", Droit Social 10 (2017).
20. Total Energies case, T.J. Paris, 28 February 2023.
21. Paris Court of Appeal, 5th Division-12th Chamber, 18 June 2024, RG n° 23/14348.
22. First Article, 1c: ... *l'obligation pour les entreprises d'adopter et de mettre en œuvre un plan de transition pour l'atténuation du changement climatique qui vise à garantir, en déployant tous les efforts possibles, la compatibilité du modèle économique et de la stratégie économique de l'entreprise avec la transition vers une économie durable et avec la limitation du réchauffement climatique à 1,5°C conformément à l'accord de Paris.*
23. Civ. 1st, 15 November. 2023, nos 22-21.174, 22-21-178, 22-21.179, 22-21.180 B.
24. Ollier C. and Benichou M., "Retours sur les mesures adoptées, modifiées et avortées de la Convention Citoyenne pour le Climat", *Crises climatiques, crises sociales, résilience et ruptures*. 2023.
25. Radisson L., "Loi climat: de nouveaux délits qui risquent de ne pas dissuader les pollueurs", ActuEnvironnement, 2021; "Loi Climat: la création d'un nouveau délit controversé d''ecocide' votée par les députés", Le Monde, 19 March 2021.

evidentiary difficulties that will ensue and, *ultimately*, the effectiveness of the text.

This will to toughen environmental criminal standards is not limited to direct harm to ecosystems; it also extends to the probity of ecological discourse. In continuity with Law No. 2020-105 concerning the fight against waste and for the circular economy (known as the "AGEC law"), the Climate and Resilience law has intensified the fight against greenwashing. On one hand, it amended Article L. 121-2 of the Consumer Protection Code so that claims relating to "environmental impact" can explicitly form the basis of a misleading commercial practice. On the other hand, and more importantly, it created an aggravated sanction in Article L. 132-2 of the same code, allowing for the fine to be increased to up to 80% of the advertising expenses incurred, a particularly dissuasive threshold.

Finally, the scope of this substantive reinforcement would remain limited without a structural adaptation of the judicial apparatus. Cognizant of the highly technical nature of the subject matter, the legislator, through the law of 24 December 2020, instituted Regional Environmental Hubs (PREs - *Pôles Régionaux de l'Environnement*). This specialization aims to centralize and optimize the handling of the most complex environmental cases. This initiative is part of a broader movement to densify the landscape of specialized courts (alongside JULIS,[26] JIRS,[27] PSPE,[28] and PACs[29]), with the objective of making the criminal response more intelligible and effective, although the structural challenges pointed out by the Molins report on environmental justice remain pertinent.

The evidentiary challenge, a test of the effectiveness of the new repressive framework

However, this legislative and structural architecture, however ambitious, faces a major challenge that conditions its effectiveness: the evidentiary challenge. Climate and environmental litigation, by its very nature, strains the traditional frameworks of legal proof.[30] In particular, the establishment of the causal link between a generating event (greenhouse gas emissions, polluting discharge, state inaction) and a harm that is, by essence, global, diffuse, and multifactorial, constitutes a structural difficulty.[31] This inherent difficulty compels judges to undertake substantial adaptations of their role and confers a reinforced role on the scientific expert. Without an evolution in evidentiary methods, the toughening of incriminations risks remaining a dead letter.

The core of this challenge lies in the inadequacy between classical models of liability, designed for direct and localized harms, and the systemic nature of climate change. While civil or criminal liability law has historically been built upon an identifiable chain of causality, climate litigation confronts a dilution of this chain: an actor's emissions mix in the atmosphere with those of countless others, and their effects manifest on a planetary scale with a significant time lag. This fundamental inadequacy compels the legal system to innovate, at the risk of seeing the right to a healthy environment and climate obligations, including criminal ones, become purely theoretical for lack of effective justiciability.

In this context, the role of scientific expertise has become preponderant. The judge is now largely dependent on the work of authoritative bodies, foremost among which is the Intergovernmental Panel on Climate Change (IPCC). The IPCC reports, by their exhaustive nature, their peer-validation process, and the participation of States in their approval, constitute a factual foundation that is difficult to dispute. Attribution science, which aims to link specific extreme weather events to anthropogenic climate change, is also gaining precision, providing courts with increasingly robust tools. However, the dialogue between science and law remains complex: the judge must translate the probabilities and margins of uncertainty inherent in climate science into a binary legal certainty, necessary for rendering a decision. Legal proof must be established despite the presence of uncertainties.

Facing this complexity, case-law has demonstrated a remarkable capacity for adaptation. In French law, the loosening of evidentiary requirements can materialize through the recourse to presumptions of causality and the method of "*serious, precise, and concordant converging evidence.*" Furthermore, the precautionary principle, enshrined by European Union law (Article 191 TFEU) and permeating national law, can legitimize judicial action even in the presence of scientific uncertainties, provided plausible indications of a serious risk exist.[32]

Several emblematic decisions illustrate this evolution. In the case of *Urgenda v. Netherlands* (2019), the Dutch judiciary dismissed the argument of the State's negligible contribution to establish causality based on its breach of the duty of vigilance (Articles 2 and 8 ECHR). Following a similar approach, the French administrative courts in

26. Juridictions du littoral spécialisées, specialized coastal jurisdictions.
27. Juridictions interrégionales spécialisées, specialized interregional jurisdictions.
28. Pôles de santé publique et de l'environnement, Public and environmental health hubs.
29. Pôles accidents collectifs, Mass accidents units.
30. Canali L., "La preuve par l'expertise dans le contentieux français des changements climatiques", *Revue juridique de l'environnement* 47.3 (2022).
31. See Krakau M., Causation in National and International Climate Change Litigation, Springer (2025) and Pfrommer, Tobias, and al. "Establishing causation in climate litigation: admissibility and reliability." *Climatic Change* 152.1 (2019).
32. Article 191 of the TFEU:
Union policy on the environment shall contribute to pursuit of the following objectives:
– preserving, protecting and improving the quality of the environment,
– protecting human health,
– prudent and rational utilisation of natural resources,
– promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.
2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.

L'Affaire du Siècle (2021) and *Commune de Grande-Synthe* (2021) based causality not on specific pollution, but on the State's faulty inaction in respecting its own climate commitments. These cases demonstrate a mutation where the generating event becomes the breach of a pre-existing legal obligation, the prejudicial nature of which is supported by scientific consensus.

In sum, faced with the inherent challenges of climate litigation, courts are adapting their evidentiary tools. By mobilizing legal presumptions, converging evidence, and redefining the contours of the causal link, they strive to ensure access to justice and accountability for actors. This pragmatic evolution, which is not exempt from debates on the judge's role, testifies to the vitality of a legal system that is transforming to respond to the cardinal challenges of contemporary society.

The judicial judge: arbiter of environmental antagonisms

Beyond evidentiary challenges, one of the major complexities of environmental and climate litigation resides in the delicate mission of balancing interests and rights of heterogeneous natures and values. Far from the classic binary opposition between economic development and environmental protection, the judge is now confronted with poly-conflicts where fundamental rights such as the right to a healthy environment, public freedoms like the freedom to conduct a business, subjective rights such as property rights, and diffuse collective interests like biodiversity preservation are intertwined. This weighing of interests is all the more subtle as it sometimes pits the ecological imperative against itself!

Litigation related to the establishment of wind farms is a paradigmatic illustration of this. On one hand, the promotion of renewable energies responds to an "objective of public interest pursued by the development of wind energy," essential for the energy transition and the fight against climate change. On the other hand, these installations can cause harm to interests both worthy of protection. The judicial judge, when competent, notably to rule on abnormal neighbourhood nuisances or irregularities of an installation[33], must then undertake a concrete arbitration. They are thus led to confront the objective of decarbonisation with, for instance, the protection of biodiversity and protected species. The case-law of the Cour de cassation bears witness to this difficult reconciliation of "antagonistic environmental objectives," as when it examines the risk of damage caused by wind turbines to protected species such as the lesser kestrel[34] or the golden eagle.[35] In these cases, the judge must evaluate whether the measures to avoid and reduce impacts are sufficient to justify the harm caused to wildlife in the name of a superior interest.

Similarly, the judge must balance the general interest of the wind farm project with the rights of local residents, notably respect for their property rights and their right to a peaceful living environment, often invoked via the theory of abnormal neighbourhood nuisances. The sovereign assessment of the trial judges must then determine whether visual or noise nuisances, despite the public utility of the project, exceed the normal expected inconveniences that everyone must bear. This delicate arbitration perfectly illustrates the new mission incumbent upon the judge: it is no longer merely about choosing between the environment and everything else, but rather about deciding between different, and sometimes competing, facets of the ecological imperative itself, ensuring a conciliation that is not manifestly imbalanced.

However, the existence of these legal tools would remain a dead letter without procedural mechanisms allowing them to be activated, which necessitates analyzing the evolution of the rules governing access to justice.

2. Procedural evolutions in service of judicial climate and environmental Justice

The effective implementation of environmental and climate law also relies on adapted procedural mechanisms, enabling access to justice and the anticipation of damages.

2.1. The right of action in environmental matters preserved and extended by the judge

As nature is devoid of recognized legal personality, the French legislator has conferred a preponderant role on associations: that of "sentinels" empowered to bring the collective environmental interest before the courts. This right of action, a condition for the effectiveness of environmental justice, is primarily framed by the provisions of Article L. 142-2 of the Environmental Code.[36] However, it is the case-law of the Cour de cassation, both civil and criminal, which, through a dialectic between procedural rigor and substantive audacity, has progressively consolidated the position of associations as indispensable actors in litigation.

33. See in this regard Civ 1st, 14 February 2018, n°17-14.703.
34. Civ. 3rd, 30 November 2022, n° 21-16.404.
35. Civ. 3rd, 11 January 2023, n° 21-19.778.

36. Article 142–2 of the Environmental Code:
Les associations agréées mentionnées à l'article L. 141-2 peuvent exercer les droits reconnus à la partie civile en ce qui concerne les faits portant un préjudice direct ou indirect aux intérêts collectifs qu'elles ont pour objet de défendre et constituant une infraction aux dispositions législatives relatives à la protection de la nature et de l'environnement, à l'amélioration du cadre de vie, à la protection de l'eau, de l'air, des sols, des sites et paysages, à l'urbanisme, à la pêche maritime ou ayant pour objet la lutte contre les pollutions et les nuisances, la sûreté nucléaire et la radioprotection, les pratiques commerciales et les publicités trompeuses ou de nature à induire en erreur quand ces pratiques et publicités comportent des indications environnementales ainsi qu'aux textes pris pour leur application.
Ce droit est également reconnu, sous les mêmes conditions, aux associations régulièrement déclarées depuis au moins cinq ans à la date des faits et qui se proposent, par leurs statuts, la sauvegarde de tout ou partie des intérêts visés à l'article L. 211-1, en ce qui concerne les faits constituant une infraction aux dispositions relatives à l'eau, ou des intérêts visés à l'article L. 511-1, en ce qui concerne les faits constituant une infraction aux dispositions relatives aux installations classées.

The Criminal Chamber's dual approach: formal rigor and substantive boldness

As already mentioned, the Criminal Chamber characterizes the action of associations as an *"exceptional right"* that must be *"strictly confined within the limits set by the Criminal Procedure Code"*[37]. This vision translates into a rigorous control of the admissibility conditions for their actions. By way of illustration, it excludes the application of the special regime of Article L. 142-2 of the Environmental Code when an association does not possess a valid accreditation, thus requiring the demonstration of personal and direct harm. It is by virtue of this reasoning that it deemed inadmissible the action of an association for endangerment of others, considering that a legal entity cannot, by its nature, suffer a risk of harm to its physical integrity.[38] This requirement of rigor extends to purely formal aspects, as shown by the rejection of a civil party claim that had not been preceded by a complaint[39] personally filed by the association.[40]

However, this formal severity is counterbalanced by a particularly innovative substantive case law. The Criminal Chamber has indeed enshrined a very broad conception of the moral harm suffered by associations. It is now established that the mere transgression of environmental regulations, even without proven physical harm to ecosystems, suffices to cause indemnifiable moral harm to accredited associations, provided that this violation impinges upon the collective objective they defend (Crim. 29 June 2021, no. 20-82.245). The Court subsequently specified that this moral harm is perfectly autonomous and can be cumulated with the reparation of pure ecological harm (Crim. 25 January 2022, no. 21-84.366), thus offering a dual path for compensation and considerably strengthening the scope of associative action.

Consolidation by the Civil Chamber: the autonomization of associative action

This strengthening movement finds a powerful echo within the Third Civil Chamber, which has contributed to autonomizing associative action from the criminal sphere. In a landmark ruling on 30 November 2022, concerning the mortality of protected falcons caused by wind turbines, the Court made two major clarifications. On one hand, it asserts that the admissibility of an accredited association's civil action is not conditional on the finding of an offense by the criminal judge; the mere existence of "facts likely to constitute a criminal offense" suffices. On the other hand, it held that the civil judge, by personally ascertaining the violation of the law to characterize a civil fault, does not infringe upon the separation of powers but fully exercises their office.[41] This dynamic extends to urban planning litigation. Pursuing its reasoning, the Court admitted that the disregard of urban planning rules, even procedural ones, may justify an action for demolition, provided however that the applicant association demonstrates a personal harm resulting directly from failure.[42]

Ultimately, through convergent interpretations, albeit distinct in their approach, the Civil and Criminal chambers of the Cour de cassation solidify the status of associations as a pillar of environmental judicial defense. They confer upon it the means to act effectively, making it the *de facto* representative of a legally voiceless nature.

The impetus from Strasbourg: supranational legitimation of the action brought by an association in environmental and climate matters

This internal dynamic, through which the French judicial judge consolidates the role of environmental associations, is today considerably reinforced and legitimized by a decisive impetus from the European Court of Human Rights (ECHR). The Grand chamber ruling in *Verein KlimaSeniorinnen Schweiz and others v. Switzerland*, rendered on 9 April 2024, indeed constitutes a foundational decision that redefines the contours of climate litigation in Europe and, by extension, in France.

The Strasbourg Court was confronted with a major obstacle: the difficulty for individual applicants to demonstrate personal harm of sufficient intensity to satisfy the traditional criteria for victim status regarding climate change. To overcome this pitfall without, however, opening the door to an *actio popularis* (which it prohibits), the Court made a fundamental distinction. It recognized that the diffuse and transgenerational nature of climate damage justified adjusting access to its court for groups.

Thus, the Court forged a specific status allowing an association to act, provided it meets three conditions: being legally constituted in the defendant State, having as its statutory purpose the defense of the fundamental rights of persons affected by climate change, and being considered "truly representative" of the interests it defends. This praetorian law construction is of paramount importance because it confers upon associations a form of "victim by qualified representativity" status. This status allows them to overcome the practical impossibility for individuals to directly claim violations of their rights. Firmly anchoring its reasoning in the right to a fair trial (Article 6 § 1 of the Convention), the Court ruled that refusing such an association a substantive examination of its grievances, supported by science, would infringe upon the very substance of its right of access to a court.

For the French legal system, the implications of this decision are potentially significant. Although domestic law already possesses a specific action regime for associations, the *KlimaSeniorinnen* ruling provides a supranational

37. Crim. 25 September 2007, n°05-88.324, Bull. crim n°220, D. 2007. 2671; *ibid* 2008. 109, chron. D. Caron and S. Ménotti; AJ penal 2008. 83, obs. C. Saas; RSC 2008 108, obs. A. Giudicelli.
38. Crim. 8 September 2020, n° 19-85.004.
39. Plainte simple.
40. Crim. 8 September 2020, n° 19-84.995.
41. Civ. 3rd, 30 November 2022, n° 21-16.404.
42. Civ. 3rd, 11 January. 2023, n° 21-19.778.

standard of interpretation that could influence the judge's role. It reinforces the legitimacy of actions linking climate issues to the infringement of fundamental rights, including those directed against private actors. Consequently, trial judges, as well as the Cour de cassation, will be encouraged to interpret the admissibility conditions of French law in light of these European standards, in order to guarantee the principle of effectiveness of the Convention. This aims to ensure effective access to Justice in the face of a systemic challenge, thus confirming the trajectory of judicial openness that national case-law had already outlined.

2.2. New procedural tools serving environmental justice

Procedural transformation: from reparation to anticipation

Beyond substantive adjustments, the climate challenge necessitates a procedural transformation that directs the judge's role towards anticipation [43]. Confronted with the long temporality of damage and scientific uncertainty, the judge adopts a proactive stance. This evolution corresponds to what Blanche Lormeteau and Marta Torre-Schaub describe as an "anticipatory model", embodied in litigation that aims to neutralize "climate-killing" ('*climaticide*')[44] projects before their effects become irreversible[45]. Procedure thus becomes the instrument of an actively assumed responsibility towards future generations. The judge's role is no longer merely to assess damage *ex post*, but to extend to its prevention, placing them "upstream" of decisions with potentially irreversible consequences.

To equip the judge in this mission, the legislator and case-law have fashioned a range of specific tools, enabling more agile judicial intervention better adapted to the different stages of litigation.

Levers for anticipation and proof

One of the principal instruments of this preventive approach is the environmental interim relief proceeding (*référé pénal environnemental*). Although long-standing, this mechanism allows the liberty and detention judge, at the prosecutor's request, to urgently order any useful measure to halt pollution, including by suspending operations. Its effectiveness has been reinforced by the Cour de cassation, which ruled that its implementation was not conditional on the prior characterization of an offense, thus facilitating rapid judicial intervention in front of a proven risk [46].

In addition to emergency intervention, environmental justice requires instruments capable of overcoming the inherent evidentiary difficulty. To this end, *in futurum* expertise (pre-trial evidence gathering), provided for in Article 145 of the Civil Procedure Code, proves to be a strategic tool. Allowing for an investigatory measure to be ordered "if there is a legitimate reason to preserve or establish, before any trial, proof of facts upon which the resolution of a dispute might depend," it offers potential plaintiffs the means to build a solid case. The Cour de cassation, which ensures that the judge has assessed the utility of the measure for a potential dispute that is not manifestly bound to fail[47], has entrusted the appreciation of the "legitimate reason" to the sovereign assessment of the trial judges[48]. In environmental matters, where evidence is technical and prone to deterioration, this tool constitutes a procedural translation of the precautionary principle, allowing for the preservation of elements before the causal link becomes impossible to establish.

Towards a negotiated justice and a collective reparation?

Concurrently with the reinforcement of preparatory tools for trial, the legislator has explored alternative avenues aimed at a more pragmatic resolution of harms. The judicial public interest agreement (CJIPE "*Convention judiciaire d'intérêt public environnementale*"), introduced in 2020 by article 41-1-3 of the Criminal Procedure Code, falls within this logic. As an alternative to prosecution for legal entities, it allows the prosecutor to suggest an agreement whereby a company, without admitting guilt, undertakes to pay a fine, implement a compliance program, and, crucially, repair ecological harm. This agreement, validated by a judge, thus articulates sanction, prevention, and reparation, ensuring concrete corrective measures that a simple pecuniary conviction would not guarantee.

Finally, this overview is complemented by the potential of class action litigation to address the issue of mass damages. While the CJIPE targets ecological harm, the class action, introduced in 2016, offers a pathway for collective reparation of individual harms stemming from the same breach. Although its use in environmental matters remains limited, its potential for addressing diffuse harms and improving access to justice is now clearly identified. Its effective deployment would constitute a decisive step in adapting judicial treatment to environmental challenges.

3. Judiciary in motion: institutional adaptations and jurisdictional dialogue

Confronted with the specific nature and increasing technicality of environmental and climate litigation, the French judiciary, and first and foremost the Cour de cassation, has undertaken profound changes. These illustrate, on one hand, its resolute engagement in an extended jurisdictional and institutional dialogue, essential for

43. Fort, François-Xavier. "L'office du juge administratif sous influence climatique". Revue juridique de l'environnement 47.4 (2022): 689-701.
44. Neologism: that contributes negatively to climate change.
45. Lormeteau, B. and Torre-Schaub, M., "Du nouveau dans le contentieux climatique—Des réponses temporelles et plurielles à l'urgence climatique". *Revue juridique de l'environnement*, spécial (HS1) (2021), 257-274. https://droit.cairn.info/revue-juridique-de-l-environnement-2022-HS21-page-257?lang=fr.
46. Crim. 28 January 2020, n°19-80.091.
47. Civ 1st, 25 October. 2023, n° 21-24.930.
48. Civ 2nd, 10 December 2020, n° 19-22.619.

building a coherent and shared legal response, and on the other hand, through internal structural and intellectual adaptations aimed at strengthening its capacity to handle these complex disputes.

3.1. Jurisdictional dialogue, a source of shared normative construction

The action of the Cour de cassation in environmental matters cannot be apprehended in a vacuum; it is situated at the heart of a dense network of national and transnational exchanges that nourish and guide its case-law. This dialogue dynamic is particularly structuring in its relations with European courts, where it has evolved from a simple reception of case-law towards genuine cooperation, organized by procedural mechanisms designed for this purpose. The reference for a preliminary ruling to the Court of Justice of the European Union remains, in this regard, an essential tool for ensuring the uniform interpretation and effectiveness of Union law. Added to this is the advisory opinion procedure provided for by Protocol No. 16 to the European Convention on Human Rights, which allows the Cour de cassation to consult the Strasbourg Court in advance on matters of principle. France was, moreover, the first country to utilize this mechanism[49]. These instruments are particularly valuable for addressing new and complex issues hand in hand, and this could thus be the case in the area of climate rights.

Beyond European institutional frameworks, the Cour de cassation actively participates in direct comparative dialogue with its foreign counterparts. This dialogue, which can be formal or informal, unfolds within bilateral or multilateral settings, such as the Network of Presidents of the Supreme Judicial Courts of the European Union or the Franco-British-Irish Judicial Cooperation Committee. These forums are not limited to institutional questions; they allow for the discussion of substantive legal issues, as evidenced by the exchanges on climate justice during the Committee meeting in Edinburgh in June 2024. In-depth discussions on emblematic cases like *Heathrow Airport* (UK Supreme Court) or *Grande-Synthe* (French Council of State), as well as on the ECHR's KlimaSeniorinnen judgment, highlighted the shared challenges faced by high courts, particularly concerning the temporality of judicial action and the effectiveness of their decisions.

This external cooperation is now complemented by a more innovative form of dialogue, expressed at the very heart of the Court's decisions. The recent stylistic revolution in the drafting of its rulings, and notably the advent of "enhanced reasoning" for the most important cases, opens the way for a new practice[50]. This drafting technique allows for the integration into the judge's reasoning, not as a source of law but as a reference or comparative light, of solutions developed by foreign courts. In a field as novel and intrinsically transnational as climate litigation, it is easy to anticipate that the Cour de cassation could mobilize this faculty to enrich its own climate reflection by drawing inspiration from the case-law of other States.

These pragmatic exchanges, whether external or internal to the reasoning, nourish the Court's reflection and demonstrate a growing Europeanization of climate litigation. This trend is so pervasive that it has even led some to advocate for an enlargement of the powers of bodies like the European Public Prosecutor's Office or Eurojust, or even for the creation of a specialized international court [51].

At the national level, the coherence of the legal edifice rests on indispensable internal cooperation with the Council of State and the Constitutional Council. The strengthening of the constitutional basis for environmental protection owes much to the mechanism of the priority question of constitutionality (QPC), which enabled the recognition of the normative scope of the 2004 Environment Charter. The so-called "*Michel Z.*" case strikingly illustrates this joint role of the Supreme Courts. Seized of a dispute relating to the exemption from liability for neighbourhood disturbances under the theory of "pre-occupation", the Cour de cassation exercised its filter function. Deeming the question novel and serious with regard to Articles 1 to 4 of the Charter, it transmitted it to the Constitutional Council. Through its subsequent decision[52], the Council made a major advance. By agreeing to exercise its review with regard to the rights and obligations stemming from the Charter, it consecrated for the first time the directly invocable nature of everyone's right to live in a balanced environment and everyone's duty to participate in its preservation. This decision thus transformed these principles into enforceable reference standards, making the Charter a living legal instrument serving the litigant.

This dialogical construction carries on and enriches itself. The recent recognition by the Constitutional Council of the constitutional value of "common goods" and "the interests of future generations"[53] is likely to permeate the case-law of the judiciary, which will be called upon to integrate this prospective dimension into its review. Institutional convergence is also visible in the participation of the magistrates of the Court in international reflection committees, alongside members of the Constitutional Council. Finally, this dialogue extends to academic doctrine, whose contributions, integrated via conference cycles and the monitoring by the Documentation, Studies and Report Service (SDER), are essential to enable the Court to base its decisions on a robust interdisciplinary analysis, commensurate with the complexity of climate challenges.

49. Request for an advisory opinion of the Cour de cassation dated 16 October 2018.
50. The Guide to Enhanced Reasoning (26 September 2023) is available on the public website of the Cour de cassation.
51. International legal scholarship has been analyzing the project's feasibility and advocating for it since the 1970s, with a significant acceleration following the emergence of climate litigation in the 2000s.
52. n° 2011-116 QPC of 8 April 2011.
53. Ruling of 27 October on the Cigéo project.

3.2. Internal adaptations of the judicial system in response to the increasing complexity of disputes

To better apprehend the systemic challenges of new litigation, the Cour de cassation has first strengthened its internal capacities for analysis and foresight. Structures like the SDER and its Observatory of Judicial Disputes (OLJ) have become essential instruments of this transformation. The OLJ, the Court's structure aimed at linking with trial courts to identify emerging litigation, has asserted itself as an active monitoring unit on matters such as the duty of vigilance and corporate social responsibility (CSR). This proactive approach materialized on 7 May 2025, with the creation of a thematic college dedicated to CSR. This aims to anticipate future waves of litigation, particularly those related to the CSDDD, and to feed the debate on this major public interest subject by bringing together all of the Observatory's partners.

Beyond this foresight function, indispensable for improving the quality and responsiveness of Justice, the SDER also provides daily support to the judicial work of magistrates, particularly when confronted with new questions in their cases. By disseminating thematic studies, it guides, without commanding, the judges' reflection and thus promotes early harmonization of legal approaches.

This structural adaptation is accompanied by an essential openness for forging a common legal culture. Since 2022, the Cour de cassation has organized annual conference cycles dedicated to environmental transformations, placed under the direction of specialized academics. The thematic progression of these colloquia—from the foundations of civil liability (2022), to environmental commitments and "greenwashing" (2023), then to the judge's role in the face of long timeframes (2024) —reveals a structured and committed institutional approach. In parallel, the National School for the Judiciary (ENM *'Ecole Nationale de la Magistrature'*) has significantly strengthened its programs, notably via the Advanced Environmental Justice Cycle (CAJE), which involves leading figures such as climatologist Valérie Masson-Delmotte, as well as academics and lawyers involved in research projects or litigation relating to climate disputes. These combined efforts aim to raise the level of expertise at all levels of the judiciary, ultimately enabling the Cour de cassation to produce high-quality climate case-law, rendered by magistrates who master these new issues.

Beyond these institutional adaptations and this normative dialogue, the evolution of environmental case-law is also driven by a non-negligible generational factor. Indeed, the new generation of magistrates progressively joining the courts approaches these issues with a sensitivity and familiarity intrinsically different from those of their elders. Trained at university and then at the National School for the Judiciary at a time when the Environmental Code was fully established, when the 2004 Charter for the Environment was enshrined in the Constitution, and when the Paris Agreement had redefined global climate ambitions, these judges and prosecutors have integrated these texts as fundamental components of positive law. For them, environmental protection does not constitute a legal revolution or a normative conquest; it represents a pre-existing legal landscape, a foundation of their professional culture. This ingrained understanding could thus foster a more direct and unrestrained application of environmental law, considering its principles not as programmatic objectives, but as legal standards of immediate application, at the heart of their role. The future of environmental justice is assured.

Conclusion

Ten years after the Paris Agreement, the French judiciary has asserted itself as a key actor in the implementation of environmental law. Its contribution has consisted of giving practical effect to legal texts through a pragmatic adaptation of existing tools and the consecration of new concepts. The recognition of ecological harm, initiated by case-law before being enshrined in law, is the most striking example. By evolving civil liability from a logic of simple reparation towards a preventive function, the judicial judge has contributed to consolidating the edifice of environmental protection.

However, this role, though significant, is still under construction and remains incomplete. Entire segments of judicial action are not yet deemed satisfactory, whether from the perspective of the litigant, legal scholars, or legal professionals. The most severe observation concerns the effectiveness of environmental criminal law.

Beyond the criminal sphere, the full potential of innovative procedural tools, such as class actions or duty of vigilance litigation, still needs to be fully deployed to become truly effective. Similarly, the delicate articulation between scientific expertise and judicial decision remains a constant challenge. It is therefore by pursuing an in-depth dialogue with other national and European courts, and by tackling these ongoing projects, that the judiciary will be able to fully accomplish its mission: to ensure, through a rigorous and coherent application of the law, effective protection of the environment and the rights that underpin it.

The first decade since the Paris Agreement has been one of adaptation. The next will determine if this subtle evolution is sufficient given the scale of the crisis, or if it is merely the prelude to a deeper judicial revolution that the judiciary has, until now, avoided.

Dr. Fatih Birol · Executive Director,
International Energy Agency

The Role of Energy in Mitigating Climate Change: Looking Back and Looking Forward

Modern economies need a lot of energy. Although in advanced economies energy demand peaked several decades ago and has declined even as their economies grew, in other parts of the world there is still a need to increase energy consumption. Energy powers industrialisation, provides comfort and convenience to households, and is indispensable to modern digital services and artificial intelligence. Today, however, more than 700 million people have no access to electricity and nearly 2 billion still cook with polluting fuels. This negatively impacts education, health, women's welfare, and economic growth.

At the same time, the energy sector is the largest contributor to global greenhouse gas emissions. In 2024, energy-related emissions were around 42 billion tonnes of CO2-equivalent. This is around 75% of total greenhouse gas emissions. Far from peaking, energy-related emissions have continued to grow. To understand the prospect for a stronger contribution from the energy sector to climate mitigation, this article looks back at the last decade of trends and forward to the decade to come.

Energy transition accelerates, but remains too slow and too uneven

Over the last decade, global energy demand has continued to grow but at a slower pace than global GDP. Since 2015, global energy demand has grown by 15%, adding the equivalent to nearly the total energy consumption of the United States. All of this demand growth has come from emerging market and developing economies, as energy demand in advanced economies fell even as their GDP grew. The world has seen important progress on improving energy access, with 400 million people gaining access to electricity and 770 million to clean cooking. Nonetheless, too many remain cut off from the modern energy system, as noted above. Energy affordability and access were negatively impacted by the surge in global energy prices during the global energy crisis triggered by Russia's invasion of Ukraine. In 2022, energy bills paid by consumers increased by USD 1.6 trillion, despite the roughly USD 1 trillion in additional energy subsidies paid by governments.

In 2014, one year before the negotiation of the landmark Paris Agreement, clean energy technologies were an expensive niche. Since then, a true revolution has occurred. Costs for critical technologies like solar PV and lithium-ion batteries have collapsed to the point where they compete strongly with fossil fuel incumbents without subsidies. Global capacity additions of renewables have raced far ahead of expectations. Wind and solar PV have gone from 5% to 15% of global electricity generation. Electric vehicles have gone from 0.7% to 20% of the global car market from 2015 to 2024. Investment in clean energy has reached USD 2 trillion, and for every dollar invested in fossil fuels two are invested in clean energy. The growth of clean energy technologies has also brought important co-benefits, notably providing another tool in the toolkit to ensure energy security.

But, so far, change has been too piecemeal to drive a peak and decline in global emissions. Global energy related emissions increased 1% in 2024 and were 10% above the 2015 level. All of this increase came from emerging market and developing economies. Emissions fell in advanced economies by around 10%, despite continued economic growth of 20%. China accounted for the largest increase in emissions (more than all other emerging market and developing economies combined) and its per capita emissions are now nearly two times the world average.

Not all technologies have shown the same momentum as solar PV and electric vehicles. Wind power capacity additions have grown, but high commodity prices, interest rates, and permitting barriers have curbed the pace of growth in recent years. Nuclear power is now seeing renewed policy interest and technological innovation. But the fact remains that nuclear power generation has only grown 10% at the global level in the last decade. Phaseouts in some advanced economies have counteracted the effect of new capacity additions in emerging market and developing economies and the progressive restart of Japan's reactors after the Fukushima accident.

Energy efficiency is another area that has lagged, improving at only 1.5% per year in the last 10 years. Worryingly, the pace of efficiency improvements appears to be slowing in the post-Covid period. Global improvements in energy efficiency were 1.2% in the years from 2019 to 2024.

The deployment of clean energy technologies has also been too concentrated geographically. Since 2015, advanced economies and China have accounted for 80% of clean energy investment. There are some signs of this changing, with recent strong growth of EVs in emerging

market and developing economies other than China, for example.

Emerging lessons

The Paris Agreement has been critical to driving collective action and mainstreaming climate change across countries, sectors, and institutions. Projections for global temperature increases under 'business as usual' from before the Paris Agreement saw increases of around 3.5C by 2100. In the IEA's analysis, this has come down to around 2.5C under today's policy settings. This is still above the Agreement's goal of limiting warming to 2C and pursuing efforts to limit to 1.5C. But it is an important marker of the progress that has been made.

In the energy sector, policies to promote transitions have been motivated by a combination of factors, including energy security, local pollution reduction, and industrial policy. However, in many instances, there is still a divergence in terms of the actions that countries are pledging to take internationally and the direction of their own policies. This is why it is important to look both at what countries are committing to internationally, but also what they are doing at home.

Energy security remains a critical consideration, but its nature is changing as energy transitions advance. Recent geopolitical tension in key fuel producing regions highlight the continuing importance of energy security in oil and natural gas markets. But the rather muted reaction of energy markets in the last few months also demonstrates the value of the buffers that have been built up in recent years in energy markets. At the same time, new security concerns are emerging. Electricity is increasingly indispensable to modern economies, powering high value added manufacturing and digital services. But electricity security is facing a set of interlinked, complex challenges, including lagging investment in grids, growing variability and decentralisation of demand and supply, digitalisation and cybersecurity, and growing threats of climate impacts.

Another area of emerging risks relates to critical mineral and energy technology supply chains. These are taking even more salience in today's context of geopolitical fragmentation. For a set of 20 strategic, energy-related minerals with multisectoral applications in tech, aerospace and advanced manufacturing, China is the dominant refiner for 19 of the 20 minerals analysed, holding an average market share of around 70%. China also has similarly high shares in the manufacturing of clean energy technologies such as solar PV and lithium-ion batteries. Such high degrees of concentration in any market lead to concerns around the risk of supply disruptions. On the other hand, falling costs and growing exports of low-emissions technologies from China to other developing countries have accelerated their uptake in recent years. Navigating the trade-offs around energy security, trade, supply chain security and energy transitions stands out as one of the most important challenges going forward.

A second key challenge relates to raising investment for capital intensive energy assets. Energy investments in Africa are one-third lower in 2025 than they were in 2015, as a decline in oil and gas spending has been only partially offset by higher investments in clean energy. Africa accounts for only 2% of clean energy investment despite having 20% of the world population. Reversing this situation is a challenge. Fiscal situations are stretched in many economies, interest rates have risen, and the private sector has pulled back somewhat from recent enthusiasm for sustainable finance. Mobilising international finance for clean energy investment in emerging market and developing economies will need to be combined with the development of domestic capital markets.

Looking forward

The world has the tools and technologies to make big differences to emissions in the near-term. Key actions include ramping up the use of renewable energy, accelerating nuclear power in countries that want to use it, improving energy efficiency, electrifying energy consumption, and cutting emissions of methane from the energy sector. These are also actions that are well understood, based on widely available commercial technologies, and, in many cases, cost-effective. The energy goals adopted at COP28 provide a good guide to what is needed to get back on track. But they require policy support to correct market failures, deploy enabling infrastructure, and scale up diverse and secure supply chains. Multilateral cooperation remains crucial but also needs to adapt as the context changes and new issues emerge during the transition.

Didier-Roland Tabuteau · Vice-President of the French Council of State (Conseil d'Etat)

The administrative judge and climate change[1]

Ever since the 1992 Earth Summit and the adoption of the United Nations Framework Convention on Climate Change,[2] climate law has gradually established itself as a major requirement of the international community. It aims to address a vital challenge for our societies by establishing principles for protecting the planet and clarifying each country's obligations regarding action against global warming. Largely based on case law, as cases come before the courts, this law has been gradually enriched by a proliferation of international and European initiatives, especially those aligned with the objectives outlined in the Paris Agreement adopted at COP21,[3] chaired by Laurent Fabius, Minister of Foreign Affairs and International Development at the time.

Several models exist for environmental protection. It is possible to safeguard the environment through legal measures, such as establishing fundamental principles at the highest level, for example, by constitutionalizing key principles aimed at preventing damage caused by human activity. Protection can also be achieved through economic measures, such as monetizing the impact of polluting activities, according to the polluter-pays principle. In France, the administrative judge's office stands out through several specific features that it employs in the environmental sector, particularly in regard to climate change issues and the enforcement of standards designed to address them.

Administrative judges, as part of a global movement (1), must first apply the law by developing ling term reasoning, considering the specific uncertainty tied to this time frame (2). To achieve this, the judges need to draw on specialized expertise and use the tools at their disposal effectively (3).

1. This article was written in collaboration with Jean-Baptiste Desprez, administrative magistrate, special advisor to the Vice-President.
2. Adopted in New York on May 9, 1992, signed by France on June 13, 1992, and published in France by Decree No. 94-501 of June 20, 1994.
3. Adopted on December 12, 2015, signed by France in New York on April 22, 2016, and published in France by Decree No. 2016-1504 of November 8, 2016.

I. Actor of a global movement

I.1. Emancipation from geographical boundaries

Faced with a crisis that transcends borders, both in its causes and effects, the role of the judge should not be viewed in isolation or solely at the national level. Global warming, by its systemic nature, ignores borders and invites us to approach sovereignty, no longer in isolation but rather in solidarity according to Professor Mireille Delmas-Marty[4]. The French Council of State emphasized this idea as well in its study on sovereignty, calling for "a cooperative exercise of sovereignty" to address global challenges, with the fight against climate change as priority.[5] Like states and institutions, judges are called upon to cooperate, inspire one another, and work together to develop climate law.

Driven especially by nature conservation associations and local authorities, the past twenty years have seen a rising trend toward judicialization of climate issues. Climate litigation has become a key factor in ensuring the effectiveness of international commitments, with national courts in most parts of the world being asked to compel public authorities to take action. In July 2023, the United Nations Environment Programme reported a sharp increase in litigation since 2017, from fewer than 750 cases to over 2,000 in 2023.[6]

One of the origins of this trend toward judicialization of climate-related disputes can be traced back to the April 2, 2007, ruling by the U.S. Supreme Court in *Massachusetts v. Environmental Protection Agency*.[7] This decision marked the beginning of a structured litigation strategy based on the ability of associations, local authorities, and even individual citizens to take legal action against authorities for failing to address climate change. Courts, which are increasingly called upon to rule on these matters, have consequently been prompted to apply increasingly stringent legal standards, given the significance of environmental issues. In Europe, a pivotal moment was the Supreme Court of the Netherlands' *Urgenda* decision, which, based on the European Convention on Human Rights, required the Dutch government to strengthen its greenhouse gas emission reduction targets.[8]

I.2. Increasing consideration for the environment in all fields of law

The rise of environmental concerns, including climate change, introduces a new dimension to other legal areas. In France public procurement law considers this by allowing

4. Mireille Delmas-Marty, 'Governing Globalization', *Revue européenne du droit, Sept. 2020.*
5. Annual study by the Council of State, 2024, proposal no. 10 of the study.
6. UN Environment Programme, *Global Climate Litigation Report: 2023 Status Review* (July 2023).
7. *Massachusetts v Environmental Protection Agency* 549 US 497, 127 S Ct 1438 (2007).
8. *Urgenda Foundation v State of the Netherlands* (Supreme Court of the Netherlands, 20 December 2019).

the inclusion of environmental clauses.[9] Criminal law now features specific offenses related to environmental protection,[10] and mining law is gradually incorporating standards aimed at regulating extractive activities to protect the environment.[11] Environmental law itself is divided into various domains focused on conserving biodiversity, ensuring a healthy environment for local communities, and, in the case of climate law, fighting global warming while helping societies adapt to climate change.

It also alters the way these rights are enforced. In terms of administrative justice, environmental law expands the scope of standards that must be enforced. This is evident with the recognition of the constitutional value of all rights and duties outlined in the French *Charter for the Environment*,[12] including the right to live in a balanced and healthy environment, which qualifies as a fundamental freedom within the meaning of summary proceedings.[13] The same applies to the review of declarations of public utility for development projects, where administrative judges are increasingly considering environmental issues when weighing the benefits and drawbacks of such projects to determine their legality.[14]

The administrative judge must also tailor their review to the specific characteristics of climate law, given the need to consider the long time frame over which this law operates and the global and technical nature of the issues at stake.

II. A need for long-term thinking

II.1. Taking the long term into account

Public action on climate change is a medium- to long-term endeavor. This is evident both in how scientists assess developments, often referencing the pre-industrial era, and in the timeframe set for reaching targets, which are sometimes established by legislation for 2030 or even 2050.

To ensure the effectiveness of climate law, judges must adapt their oversight to the specific timeframe of environmental issues as defined by these standards. This is precisely what the Council of State has done since 2020 in its *Commune de Grande-Synthe* rulings.[15] It first broke new ground by recognizing the interest of a local authority in taking action, despite the global nature of climate change and the fact that the localized effects that will affect this municipality, in particular sea level rise, will only become apparent in several years or even decades.

It also introduced a new type of control that could be described as "trajectory control,"[16] with regard to the objectives outlined in environmental standards which target long-term deadlines–2030, 2040, or even 2050. These targets were adopted by Parliament, which delegated the setting of annual milestones to decrees. Following an appeal by the municipality of Grande-Synthe against the refusal to implement additional measures to reduce greenhouse gas emissions in order to meet these targets, the judge considered that he could not delay his assessment until those dates without disregarding the urgency of action in the face of the climate crisis, or depriving his review of any useful scope, given the inertia inherent in climate phenomena. He must therefore ensure while ruling that these targets are achievable, on track to be met, and part of an objective and credible trajectory.

In doing so, the judge merely applied the law., By setting long-term goals and leaving it to the regulatory authorities to establish intermediate targets, it paved the way for courts to review the credibility of the measures taken to combat climate change.[17] Here, as usual, the administrative judge is just the guarantor of legal compliance. In these decisions from 2020 and 2021,[18] after determining that the Paris Agreement had interpretative authority in reading the greenhouse gas emission reduction targets embedded in EU law and national law–aimed at implementing that agreement–it only overturned the refusal to take additional measures necessary to reduce greenhouse gas emissions produced on national territory in accordance with the law.[19] This method of monitoring progress is actually the logical result of legislative and regulatory authorities setting binding, long-term targets. It is also worth noting that the Court of Justice of the European Union operates similarly when it examines, even before the deadline for transposing a directive by Member States, whether their actions are likely to seriously undermine the achievement of the results required by that directive,[20] meaning whether they are on the right track to achieve this transposition. However, it should be stressed that the provisions in respect of which this control was exercised are normative, not merely programmatic.

9. Article L. 2111-1 of the French Public Procurement Code requires public purchasers to take sustainable development objectives into account when determining the nature and scope of their needs: "The nature and scope of the needs to be met shall be determined precisely before the consultation is launched, taking into account sustainable development objectives in their economic, social, and environmental dimensions."
10. With regard to waste (e.g., Article L. 541-46 I. 4° of the French Environment Code) or water pollution (L. 216-6 of the French Environment Code).
11. See Article L. 161-1 of the French Mining Code for the obligations that must be met by research and exploitation work, and the interpretation of these provisions: Administrative Court of Appeal of Bordeaux, July 16, 2021, Minister of Economy, Finance and Recovery, No. 21BX00295-21BX00715- and No. 21BX00294-21BX00716.
12. *Commune d'Annecy* (Council of State, 3 October 2010) No 297931, aff No 19/00135.
13. Judge of summary proceedings of the Council of State, September 20, 2022, No. 451129.
14. Katarzyna Kmonk, 'Les préoccupations environnementales dans la mise en œuvre du contrôle du bilan' (2013) 2 *Revue du droit public* 401.
15. *Commune de Grande-Synthe et al* (Council of State, 19 November 2020 and 1 July 2021) No 427301.
16. Bruno Lasserre, 'L'environnement: les citoyens, le droit, les juges' (Opening speech at the joint meeting of the Council of State and the Court of Cassation, 21 May 2021).
17. The Constitutional Council subsequently confirmed this interpretation of the legal scope of these objectives: Constitutional Council, Decision No 2022-843 DC (12 August 2022).
18. See note 15.
19. Article L. 100-4 of the French Energy Code.
20. Case C-129/96 *Inter-Environnement Wallonie ASBL v Région Wallonne* [1997] ECR I-7411.

II.2. Taking into account uncertainty and the need for caution

Due to its uncertain nature, based on the anticipation of risks and the application of the precautionary principle, environmental law shares many similarities with health law.

In both areas, legislators and judges face evolving dangers that are sometimes invisible or delayed, but whose effects can be serious or even irreversible. The French Public Health Code encompasses numerous provisions aimed at ensuring environmental health and safety.[21] For example, Article L. 1311-6 mandates the development of a national plan every five years to prevent health risks related to the environment. The precautionary principle, which underpins these two branches of law, cannot be seen as encouraging inaction. On the contrary, it requires public authorities to act on known risks, even in the absence of absolute scientific certainty.[22] It thus calls for vigilance from public officials, whether to prevent a health crisis or to address environmental threats.

The state is therefore required to intervene to protect public health and the environment. These two areas are becoming increasingly interconnected: air pollution, soil contamination, chemical use, and climate change all have a direct impact on human health. This convergence of issues is reflected in the development of laws and the approach taken by administrative courts.

This is the case with the fundamental freedom recognized by the administrative judge, and which has already been reiterated, to "live in a balanced environment that respects health."[23]

The Constitutional Council also drew a similar connection by recognizing "the protection of the environment, the common heritage of humankind" as a constitutional objective, in order to support the ban on exporting plant protection products prohibited in France. It aimed to prevent "harm to human health and the environment."[24]

Environmental balance thus becomes a prerequisite for human health, and conversely, the protection of individuals justifies bold measures to preserve the environment and fight climate change.

III. The appropriate use of the administrative judge's prerogatives

III.1. The necessity for specialized expertise

Both the timing of the judge's review and the uncertainties related to the subject matter and its technical nature require specialized expertise.

In addition to the specialization of certain judges, who may hear numerous environmental cases, judges can employ various methods to ensure they have full knowledge of the facts before issuing their rulings. This includes the authority to commission expert reports[25] and, if needed, to visit sites.[26] They may also order further investigations, such as to evaluate the damage caused by failing to meet greenhouse gas emission reduction targets and to determine appropriate compensation, as the Paris Administrative Court did in the so-called "case of the century."[27] Additionally, they can avail the new tool of oral hearings, which allows judges to question the parties directly,[28] as was done in the *Friends of the Earth* case.

It is based on such knowledge that the administrative judge can settle the case with full understanding of the facts and then ensure that his decisions are enforced, for example by verifying that the Government has taken measures to ensure that the greenhouse gas emission reduction curve aligns with the objectives set by the national legislature and by European law for implementing the Paris Agreement.[29] Or that the government has taken all necessary sectoral measures to compensate for non-compliance with a previous carbon budget in accordance with the rule in the Civil Code that "any person responsible for ecological damage is required to repair it[30, 31]".

III.2. The use of all jurisdictional tools at the judge's disposal

Finally, the rise in environmental litigation raises the crucial question of the tools available to judges to ensure the effective enforcement of their rulings, which are often complex to carry out and may involve sensitive local or even national issues. Without the proper tools, there is a significant risk that environmental law will remain merely declarative.

In its decision *Friends of the Earth*,[32] the Council of State's litigation panel imposed a fine of €10 million per semester to compel the State to meet its air quality commitments. The judges are thus adapting their methods to the

21. See Xavier Bioy, Anne Laude and Didier Tabuteau, *Droit de la santé* (4th edn, Presses Universitaires de France 2020) 127 ff.
22. *Association Ban Asbestos* (Council of State, 26 February 2014) No 351514 (on asbestos).
23. See note 13.
24. Constitutional Council, Decision No 2019-823 QPC (31 January 2020).
25. Articles R. 621-1 et seq. of the French Code of Administrative Justice.
26. Article R. 622-1 of the French Code of Administrative Justice.
27. *Association Oxfam France et al* (Paris Administrative Court, 3 February 2021) No 1904967 and others.
28. Articles R.625-1 and R. 625-2 of the French Code of Administrative Justice.
29. *Commune de Grande-Synthe* (Council of State, 10 May 2023) No 467982.
30. Article 1246 of the French civil code.
31. See note 27.
32. *Association Les Amis de la Terre France* (Council of State, 10 July 2020) No 428409.

issues at stake in the cases before them to fully exercise their authority and maintain the confidence of litigants.

The Council of State has also revised the options for settling a penalty payment so that it is not paid solely to the applicant, which could lead to unjust enrichment due to the amounts involved, nor to the State, which is the party responsible for enforcement and may not be motivated by the prospect of paying itself the sums in question.[33] The payment may now be made "to a legal entity governed by public law that has sufficient autonomy from the State and whose missions are related to the subject matter of the dispute, or to a non-profit legal entity governed by private law that, in accordance with its articles of association, carries out actions in the public interest that are also related to that subject matter."[34]

Administrative judges have adapted their approach, from the assessment of the conditions under which cases are brought to them to the measures used to enforce their decisions. It includes the oversight methods they employ to give full effect to environmental and climate standards which are intended, mainly, to implement the Paris Agreement.

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33. Pursuant to Article L. 911-8 of the French Code of Administrative Justice, which provides that "The court may decide that part of the penalty payment shall not be paid to the applicant. /This part shall be allocated to the State budget."
34. *Association Les Amis de la Terre France* (Council of State, 10 July 2020) No 428409.

Administrative judges are now facing crucial and, in some respects, vital issues of climate law. It is not their role to define what is desirable within the scope of their duties, "to substitute themselves for the public authorities in determining public policy or to enjoin them to do so."[35] However, in line with the separation of powers, they firmly assume their role as guarantors of legality. They interpret and apply the law, particularly the laws and regulations that implement the commitments of the Paris Agreement, and ensure that, when a dispute arises, the administration meets its normative objectives. In doing so, the administrative courtroom becomes more than ever a space for democratic transparency.

This momentum cannot persist without ongoing evolution of the standards themselves. The law can only advance public action in the public interest to the extent that the texts applied by judges become more detailed, precise, and adapted, especially to the scale of climate challenges. The Council of State also participates in this normative development: in its advisory role, it is involved early in the drafting of bills, ordinances, and decrees. In its research role, it also issues recommendations, either on its own initiative or at the request of the Prime Minister, with a view to better serve the public interest. These roles enhance and deepen its contribution to shaping climate law capable of supporting the vital effort to fight and adapt to climate change.

35. *Amnesty International France et al* (Council of State, 11 October 2023) No 454836; *Ligue des droits de l'Homme et al and Syndicat de la magistrature et al* (Council of State, 11 October 2023) Nos 467771 and 467781.

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We'll Always Have Paris

As most readers will recognize, my title is taken from the 1942 movie, *Casablanca*. Near the end of the film, Rick (Humphrey Bogart) surprises his old lover Ilsa (Ingrid Bergman) by putting her on an airplane to join her husband, resistance hero Victor Lazlo (Paul Henreid). Rick tells her that "it doesn't take much to see that the problems of three little people don't amount to a hill of beans in this crazy world." At this moment the fight against Nazism must take precedence over their love. But "What about us?," Ilsa asks plaintively. "We'll always have Paris," Rick replies. Rick's acknowledgement of the urgency of the present coupled with his embrace of the ongoing reality of the past is profoundly relevant to the problems of our day.

The Paris Climate Conference, scheduled to begin on November 30, 2015, was almost canceled after the November 13th Islamic State terrorist attack that took 137 lives. The juxtaposition of hatred and fanaticism on the one hand, and love and pragmatism on the other gave rise to some remarkable moments. A climate action demonstration scheduled for November 29th was cancelled because of security concerns. Instead, there was a silent demonstration of 11,000 shoes placed in the Place de la République, representing the people who could not gather and make their voices heard. Pope Francis, who only months before had published the most significant environmental text of the early twenty-first century, sent black Oxfords with a laminated sign bearing his signature and the words "*Laudato Si*."[1]

Despite enormous challenges, the Conference was a remarkable success, due to the leadership of many extraordinary people, including Laurent Fabius, the French Minister of Foreign Affairs who presided over the sessions. The Conference rekindled the global climate movement and demonstrated the depth and breadth of support for climate action. The Conference produced a legally binding treaty, but it was not primarily a governance event. Its real change-making potential was in the soft power that it mobilized on which the world has failed to capitalize.[2]

The Paris Agreement, which emerged from the Conference, encompasses a legally binding treaty under the United Nations Framework Convention on Climate Change (UNFCCC). It specifies rules for an ongoing procedure of goal-setting and reporting. It recognizes the internationally agreed 2°C temperature ceiling (along with an aspirational 1.5°C ceiling), and also makes clear that reaching the objective of the UNFCCC ultimately requires every country to reach the goal of net-zero emissions. The Agreement has no expiration date, and it specifies a timeline and a procedure for regular review of national commitments. In these respects, it improves and refines what had already been agreed to in the UNFCCC.

The primary mechanism of the Paris Agreement is "pledge and review." Nations set goals which are collectively reviewed and then revised in light of the review. Pledge and review has been a frequent model of international cooperation in the post-World War II period. It incorporates Thomas Schelling's insight that "a potent means of commitment, and sometimes the only means, is the pledge of one's reputation."[3] However, reputational currency can change and those who are shameless cannot be shamed. If powerful nations meet their commitments and embrace ever greater ambition, they can create an upward spiral, but if they fail to meet their commitments and show no shame or regret this can lead to a downward spiral.

In any case enlightened leaders alone cannot take us to the net zero emissions envisioned by the Paris Agreement. This also requires the energy, enthusiasm, and sustained action of people around the world expressing themselves in their roles as citizens and consumers. But since 2015 other issues have taken precedence over climate change (e.g., the war in Ukraine, immigration), and the normative power of international governance, which was always weak, has continued to erode. Some countries (notably the United States) have elected leaders who adopt policies that willfully move their countries away from meeting their nation's climate commitments. A decade after the Paris Conference it seems clear that the hopes expressed in the Agreement will not be realized.

2024 was the warmest year we have experienced since at least 1850.[4] It was also the first calendar year in which the Earth's global mean surface temperature exceeded the 1.5°C aspirational goal of the Paris Agreement. While exceeding a temperature threshold in a single calendar

1. For reflections on the significance of the papal encyclical, *Laudato Si*, see Dale Jamieson, "Theology and Politics in *Laudato Si'*," 109 *AJIL Unbound* 122 (2015), pp. 122–126 DOI: https://doi.org/10.1017/S239877230000129X
2. Jennifer Jacquet and Dale Jamieson, "Soft but significant power in the Paris Agreement", *Nature Climate Change* 6 (2016): 643-646.
3. Thomas Schelling, "Some Economics of Global Warming, *American Economic Review* 82, 1–14 (1992).
4. https://wmo.int/news/media-centre/wmo-confirms-2024-warmest-year-record-about-155degc-above-pre-industrial-level

year is not enough to say that the threshold has been definitively breached, the trendlines do suggest that 1.5C is now in the rearview mirror. Each of the past 10 years (2015-2024) was one of the 10 warmest years on record, and global carbon emissions continue to increase as well as the atmospheric concentration of carbon dioxide.[5]

The Paris Agreement created pathways to a better world but we have chosen a different course. Like Rick, we need to recognize that we are in a different world than the one we had hoped for, and we must confront these new challenges. In what follows I will provide six suggestions for how our thought and action should change in the light of these new realities.

Let us begin with *mitigation*. Those who tell relatively happy stories about climate change tend to emphasize how the energy mix has changed through time. For example, one NGO website tells us:

"95 per cent of new energy capacity in the U.S. that is waiting to connect to the grid is carbon-free, primarily solar, wind, and battery. Around the world, countries are shifting to clean energy. In the Global South, 87 per cent of capital expenditures on electricity generation are going into clean energy. The EU, Japan, and South Korea are also heavily moving to renewable energy".[6]

However, the energy mix is only part of the story. What is left out is the fact that much of the renewable energy that is produced is added to, rather than replacing, fossil fuel energy. While there is no simple ratio of replacement to addition, Richard York and Shannon Bell articulate the larger point:

"History shows us that although new energy sources have been successfully added to the global energy system and have grown to provide a large share of the overall energy supply, it is entirely *unprecedented* for these additions to cause a sustained decline in the use of established energy sources".[7]

Even if renewables were entirely replacing fossil fuel produced energy, there is still no such thing as a "free lunch" when it comes to energy production. Producing energy necessarily involves transforming nature. Whether it is a matter of producing fossil fuels or powering bodies with fruits and nuts (which must be grown somewhere), the result is that nature is in a different state than it otherwise would have been in, and whatever state it is in will be unwanted or deleterious to some people or forms of life. When it comes to mitigation what is needed is a much more systematic perspective on energy, rather than a narrow focus on the energy mix or other limited dimensions of energy production and consumption.[8]

Second, we need to focus more on *adaptation*. While this is increasingly recognized, it is still not often appreciated just how incredibly difficult adaptation is. Adaptation is expensive, requires long-term planning, and communities must be cohesive enough to accept trade-offs. Consider, for example, Del Mar, California, an affluent village on the Pacific Ocean, where everyone is an environmentalist.[9] A nationally important rail line goes through the village on top of cliffs overlooking the ocean. These cliffs are already crumbling due to sea level rise. Everyone agrees that the rail line must be moved, but no one agrees about where to move it. The planning process is slow, any change will be expensive, and inevitably some people will be hurt. Now scale this up to communities that are less affluent and where not everyone is an environmentalist. Still, a great deal of adaptation will happen because there is no other choice ("adapt or die"), but much of the adaptation that occurs is likely to be stupid, needlessly expensive, and massively unjust. In order to do better we need to learn from careful in depth case studies of adaptation, and we need innovative thinking about how to adapt at scale, especially in resource poor communities.

Third, we need to *accept that there is no "Plan B."* Geoengineering is sometimes discussed as a "silver bullet" that will save us from ourselves or at least buy us some time. And Indeed there probably will be attempts to alter the Earth's radiative balance through stratospheric aerosol injection (releasing reflective particles into the stratosphere), marine cloud brightening (increasing the reflectivity of marine clouds by spraying them with seawater droplets or other substances), surface albedo modification (increasing the reflectivity of surfaces on Earth), or space-based reflectors. There are too many oligarchs and states with divergent interests to prevent this from happening in a world in which global governance is weak and eroding. The consequences of these interventions may range from abject failure, disaster, or benefits for some and losses to others. But what none of these technologies will do is return the climate to its pre-industrial baseline, or produce a geologically stable climate regime.

Fourth, in order to do better at mitigation and adaptation, and to face the world squarely, we need more *disciplined attention*. Many scholars and climate change activists, especially in the United States, focus excessively on "denialism"—as if the failure to act on climate change is primarily caused by people's unwillingness to sign up to a particular creed or set of beliefs. It is true that lies and misinformation, produced by powerful actors who prioritize their own short-term interests over the future

5. https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level
6. https://www.oxfamamerica.org/explore/issues/climate-action/five-reasons-for-hope-in-the-climate-crisis/
7. Richard York and Shannon Bell, "Energy Transitions or Additions: Why a Transition from Fossil Fuels Requires More than the Growth of Renewable Energy," 51 *Energy Research & Social Science* (2019), p. 41
8. See Jean-Baptiste Fressoz, *Sans transition: une nouvelle histoire de l'énergie*, Paris, Éditions du Seuil, coll. "Essais Écocène", 2024; published in English as *More and More and More: An All-Consuming History of Energy* (New York: HarperCollins, 2025).
9. https://www.nytimes.com/2025/03/03/us/del-mar-train-tracks-san-diego.html

of life on earth, is a serious problem, but one that we have lived with for decades or centuries regarding a wide range of issues (e.g., the consequences of egalitarian economic policies, environmental regulation, etc.).[10] In a well-functioning democracy, these forces can be overcome. There are many reasons why this has not happened with climate change in the United States and perhaps some other countries (e.g., the United States is not a fully functional democracy).[11] But it is important to realize that among the general public, indifference is more prevalent and important than denialism. A result of electing Trump in 2024 was the abandonment of America's climate commitments, but Americans did not elect Trump for that reason. They had not shifted to denialism or even made an "all things considered" judgement that climate action was less important than other things they cared about. As a political issue, climate change had simply become less visible or even invisible to many people, and barely figured in their voting behavior. Many Americans liked the Paris climate show when it was prime time in 2015, but by 2024 the memory had faded and they preferred the Trump show to Paris reruns or any of the other alternatives on offer. Americans changed the channel and gave up the Paris commitments out of indifference rather than denialism. The moral of the story is that we need a better, more disciplined audience that is willing to tune in to a show for more than one season.

We also need *a better story*. Climate communication has often been criticized for the artificiality and abstractness of its language (e.g., "mean surface temperature," "parts per million," "greenhouse gas equivalent," etc.). But another part of the climate story that many people find alienating is the way that it centers on rights, duties, laws, regulations, judicial opinions and so forth. This kind of language is an obstacle for gaining public attention and buy in for many issues, but it is especially difficult for climate change. Climate change is an unprecedented global phenomenon unfolding over decades and centuries, one to which everyone contributes and is affected by, but in radically different proportions. The common law traditions of the Anglophone world and the common-sense morality produced by modernity fit clumsily at best with the challenges of climate change.[12] We need new stories, concepts, and characters for conceptualizing climate change and motivating action. One resource for this is the rights of nature movement, but I also think that we need a more spiritual, less juridical outlook that sees nature as sacred and not just the bearer of rights.[13]

Finally, through all of this, we must be *resilient*. Beyond the challenge of adapting to new planetary conditions, we must be able to survive and even thrive in the face of our own failures, and ceaseless, often unpredictable, change. What makes the climate change that is now underway different from the changing climates of the past is that it is anthropogenic. We are causing it, and we must learn to live with what we are bringing about. Our children may live in a world in which the seas have reclaimed Miami Beach, and Miami itself has begun to reassemble an island city; and by then several member states of the United Nations may have ceased to exist. But people will still fall in love, have babies, and wonder what life is all about. Questions of meaning amid uncertainty, suffering, fear and loss will increasingly move to the center of human experience.[14]

Climate change presents challenges that require us to mobilize the resources of science, medicine, engineering, law, economics, politics, and the social sciences. It also poses spiritual, philosophical, and therapeutic challenges about how to live. The collective memory of Paris can be a resource for rising to these challenges. It is a reminder that change is possible and that the nations of the world can espouse a common goal. But for Paris to have this power of inspiration, we must not succumb to nostalgia. The ultimate goal of creating a just world in which people and nature flourish and are respected remains the same, but the landscape has changed. We need to reorder and reprioritize our values, and we need new concepts and ideas. Like Rick and Ilsa we'll always have Paris, and like them we must overcome the temptation to lock ourselves in a backward-looking nostalgic straitjacket, and instead see Paris as an inspiration for acting now with urgency against one of the greatest threats that humanity has ever faced.

10. Jennifer Jacquet, *The Playbook: How to Deny Science, Sell Lies, and Make a Killing in the Corporate World* (London: Penguin Books, 2023).
11. Dale Jamieson, *Reason in a Dark Time: Why the Struggle to Stop Climate Change Failed, and What It Means for our Future* (New York: Oxford University Press), Chapter 3.
12. Marcello Di Paola and Dale Jamieson, "Climate Change and the Challenges to Democracy," *University of Miami Law Review* 72 (2018): 369-424; Dale Jamieson and Marcello Di Paola, "Climate Change, Liberalism, and the Public/Private Distinction," in Mark Budolfson, Tristram McPherson, and David Plunkett (eds.), *Philosophy and Climate Change* (Oxford: Oxford University Press, 2021): 370-395.
13. On rights of nature see the NYU More-Than-Human Life (MOTH) Program (https://mothrights.org/), and especially its open access book (https://mothrights.org/more-than-human-rights-an-ecology-of-law-thought-and-narrative-for-earthly-flourishing/).
14. Dale Jamieson and Bonnie Nadzam, "The Case for Spiritual Resilience," *Carleton Voice*, available at https://www.carleton.edu/voice/stories/the-case-for-spiritual-resilience/

Critical Decade and International Dynamics

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Europe's climate ambition trailblazing a planetary transition

Ten years ago, the world came together in an extraordinary act of unity.

In Paris, 196 countries agreed to a simple but powerful truth: the climate crisis cannot be solved by any single nation, it demands a united humanity.

The Paris Agreement became one of the most enduring expressions of multilateral cooperation in modern history. Alongside the adoption of the Sustainable Development Goals and the Addis Ababa Action Agenda, it signalled a global shift: toward climate responsibility, and toward a new model of progress rooted in justice, resilience, and shared prosperity.

A decade on, the world looks very different. We have faced a global pandemic, devastating wars, economic shocks, and rising geopolitical fragmentation - and increasingly destructive impacts of climate change. In many places, multilateralism has been treated with suspicion. Climate action has become a target for political backlash. And yet, in spite of this turbulence, the Paris Agreement has endured and delivered.

Before 2015, the world was on a path to exceed 4°C of warming. Today, thanks to the agreement and global cooperation, we are bending that curve. With current policies and pledges, we are moving closer to 2.3°C.

That is not enough but it is not nothing. In a world marked by division, the simple fact that countries have remained at the table even in moments of global distress is no small victory.

The Paris Agreement is a political and moral commitment to current and future generations. It is a signal of hope: that, even in an era of fractured politics and populist pressures, collective action is still possible.

But this second critical decade of implementation will determine whether we honour that promise, or betray it.

Looking at the advance of renewable energy and clean technologies, you might think that the battle between the old fossil order and new planetary path of the world is already won. We should not, however, underestimate the breadth of the fossil regime pushback or the geopolitical powers dependent on the continuation of the fossil economy.

Europe, in particular, must not waver. Our climate ambition has always been more than a policy choice, it reflects our values. And with a bit of foresight, also our wallets. While decarbonising our energy system by 2050 will require additional investments representing 1.5 percentage point of GDP over the period 2031-2050, it will bring almost matching savings in fossil fuels imports - and significant other benefits in terms of jobs and reduced pollution.

The increase in investment needs for accelerated decarbonisation is manageable and would take us back to investment levels as a share of GDP that were common for Europe only some decades ago. Back in the late '70s and early '80s, investment as a share of GDP was more around 25% than the current 20-21%.

Now, as the world watches rising skepticism and electoral headwinds challenge the green transition, Europe staying the course is more important than ever.

To win hearts and minds, so they choose the green transition over the fossil economy in this critical decade, Europe needs to succeed in three points.

We should remain fully aligned with the goal of limiting global warming to 1.5°C. That means being clear and consistent about our long-term targets and how we intend to get there. Ambition is not abstract, it should be translated into policies that give confidence to investors, workers, and communities.

We should prove we can deliver tangible, measurable results on the ground. People need to feel the benefits of climate action in their daily lives. That means investing in clean energy, sustainable transport, building renovations, and the phase-out of fossil fuels, done fairly and inclusively. It also means building resilience in sectors like agriculture, housing, and local infrastructure, especially for the most vulnerable. Climate justice cannot be separated from social justice.

To do this, we also need to mobilize finance at scale. In Europe, for the largest energy-intensive industries alone, the decarbonisation investment needs represent EUR 500 billion over 2025-2040. But beyond industry, we need finance for cities and communities.

And this needs to be replicated internationally. Multilateral financial institutions and development banks are key to help de-risk investments, improve project design, and expand sub-sovereign lending. The climate transition cannot succeed if those closest to the challenge remain furthest from the resources. True to the Paris Agreement commitment, we should find ways to urgently align financial flows with the climate goals.

At the heart of all this lies a single imperative: keep people at the center. The green transition is not something to be done *to* people, but something to be done *with* them. We can succeed if we build trust, ensure fairness, and show that climate ambition can go hand in hand with lower energy bills, better jobs, and stronger communities.

This means also building and strengthening our resilience to climate impacts, those happening now and foreseeable in the future. We need a culture of preparedness and resilience by design in all investments and policies going forward. And we need to get serious about finding the financing needed to support the vulnerable in developing countries.

The Paris Agreement was never a finish line.

It was a starting point, a living accord meant to evolve with science, technology, and lived experience. What we do now will decide whether we hand over a liveable, fairer planet or a deeply unstable one.

Europe continues to believe that our promise in Paris is our debt with future generations and with the planet. That it can and it should remain our collective purpose.

Let's not turn back.

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America's Withdrawal (Again) from the Paris Agreement: A Challenging New Era for the Global Response to Climate Change

President Trump has (again) moved to withdraw the United States from the Paris Agreement. The global community, therefore, faces the challenge of mitigating climate change without American leadership or engagement - at least from the federal government. While this political reality makes the commitment to net-zero greenhouse gas (GHG) emissions by 2050[1] harder to achieve, it cannot be allowed to become an excuse for inaction.[2] Planetary boundaries loom,[3] including most prominently the risks associated with the build-up of GHGs in the Earth's atmosphere.[4] The *Sustainability Imperative*[5] thus remains a fundamental policy requirement for humanity to thrive in the 21st century going forward - with the central element of this mandate being the need to achieve deep decarbonization of economies across the world.

At the same time that global cooperation on climate change is at risk because of America's withdrawal from the Paris Agreement, the Trump Administration's domestic strategy of disinvesting in climate science and undoing the existing policy incentives that support the U.S. clean energy transition poses an even greater threat to collaborative efforts. All of this comes at a moment when the world faces the growing reality of rising sea levels, increased intensity and frequency of hurricanes and typhoons, as well as changed rainfall patterns, which climate science has now clearly demonstrated translates into shifts in agricultural productivity and more droughts (and wildfires) as well as floods. In the face of the ever-more-clear need for action, the Trump Administration's sweeping dismissal of climate change as a problem threatens the complex ecosystem of individuals and institutions working both within the United States and across the world to respond to the multiple challenges climate change presents. The tens of thousands of people involved in the climate change ecosystem – whose work is now being undermined – provide the foundation of rigorous data, sound science, policy analysis, technological creativity, and financial resources required to mitigate GHG emissions, promote resilience and adaptation, and incentivize investments – both public and private – in the transition to a clean energy future.

This article assesses the potential impact of the withdrawal of the United States from the Paris Agreement in light of the second Trump Administration's hostility towards efforts to address climate change and its non-cooperative approach to international relations more generally. It argues that the ripple effects stemming from the Trump Administration's disregard for the threat of climate change are likely to have wide-ranging and long-lasting impacts on the global community's ability to respond effectively to climate change. But we also note that, even as President Trump moves to expand fossil fuel production and achieve U.S. "energy dominance," many American states, local communities, business entities, and civil society organizations are offering a counterweight to the Trump Administration's stance on climate change. They continue to move the United States toward a sustainable future, albeit at a slower pace, because of obstacles created by President Trump. Likewise, the retreat of President Trump's federal government from playing any constructive role on the global climate change stage creates new opportunities for leadership from other countries, organizations, and individuals.

Withdrawing from the Paris Agreement and Choosing Non-Cooperation

Climate change is an inescapably global issue as GHG emissions anywhere affect everyone everywhere. Such challenges, sometimes referred to as *global public goods*, require international cooperation.[6]

One of the triumphs of the last 80 years has been the creation of international institutions to facilitate diplomatic and multilateral solutions to address global problems. After a disastrous first half of the 20th century, during which non-cooperation led to two world wars and exacerbated the effects of the Great Depression, leaders from around

1. *See generally* Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement, Report of the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement on its Third Session, Held in Glasgow from 31 October to 13 November 2021, U.N. Doc. FCCC/PA/CMA/2021/10/Add.1 (Mar. 8, 2022) [hereinafter Glasgow Climate Pact].
2. *See* Sue Biniaz, *COP 30 Must Not Cop Out,* Just Security (July 3, 2025), https://www.justsecurity.org/116129/cop-30-must-not-cop-out/ (arguing that Parties to the Paris Agreement should focus on 2035 Nationally Determined Contributions (NDCs), including the ambition found in submitted NDCs).
3. Johan Rockström & Matthias Klum, *Big World, Small Planet: Abundance within Planetary Boundaries* (2015); Katherine Richardson et al., *Earth Beyond Six of Nine Planetary Boundaries* 9 Science Advances (Sept. 13, 2023).
4. *Global Energy Review 2025,* IEA (2025), available at https://www.iea.org/reports/global-energy-review-2025/co2-emissions.
5. David A. Lubin & Daniel C. Esty, *The Sustainable Imperative,* Harvard Business Review (May 2010), https://hbr.org/2010/05/the-sustainability-imperative.
6. Inge Kaul et al., *Global Public Goods: International Cooperation in the 21st Century* (Oxford University Press 1999).

the world came together to create a new *international order* that sought to ensure cooperation in the face of shared challenges. And while the United Nations and the Bretton Woods institutions (World Bank, IMF, and a structure of rules for international trade embodied in the Global Agreement on Tariffs and Trade) have not been without shortcomings, they have strived to promote peace, security, and shared economic development.

Over the past 35 years, as the threat posed by climate change crystallized, world leaders launched the Intergovernmental Panel on Climate Change (IPCC) to promote cooperation on climate science and the UN Framework Convention on Climate Change (UNFCCC) to guide the global policy response to the build-up of GHGs in the atmosphere. Again, these efforts to promote collaboration have moved with fits and starts, but real progress has been made in recent years toward a clean energy future and a sustainable global economy. President Trump's withdrawal from the Paris Agreement and lack of interest in engaging on climate change issues both domestically and multilaterally throws a wrench (or maybe a grenade) into this fragile machinery.

President Trump's strikingly non-cooperative attitude toward international relations is not limited to climate change. For example, his zero-sum approach to trade has disrupted global commerce with tariffs and economic threats not seen for nearly a hundred years.[7] In addition to rupturing the Bretton Woods international order,[8] President Trump has shown similar disregard for long-standing security arrangements (challenging the underpinnings of NATO), fractured relations with traditional U.S. allies (including America's closest friends, such as Canada), and, at times, violated principles of comity in his treatment of foreign leaders.

President Trump's breaking of norms, disregard for international law, and disinterest in traditional diplomacy dramatically exceed anything American presidents have said or done over the past century.[9] His policies have been accompanied by a wrecking ball approach to institutions – both at home and around the world – that he views as constraints on his exercise of power. Of relevance in the climate change context, President Trump has overseen the destruction of the U.S. Agency for International Development (USAID)[10] and sweeping cuts to America's foreign assistance programs.[11] Likewise, the Trump Administration has withdrawn entirely from a number of international organizations (including the World Health Organization, the UN Human Rights Council, and the UN Educational, Scientific, and Cultural Organization) and is holding back funding from others such as UNICEF, and Gavi (the Vaccine Alliance)[12].

From the point of view of many observers, President Trump's first months in office have yielded an astonishing record of self-destruction of much of the soft power and diplomatic credibility[13] built up by the United States over the past century. How much long-term damage President Trump has done to America's place in the world remains to be determined. But it is already clear that the Trump presidency marks a new era of U.S. foreign policy.

Simply put, President Trump has no interest in the major tenets of international relations since WWII. The Trump Administration appears to be rejecting the principles put forward by the leaders, such as John Maynard Keynes, Jean Monnet, and Cordell Hull, who built a world order where sovereignty is respected as a foundational principle for peace and security, power is constrained by law (even while recognizing that international law is halting in its creation and limited in its application), and cooperation is promoted as critical to managing interdependence and achieving shared goals. Indeed, President Trump seems to reject the very concept of *global public goods* and the need for collaboration to successfully respond to worldwide challenges, such as maintaining international financial stability, addressing climate change, and combating

7. Fareed Zakaria, *Trump's tariffs are undermining the peaceful, prosperous world order,* The Washington Post (Aug. 1, 2025), https://www.washingtonpost.com/opinions/2025/08/01/tariffs-threaten-world-order/; Emily Kilcrease & Geoffrey Gertz, *Tell Me How This Trade War Ends*, Foreign Affairs (June 9, 2025), https://www.foreignaffairs.com/united-states/tell-me-how-trade-war-ends.
8. Daniel C. Esty, *Remaking International Trade for a Sustainable Future: Toward an International Trade Organization for the 21st century,* Quebec J. of Int'l Law (forthcoming 2025).
9. James M. Lindsay, *First 100 Days: Trump's Foreign Policy Disruption is Just Beginning,* Council on Foreign Relations (Apr. 29, 2025), https://www.cfr.org/article/first-100-days-trumps-foreign-policy-disruption-just-beginning;
10. Emily M. McCabe, *U.S. Agency for International Development, An Overview,* Congress.gov (Mar. 14, 2025), https://www.congress.gov/crs-product/IF10261.
11. Sean Michael Newhouse, *House sends bill to rescind billions for foreign aid and public media to the White House*, Government Executive (July 18, 2025), https://www.govexec.com/management/2025/07/house-sends-bill-rescind-billions-foreign-aid-and-public-media-white-house/406828/ (noting that the One Big, Beautiful Bill cut $9 billion in funding Congress had previously approved for foreign assistance programs and the Corporation for Public Broadcasting.)
12. *Withdrawing the United State from the World Health Organization*, The White House (Jan. 20, 2025), https://www.whitehouse.gov/presidential-actions/2025/01/withdrawing-the-united-states-from-the-worldhealth-organization/; *The United States Withdraws from the United Nations Educational, Scientific and Cultural Organization (UNESCO)*, U.S. Department of State Press Statement (July 22, 2025), https://www.state.gov/releases/2025/07/the-united-states-withdraws-from-the-united-nations-educational-scientific-and-cultural-organization-unesco; *Withdrawing the United States from and Ending Funding to Certain United Nations Organizations and Reviewing United States Support to All International Organizations*, The White House (Feb. 4, 2025), https://www.whitehouse.gov/presidential-actions/2025/02/withdrawing-the-united-states-from-and-ending-funding-to-certain-united-nations-organizations-and-reviewing-united-states-support-to-all-international-organizations/; *The Trump Administration's Foreign Aid Review: Status of U.S. Support for Gavi, the Vaccine Alliance*, KKF (July 23, 2025), https://www.kff.org/global-health-policy/the-trump-administrations-foreign-aid-review-status-of-u-s-support-for-gavi-the-vaccine-alliance/ (noting that FY26 requests to not include Gavi and that HHS Secretary Kennedy has said the U.S. will not provide additional funding); Charles Kenny, *US Funding of International Organizations has Collapsed, Center for Global Development* (Sept. 12, 2025), https://www.cgdev.org/blog/us-funding-international-organizations-has-collapsed.
13. *See, e.g.* Robert O. Keohane & Joseph S. Nye, Jr., *The End of the Long America Century,* Foreign Affairs (June 2025), https://www.foreignaffairs.com/united-states/end-long-american-century-trump-keohane-nye; Carlos Garcia-Soto, *Reversing climate progress: consequences and solutions in the wake of U.S. policy rollbacks,* 4 NPJ Climate Action (2025), https://www.nature.com/articles/s44168-025-00247-0.

pandemics. His new foreign policy seemingly brings an end to the post-World War II structure of U.S. leadership and cooperation on international issues and instead ushers in a transactional era where immediately available benefits to America are of paramount importance.[14] And one might argue that President Trump's assault on science and expert-based policymaking goes even further, threatening the longstanding view – dating back to French Enlightenment thinkers such as Rousseau, Voltaire, and Montesquieu – that government action should be grounded in science, reason, and democratic governance.[15]

Any analysis of the implications of the American withdrawal from the Paris Agreement must therefore be understood in the context of this broader retreat from international cooperation, particularly on global challenges. There is no denying that this fundamental break with the world community will make a successful response to climate change harder to deliver. Non-cooperation from the United States will affect prospects for continued GHG emissions reductions not only over the next few years while President Trump is in office, but potentially for many years thereafter.

Attacking Climate Science and Policy Domestically

The Trump Administration has backed away from a range of climate change commitments undertaken by prior U.S. presidents, both domestic and international, with a flurry of executive orders, new legislation, and agency rulemaking.[16] In summary, these actions have spanned: (1) cutting foreign assistance budgets; (2) slashing the budgets and staff of America's scientific agencies and largely eliminating the federal government's climate science programs; (3) reversing policy incentives for the clean energy transition; and (4) targeting state and local climate change policies that run counter to the President's agenda.

The Trump Administration has dramatically trimmed or eliminated climate change-related programs across a wide range of U.S. agencies and departments. These cuts include shuttering USAID, rescinding $4 billion in pledges to the Green Climate Fund, and proposing deep cuts to the budget of the National Oceanic and Atmospheric Administration (NOAA), which has long provided climate information to scientists across the United States and around the world, including data on climate change impacts, tools that track floods and fires, and programs that gauge slow onset events such as sea-level rise.[17] Likewise, the EPA's Office of Research and Development, which analyzes dangers posed by pollution and manages an extensive array of climate change grants to fund private companies and universities, is being shut down.[18] In addition to shrinking or ending climate science programs across federal agencies,[19] funding for climate research at major U.S. universities has also been impacted,[20] which promises to undermine another element of America's contribution to the global climate science knowledge base.

The Trump Administration has also shut down government websites that housed climate change impact data and dismissed all of the nearly 400 contributors to the 6th National Climate Assessment – a report mandated by Congress.[21] Instead, the U.S. Department of Energy released a report titled "A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate," developed by just five scientists (all of whom are, according to media reports, climate change skeptics)[22]. This review concludes that global warming appears to be less damaging economically than commonly believed and that aggressive mitigation strategies could be more harmful than beneficial.[23] A barrage of negative reactions followed the release of this report, with mainstream climate researchers noting that the DOE authors cherry-pick their data, ignore evidence that does not comport with their views, and downplay the effects of climate change in a manner that finds little support among the vast majority of climate scientists. Several scientists whose work was cited in the DOE report have, moreover, denounced the DOE analysis and indicated that their research has been taken out of context and their conclusions mischaracterized.[24]

14. Ravi Agrawi, *Trump is Ushering in a More Transactional World,* Foreign Policy (Jan. 7, 2025), https://foreignpolicy.com/2025/01/07/trump-transactional-global-system-us-allies-markets-tariffs/.
15. *See e.g.,* Jean-Jacques Rosseau, *The Social Contract* (1762); Charles-Louis de Secondat, Baron de Montesquieu, *The Spirit of the Laws* (1748), original title: De l'espirit des lois; Francois-Marie Arouet (Voltaire), *Letters on the English* (1733).
16. *Climate Backtracker,* Sabin Center for Climate Change Law, https://climate.law.columbia.edu/content/climate-backtracker.
17. NOAA's budget plan for 2026 would "close all NOAA labs," including those instrumental in improving hurricane forecasts and other climate change impact modelling. *See* Jeff Masters, *Cuts to NOAA increase the risk of deadly weather tragedies,* Yale Climate Connections (July 7, 2025), https://yaleclimateconnections.org/2025/07/cuts-to-noaa-increase-the-risk-of-deadly-weather-tragedies/. *See also* David Schechter, *Trump administration's proposed NOAA cuts threaten decades-long CO2 data collection, scientist says,* CBS News (May 12, 2025), *https*://www.cbsnews.com/news/ralph-keeling-co2-data-collection-noaa-trump-cuts/.
18. Rob Stein, *Trump Administration shuts down EPA's scientific research arm,* NPR (July 20, 2025), https://www.npr.org/2025/07/20/nx-s1-5474320/trump-epa-scientific-research-zeldinl.
19. Alex Guillen, *White House Says Trump meant EPA will cut 65 per cent of spending, not staff,* Politico (Feb. 26, 2025), https://www.politico.com/news/2025/02/26/trump-epa-spending-cut-00206228; Brad Plumer & Austyn Gaffney, *Trump Administration Cuts Research Funding, Claiming It Creates 'Climate anxiety'*, N.Y. Times (Apr. 9, 2025), https://www.nytimes.com/2025/04/09/climate/trump-noaa-princeton-climate-research.html; Christoper Flavelle et al., *NOAA Is Told to Make List of Climate-Related Grants, Setting Off Fears,* N.Y. Times (Feb. 10, 2025), https://www.nytimes.com/2025/02/10/climate/noaa-trump-executive-orders.html; *Silencing Science Tracker*, Sabin Center for Climate Change Law, https://climate.law.columbia.edu/Silencing-Science-Tracker.
20. For example, NOAA cut funding for a program with Princeton University. U.S. Department of Commerce, *Ending Cooperative Agreements' Funding to Princeton University*, Press Release (April 8, 2025), https://www.commerce.gov/news/press-releases/2025/04/ending-cooperative-agreements-funding-princeton-university.
21. Valerie Volcovici, *US dismisses all authors of National Climate Assessment, email says,* Reuters (Apr. 29, 2025), https://www.reuters.com/sustainability/cop/trump-administration-dismisses-all-authors-key-climate-report-email-says-2025-04-28/.
22. See, e.g., Dana Drugman, *New Lawsuit Contends Trump's DOE Handpicked Panel of Climate Deniers*, Sierra (Aug. 19, 2025), https://www.sierraclub.org/sierra/trump-doe-epa-handpicked-panel-climate-deniers-lawsuit.
23. *Climate*, U.S. Department of Energy, https://www.energy.gov/topics/climate. *See* Climate Working Group, *A Critical Review of Impacts of Greenhouse Gas Emissions on the U.S. Climate,* U.S. Department of Energy (July 23, 2025).
24. *Contrarian Climate Assessment from U.S. Government Draws Swift Pushback,* Science.org (Jul. 30, 2025), https://www.science.org/content/article/contrarian-climate-assessment-u-s-government-draws-swift

Since taking office, President Trump has dismantled the prior Biden Administration's clean energy policies and programs through unprecedented use of executive orders as well as the passage of the "One Big, Beautiful Bill" (OBBB), a sweeping statute which scales back clean energy investments and tax credits originally enacted by the Inflation Reduction Act (IRA) in 2022.[25] These investments – covering wind and solar power, electric vehicles, batteries and other energy storage technologies, heat pumps, clean hydrogen, and more – were crucial elements of the U.S. gameplan for delivering its Nationally Determined Contribution (NDC) under the Paris Agreement, which (as updated in 2024 by the Biden Administration) aimed to reduce economy-wide GHG emissions 61-66% below 2005 levels by 2035.[26] The OBBB not only phases out the tax credits for wind and solar power projects, as well as for electric cars, but also reverses course and promotes a fossil fuel energy future for America. In fact, the legislation mandates oil and gas lease sales in Alaska as well as other parts of the country, delays a fee on methane leaks, and provides a tax break for the production of metallurgical coal.[27]

In what amounts to a 180-degree policy shift, President Trump's *Declaring a National Energy Emergency* and *Unleashing American Energy* Executive Orders declare a "National Energy Emergency" and authorize federal agencies to bypass environmental regulations to expedite fossil fuel production, accelerate the approval of new liquefied natural gas (LNG) facilities, and promise coal-fired power plant exemption from air quality rules if they continue to operate.[28] In addition, President Trump directs the EPA to eliminate the use of a *social cost of carbon* metric in federal regulatory decision-making. While many of these actions have been challenged in courts across the country, the Trump Administration is proceeding with its plans.

President Trump has also challenged basic principles of American federalism in targeting state and local policies on climate change and clean energy. In his Executive Order on *Protecting American Energy from State Overreach*, the President directs his Attorney General to bring legal challenges to state and city-scale actions that may stymie his administration's energy policies.[29] The Trump Administration has specifically targeted state *climate change superfund* statutes,[30] New York City's congestion pricing system, and California's electric vehicle rules.[31] Each of these interventions is being litigated in court.

Across the agencies of the federal government, the new Trump leadership team has followed suit with broad-scale commitments to reverse course on past policies. The EPA Administrator, for example, has announced that his agency will review the legality and continued applicability of the *endangerment finding*, which enabled President Obama's EPA Administrator to declare that greenhouse gases (GHGs) were a threat to public health and welfare. This 2009 finding, based on a significant docket of scientific analysis, represents the legal predicate for federal action under the Clean Air Act[32] – and thus provides the foundation for regulations to address climate change. In another example of federal agencies reversing course, the now Trump-dominated Securities and Exchange Commission is walking back from the climate-related corporate disclosure rules advanced by the Biden Administration.[33]

Together, the actions taken by President Trump have dramatically changed the foundations of climate change research and policymaking in the United States – and deeply disrupted the interconnected web of federal, state, local, and private sector entities working on climate change mitigation and adaptation in the United States. This disruption will reverberate across the world.

Understanding the Cascading Impacts of President Trump's Actions on Climate Change

The implications of President Trump's about-face on climate change cannot be understated. Arguably, the

-pushback. *See also* Scott Waldman & Benjamin Storrow, *DOE reframes climate consensus as debate,* E&E News (July 21, 2025), https://www.eenews.net/articles/doe-reframes-climate-consensus-as-a-debate/ ("Much of the report is based on the authors' own disputed claims, research funded by the fossil fuel industry or assertions made by groups opposed to climate regulation. Some of its primary assertions were debunked years ago.").

25. The Inflation Reduction Act (IRA) expanded tax credits for solar and wind power and battery storage, as well as supported the development of clean hydrogen, carbon capture and storage, and more. It also accelerated the adoption of electric vehicles through tax credits for the purchase of EVs and provided tax incentives for energy efficient investments. It drove over $100 billion in clean energy investments and was considered the largest investment in clean energy in American history. *See also One Big Beautiful Bill Act Cuts the Power: Phase-Outs, Foreign-Entity Restrictions, and Domestic Content in Clean-Energy Credits,* Frost Brown Todd Attorneys (Jul. 4, 2025), https://frostbrowntodd.com/one-big-beautiful-bill-act-cuts-the-power-phase%E2%80%91outs-foreign%E2%80%91entity-restrictions-and-domestic-content-in-clean%E2%80%91energy-credits/.
26. *FACT SHEET: President Biden Sets 2035 Climate Target Aimed at Creating Good-Paying Union Jobs, Reducing Costs for All Americans, and Securing U.S. Leadership in the Clean Energy Economy of the Future*, The White House (Dec. 19, 2024), available at https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2024/12/19/fact-sheet-president-biden-sets-2035-climate-target-aimed-at-creating-good-paying-union-jobs-reducing-costs-for-all-americans-and-securing-u-s-leadership-in-the-clean-energy-economy-of-the-future/.
27. Brad Plumer, *A Bill That's Big for Fossil Fuels, Not So Beautiful for Clean Energy,* N.Y. Times (July 3, 2025), https://www.nytimes.com/2025/07/03/climate/congress-bill-energy.html.
28. The Executive Order bases the decision for declaring such an emergency on national security and economic concerns and cites Biden-era policies as causing a vast shortfall in energy needs that cripples the United States. Executive Order No. 14156, 90 Fed. Reg. 8433 (Jan. 29, 2025); Executive Order No. 14154, 90 Fed. Reg. 8353 (Jan. 29, 2025).
29. Executive Order No. 14260, 90 Fed. Reg. 15513, 15514 (Apr. 14, 2025).
30. *Trump Administration Sues New York and Vermont Over Climate Superfund Legislation*, Vinson & Elkins (May 2, 2025), https://www.velaw.com/insights/trump-administration-sues-new-york-and-vermont-over-climate-superfund-legislation/.
31. Laurel Rosenhall & Lisa Friedman, *Trump Blocks California E.V. Rules in Latest Move to Rein In the State*, N.Y. Times (June 12, 2025), https://www.nytimes.com/2025/06/12/us/california-trump-electric-vehicle-waiver.html.
32. *Trump EPA Kicks Off Formal Reconsideration of Endangerment Finding with Agency Partners*, EPA Press Release (Mar. 12, 2025) https://www.epa.gov/newsreleases/trump-epa-kicks-formal-reconsideration-endangerment-finding-agency-partners.
33. U.S. Securities and Exchange Commission, *SEC Votes to End Defense of Climate Disclosure Rules*, Press Release (Mar. 27, 2025), https://www.sec.gov/newsroom/press-releases/2025-58#:~:text=The%20Securities%20and%20Exchange%20Commission,risks%20and%20greenhouse%20gas%20emissions.

bigger risk to long-term global cooperation on climate change stems not from the act of withdrawing from the Paris Agreement and international cooperation, but from the rejection of climate science, unprecedented efforts to undermine the emerging clean energy economy, and disregard for climate change policymaking both domestically and internationally. The Trump Administration's dismissal of federal climate scientists, policy experts, and civil servants, elimination of climate change-related foreign aid, claw back of clean energy funding, and efforts to repeal the *endangerment finding* at the EPA have put the United States into uncharted policy territory. While some of the Trump Administration's actions may be reversed through court challenges or softened by political opposition, the uncertainty created by the Trump Administration's climate change policies has already produced further ripple effects.

Private Sector Risk

Uncertainty about regulatory frameworks and the loss of government funding has triggered private sector hesitancy regarding new investments in America's energy transition. Major financiers, who had signaled a willingness a year ago to pour billions of dollars into clean energy projects, now face a very different policy landscape. Even where potential clean energy projects do not need government subsidies to be economically viable, the risks associated with a constantly shifting regulatory requirements could threaten private sector action.

In a similar vein, the thousands of companies that made GHG emissions reduction pledges in the wake of the Glasgow Climate Pact are now being forced to rethink their climate change commitments. And while many corporate leaders have decided to stay with their energy transition plans and the business model adjustments this entails, others have softened their targets or slowed their investments in climate change-related projects. In sum, the Trump Administration's shift of gears has dulled the incentive for clean energy business innovation and capital deployment across the United States, with spillover effects that extend across the globe.

Consequential Second Term

In its first six months, the second Trump Administration has had deeper and wider-reaching impacts on the climate change ecosystem than were seen in the entirety of President Trump's first term in office. The U.S. withdrawal from the Paris Agreement for a second time will fundamentally change the negotiations occurring at the annual Conference of the Parties, as the United States' technical and negotiation expertise will not be present in this new era of American non-cooperation on climate change. But beyond the negotiation rooms, the dismantling of climate science and policymaking will have a serious impact on global efforts to combat GHG emissions for years to come. With the United States second only to China in annual emissions, President Trump has implemented policies to reverse course on America's path to a net-zero emissions future, which will affect the global community's ability to keep within reach the goal of no more than 1.5 degrees Celsius of warming.

Key Actors Continuing to Advance Solutions

Despite the Trump Administration's policy reversal and disengagement from the international climate change process, America must not be counted out entirely. Climate change leadership has now emerged from state and local government officials, business leaders, and significant parts of civil society.[34] Moreover, as noted above, the Trump Administration's expansive assertion of Presidential authority faces numerous legal challenges from state attorneys general, local officials, affected businesses, and NGO advocates.

Non-federal action

In a wide variety of settings, governors, mayors, and non-governmental group leaders have come together to reiterate their commitment to the Paris Agreement's goals. *America Is All In*[35] represents a coalition of state, local, and non-government actors who are continuing to take action to reach net-zero GHG emissions by 2050 and build resilience in the face of climate change impacts. This movement includes Climate Alliance (a coalition of 24 Governors pursuing clean energy action), Climate Mayors (a network of 350 mayors taking action on climate), businesses, and other stakeholder groups.[36] Individual states have also announced they will continue and defend their policies. California announced, for example, that it would continue with its cap-and-trade GHG program despite legal threats from the Trump Administration,[37] and the State of New York continues to promote its Climate Change Superfund law that would hold major GHG emitters accountable for the harm that they have caused. Likewise, Connecticut and Rhode Island have vowed to complete the 80-percent-constructed Revolution offshore wind project in the wake of the Trump Administration's withdrawal of federal support.

At the same time, think tanks, philanthropic organizations, and environmental groups are still moving forward with their climate change advocacy and policy efforts. Bloomberg Philanthropies and several partners, for example, committed to donating the funds required to cover the U.S. portion (approximately $7 million) of the UNFCCC's budget after America withdraws from the Paris Agreement.[38]

34. *See, e.g.*, Sarah Wesseler, *Can states and cities lead on climate under Trump?*, Yale Climate Connections (May 12, 2025), https://yaleclimateconnections.org/2025/05/can-states-and-cities-lead-on-climate-under-trump/.
35. America Is All In is the second generation of the "We Are Still In" campaign, which began in the first Trump administration. America Is All In, americaisallin.com.
36. U.S. Climate Alliance, usclimatealliance.org; Climate Mayors, https://www.climatemayors.org/.
37. Jeva Lange, *California Vows to Defy Trump, Re-up Cap-and-Trade*, HeatMap (April 17, 2025), https://heatmap.news/climate/cap-and-trade-empire-wind.
38. *UN Special Envoy Michael R. Bloomberg Announces Effort to Ensure U.S. Honors Paris Agreement Commitments*, Bloomberg Philanthropies Press Release (Jan. 23, 2025), https://www.bloomberg.org/press/un-special

Legal challenges

Across the board, lawsuits are being filed to challenge President Trump's actions on climate change and energy, including federal government firings, freezes on appropriated foreign aid, paused clean energy projects, and the pausing of existing IRA investments, to varying degrees of success. For example, environmental groups are suing over the shutdown of climate change tools and webpages.[39] A federal appeals court ruled that it did not have jurisdiction over a case involving the freezing of billions in EPA grant funding.[40] Offshore wind developers and the Attorney Generals of Rhode Island and Connecticut in the United States have sued over a stop-work order to an offshore wind project.[41] Earthjustice, representing a coalition of farmers, sued the U.S. Department of Agriculture (USDA) for purging climate change webpages - they won their lawsuit, which meant USDA had to restore the webpages that provide resources on conservation, climate adaptation, and rural clean energy projects.[42] The Trump Administration has also taken unusual steps in attacking state efforts to pass laws that would require fossil fuel companies to pay - such as bringing legal actions against Hawaii and Michigan to block those states from suing fossil fuel companies.[43]

In the first Trump Administration, over 350 lawsuits were filed related to climate change.[44] The Natural Resources Defense Council alone sued the first Trump Administration 163 times, with a nearly 90% success rate.[45] Whether this track record will be matched during the second Trump Administration remains to be seen. On the one hand, many of the second Trump Administration's actions seem to many lawyers to be further outside the bounds of the law and thus more open to legal challenge. On the other hand, the Supreme Court has shifted significantly to the right (as a result of President Trump's first term appointees) and now seems more willing to give the President the expanded executive powers that he seeks.

Congress

In the wake of President Trump's actions, many have looked to Congress to act as a check on his use of executive power. But this traditional brake on Executive overreach has not emerged. Congressional Republicans, who control both the House and Senate, have largely supported President Trump's agenda - even at the expense of traditional prerogatives of the legislative branch such as the power to set tariffs. Nevertheless, the *separation of powers* argument might re-emerge with the Congress acting as a source of greater checks and balances on the President's authority in the months ahead. For example, there have been some in Congress who seem ready to reassert the Congressional *power of the purse*, a Constitutionally derived authority to control government spending and taxation.[46] During the drafting and negotiations for the OBBB, for example, several Republican Senators introduced amendments that removed proposed taxes on solar and wind projects and extended the availability of tax credits for renewable energy projects launched by 2027.[47]

Private sector

Despite the signals from the Trump Administration that climate change actions in the business world are discouraged, the U.S. private sector remains large and diverse - and focused on the requirements for long-term success in the marketplace. Significant parts of the business and finance communities, therefore, continue to promote clean energy deployment and adaptation. Across America, solar power and battery storage projects continue to be built - and renewable power is expected to account for 81% of new power generation added to the U.S. grid in 2025, though the impact of recent policy and regulatory changes remains to be seen.[48] Studies suggest that coal, natural gas, and oil consumption will continue to decline in the coming decades, as renewable power generation rises and more people use electricity to power their cars and heat their homes. These trends seem unstoppable, even in policy scenarios where the Trump Administration rolls back pollution regulations.[49]

-envoy-michael-r-bloomberg-announces-effort-to-ensure-u-s-honors-paris-agreement-commitments/.

39. *Environmental groups sue Trump administration over shutdown of climate and pollution data tools*, TheDailyClimate (April 16, 2025), https://www.dailyclimate.org/environmental-groups-sue-trump-administration-over-shutdown-of-climate-and-pollution-data-tools-2671781510.html.
40. Claire Brown, *Court Hands a Loss to Groups Seeking Billions in Frozen Climate Funds*, The N.Y. Times (Sep. 2, 2025), https://www.nytimes.com/2025/09/02/climate/climate-grants-frozen.html.
41. Ella Nilsen, *Trump admin sued by developers and two states after stopping work on nearly complete offshore wind farm project,* CNN (Sep. 4, 2025), https://www.cnn.com/2025/09/04/climate/trump-lawsuit-revolution-offshore-wind.
42. *Inflation Act Reduction Tracker*, Sabin Center for Climate Change Law, https://iratracker.org/litigation/; *USDA Reverses Course, Commits to Restore Purged Climate Webpages in Response to Farmers' Lawsuit*, Earthjustice (May 13, 2025), https://earthjustice.org/press/2025/usda-reverses-course-commits-to-restore-purged-climate-webpages-in-response-to-farmers-lawsuit. *See also Our Lawsuits Against the Trump Administration,* Earthjustice (Aug. 21, 2025), https://earthjustice.org/feature/trump-environment-lawsuits (noting the lawsuits where Earthjustice has had success against the Trump Administration).
43. Karen Zraick, *Hawaii Announced a Climate Lawsuit. So the Government Sued Hawaii First,* The N. Y. Times (May 1, 2025), https://www.nytimes.com/2025/05/01/climate/michigan-hawaii-climate-lawsuits.html.
44. Korey Silverman-Roati, *U.S. Climate Litigation In The Age Of Trump: Full Term*, Sabin Center for Climate Change Law (June 2021), https://climate.law.columbia.edu/sites/climate.law.columbia.edu/files/content/docs/Silverman-Roati%202021-06%20US%20Climate%20Litigation%20Trump%20Admin.pdf.
45. *Here's How NRDC Is Fighting Back Against the Trump Administration in Court*, NRDC (July 8, 2025), https://www.nrdc.org/court-battles/how-nrdc-fighting-against-trump-administration.
46. Cate Edmondson, *Republicans Fretted Over Ceding Spending Power to Trump. Then They Voted to Do It,* N.Y. Times (July 17, 2025), https://www.nytimes.com/2025/07/17/us/politics/republicans-congress-spending-power.html (offering examples of Senators, such as Lisa Murkowski, who opposed a spending package for President Trump's foreign aid and broadcasting cuts).
47. Valerie Volcovici, *Republican senators seek to change Senate bill clean energy tax, improve tax credits*, Rueters (June 30, 2025), https://www.reuters.com/sustainability/climate-energy/us-senate-bills-clean-energy-cuts-draw-backlash-labor-business-2025-06-30/.
48. *Solar, battery storage to lead new U.S. generating capacity additions in 2025*, U.S. Energy Information Administration (Feb. 24, 2025), https://www.eia.gov/todayinenergy/detail.php?id=64586.
49. Benjamin Storrow, Brian Dabbs, *Clean energy transition will persist under Trump, analyses say*, Politico (Apr. 16, 2025), https://www.eenews.net/articles/clean-energy-transition-will-persist-under-trump-analyses-say-2/ (citing U.S. EIA and Bloomberg NEF energy outlooks).

With a commitment to the long term, many clean energy investors are still moving projects forward.[50] On Wall Street, environmental, social, and governance (ESG) screening continues to be seen as a vital tool among the many investors who seek greater alignment between their values and their portfolios.[51] Likewise, the push for greater corporate sustainability persists despite headwinds. As some financial institutions have exited net-zero groups and some companies announce they are not on track to meet climate targets, other companies are highlighting that the work continues.[52] The broader trend towards *ending externalities*[53] – and making polluters stop their emissions or pay for the harm they cause – also remains in place, and advocacy and litigation against the fossil fuel industry continues across jurisdictions.[54]

Global ambition

Even with the United States absent, the global community seems poised to keep the climate change ball rolling forward. In mid-2025, for example, the European Union and China affirmed their commitments to submit updated 2035 Nationally Determined Contributions "covering all sectors and all greenhouse gases"[55] before COP30. Other nations are similarly making clear their intentions to maintain the momentum toward a sustainable future.

The annual COP meetings will continue to convene governments and non-governmental participants to discuss climate change policy options both inside and outside of the formal negotiation process. In 2025, COP30 in Brazil may offer early signals to how President Trump's withdrawal from the Paris Agreement has affected global cooperation on climate change action, especially as nations announce their plans for updated NDCs under the Paris Agreement. The commitments, and subsequent implementation of these commitments, in NDCs will set the course for global action in the years to come.[56] As other countries drive forward climate change action under and outside the Paris Agreement, the strength of the mitigation, adaptation, and financial commitments without the United States will be tested.

50. Michael Copley, *America's clean-energy industry is growing despite Trump's attacks. At least for now*, NPR (Mar. 12, 2025) https://www.npr.org/2025/03/12/nx-s1-5319056/trump-clean-energy-electricity-climate-change https://www.marketplace.org/story/2025/03/12/solar-power-new-energy-trump.
51. Greg Iacurci, *'Game over' for ESG investing due to Trump backlash? Analysts say no*, CNBC (Mar. 31, 2025), https://www.cnbc.com/2025/03/31/trumps-backlash-isnt-game-over-for-esg-investing.html.
52. *See, e.g.,* Joe Makower, *No, corporate sustainability is not dying*, Trellis (July 15, 2025), https://trellis.net/article/corporate-sustainability-is-not-dying/#:~:text=No%2C%20corporate%20sustainability%20is%20not%20dying&text=Key%20Takeaways%3A,are%20not%20abandoning%20climate%20action ("Most companies are not abandoning climate action. According to PwC's 2025 State of Decarbonization report, while 16 per cent are reducing their commitments, 37 per cent are strengthening them. The number of firms setting climate targets is nine times higher than five years ago.")
53. E. Donald Elliott & Daniel C. Esty, *The End Environmental Externalities Manifesto: A Rights-Based Foundation for Environmental Law*, N.Y.U. Env't L. J. (2021).
54. *See, e.g., Climate Litigation Databases*, Sabin Center for Climate Change Law, https://climatecasechart.com/.
55. *The Way Forward After the 10th Anniversary of the Adoption of the Paris Agreement*, Joint EU-China Press Statement on Climate (July 25, 2025), https://ec.europa.eu/commission/presscorner/api/files/document/print/de/statement_25_1902/STATEMENT_25_1902_EN.pdf.
56. *Supra* note 2.

Conclusion

President Trump has damaged critical institutions that promote climate change science, analysis, and policy cooperation at home and abroad. Built over many decades, these structures will not be easy to replace or rebuild.

Looking forward, however, the Trump Administration's actions present an opportunity for policymakers to assess existing global cooperation mechanisms and offer theories for reform in service of tackling global, multigenerational challenges. For example, at the intersection of climate change and trade policymaking, one now finds growing interest in exploring how a reconfigured trade system might help to ensure that: (1) clean energy technologies get disseminated across the world at speed and scale, and (2) sustainability standards are met so that no country nor any company can achieve competitive advantage in global markets by under-performing on its commitment to reduce GHG emissions or other fundamental sustainability obligations.[57] In this regard, the *Villars Framework for a Sustainable Trade System*[58] – developed by a global network of researchers, policymakers, and academics – offers a menu of ideas about how the WTO might be regeared to become a force for sustainable development.

Similarly, opportunities exist for others (countries, organizations, and individuals) to propose creative ways to reimagine global governance and improve the performance of international organizations. Creative thinking on this front has already emerged from a number of sources.[59] This might also be a moment to review the track record of the UNFCCC and the global climate change regime with an eye toward enhancing international climate change collaboration. Leaders with fresh eyes might be asked to consider the strengths and weaknesses of the Paris Agreement – and advise on what elements of the structure launched in 2015 are working and how they might be further developed, but also what shortcomings have emerged and what might be done to address them.

Ultimately, the immutable truth is that climate change presents an existential threat to the future of the human species. A successful response requires galvanizing transformational action at the global scale. In the best of circumstances, such collaboration would be challenging, given the diversity of people, governments, and priorities across the world. The dislocating pace of change in many societies as well as deep political divides have magnified this challenge. But the world community has no choice but to try. And if the United States under President Trump plans to fiddle while Rome burns, others will have to get to work to put the fire out.

57. Daniel C. Esty, Jan Yves Remy & Joel Trachtman, *Regearing the International Trade System to Deliver a Sustainable Future*, UNU-CPR (2025).
58. Joel Trachtman et al., *Villars Framework for a Sustainable Trade System*, Remaking Trade Project (2023), available at: https://remakingtradeproject.org.
59. Stephen Heintz, *A Logic for the Future: International Relations in the Age of Turbulence* (2025); Jonathan S. Blake & Nils Gilman, *Children of a Modest Star: Planetary Thinking for an Age of Crises* (2024); Kim Stanley Robinson, *The Ministry for the Future* (2020); *See also* the UN University's Centre for Policy Research's *Reimagining Global Economic Governance* series of publications.

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The ICJ Advisory Opinion on Climate Change and the Paris Agreement

The International Court of Justice (ICJ)'s Advisory Opinion on *Obligations of States in Respect of Climate Change*, delivered on July 23, 2025,[1] marks a pivotal moment in international climate change law, renewing the interpretation and role of the Paris Agreement[2] in a way that better reflects its spirit. Addressing what the Court describes as an *'existential problem of planetary proportions'*[3], the interpretation provided by the world's highest Court the very year of the 10th anniversary of the Paris Agreement is particularly important to reset the understanding of what, in good faith, the agreement was intended to achieve. This is because it goes back to the *esprit de Paris*, unburdened by the twists, turns and tricks that have been used over the last decade to thwart the effectiveness of the agreement. This article analyzes the contribution of the Court to the understanding of the Paris Agreement, looking at its core provisions and assessing the range of different judicial views that have been expressed in relation to this contribution, particularly from the perspective of climate justice.

1. Historical Development and the Paris Agreement's Normative Shift

The evolution of international climate governance has seen a significant transformation with the adoption of the Paris Agreement in 2015. Prior to this, the two foundational treaties, the United Nations Framework Convention on Climate Change (UNFCCC)[4] and the Kyoto Protocol,[5] primarily operated through a prescriptive, top-down framework. Under this approach, the UNFCCC, as implemented by the Kyoto Protocol, emphasized binding and quantified emissions-reduction commitments, market mechanisms and a strong - in design, although less in operation - form of compliance control, all made possible by a rigid form of differentiation between Annex I (developed and transitional) countries and non-Annex I (developing) countries.

These earlier frameworks reflected this narrow orientation across several key dimensions. Human rights, for instance, were notably absent in the textual and operational language of these treaties. Equity and distributive justice were anchored in the principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC), which focused on the historical responsibility of industrialized nations. Yet, reparations and the concept of Loss and Damage were absent from the treaty text, and in discussions they were treated as peripheral concerns. Financial support mechanisms, such as the Global Environment Facility relied upon by the UNFCCC as its main source of multilateral funding or the specific commitments outlined in the Kyoto Protocol, remained limited in scale and their operation was in practice highly centralized by donor countries. Likewise, market mechanisms like the Clean Development Mechanism (CDM) were administered in a centralized, top-down fashion. Enforcement under these regimes relied on legally binding targets and compliance mechanisms, with the Kyoto Protocol's compliance committee including an 'enforcement branch'.

This system focused chiefly on the obligations of industrialized countries, a matter that became increasingly challenging the with rise of the emissions of some emerging economies, most notably those of China and India. In an effort to bring Annex I and non-Annex I countries under a common regulatory umbrella, a first attempt was made in the run-up to COP15 in Copenhagen, but it failed. The second attempt, which led to the Paris Agreement, was possible because it fundamentally changed course. Adopted at COP21 in 2015, the Paris Agreement introduced a more flexible, bottom-up approach that placed greater emphasis on national contexts, voluntary commitments, and participatory processes.[6] This shift is significant not only in its operational mechanisms but also in its engagement with principles of climate justice. For the first time in

1. International Court of Justice (ICJ) Advisory Opinion on 'Obligations of States in Respect of Climate Change,' 23 July 2025 [hereinafter ICJ AO Climate Change].
2. Paris Agreement (Dec. 13, 2015), in UNFCCC, COP Report No. 21, Addendum, at 21, U.N. Doc. FCCC/CP/2015/10/Add, 1 (Jan. 29, 2016) [hereinafter Paris Agreement].
3. ICJ AO Climate Change, para. 456.
4. UN Framework Convention on Climate Change (Rio de Janeiro, 9 May 1992, in force 21 March 1994) 1771 UNTS 107 [hereinafter UNFCCC].
5. Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto, 11 December 1997, in force 16 February 2005) [hereinafter Kyoto Protocol].
6. See, among many others, Daniel Bodansky, 'The Paris Climate Change Agreement – A New Hope?' American Journal of International Law, vol. 110, 2016, pp. 288–319; Jorge E. Viñuales, 'The Paris Agreement on Climate Change: Less is More' German Yearbook of International Law, vol. 59, 2016, pp. 11–48; Daniel Bodansky, Jutta Brunneé and Lavanya Rajamani, International Climate Change Law, Oxford University Press, 2017; Daniel Klein (ed.), The Paris Agreement on Climate Change: Analysis and Commentary, Oxford University Press, 2017; Geert Van Claster and Leonie Reins, The Paris Agreement on Climate Change: A Commentary, Edward Elgar, 2021; Various authors, 'Special Issue: The Paris Agreement,' 25(2) Review of European Community and International Environmental Law (RECIEL) 2016.

international climate law, the Paris Agreement explicitly referenced human rights in its preamble. Although the operationalization of these rights within the agreement's mechanisms remains limited, their inclusion represented a symbolic and legal milestone in climate negotiations.[7] Equity and distributive justice, while still acknowledged through the CBDR-RC principle, underwent a conceptual transformation.[8] Rather than assigning obligations solely based on historical emissions, the Paris Agreement allowed countries to define their Nationally Determined Contributions (NDCs) in light of their unique national circumstances, thus transitioning from a model of historical equity to one of contextual equity.[9]

The issue of Loss and Damage, long a contentious topic in climate diplomacy, is formally acknowledged under Article 8 of the Paris Agreement. Yet, the negotiation stopped short of establishing binding reparations or liability frameworks. The creation of the Loss and Damage Fund some years later, at COP27 in Sharm el-Sheikh, has been hailed as a milestone, yet it has struggled to crystallize into precise financial commitments, reflecting the Achilles heel of the flexibility introduced by the Paris framework.

In terms of enforcement, the Paris Agreement diverges sharply from its predecessors.[10] It eschews binding emission targets in favour of a system rooted in NDCs, the nature and binding character of which was left ambiguous. Their implementation is supported by a transparency framework that encourages mutual accountability based on peer pressure.[11] The compliance process, entrusted to the Paris Agreement Implementation and Compliance Committee (knows as 'PAICC'), is only facilitative in nature and generally weak. This procedural shift enhances openness and participation but, again, flexibility comes at a potentially high cost, namely lack of implementation or, worse, lip service paid to even the most basic obligations, such as the timely communication of NDCs.

Overall, the important flexibility shift introduced by the Paris Agreement thus created a risk of lack of implementation and abuse. In the last decade, this risk has alas materialized, as evidenced by the limited genuine engagement with a system supposed to lead to increasing climate ambition over time. In such a context, the close reading and stringent interpretation given by the Court in its advisory opinion is in many ways a return to the spirit of the Paris Agreement. From the many different readings deliberately carved into the ambiguous wording of the Paris Agreement by the negotiators, the Court retained and affirmed the one most consistent with achieving its goals in good faith, in light of the best available science—which the Court equated with the work of the Intergovernmental Panel on Climate Change (IPCC)—and with what it urges policy-makers to do, within the limits of its policy-relevant (rather than policy-prescriptive) approach.

2. The ICJ Advisory Opinion: Interpreting the Paris Agreement's Legal Force

The ICJ Advisory Opinion revitalizes the legal operation of the Paris Agreement as a pillar in the legal framework governing states' obligations to address climate change. In its analysis, the Court considers the Paris Agreement as a key part of the directly relevant applicable law, situating it not in isolation but as a '*related legal instrument*' to the foundational UNFCCC.[12] Adopted explicitly '*in pursuit of the objective of the Convention*' (preamble, para. 3) the Paris Agreement is framed as enhancing and specifying the general obligations initially set forth under the UNFCCC.

In this context, the ICJ Advisory Opinion positions the Paris Agreement, alongside the Kyoto Protocol, as complementary rather than contradictory to (or otherwise superseding) the UNFCCC. Contrary to arguments suggesting the obsolescence of earlier instruments, the Court underscores the legal continuity and mutual reinforcement among these treaties. The effects of the Kyoto Protocol and the Paris Agreement are therefore not to supersede or replace, but to give further precision and operational clarity to the broader goal and obligations articulated in the UNFCCC.

Perhaps most significantly, the Court rejects the claim that the UNFCCC, the Kyoto Protocol and the Paris Agreement constitute a *lex specialis* that would exclude the application of other rules of international law.[13] Quite to the contrary, the Court affirms that all these instruments and rules coexist and interact with each other, each imposing independent but mutually reinforcing obligations on states. This interpretive stance opens the door to a more integrated legal approach, in which climate obligations are not siloed but informed by broader normative commitments under international law. At the same time, climate change becomes the specific subject matter of a range of treaties and rules of customary international law well beyond the UNFCCC, the Kyoto Protocol and the Paris Agreement.

2.1. Core Objectives and the 1.5°C Temperature Goal

At the heart of the ICJ's interpretation lies its treatment of the Paris Agreement's temperature target, particularly the benchmark articulated in Article 2. Article 2(1)(a) of

7. See Margaretha Wewerinke-Singh, State Responsibility, Human Rights and Climate Change under International Law, Oxford: Hart, 2019.
8. Lavanya Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretive Possibilities and Underlying Politics,' International and Comparative Law Quarterly, vol. 65, 2016, pp. 493–514; Christina Voigt, and Felipe Ferreira, 'Dynamic Differentiation': The Principles of CBDR-RC, Progression and Highest Possible Ambition in the Paris Agreement' 5(2) Transnational Environmental Law 285-303, 2016.
9. Nicholas Chan. 'Climate Contributions and the Paris Agreement: Fairness and Equity in a Bottom-Up Architecture.' 30(3) Ethics & International Affairs, 2016.
10. Lavanja Rajamani and Daniel Bodansky, 'The Paris Rulebook: Balancing International Prescriptiveness with National Discretion,' International and Comparative Law Quarterly, vol. 68, 2019, pp. 1023-40.
11. On the legal character of the Agreement, see Daniel Bodansky, The Legal Character of the Paris Agreement, (2016) 25(2) RECIEL, 142-150.
12. ICJ AO Climate Change, paras 119-121.
13. ICJ AO Climate Change, paras 162-171.

the Agreement calls for holding '*the increase in the global average temperature to well below 2°C above pre-industrial levels*,' while also '*pursuing efforts to limit the temperature increase to 1.5°C*.' The Court takes a clear position on what the primary target is, namely the 1.5°C target. Although many viewed this target as merely aspirational, the Court now considers it as '*the parties' agreed primary temperature goal of the Paris Agreement*'.[14]

This robust interpretation is grounded in several legal and scientific foundations. First, the Court draws on subsequent agreements by the Parties to the Paris Agreement, particularly decisions taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).[15] Notable examples include the Glasgow Climate Pact and the outcomes of the first global stocktake, both of which affirm the Parties' shared intention to limit warming to 1.5°C. These declarations, in the Court's view, constitute valid subsequent agreements under international treaty interpretation principles, reinforcing the legal status of the 1.5°C goal.[16]

Second, the Court's interpretation is firmly rooted in the principle that mitigation actions must be based on the '*best available science*,' as required under Article 4, paragraph 1 of the Paris Agreement.[17] The IPCC has repeatedly emphasized that limiting warming to 1.5°C significantly reduces the risks of severe climate impacts and is essential to achieving the UNFCCC's overarching aim of preventing dangerous anthropogenic interference with the climate system. As such, scientific consensus lends strong normative and evidentiary support to the elevation of the 1.5°C target. Of note, the Court took the need to understand the science seriously enough to engage, *proprio motu* and before the hearing, with some of the scientists of the IPCC in an evidentiary format not seen before in advisory proceedings.

2.2. Mitigation Obligations under the Paris Agreement (Article 4)

In its Advisory Opinion, the ICJ offers a detailed interpretation of the Paris Agreement's mitigation framework, focusing especially on the legal force and structure of Article 4.[18] Central to this analysis is the role of Nationally Determined Contributions (NDCs), which lie at the heart of the Agreement's operational architecture. Contrary to earlier minimalist interpretations, the Court underscores that states' mitigation obligations under Article 4 are far from discretionary or symbolic—they are procedurally binding and substantively constrained by evolving standards of ambition, transparency, and due diligence.

To begin with, the Court affirms that Article 4, paragraph 2, establishes a legally binding procedural obligation.[19] Each party is required to '*prepare, communicate and maintain successive nationally determined contributions that it intends to achieve*.' This duty is not merely aspirational or voluntary; it is a procedural obligation of result. Failure to undertake these steps constitutes a breach of the Agreement. Importantly, the Court makes clear that procedural compliance cannot be satisfied through the mere formal act of submitting an NDC.[20] The substantive content of each NDC, including its ambition, clarity, and internal coherence, is also relevant to evaluating compliance with Article 4. Rejecting the so-called 'empty shell' interpretation, the Court also rejects the proposition that the content of NDCs is left to the unfettered discretion of states. Instead, it establishes that NDCs must adhere to key substantive standards.[21] Chief among these is the principle of progression and the standard of 'highest possible ambition'. Article 4 explicitly states that successive NDCs '*will represent a progression*' and '*reflect* [a party's] *highest possible ambition*.' The ICJ reads the term '*will*' prescriptively, not permissively,[22] effectively equating it to '*shall*'. This language mandates that over time, states must increase the ambition of their NDCs, ensuring that they contribute meaningfully to achieving the overarching temperature goal of 1.5°C and to stabilizing global greenhouse gas (GHG) concentrations at a level that prevents dangerous anthropogenic interference with the climate system.

In this light, in addition to the global stocktake exercise, which is collective in nature, the transparency and accountability mechanisms embedded in the Agreement (particularly Article 4, paragraphs 8 and 13) acquire new legal significance.[23] These provisions require that parties present their NDCs with clarity, and in a form that allows for public and peer scrutiny. The Court reasons that such provisions would be rendered meaningless if states retained complete discretion over the content of their NDCs.

Furthermore, the Court introduces a due diligence standard that governs how states are required to exercise their discretion when preparing and updating NDCs. This standard is '*stringent*' and requires that states '*do their utmost*' to ensure that their NDCs represent their highest possible ambition.[24] What qualifies as due diligence varies from country to country, depending on contextual factors such as a state's historical contribution to GHG emissions, its level of development, and its national capabilities. Nonetheless, the standard sets a legal baseline: ambition must be sincere, evidence-based, and continually progressive. Good faith shouldn't be revolutionary; yet, in this context, it really goes a long way.

Finally, Article 4, paragraph 2 also imposes a substantive obligation of conduct: the duty to '*pursue domestic*

14. ICJ AO Climate Change, para. 224.
15. ICJ AO Climate Change, para. 224.
16. ICJ AO Climate Change, para. 224.
17. ICJ AO Climate Change, para. 224.
18. ICJ AO Climate Change, paras 230-254.
19. ICJ AO Climate Change, para. 235.
20. ICJ AO Climate Change, para. 236.
21. ICJ AO Climate Change, paras 237-249.
22. ICJ AO Climate Change, para. 240.
23. ICJ AO Climate Change, para. 244.
24. ICJ AO Climate Change, paras 245-466.

mitigation measures, with the aim of achieving the objectives of such contributions.'[25] Unlike the procedural duty to submit NDCs or the determination of the contents of an NDC, this requirement focuses on its implementation. States must exercise stringent due diligence and best efforts to translate NDC commitments into national action.[26] This includes establishing robust legal and administrative systems, adopting effective enforcement mechanisms, and monitoring the behavior of private actors whose activities may undermine mitigation efforts. In short, the obligation is not merely to commit—but to act.

Through its interpretation of Article 4, the ICJ dissipates the fog which surrounded the Paris Agreement and presented it as a purportedly loose framework for voluntary action. Instead, it affirms what should have been clear to anyone in good faith, namely that it is a binding instrument which contains enforceable obligations. While flexibility remains a feature of the Agreement, it operates within a normative structure that demands good faith, transparency, and genuine ambition from states in responding to the global climate crisis.

2.3. Adaptation Obligations (Article 7)

Adaptation is not a peripheral concern under the Paris Agreement—it stands as a core objective alongside mitigation. In its Advisory Opinion, the ICJ affirms the legal weight of adaptation obligations by focusing on Article 7, paragraph 9, which imposes a binding duty on all parties to '*engage in adaptation planning processes and the implementation of actions*.'[27] This provision goes beyond mere encouragement; it requires states to develop and operationalize relevant adaptation plans, strategies, and policies aimed at enhancing resilience and reducing vulnerability to the adverse impacts of climate change.

Compliance with this obligation is to be assessed against a standard of due diligence, reflecting established norms in international environmental law.[28] This means that states are expected to enact measures appropriate to their national circumstances, while exercising best efforts and aligning with the best available science, including guidance from the IPCC. The goal is to improve adaptive capacity, protect livelihoods and ecosystems, and promote sustainable development in the face of growing climate risks. Importantly, the Court emphasizes that adaptation is not only a shared responsibility but also a matter of legal obligation under the Paris framework.

2.4. Obligations of Co-operation and Assistance (Articles 9, 10, 11)

The Paris Agreement not only requires individual state action but also places international cooperation and solidarity at the centre of its legal architecture. The ICJ confirms that the Agreement embeds and expands upon the customary international duty to cooperate, especially in matters of environmental protection.[29] This duty is operationalized across several key provisions, most notably Articles 9, 10, and 11, which together provide the backbone of the legal framework for financial assistance, technology transfer, and capacity-building.

First, the general duty to cooperate is reinforced through provisions mandating collaborative efforts in adaptation, education, loss and damage, and technology transfer. These obligations are not aspirational; they reflect binding duties rooted both in treaty text and customary international law. Under Article 9, developed country Parties are under a legally binding obligation to '*provide financial resources*' to support developing countries in implementing both mitigation and adaptation measures.[30] This obligation is framed as a continuation of existing duties under the UNFCCC, affirming the principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC). Although the Paris Agreement does not specify a quantified target for financial assistance, the ICJ emphasizes that such support must be responsive to the needs of developing countries. Critically, the financial assistance provided must enable developing countries to pursue the objectives of Article 2, particularly limiting global temperature rise and enhancing climate resilience.[31]

The obligations concerning technology development and transfer (Article 10) and capacity-building (Article 11) give further expression to the cooperative nature of the Paris Agreement.[32] Parties are required to strengthen cooperative action to advance clean technologies and innovation, especially through the Technology Mechanism established under the UNFCCC. This obligation includes not only technological collaboration but also the provision of financial and technical support to facilitate access and implementation. In parallel, Article 11 calls for building the institutional and human capacity of developing states—particularly least developed countries (LDCs) and small island developing states (SIDS)—so they can fully implement their climate obligations. These obligations are again framed within the broader context of CBDR-RC, recognizing the structural challenges faced by these countries in addressing climate change.

Together, these provisions affirm that international assistance and cooperation are not optional. They are integral to the legal structure of the Paris Agreement and foundational to achieving climate justice in a deeply unequal global landscape. The ICJ's interpretation confirms that obligations under Articles 9, 10, and 11 are enforceable, structured, and essential to the realization of both mitigation and adaptation goals.

25. ICJ AO Climate Change, para. 250-251.
26. ICJ AO Climate Change, paras 252-254.
27. ICJ AO Climate Change, paras 256-258.
28. ICJ AO Climate Change, para. 258.
29. ICJ AO Climate Change, paras 260-270.
30. ICJ AO Climate Change, paras 264-265.
31. ICJ AO Climate Change, para. 265.
32. ICJ AO Climate Change, paras 266-267.

3. Judicial Critiques: Climate Justice and its Limitations

While the ICJ's Advisory Opinion on climate change marks a significant development in the interpretation of international environmental law, the separate and joint opinions of individual judges reveal substantial divergence on key issues—particularly concerning the Opinion's treatment of climate justice, the interpretation of core principles such as CBDR-RC, and the interplay between treaty and customary international law. These critiques highlight perceived limitations in the Court's reasoning and reflect ongoing debates about the role of international law in advancing global climate equity.

Several judges raised concerns about the lack of specificity of the Court's reasoning and its implications for climate justice. Of particular note, Judge and former ICJ President Yusuf expressed strong reservations, stating that the Court adopted an '*excessively formalistic approach*'[33] that fails to fully engage with the scientific foundations underpinning differentiated responsibilities. He observed that the Opinion avoids naming major GHG emitters, thus neglecting the disproportionate contributions of specific states to climate change. In doing so, the Court misses a '*historic opportunity*'[34] to clarify the legal consequences for gross emitters and to assert the entitlements of injured states, such as small developing island states (SIDS), to invoke international responsibility.

The Court's treatment of the CBDR-RC principle—a cornerstone of the UNFCCC and Paris Agreement—is a major point of contention among the judges. While the Advisory Opinion acknowledges CBDR-RC as a guiding principle and indeed constitutes its first detailed judicial discussion, Vice-President Sebutinde and Judges Yusuf and Xue, in their Separate Opinions, concluded that the Court diminishes its legal force by subsuming it under a general notion of equity. According to them, the principle of CBDR-RC has a substantive legal content that the Opinion fails to fully articulate. The principle recognizes historical responsibility, requires that developed countries lead in emission reductions, and obliges them to support developing countries through financial and technological assistance.

In contrast to some of the critiques, the joint declaration of Judges Bhandari and Cleveland welcomed the Court's recognition that state obligations under the Paris Agreement and international law encompass fossil fuel-related activities, including production, licensing, and subsidies.[35] The judges emphasized that the phase-out of fossil fuels is central to achieving the 1.5°C goal and must form a core part of states' mitigation efforts. They further asserted that NDCs must explicitly address fossil fuel activities, in line with both scientific evidence and the due diligence obligations affirmed in the Opinion. Importantly, Judges Bhandari and Cleveland underline that the principle of CBDR-RC requires differentiated transition pathways: states with greater financial and technological capacity must transition more rapidly away from fossil fuels and provide assistance to those with fewer resources. This approach reinforces both climate equity and practical feasibility, aligning with the Agreement's call for progressive ambition tailored to national circumstances.

A final area of judicial concern relates to the Court's formulation of the relationship between treaty obligations under the Paris Agreement and customary international law. The Advisory Opinion states that full and good-faith compliance with the Paris Agreement '*suggests*' that a state is substantially complying with its customary obligations to prevent significant environmental harm and to cooperate.[36] However, it also notes that customary obligations remain independent and may require additional assessment. This formulation draws criticism from several judges. The joint declaration of Judges Charlesworth, Brant, Cleveland, and Aurescu finds the language of 'suggestion' too ambiguous,[37] warning that it may blur the distinction between treaty-based and customary obligations. They affirm that customary international law continues to apply independently, regardless of whether a state is party to the Paris Agreement or in full compliance with it.[38] Judge Tladi expresses similar concerns. He warns that the vague phrasing should not be used by states as a loophole to avoid customary obligations. Most pointedly, Judge Tladi notes that even if a state complies fully with its obligations under the Paris Agreement, it may still be in breach of customary international law—especially if the Paris Agreement's temperature target or NDC processes prove inadequate to prevent serious environmental harm.[39] This underscores the point that treaty compliance is not necessarily sufficient to satisfy broader obligations under international law or, in other words, that one size (complying with the Paris Agreement in its stringent understanding by the Court) certainly does not fit all (complying with other applicable obligations).

4. Conclusion

The Paris Agreement's flexibility was a necessary feature for its adoption and coverage, which extends to all states. Yet, that flexibility entailed a risk of manipulation which, over time, became more and more apparent. By setting the record straight and going back to a good faith interpretation of the Paris Agreement, the ICJ's Advisory Opinion of July 23, 2025, significantly strengthens the legal force of this instrument and renews with its spirit. The Court's unanimous Opinion clarifies that the Paris Agreement imposes stringent and legally binding obligations on states for mitigation, adaptation, and cooperation. Key among its findings is the identification of the 1.5°C temperature goal as a primary legal objective. Judge Tladi, in his Declaration, highlights that interpreting 2°C as the main target would undermine the Agreement's 'object and purpose', which is to prevent dangerous

33. Judge Yusuf, Sep. Op., para. 2.
34. Judge Yusuf, Sep. Op, paras 40-48.
35. Judge Bhandari and Cleveland, Sep. Op., paras. 1, 4, 12, 15.
36. ICJ AO Climate Change, para. 314.
37. Judges Charlesworth, Brant, Cleveland and Aurescu, Joint Decl., para. 5.
38. *Ibid*, para. 10.
39. Judge Tladi, Decl. para. 22.

anthropogenic interference with the climate system. This robust interpretation of the 1.5°C target is a significant contribution, moving the target from a mere aspiration to a primary legal commitment, which has profound implications for the urgency and ambition required to protect vulnerable communities from the most severe impacts of climate change. Other key findings include the rejection of the 'unfettered discretion' argument regarding the content and ambition of NDCs, which must now be assessed against a stringent due diligence standard. Furthermore, the Opinion integrates the critical role of fossil fuel phase-out into states' obligations, encompassing production, licensing, and subsidies.

Despite the clear legal framework established by the unanimous Opinion, the views expressed by individual judges underscore ongoing debates about the practical implementation and equitable distribution of burdens in the fight against climate change. These perspectives highlight the need for greater specificity regarding legal consequences for 'major polluters' versus 'vulnerable states' and a more robust articulation of the CBDR-RC principle, one that fully acknowledges historical responsibilities and differentiated capabilities.

Nonetheless, by providing such legal clarity, the ICJ has breathed new life into the Paris Agreement's role as an actionable instrument within the international legal order. The Opinion acknowledges, however, that its role is limited, given that a complete and lasting solution requires not only legal precision but also '*human will and wisdom*' across all fields of knowledge. But this modesty in no way detracts from the ambition reflected in the Court's interpretation of the international legal framework in force. Modesty is often the most realistic form of ambition.

André Aranha Corrêa do Lago ·
President of COP 30

Brazil, the ecological transformation and COP30

> "These are difficult times. But it has always been in difficult and challenging times that humanity has found the strength to face and overcome adversity. We need more trust and determination. We need stronger leadership to reverse the escalation of global warming. The agreements already made must be put into action."
>
> (President Lula, speech delivered at COP27, in 2022)

After being elected to lead Brazil for a third term on October 30, 2022, President Luiz Inácio Lula da Silva made an unexpected choice for his first official visit as president-elect: Sharm el-Sheikh, Egypt, host of the 27th United Nations Climate Change Conference (COP27). By attending the UN climate talks prior to taking office, President Lula sought to underscore his commitment to Brazil's vital and constructive role in addressing the climate crisis domestically and internationally. In his own words, "the fight against climate change will have the highest priority within the structure of my government," with Brazil pledging to act by injecting "hope combined with immediate, decisive action for the future of our planet and humanity."[1] At this occasion, President Lula also announced Brazil's intention to welcome the international community in the Amazon for COP30.

As Brazil prepares to host COP30 in Belém in November 2025, the global landscape has grown even more challenging than in 2022. Political crises and conflicts have intensified. Disinformation—including on climate change—has proliferated. Developing countries continue to grapple with capital flight and structural debt while still recovering from the pandemic. Climate-related disasters have become more frequent and severe, including the tragic floods and droughts in Brazil in 2024. Against this backdrop, the Intergovernmental Panel on Climate Change (IPCC) concluded, in its sixth assessment report of 2023, that we have only until the end of this decade to prevent global temperatures from permanently exceeding the 1.5°C threshold above pre-industrial levels—a situation that would cause severe harm, lead to irreversible damage to ecosystems, and significantly increase the risk of disasters for both current and future generations.

But it is certainly not all bad news. The International Energy Agency projects that renewables will overtake coal as the leading source of electricity generation by 2026. Global clean energy investment now outpaces fossil fuel spending by a ratio of 2:1 – a dramatic shift from parity just six years ago[2]. Halting and reversing deforestation by 2030, alongside strengthening policies that uphold the rights of Indigenous peoples and traditional communities, has become both a global commitment and an ethical imperative. The International Labour Organization estimates that adopting climate-neutral and circular economy pathways could generate up to 100 million new jobs by 2030, underscoring the vast social and economic opportunities of the transition.[3]

It is clear that, through strengthened international cooperation, the legal framework developed over more than three decades under the United Nations Framework Convention on Climate Change (UNFCCC) has played a decisive role in steering the global community away from a projected temperature increase of around 4°C by the end of this century. Nonetheless, progress remains insufficient to meet the Paris Agreement's goals: reducing greenhouse gas emissions to meet the ultimate objective of the UNFCCC, enhancing adaptive capacities, aligning financial flows with the transition to low-carbon economies, and ultimately honoring the primary goal of limiting global warming to 1.5°C.

The ecological transition is undeniable and unstoppable—but it must advance at the pace that science demands. Caught between persistent political hurdles on one side and the growing embrace of the net-zero transition by economies and societies on the other, our challenge is to correct course and align national pathways with our obligations under the multilateral climate change regime. From Belém, Brazil has the mission to guide this transformation in partnership with Parties to the UNFCCC, the scientific community, civil society, the private sector, and local governments. Brazil's journey since President Lula started his third term has been one of "hope combined with immediate, decisive action" against climate change—an effort that has reshaped our domestic agenda and set the stage for what we believe will be a successful COP30.

1. Speech delivered at COP27: https://www1.folha.uol.com.br/ambiente/2022/11/nao-ha-seguranca-climatica-sem-a-amazonia-protegida-o-discurso-de-lula-na-cop27.shtml
2. International Energy Agency. World Energy Outlook 2024.
3. International Labour Organization,"The Just Ecological Transition: An ILO solution for creating 100 million jobs by 2030", 24 May 2022.

Bridging Domestic Policy and International Climate Commitments

Brazil is firmly convinced that it stands to gain far more than it risks from the ecological transition. Our sustainable development pathway has proven that economic growth can be decoupled from environmental harm. Over the past two decades, renewables have consistently accounted for a significant share of the country's total energy supply—exceeding 50% in 2024, and over 88% in electricity generation[4]. The substantial reduction in deforestation rates in the Amazon occurred alongside notable gains in agricultural productivity. More recently, an additional 50% reduction achieved in under three years[5], driven by renewed political commitment to effective deforestation control policies, has coincided with a robust economic recovery following the global pandemic.

Much of Brazil's success stems from historical responses to adversity. Similar to today, challenging times and firm commitments to agreements drove progress. The repeated oil supply shocks of the 1970s prompted sustained investments in diversifying the country's energy mix, initially through the expansion of hydropower and biofuels, and later, from the late 2000s onward, through the adoption of wind and solar energy. These challenging times spurred Brazil to implement structural changes that continue to shape its energy landscape today.

Similarly, Brazil's progress in tackling deforestation has deep roots. Early investments in world-class satellite monitoring systems during the 1980s laid the foundation for effective enforcement of anti-illegal logging laws starting in the early 2000s. These efforts were reinforced by the unprecedented expansion of protected areas and Indigenous lands, as enshrined in Brazil's 1988 democratic Constitution—in essence turning existing legal frameworks into actionable policies.

In 2023, Brazil confronted a new set of challenges: rebuilding the economy and addressing and healing societal wounds left by a severe pandemic, alongside setbacks in sustainable development policies. The *Novo Brasil* ecological transformation plan, led by the Ministry of Finance, was designed as a comprehensive response to this new reality. Recognizing that the transition to net zero is both necessary and inevitable—and that it strengthens the fight against poverty—the government placed ecological transition at the core of the country's development strategy. This plan deploys a wide range of policy and financial tools to steer industry, agriculture, energy, finance, and society toward a more sustainable and technologically advanced future, building on past successes and elevating them to new prominence.

Key components of *Novo Brasil* include the adoption of a nationwide emissions trading scheme and robust financial instruments aimed at lowering capital costs for private investments, while expanding concessional funding and grants through the Amazon Fund and *Fundo Clima*. This ambition is embodied in Brazil's nationally determined contribution (NDC) under the Paris Agreement, communicated in December 2024, which commits to reducing greenhouse gas emissions by 59 to 67 per cent from 2005 levels by 2035 across the entire economy[6].

In times as challenging as these, only political determination can drive real progress. Domestically, Brazil has paved the road to COP30 with concrete actions honoring its commitments under the UNFCCC and Paris Agreement. On the international stage, Brazil's climate diplomacy has sought to demonstrate how such resolve can extend beyond borders—building new alliances and fostering stronger global cooperation in the fight against climate change.

Catalyzing Global Climate Cooperation: A Journey from Belém to Belém

In 2023, Brazil resumed its active and constructive role in multilateral climate negotiations, prioritizing ambitious efforts to meet the Paris Agreement's targets. Scientific evidence developed since 2015 has underscored the severe risks of a global temperature rise beyond 2°C, including serious setbacks for agriculture and energy, increased poverty, and the risk of pushing the Amazon biome past a critical tipping point with global consequences. Recognizing these threats, Brazil set out to strengthen the global response to climate change, making strategic use of its leadership roles in key international forums ahead of COP30.

Building on its tradition of regional integration, Brazil convened in August 2023 the Amazon Summit in Belém. This summit brought together countries of the region to coordinate on shared challenges such as deforestation, organized crime, and the inclusion of Indigenous peoples and local communities in policymaking and scientific research. The resulting Belém Leaders' Declaration bolstered the Amazon Cooperation Treaty Organization (ACTO) by enhancing intelligence capabilities, promoting initiatives on sustainable water management, and strengthening institutional frameworks to safeguard livelihoods and prevent ecological collapse of the Amazon biome, among other actions. At the Belém Summit, tropical forest countries also formed the *United for Our Forests* coalition, committing to protect forests, support Indigenous peoples, and promote a just ecological transition. Today, this coalition brings together countries that cover almost 70% of the world's tropical forests to design joint solutions.

Brazil's international engagement extended to the UNFCCC COP28 in Dubai a few months later, where it played a crucial role in shaping negotiations and reinforcing

4. Empresa de Planejamento Energético. Balanço Energético 2024. Summary Report.
5. Instituto Nacional de Pesquisas Espaciais. Terra Brasilis PRODES Database: https://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal_amazon/rates.
6. Brazil's second Nationally Determined Contribution, November 2024.

the commitment to the 1.5°C goal through the First Global Stocktake of the Paris Agreement (GST1). In this context, the presidencies of COP28, COP29, and COP30 were collectively tasked with "Mission 1.5," a coordinated international effort to significantly boost ambition and cooperation for the next round of NDCs.

Building on the Dubai outcomes, Brazil's 2024 G20 Presidency represented a defining moment on the road to COP30. Under President Lula's leadership, the G20 prioritized the interconnected challenges of hunger and climate change, culminating, for the latter, in the creation of the Task Force for a Global Mobilization against Climate Change (TF-CLIMA). This initiative brought together the world's largest economies, which collectively represent around 85% of global GDP and three-quarters of greenhouse gas emissions, to drive a coordinated approach to the climate emergency.

TF-CLIMA united the G20's sherpa and finance tracks to craft a joint response that embeds climate action into both national planning and international finance. It broke new ground by integrating the G20's foreign affairs, environment, and financial ministries, along with central banks, under a single collaborative framework. This approach overcame the traditional "silos" that often separate climate policy from financial and regulatory mechanisms, enabling a more coherent and effective dialogue that resulted in unprecedented commitments, such as bringing forward net-zero targets, establishing principles for transition planning and for climate investment platforms, and endorsing financial frameworks aligned with the Paris Agreement. Through TF-CLIMA, the G20 also committed to a set of political and economic objectives that positively responded to the main pillars of the First Global Stocktake. Beyond the concrete outcomes, TF-CLIMA's bold approach to tackling complex issues marked a unique and meaningful contribution to the G20's structure and agenda.

Building on the G20 momentum, Brazil's BRICS+ Presidency in 2025 advanced climate finance cooperation through the adoption of the Leaders' Framework Declaration and the BRICS Cooperation Framework for Enhancing Financing for Climate Action. Through these agreements, the group committed ministerial and central bank authorities to harness their collective strength to accelerate climate action, promote just transitions, and align efforts with nationally defined development priorities that emphasize poverty eradication and sustainable development.

Together, these milestones—the Amazon Summit, Brazil's leadership in the G20, and its stewardship of BRICS+—represent a carefully planned three-year journey of preparation. This sequence of actions has laid the foundations for an action-oriented COP30, aimed at deepening international cooperation and advancing a more ambitious and inclusive global climate agenda.

Back to Belém: the final mile through a global *Mutirão*

As I emphasized in my first address to the international community as President-designate of COP30, 2025 must be the year in which we transform our sadness and indignation into constructive collective action. This transformation begins with strengthening the traditional pillars of the COP process to enhance their effectiveness in driving implementation. Leaders must commit to ambitious NDCs and ensure the adequate mobilization of means of implementation. Negotiators must act with determination to deliver on the Global Goal on Adaptation, the Just Transition Work Programme, and the follow-up to the First Global Stocktake, alongside other key agenda items.

Equally essential is the active engagement of non-Party stakeholders in the Global Climate Action Agenda, placing implementation at its core, with particular emphasis on executing the outcomes of the First Global Stocktake. To this end, the COP30 Action Agenda will be structured around thirty key objectives across six thematic axes—spanning energy transition, nature, food systems, resilience, human development, and finance—to accelerate Paris Agreement implementation, connect climate ambition with development opportunities and people's aspirations, and drive transparency, monitoring, and accountability of both existing and new pledges and initiatives.

To ignite this transformative momentum, the COP30 Presidency has also launched the Mutirão—an initiative rooted in the spirit of community cooperation. Mutirão (or "Motirõ" in the Tupi-Guarani Indigenous language) symbolizes collective effort, whether in harvesting, building, or supporting one another. This initiative seeks to create a turning point in our global climate struggle by fostering a self-sustaining movement driving humanity's transition to a sustainable future. Supported by a global framework designed to integrate and amplify local action, the Mutirão complements formal negotiations, the Action Agenda, and the Leaders' Summit—reconnecting the climate fight with the realities faced by people everywhere.

Amid profound geopolitical, socioeconomic, and environmental challenges, it is vital that we strengthen multilateralism and the UNFCCC framework, bridge the divide between climate policies and everyday lives, and fast-track the implementation of the Paris Agreement through decisive action and systemic change. The obstacles to effective climate action are not primarily physical, technological, or legal—they are political. Overcoming these obstacles demands determination at home and sustained momentum abroad.

Brazil's ambitious ecological transformation, exemplified by the *Novo Brasil* plan and the revitalization of successful policies to combat deforestation, demonstrates how domestic leadership can align sustainable development with climate goals, proving that economic growth and environmental stewardship can go hand in hand. The

international momentum generated through the G20, BRICS+, the Amazon Summit, and now the Mutirão creates a unique opportunity for unity and resolve.

Decisions within the United Nations and the global community are shaped by domestic political dynamics, economic interests, and societal demands, alongside a strategic understanding of shifting global power and alliances. Building on the positive legacy of the UNFCCC, COP30 must become a defining moment—not only for this critical decade but for the remaining three-quarters of this century. We aspire for Belém to be remembered as the beginning of a global movement, heralding accelerated, enhanced, and exponential climate action through far deeper international cooperation within the multilateral climate framework.

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Africa's Green Transition

In 2015, the 24th Ordinary Assembly of the Heads of State and Governments of the African Union adopted Agenda 2063, a transformational plan aimed at advancing economic, social and environmental development in Africa by the year 2063.[1] One of the key goals of the Agenda is to achieve "environmentally sustainable and climate resilient economies and communities across Africa."[2] Agenda 2063 builds upon other strategic plans adopted at the African regional and sub-regional levels aimed at elaborating a common pan-African response to ongoing global efforts to transition to sustainable, resource efficient and green economies.

The ongoing global green transition raises complex economic, social, and environmental questions for Africa, arguably, more so than any other continent in the world, which requires tailored and realistic responses. Although Africa is not one homogeneous geographical unit, African countries have similarities in terms of historical dependence on abundant natural resources, and their contributions, and deep vulnerabilities, to the climate change emergency. Africa is home to some of the world's highest exporters of oil, natural gas and solid minerals, with these commodities accounting for more than 60 per cent of the gross domestic product (GDP) in many African countries.[3] Thus, despite Africa's comparatively lower historical contributions to the emission of greenhouse gases (GHGs) that cause climate change, the fossil fuel-dependent nature of the economies of several African countries, and a rapidly growing population, means that the continent currently has one of the fastest growth rate in GHG emission.[4]

Efforts to tackle the climate change emergency through drastic cuts to GHG emissions in Africa however face other competing emergencies. Despite its abundant natural resources, Africa faces a complex energy poverty emergency (defined as 'the inability of households to access electricity and modern energy services at an affordable cost').[5] For example, Africa has the lowest electrification rate globally, with more than 600 million Africans still lacking access to electricity, an additional 30 per cent suffer from prolonged power outages and undersupply, while 900 million Africans lack access to clean cooking facilities.[6] The African Union has therefore announced the African Common Position on Energy Access and Just Transition, which aims to use all of the continent's natural resources, including natural gas, to tackle Africa's energy poverty emergency, consistent with the United Nations Sustainable Development Goal (SDG) 7 on clean, stable, and affordable energy for all by the year 2030.[7] The African Common Position also recognises the need to harmonize the green transition with investment in capacity development, technology and infrastructure to reduce the socio-economic impacts of such a transition, especially on workers leaving the fossil fuel sector.[8] Furthermore, with many African countries still racing to respond to the economic impacts of Corona Virus 2019 (COVID-19) pandemic, the Ukraine crisis and its impact on food security, escalating water scarcity, as well as the rise in insurgency and natural resource theft by terrorist groups, the urgent need for disaster risk response and resilience has become a top priority for many African states.[9]

Thus, while the narrative about green transition in Global North countries has been framed mainly in terms of decarbonization and a transition to a net zero economy, for many African countries, the green transition is about resilience. In the face of competing water, energy, food, climate and disaster emergencies, green transition in Africa is about utilizing environmental protection, conservation, resource efficiency and decarbonization as pathways for promoting economic diversification, social inclusion and

1. African Union, *Agenda 2063*, <https://au.int/sites/default/files/documents/36204-doc-agenda2063_popular_version_en.pdf>
2. It idenfies priority areas such as sustainable natural resource management and biodiversity conservation; sustainable consumption and production patterns; water security; climate resilience and natural disasters preparedness and prevention; and renewable energy. *Ibid.*
3. For example, Nigeria, Algeria, Egypt, Libya are historical giants in oil and gas production. Similarly, Egypt, Morocco, and Tunisia have attracted significant investment and income from mineral resources, ranging from bauxite, cobalt, diamond, gold, lithium, phosphate, potash, rhodium, silver, iron ore, zinc and to platinum-group metals, catalysing significant economic activity in these countries. D. Olawuyi, *Extractives Industry Law in Africa* (Springer, 2018) 1-15.
4. While Africa is responsible for only 4% of global GHG emissions, studies indicate that between 2010 and 2019, Africa's annual carbon emissions growth rate was 2.1%, exceeding the global average of 1.2%. See also Hannah Ritchie, 'Sub-Saharan Africa emits a tiny fraction of the world's CO_2' <https://energyforgrowth.org/article/sub-saharan-africa-emits-a-tiny-fraction-of-the-worldsco2/#:~:text=You'll%20find%20Sub%2DSaharan,of%20annual%20CO2%20emissions>
5. D. Olawuyi, 'Energy Poverty in the Middle East and North African (MENA) Region: Divergent Tales and Future Prospects', in I. Del Guayo, L. Godden, D.N. Zillman, M.F. Montoya, & J. J. Gonzalez (eds.), *Energy Law and Energy Justice* (Oxford University Press, 2020) pp. 254–272.
6. African Union, 'Africa Speaks with Unified Voice as AU Executive Council Adopts African Common Position on Energy Access and Just Energy Transition' <https://au.int/sites/default/files/pressreleases/42071-pr-PR-_The_Executive_Council_Adopted_African_Common_Position_on_Energy_Access_and_Transition.pdf>
7. *Ibid.*
8. *Ibid.*
9. D. Olawuyi, 'Natural Resources and Environmental Security' in E. Kleynhans and M. Wyss (eds), *The Handbook of African Defence and Armed Forces* (Oxford University Press, 2025) pp. 809–827.

resilience to disaster and climate risks. Africa is therefore not just seeking a green transition, the continent is desperately in search of a just, equitable and inclusive green transition, that is Africa-led and Africa-owned, and leaves no one behind.[10]

Yet, while the aim of Africa's green transition is clear, ten years after the adoption of the African Union's Agenda 2063, the path to Africa's green transition objectives remains uncertain. In the analysis below, I examine the progress made, and challenges that remain, in terms of advancing the energy and economic diversification, social inclusion and disaster risk resilience objectives of Africa's green transition agenda. A confluence of financing gaps, technology limitations, capacity constraints and weak legal and institutional frameworks on the green transition, that must be carefully addressed to effectively translate Agenda 2063 from vision to reality are unpacked.

1. Pillars of Africa's Green Transition

Since the adoption of the Agenda 2063, a flurry of instruments have emerged at regional, subregional and national levels which emphasise three central pillars of Africa's green transition agenda. First is climate resilience and natural disaster preparedness and prevention. Climate change poses existential threats to Africa, arguably more than to any other continent. Many African countries have dual vulnerabilities to climate change, both as arid countries and developing states. For low-lying African countries such as Seychelles, Comoros, Madagascar, and Mauritius, climate change is already resulting in rising sea levels and increased patterns of extreme weather events such as cyclones and floods.[11] Furthermore, arid countries such as Sudan, Chad, Mali, Mauritania and Niger, are already facing climate-induced droughts, water scarcity, land conflicts and climate induced displacements. For Africa, climate change is therefore not just a planetary emergency, it is also a key driver of national insecurity and disaster risk.[12] The green transition is therefore an urgent necessity for African countries to accelerate climate-smart infrastructure and disaster response systems needed to mitigate and adapt to the impacts of climate change, consistent with the Paris Agreement and SDG 13.[13] In line with Agenda 2063, African Union's Climate Change and Resilient Development Strategy and Action Plan (2022-2032) outlines priorities and action areas aimed at accelerating low-emission and climate-resilient growth as central aspects of Africa's green transition.[14] The focus is not just on GHG reduction, but also on boosting agricultural production, transforming water systems and enhancing early warning and response systems to promote resilience to natural disasters and risks.

A second pillar of Africa's green transition is energy and economic diversification. In the face of reduced demand for fossil fuels that have for many years remained the bedrock of several African economies, the need for a green transition agenda that ensures reduced reliance on fossil fuel exports, particularly coal and oil, is no longer an option but a necessity for Africa. For example, some of the central objectives of the Agreement on the African Continental Free Trade Area (AfCFTA) include to 'promote industrial development through diversification and regional value chain development, agricultural development and food security' and to 'promote and attain sustainable and inclusive socio-economic development.'[15] By streamlining the flow of environmental goods across the continent, AfCFTA aims to transform African countries from resource dependent and hydrocarbon-based economies to innovation and manufacturing powerhouse, contributing to long-term green transition.

Endowed with abundant solar and wind energy resources, Africa has huge potential to become the next global hub for solar, wind, and green hydrogen investments offering a path to both energy and economic diversification.[16] Also, as global demand increases for energy transition minerals (ETMs), such as cobalt, copper, graphite, lithium, nickel, manganese, phosphate rock, zinc and rare earth metals, needed to power renewable energy technologies and infrastructure, Africa has enormous potential to leverage its abundant supply of these minerals to unlock economic diversification. Several African countries have already released national visions and strategies aimed at promoting investment in renewable energy, clean technology and minerals as pathways to open up other economic sectors.[17] For example, a central aspect of Nigeria's Energy Transition Plan is to create jobs and 'lift 100 million Nigerians out of poverty and driving economic growth'.[18] Similarly, economic diversification a key priority area in South Africa's Just Energy Transition Investment Plan (JET IP) for 2023-2027. The Plan aims to create 'quality jobs in new sectors like electric vehicles, green hydrogen, renewable energy, and manufacturing.'[19] Similar framing of the green transition as an economic opportunity, and not just a climate imperative, is found in policy visions in Morocco, Ghana, Malawi, Kenya, Rwanda,

10. See African Union, *African Union's Climate Change and Resilient Development Strategy and Action Plan (2022-2032),* <https://au.int/sites/default/files/documents/41959-doc-CC_Strategy_and_Action_Plan_2022-2032_08_02_23_Single_Print_Ready.pdf>; also V. Songwe and J.-P. Adam, 'Delivering Africa's Great Green Transformation' in Amar Bhattacharya et al (eds), *Keys to Climate Action: How Developing Countries Could Drive Global Success and Local Prosperity* (Brookings 2023) 233-258.
11. J. Doorga, et al, 'Surging seas, rising sea levels, and sinking communities: The urgent need for climate adaptation in small island states (2024) 157 *Environmental Science & Policy*, 103788.
12. D. Olawuyi, 'Natural Resources and Environmental Security' (n°9).
13. *Ibid.*
14. African Union's Climate Change and Resilient Development Strategy and Action Plan (2022-2032*)* (n°10)
15. See Article 3 (e) and (g), Agremeent on the African Continental Free Trade Area (AfCFTA) (adopted March 21, 2018, in force on May 30, 2019).
16. D. Olawuyi, 'Private Sector Investment Crucial for Just Energy Transition in Africa' https://www.hbku.edu.qa/en/news/private-sector-investment-in-africa
17. *Ibid.* Also D. Olawuyi (n°5).
18. Federal Government of Nigeria, Nigeria's Energy Transition Plan, https://www.energytransition.gov.ng
19. South Africa's Just Energy Transition Investment Plan (JET IP), https://www.climatecommission.org.za/south-africas-jet-ip

Tanzania and Uganda some of which have already made progress in promoting homegrown solutions that deliver clean and reliable energy to underserved communities, while unlocking green economic opportunities.[20]

A third pillar of Africa's green transition is localism and social inclusion. Due to reduced global fossil-fuel demand, the green transition risks exacerbating loss of employment and subsistence, defunding, and limited access to finance and training needed in the clean energy sector, especially for workers in Africa leaving the extractive sector.[21] Furthermore, the design and implementation of clean energy transition projects have been increasingly linked to social exclusions, rising energy poverty levels, modern slavery, child labour, discrimination, environmental pollution, land grabs, forced displacements of Indigenous Peoples from their ancestral lands and and other human rights abuses, especially in the production of ETMs.[22] As far back as in 2010, the United Nations Security Council urged all stakeholders to exercise due diligence when exploring cobalt in the Democratic Republic of Congo, a nation that accounts for over half of the world's cobalt production.[23] The African Union has also increasingly underlined the need for states, business enterprises and other stakeholders to integrate human rights in the design, financing and implementation of their transition programs, including the production of ETMs. Building on its 2012 Resolution on a Human Rights-Based Approach to Natural Resources Governance, the African Commission in 2023 released its Resolution on Business and Human Rights in Africa which recognises the need to prevent and address business-related human rights abuse in all sectors, including resource development and energy transition.[24] This includes advancing a low carbon economy, while reducing the socio-economic impacts of such a transition on workers and other typically marginalised groups such as youth, women and indigenous groups.[25] The imperative for a just and right-based green transition is increasingly recognised at the domestic level. For example, one of the central priorities of Nigeria's Energy Transition Plan is to 'manage the expected long-term job loss in the oil sector due to the reduced global fossil-fuel demand.'[26] The need to address gender-based exclusions and vulnerabilities in green transition is also crucial for Africa.[27] African countries can seize the momentum of the green transition to address preexisting human rights challenges and social exclusions in key economic sectors, especially the energy sector which several studies have described as male-dominated.[28] The green transition also provides enormous opportunities to strengthen clean technology entrepreneurship, energy citizenship and local participation in the development of clean technology innovation that advance an inclusive transition agenda.[29]

Despite the enormous potential of the green transition to unlock socio-economic transformation across Africa, several legal and institutional barriers will need to be addressed to maximize these potentials.

2. Barriers and Challenges to a Just and Inclusive Green Transition in Africa

A key barrier is the huge financing gap facing Africa's green transition agenda. With the African Group of Negotiators (AGN) on climate change calling for $1.3 trillion per annum to finance climate-related development across the continent, it is crystal clear that Africa's green transition agenda will require leveraging both public and private sector capital.[30] Yet, the despite solar, wind and renewable energy potential of the continent, only 2% of new global green investments are going to Africa.[31] Furthermore due to economic slowdown and increased health spending associated with the COVID-19 pandemic, more than one-third of Sub- Saharan African countries are at increased risk of debt distress.[32] Thus, while there are a number of investment niche funds that support green transition in Africa, the huge financing gaps, coupled with the growing debt burdens of many African countries, show the need for more international solidarity and support for Africa's green transition.

20. D. Olawuyi (n°5).
21. United Nations Working Group on Business and Human Rights (UN WGBHR), 'Extractive Sector, Just Transition and Human Rights' (2023) UN General Assembly Report A/78/155; see also United Nations Human Rights Office of the High Commissioner, International Labour Organization, 'Human Rights and a Just Transition', <https://www.ohchr.org/sites/default/files/documents/issues/climatechange/information-materials/v4-key-messages-just-transition-human.pdf> accessed 1 March 2025.
22. See D. Olawuyi, C. Bright, S. Goethals, Q. Hasan, 'Beyond Just Transition: Advancing Responsible and Rights-Based Business Practices in the Energy and Extractives Sector' (2025) 10 (1) Business and Human Rights Journal 1-10; Clean Energy Council, 'Addressing Modern Slavery in the Clean Energy Sector' <https:// www.cle anen ergy coun cil.org.au/resour ces/resour ces-hub/ add ress ing- mod ern- slav ery- in- the- cleanene rgy- sector> accessed 14 December 2024.
23. UNWGBHR (n°21).
24. African Commission, Resolution on Business and Human Rights in Africa—ACHPR/Res.550 (LXXIV) 2023; Resolution on a Human Rights-Based Approach to Natural Resources Governance, African Commission on Human and Peoples' Rights, 51st Sess, (2012), available at: https://achpr.org/sessions/51st/resolutions/224.
25. African Union (n°6).
26. Federal Government of Nigeria (n°18).
27. A. Akinsemolu and W. Nsoh, 'Gender Justice and Net Zero Energy Transition: Perspectives from the United Kingdom and Sub-Saharan Africa', in D. Olawuyi, and others (eds), *Net Zero and Natural Resources Law: Sovereignty, Security, and Solidarity in the Clean Energy Transition* (Oxford University Press, 2024),
28. *Ibid.* Also, E. Olarinde and H. Okoeguale, 'Energy Transition and the Role of Women: Advancing Gender-Aware Transition in the Natural Gas Industry' in D. Olawuyi, E.G. Pereira (eds) *The Palgrave Handbook of Natural Gas and Global Energy Transitions* (Palgrave Macmillan, 2022).
29. D. Olawuyi, 'From Energy Consumers to Energy Citizens: Legal Dimensions of Energy Citizenship' in K Hunter et al (eds) *Sustainable Energy Democracy and the Law* (Netherlands: Brill, 2021) 101-123.
30. D. Bodunde, 'Adaptation is Africa's lifeline' — negotiators seek $1.3trn climate finance at COP29' (*The Cable News*, November 22, 2024) https://www.thecable.ng/adaptation-is-africas-lifeline-negotiators-seek-1-3trn-climate-finance-at-cop29/
31. IRENA and AfDB (2022), *Renewable Energy Market Analysis: Africa and Its Regions* (International Renewable Energy Agency and African Development Bank, Abu Dhabi and Abidjan. https://www.irena.org/publications/2022/Jan/Renewable-Energy-Market-Analysis-Africa
32. International Monetary Fund, 'Opening Remarks at Mobilizing with Africa II High- Level Virtual Event' (9 October 2020) <https:// www.imf.org/en/News/Artic les/2020/10/ 09/sp100 920- open ing- rema rks- at- mob iliz ing-with-afr ica- ii- high- level- virt ual>.

A climate-ravaged Africa will heighten global insecurity, mass migration and water, energy and food poverty all of which will place pressure on the global community. The Paris Agreement therefore recognises the need for consistent finance flows from developed countries to developing countries to accelerate climate action.[33] SDG17.4 also calls on developed countries to 'assist developing countries in attaining long- term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring by 2030.'[34] The global campaign for the defunding of fossil fuel projects must be matched by a corresponding global campaign for increased and consistent flow of the required green financing for African countries. It will be unrealistic, and perhaps irresponsible, for resource rich African countries to leave resources under the ground, in the face of extreme poverty, hunger, and water, energy and food scarcities facing their population. An Africa-led and Africa-owned green transition must balance climate change imperatives with progress in all aspects of the SDGs. There is therefore a need for increased international ambition and commitment by developed and other Parties to scale up financing for Africa's green transition agenda, as part of international solidarity needed under the Paris Agreement to advance global climate action.[35] A central aspect of this is to provide debt for nature swaps, debt restructuring, and other concessional lending initiatives that can help reduce Africa's debt burden, and free up financing for the green transition.

Related to financing gaps are technology gaps that escalate the cost, and slow the pace, of the green transition in Africa. Much of the environmentally sustainable technologies (ESTs) needed to accelerate the green transition are simply not available locally. For example, estimates indicate that in 2023 alone, *Nigeria imported over four million solar panels*, at the cost of more than $200 million.[36] Import-related costs hikes the prices of solar panels making it less affordable to businesses and households, especially in poor and underserved communities. Furthermore, solar panels designed for other countries and climates may not meet local specification and requirements, especially weather conditions, which may result in their sub-optimal performance and quality control challenges in local contexts.[37] Advancing Africa's green transition will require a transformational shift from a one-track focus on technology importation, to technology absorption, that is 'the process of learning to understand, utilise and replicate technology, including the capacity to choose it and adapt it to local conditions and to integrate it with indigenous technologies.'[38] It is 'the ability of the technology-importing country to understand, utilise, manage and learn from the acquired technology so that it can develop its own domestic capabilities.'[39] In addition to lack of sustained investments in clean technology entrepreneurship to promote home grown developemnt of green technologies, legal barriers to technology absorption must also be carefully addressed to 'give confidence to inventors that transferred technology will be protected from arbitrary confiscation or abuse.'[40] First is the weak legal protection for intellectual property rights (IPRs) in many African countries which serves as a barrier to technology deployment and absorption.[41] A UN study documents how lack of high quality patent and IPR systems continues to hinder clean technology innovation in Africa.[42] Similarly, prohibitive cost of patent registration continues to serve as barriers to patent registration and innovation resulting in almost total dependence on technology importation.[43] Without comprehensive legal reforms on innovation and technology absorption, the promise of the green transition in Africa may remain stifled by technology gaps.[44]

Third, and in addition to addressing legal gaps relating to innovation and IPR, supportive legal frameworks are required to incentivize investment in Africa's green transition. Green investments, like any other foreign direct investments (FDIs), will flow to regions with conducive investment climate, as well as comprehensive and supportive laws that streamline green investment process. It will be difficult, if not impossible, to attract the sustained green financing and investment flows needed to achieve the green transition agenda without addressing regulatory barriers that green entrepreneurs face in Africa. In many African countries, the process of business formalisation and registration remain characterised by delays, lack of comprehensive laws on clean technology entrepreneurship, inadequate protection of intellectual property rights and unclear frameworks on public-private partnerships.[45]

33. Article 9, 10 and 11 of the Paris Agreement.
34. United Nations,'Transforming our World: the 2030 Agenda for Sustainable Development' UNGA Res. 70/1 (25 September 2015) [2030 Sustainable Development Agenda].
35. D. Olawuyi et al, *Net Zero and Natural Resources Law*: *Sovereignty, Security, and Solidarity in the Clean Energy Transition* (Oxford University Press, 2024) pp. 1–15.
36. Premium Times 'Reducing solar panel importation: A path towards sustainable energy in Nigeria' (February 11, 2025) https://www.premiumtimesng.com/promoted/773588-reducing-solar-panel-importation-a-path-towards-sustainable-energy-in-nigeria.html
37. *Ibid.*
38. See D. Olawuyi, 'From Technology Transfer to Technology Absorption: Addressing Climate Technology Gaps in Africa', 36:1 *Journal of energy & natural resources law* (2018), pp. 61–84, also IPCC, Methodological and Technological Issues in Technology Transfer: Summary for Policymakers (Special Report of Working Group III, IPCC 2000).
39. D. Olawuyi, *ibid.*
40. *Ibid.* See also I. Mgbeoji, 'African patent offices not fit for purpose', in *Innovation & Intellectual Property: Collaborative Dynamics in Africa*, J. DeBeer, C. Armstrong, C. Oguamanam and T. Schonwetter eds. (Claremont, University of Cape Town Press, 2014).
41. United Nations Environment Programme, *Patents and Clean Energy Technologies in Africa* (United Nations Environment Programme, Division of Environmental Law and Conventions 2013) pp. 7–8; also A Abdel-Latif,'Intellectual Property Rights and the Transfer of Climate Change Technologies: Issues, Challenges, and Way Forward' (2015) 15 *Climate Policy* 103.
42. United Nations, *The Role of Intellectual Property Rights in Promoting Africa's Development: Overview of IPR in Africa,* <https://www.un.org/osaa/sites/www.un.org.osaa/files/final_policy_paper_on_iprs_in_africa_fin_en_230822_v56883.pdf>
43. *Ibid.*
44. H. Cao, Z. Y, Y. Li, K. Li, 'Does legislation promote technological innovation in renewable energy enterprises? Evidence from China' (2024) 188 Energy Policy, 114111.
45. D. Olawuyi, 'From Energy Consumers to Energy Citizens: Legal Dimensions of Energy Citizenship' in K Hunter et al (eds) *Sustainable Energy Democracy and the Law* (Netherlands: Brill, 2021) 101-123.

To translate Africa's green transition agenda to reality, a starting point is for African countries to address legal barriers that stifle green investments.

Fourth are capacity gaps that limit the coherent and coordinated implementation of the green transition agenda in Africa. Accelerating the green transition cuts across different sectors and institutions ranging from environment, energy, finance, and development planning. However, studies have highlighted how due to a lack of training, equipment and tools, regulators are unable to coherently monitor compliance with sustainability standards.[46] In many cases 'regulators are often under-resourced, limiting their ability to develop and adapt regulatory frameworks for new technologies and solutions.'[47] Furthermore, the lack of statistical and data-gathering technologies and tools often means that regulators in a number of African countries simply lack the capabilities to transparently collate, evaluate and process data relating to the green transition in a manner that can instil public confidence on its overall contributions and effectiveness.[48] Tailored capacity development programs on the green transition will be crucial in unlocking African solutions that accelerate the continent's green transition agenda.

3. Accelerating African solutions to Africa's green transition challenges: Opportunities and Ways Forward

A mix of international solidarity, regional knowledge exhange and domestic legal and governance reforms are required to address the foregoing complex obstacles that currently stifle the path to Africa's green transition.

First, accelerating African solutions to Africa's green transition challenges will require international solidarity and support in terms of providing a consistent flow of technology, financial support and capacity development, in line with the Paris Agreement. Though not legally binding, Article 6 of the *UNESCO Declaration of Ethical Principles in relation to Climate Change* also emphasises the need for solidarity, noting that 'human beings collectively and individually should assist people and groups that are most vulnerable to climate change and natural disasters, especially when catastrophic events occur.' It calls on developed States and other States, to strengthen 'information and knowledge, capacity-building, and means and financial resources to developing countries.' A mix of increased green financing, debt forgiveness, and other concessional lending initiatives that can help reduce Africa's debt burden, and free up financing for the green transition are urgently required.

Second, African countries themselves must undertake comprehensive assessments of legal and institutional barriers that weaken broad-based inclusion in green transition programs, especially private sector participation. Private sector investment is key to unlock Africa's green transition agenda. It is therefore pertinent for African countries to put in place supportive commercial and investment laws that simplify the process of business formalisation, registration and participation in transition programs. In addition to legal reforms, African countries will need to provide financial incentives for entrepreneurs to unlock African energy solutions. Such incentives can be in the form of direct grants, concessional or low interest loans, investment tax credits or reversed taxes, or in the form of de-risking instruments including insurance, geared towards supporting the upfront capital investment needed to develop clean technology initiatives. A good example is the European Union's Innovation Fund which provides fiscal incentives and support for low-carbon technologies and infrastructure projects.[49] Furthermore, with Kenya recently announcing its Climate Change (Carbon Markets) Regulations, 2024, the potential for carbon financing at national and regional levels, as a tool for increasing resource availability should be explored by other African countries.[50] In the design and implementation of such green transition frameworks, it is important to integrate human rights safeguards to ensure inclusive and rights-based implementation of such programs, particularly the rights of marginalized and disadvantaged groups, such as women, *Indigenous Peoples and Local Communities (IPLCs)*, children and youth, and persons with disabilities.[51]

Third, is the need for capacity development to enhance the coherent implementation of the green transition agenda. To bridge capacity gaps, higher education institutions have key roles to play in designing innovative training and research programs that provide skills and knowledge acquisition opportunities for innovators, financial institutions, regulators and other stakeholders involved in green transition programs. Capacity development programs on the green transition must also emphasise the importance of interoperability and coordination by all ministries, agencies and entities in the green transition value chain in order to ensure coherent implementation.

Fourth, regional bodies such as the African Union, African Commission, the AfCTA Secretariat, and the African Development Bank have key roles to play in further elaborating guidelines for the integration of the green transition agenda in all aspects of trade, investment and financing. The limited reference to the green transition in the the AfCTA and its protocols is a gap that should

46. H. Carr, 'Distributed Energy Resources: what we learned from regulators about managing the energy transition in Africa' (24 October 2024) https://crossboundaryenergy.com/regulators-managing-the-energy-transition-in-africa/; see also D. Olawuyi and Z. Tubondenyefa, 'Review of the Environmental Guidelines and Standards for the Petroleum Industry in Nigeria (EGASPIN)' Technical Report. *Institute for Oil, Gas, Energy, Environment and Sustainable Development* (OGEES Institute) (2019) 1-25.
47. H. Carr, *ibid.*
48. A. Babalola and D. Olawuyi, 'Overcoming Regulatory Failure in the Design and Implementation of Gas Flaring Policies: The Potential and Promise of an Energy Justice Approach' (2022) 14 (11) *Sustainability.*
49. For a previous discussion of this, see D. Olawuyi (n. 16).
50. Climate Change (Carbon Markets) Regulations, 2024, Legal Notice 84 of 2024.
51. D. Olawuyi, *The Human Rights Based Approach to Carbon Finance* (Cambridge University Press, 2016) pp. 1–15.

be addressed through more comprehensive protocol or modalities that provides guidance on how the pillars of the Africa's green transition could be integrated in trade activities. Regional and sub-regional trade platforms such as the *Arab-Africa Trade Bridges (AATB), also have key roles to play in integrating the green transition into their trade, financing and capacity development programs.*[52]

52. Led by financial institutions, including the African Export-Import Bank (Afreximbank), the Islamic Development Bank (IsDB), the International Islamic Trade Finance Corporation (ITFC), Islamic Corporation for Investment and Export Credit (ICIEC), Islamic for the Development of the Private Sector (ICD) and Arab Bank for Economic Development in Africa (BADEA), the *Arab-Africa Trade Bridges (AATB) Program* aims to accelerate trade collaboration, finance, and capacity development between African and Arab countries. See ‹https://www.itfc-idb.org/what-we-offer/trade-development/flagship-programs/arab-africa-trade-bridges-program›

Conclusion

For Africa, the green transition is both an urgent necessity and a profound opportunity. It is an urgent necessity if the continent is to avoid the direct and indirect impacts of climate change. The green transition also provides opportunities for African countries to leverage climate and environmental sustainability programs as levers of socio-economic transformation, clean technology entrepreneurship and climate-resilient growth. However, prepacked and imported solutions on green transition, framed solely from climate and environmental perspectives that neglect the complex socio-economic realities of many African countries, are bound to fail and may not address all the dimensions of a green transition in African context. Africa's green transition must ultimately be designed by Africa, implemented and led by Africa, with the continued solidarity of international stakeholders interested in unlocking new green investment opportunities on the continent. African countries must also evolve inclusive and rights-based legislation and polices that unlock the active participation of all stakeholders including the private sector, youth, women, and marginalised groups, in homegrown clean technology innovation and green entrepreneurship.

Liu Zhenmin · China's Special Envoy for Climate Change

China and Global Climate Change Governance

Today's world is in the midst of great changes that have not been seen in a century, and climate change has emerged as one of the most urgent global challenges. This year marks the 10th anniversary of the Paris Agreement. Since the inception of international negotiations on climate change in 1990, humanity has embarked on a 35-year journey to address climate change through international cooperation.

However, we are now witnessing that the geopolitical conflicts have intensified, while unilateralism and protectionism have gained ascendancy. Consequently, the global trust deficit is widening, posing serious challenges to multilateral mechanisms for climate cooperation. Amidst these challenges, China firmly believes that the fundamental path for addressing global climate change still rests on upholding multilateralism, strengthening of political will and enhancing institutional synergy, which is also the foundation for achieving the global temperature goals set forth in the Paris Agreement.

1. All Parties should continue to support the international cooperation framework for global climate governance

The 1992 United Nations Framework Convention on Climate Change (hereinafter referred to as the "Convention") stands as the first international treaty on addressing climate change. It provides a fundamental framework for international cooperation on this issue, marking the dawn of a new era of global climate governance. Over the ensuing three decades, humanity has tirelessly sought to forge an equitable, reasonable, cooperative, and mutually beneficial global climate governance system. Although the process of cooperation has been fraught with twists and turns, global climate governance continues to make positive progress.

The Kyoto Protocol was adopted in 1997 and came into force in 2005. On the basis of a "top-down" approach, the Kyoto Protocol established more detailed rules for greenhouse gas emissions, setting legally binding emission reduction or limitation targets and timelines for Annex B Parties (primarily developed countries and groups). Specifically, it mandated an overall 5% reduction in greenhouse gas emissions from industrialized countries between 2008 and 2012, compared to 1990 levels. According to the Berlin Mandate, developed countries were expected to take the lead in addressing climate change and its adverse impacts, with specific greenhouse gas reduction obligations and a timeline set for the post-2000 era. Yet, anticipating a possible change in the US administration following President Bill Clinton's two terms in 2000, the reduction targets set by the Kyoto Protocol began in 2008, and the target year was also adjusted to a range of years. These flexible arrangements fully reflect the rational, pragmatic, and constructive participation of the group of developing countries in the multilateral process.

The 2015 Paris Agreement, which upholds the principles of equity, Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC) as enshrined in the Convention, introduced a new model consisting of "Nationally Determined Contributions (NDCs)" and "Global Stocktake". This marked a new stage in the realm of global climate governance. The "bottom-up" institutional arrangement established by the Paris Agreement ensures that developed countries cannot abstain from the international emissions reduction process, while also affording ample room for developing countries to voluntarily participate in global mitigation efforts. It fosters a gradual enhancement of national ambitions while preserving the credibility of the institutional arrangement, taking into full account Parties' national circumstances with sustainable development goals. Thus it maximally motivates Parties to participate in global climate governance.

In particular, the Paris Agreement's two key goals, achieving global carbon peaking and then carbon neutrality, have become the primary goals guiding Parties' national actions and global efforts to address climate change. The global climate governance system has continued to evolve, forging a multi-layered, diverse, and resilient governance architecture anchored in the Convention and reinforced in the Kyoto Protocol and Paris Agreement. All Parties should keep confidence in this governance framework and strongly uphold it.

2. All Parties should actively address the negative impacts of geopolitical tensions on global climate governance

In recent years, escalating geopolitical tensions and unpredictable economic situations have given rise to a fragmentation of national interests worldwide, casting a shroud of uncertainty over global climate governance. A few countries have exhibited hesitation or retreat in their commitments to multilateralism. The rise of unilateralism and trade protectionism has eroded the political trust that serves as the cornerstone of global climate cooperation. The financial support pledged by developed countries to developing countries has remained a hollow promise, leading to a global "trust deficit". Some countries are losing confidence

in the future of global climate governance, diminishing their resource allocations, and encountering obstacles in advancing collective action and rule-based frameworks. The multilateral framework for climate governance finds itself confronted with complicated and formidable challenges.

Nevertheless, all Parties must acknowledge that the "just, orderly, and equitable" transition away from fossil fuels, initiated at the Dubai Climate Conference, is irreversible. This green and low-carbon transformation, coupled with global climate cooperation, still remains the prevailing trend of our times. The overwhelming majority of Parties to the Convention and its Paris Agreement continue to adhere to this multilateral governance framework, actively advancing a fair, reasonable, and inclusive global climate response process. Multilateralism, serving both as the institutional bulwark and the operational forum in tackling global climate challenges, has proven its indispensable role. In navigating the treacherous waters of global environmental risks, it is imperative to reaffirm political commitment to multilateral cooperation and reinforce institutional arrangements. These actions are crucial to achieving the long-term goals of the Paris Agreement and advancing global green and low-carbon transformation.

All Parties must also acknowledge that, as scientific research clearly indicates, global climate change is no longer a future threat but a present-day crisis. Accelerating our global action has become an imperative. The IPCC's Sixth Assessment Report underscores the insufficiency of current global efforts in adaptation and mitigation. Immediate action, together with the fostering of a coordinated, inclusive, and equitable transition, holds paramount significance. This calls for enhanced financial support and international cooperation.

Moreover, the imperative to address climate change presents significant opportunities for sustainable economic and social development. The response to climate challenges and the pursuit of green, low-carbon development have become irreversible trends, deeply embedded in national development strategies worldwide. Industries such as renewable energy, electric vehicles, and lithium batteries have emerged as new drivers for growth and new opportunities for high-quality development.

3. China has always paid high attention and actively participated in global climate governance

China upholds multilateralism and actively engages in multilateral processes of global climate governance. Since 1990, China has been an active participant in the negotiations of the Convention and Kyoto Protocol, steadfastly advocating for international cooperation on climate change. Prior to 1998, when China was still a low-income developing country, China started practicing the concept of sustainable development. Two years after the convening of the 1992 UN Conference on Environment and Development, China released the "Agenda 21 for China", which outlined the strategic goals, key priorities, and major actions for China's sustainable development, in 1994. With the deepening of the reform and opening-up, China actively integrated into economic globalization, experiencing unprecedented economic growth and rapid increase in greenhouse gas emissions. Recognizing this pressing issue, China embarked on a course of policies and actions in 2007, initiating policies and measures aimed at mitigating greenhouse gas emissions and realigning its energy structure. These policies and actions remain unwavering till today.

In 2015, President Xi Jinping attended the Paris Climate Conference and delivered an important speech, making a historic contribution to the conclusion of the Paris Agreement. In September 2016, President Xi Jinping personally presented China's Instrument of Ratification for the Paris Agreement, which expedited its prompt entry into force and underscored China's aspirations and determination to tackle climate change.

In September 2020, President Xi announced that China's ambitious goal to achieve peaking of carbon dioxide emissions before 2030 and strive to achieve carbon neutrality before 2060. These "dual carbon" goals not only manifest China's unequivocal commitment to making new contributions to global climate action, but also injects a robust impetus to the realization of the UN Sustainable Development Goals. On April 23, 2025, President Xi addressed the Leaders Meeting on Climate and the Just Transition, where he championed multilateralism, advocated for international cooperation, just transition, and emphasized pragmatic actions, thereby furnishing strategic guidance for global climate governance.

Over the past two decades, China's economy has sustained rapid and stable growth. In 2010, China became the world's second-largest economy, yet still remains a middle-income developing country. For years, China has consistently contributed more than 30% to global economic growth annually and accounts for approximately 30% of global manufacturing output. As a "world factory" serving the global market, China's share of global greenhouse gas emissions remains commensurate with this status. However, this rapid development has also led to rapid growth of China in the share of greenhouse gas emissions on a global scale. In recognition of this reality, China has attached paramount importance to addressing climate change and is accelerating its green and low-carbon transition through concerted actions.

Over the past decade, China's energy structure has undergone major transformations. The share of coal consumption has decreased from 65.8% to 53.2%, while non-fossil energy consumption has surged from 11.3% to 17.7%. China is in the process of constructing the world's largest and fastest-growing renewable energy system. By the end of March 2025, China's installed renewable energy capacity had reached 1.966 billion kilowatts, constituting approximately 57.3% of the country's total installed power generation capacity. Notably, the total installed capacity of wind power and photovoltaic power generation

amounted to 1.482 billion kilowatts, historically exceeding the full-caliber coal power capacity (1.45 billion kilowatts). China has also established the world's largest and most complete new energy industry chain, supplying 70% of global wind power equipment and 80% of photovoltaic module equipment. This has significantly driven down the global costs for renewable energy.

Furthermore, China has established the world's largest carbon market in terms of covered greenhouse gas emissions. China's technological innovations in electric vehicles and energy storage serve as low-carbon solutions for the world. As the largest developing country, China has overcome economic and social development challenges, embarking on a multitude of strategies, measures, and actions to address climate change. Its endeavors have significantly contributed to the implementation of the Paris Agreement. China's dedication to its "dual carbon" goals remains steadfast and unwavering.

Moreover, China has also actively engaged in South-South cooperation on climate change, extending assistance to other developing countries to the fullest extent of its capacity. Since 2016, China has provided and mobilized over 177 billion RMB in project funding. By the end of 2024, China had signed 54 climate change memorandums of understanding on cooperation with 42 developing countries. Through initiatives such as building low-carbon demonstration zones and conducting mitigation and adaptation projects, China has bolstered the capabilities of developing countries in addressing climate change. China has implemented more than 300 capacity-building projects, offering training to over 10,000 people from more than 120 developing countries.

China has also supported the UN Secretary-General's "Early Warnings for All" initiative, endeavoring to bolster the adaptive capabilities of developing countries and reduce loss and damage. China continues to assist developing countries, particularly small island developing states, least developed countries, and African nations, and has yielded remarkable achievements across diverse levels and sectors.

4. All Parties should uphold multilateralism and international cooperation for the future of humanity

For the sake of humanity's future, all countries should safeguard the Convention and its Paris Agreement as the cornerstone and main channels for global climate governance. As early as 2017, when the US announced its withdrawal from the Paris Agreement, President Xi Jinping, during his visit to the UN Office at Geneva, emphasized that "The conclusion of the Paris Agreement is a milestone in global climate governance. We must not allow this achievement to come to naught. All Parties should work together to implement the agreement."

In the wake of the second withdrawal of the US, it is even more imperative that countries should safeguard the goals, principles, cooperation framework, and mechanisms established by the Paris Agreement. All Parties should continue to adhere to the principle of CBDR-RC, in light of different national circumstances. All Parties should engage in concrete cooperation to enhance global efforts and promote a green and just energy transition.

Developed countries must substantially scale up the means of implementation and cultivate a conducive atmosphere for international climate cooperation. As the COP30 President-Designate noted in his letter, the Convention rests on five pillars: mitigation, adaptation, finance, technology, and capacity building. It is imperative for developed countries to make progress in providing support to developing countries in realms such as finance, technology, and capacity building, because these are the foundations for global climate ambition and multilateral trust. In addition, the unilateral trade and technology restriction measures imposed by some countries pose a hindrance to the global endeavor to combat climate change. The countries concerned ought to collaborate in assessing and reviewing their economic, trade, and industrial policies, ensuring they facilitate global climate cooperation rather than inflate the costs for countries striving to meet their NDC targets and navigate energy transitions.

China, as the largest developing country, will continue to play an active role in promoting a fair, reasonable, cooperative, and mutually beneficial global climate governance system. President Xi Jinping has consistently emphasized that addressing climate change is not at the request of others but on China's own initiative. It is an inherent requirement for sustainable development and an international obligation of a responsible major country. China is committed to accelerating a comprehensive green transformation of its economic and social development, envisioning a model of modernization where humanity and nature coexist in harmony. Additionally, China will continue to offer the world more high-quality green products, thereby promoting global green and low-carbon development. Concurrently, as a member of the Global South, China remains dedicated to South-South cooperation on climate change, extending support to other developing nations, particularly African countries, small island states, and least developed countries, in their efforts to address climate change.

Conclusion

At present, the multilateral process on climate change stands at a crossroads. We have only one Earth. Looking to the future, the only way to save our Earth is to uphold multilateralism and strengthen global climate action. China will remain a firm actor and key contributor to global green development. No matter how the international landscape changes, China's actions in addressing climate change will not slow down; its efforts to promote international cooperation will not diminish, and its commitment to building a community with a shared future for humankind will not cease.

Anne Hidalgo · Mayor of Paris

Ten Years After Paris: Climate Action Depends on Cities

In December 2015, COP 21 made Paris the beating heart of the world. With its universal scope and the immense expectations it raised, this climate summit represented a historic moment of unity in the face of climate change. For the first time, 195 countries agreed on a common framework for combating global warming.

This major step forward rewarded the decisive work of French climate diplomacy, embodied by Laurent Fabius, accompanied by a team of outstanding negotiators led by Laurence Tubiana, which enabled COP 21 to reach this crucial agreement that still offered us a chance for a livable world, a world at +1.5°C. Behind this agreement stood a strong promise: that of a sustainable future, a fairer and more breathable world. The Paris Agreement is a new major declaration for the rights of humanity, following the Declaration of the Rights of Man and of the Citizen of 1789 and the Universal Declaration of Human Rights of 1948, all three signed in Paris, the capital of human rights. True to its humanist tradition, Paris continues to inspire and play its full part in the march of the world.

This defining moment was made possible by the unprecedented mobilization and coalition of states, cities, civil society, scientists, activists, trade unions, politicians, and the private sector committed to decarbonization. In other words, the driving forces behind the fight against global warming.

Beyond the states, cities were already at work. As national governments signed the Paris Agreement, I gathered at the *Hôtel de Ville* in Paris, with the essential support of Michael Bloomberg, former mayor of New York and then UN Special Envoy for Cities and Climate, a thousand mayors from around the world, scientific experts, activists, renowned artists, entrepreneurs, and friends of the climate and the planet. This unprecedented mobilization of local governments, initiated by our city and city networks such as the *C40 Cities Climate Leadership Group* (C40) and the International Association of Francophone Mayors (AIMF), demonstrated a profound awareness that the climate battle would also be fought in cities. This is one of the key lessons of COP 21: no climate transition can now take place without cities and regions. In other words, we must think globally and act locally, as former UN Secretary-General Boutros Boutros-Ghali so often proclaimed.

We said it then, and we have repeated it ever since, that cities can and must play a major role in the fight against global warming. Quite simply because they are on the front line, where everything is happening, where all global challenges have local consequences, very concretely and very immediately, on human lives. It is up to local elected officials to protect their fellow citizens from the effects of extreme heat, air pollution, drought, flooding, and even fires and mega-fires. Our conviction was that the Paris Agreement should not only be a roadmap for states, but also define the common goal of our local policies to mitigate the consequences of climate change and adapt our living environment.

We had come a long way. Before the Paris Agreement, mayors, it must be acknowledged, were mere extras in global climate action. For the first time, with COP 21, we got a foot in the door. Since then, we have become recognized, legitimate, and decisive players in the fight against global warming.

Today, cities are clearly the strategic location for climate action. They are both the first to be affected by the effects of global warming and the right scale for climate adaptation and mitigation policies. Why? Let's not forget that today, more than half of the world's population lives in cities, i.e. 4 billion people, a figure that will reach 70% by 2050. Growing urbanization makes cities the main emitters of greenhouse gases, responsible for 70% of global emissions, while generating 80% of global GDP. It is at this level that concrete, life-changing actions must be taken, rooted in everyday life, close to residents and ambitious in scope.

Mayors are not waiting for governments to act. When governments back down, they stand firm. I keep in mind the words of United Nations Secretary-General António Guterres: “Cities are where the climate battle will largely be won or lost.”

In Paris, this awareness, which began in 2001 with the measurement of the carbon impact of our actions, enabled us to launch our first Climate Plan in 2007, followed by three others.

In 2014, when I was elected Mayor of Paris, I decided to go even further by firmly committing my city to adapting to global warming and phasing out fossil fuels. Quite simply because pollution kills. We did this by freeing the capital from cars: by giving the riverbanks back to Parisians, by putting an end to urban highways in the heart of Paris, and, more recently, by lowering the speed limit on the ring road to 50km/h, creating a lane reserved for clean vehicles and carpooling, establishing limited traffic zones

in the center of our city, and increasing parking fees for SUVs, as requested by Parisians in a citizen vote.

And the results are clear: in twenty years, car traffic has fallen by 56.2%, leading to a 60% reduction in air pollution, including a 40% reduction in nitrogen dioxide emissions.

We are continuing this commitment by developing active modes of transport, such as walking and cycling. We have created more than 1,565km of cycle paths. In 2024, for the first time, cycling overtook cars as the most popular mode of transport for everyday journeys.

This has also been accompanied by a massive greening of the streets, with the planting of 170,000 trees between 2020 and 2026, the creation of urban forests, the development of 300 car-free streets around schools, and the creation of oasis courtyards in schools. This is another great success that has been widely welcomed by Parisians.

And if I did it, it was because I am convinced that these actions save lives. In twenty years, the number of premature deaths due to air pollution has been halved, and the city's carbon footprint has been reduced by 32%. These changes improve air quality and reduce heat islands: they are all powerful levers for public health. Climate adaptation is a policy for everyday life, for social justice, for better living, here and now.

But we must go further. Because the goal is to phase out fossil fuels. So we are taking action on all fronts: in our buildings, with the aim of renovating all municipal facilities to improve their energy efficiency, and by developing the heating and cooling network. Not to mention food, by offering organic, sustainable, and accessible products in all catering establishments: nurseries, schools, nursing homes, and municipal restaurants. Paris is now the leading public purchaser of organic products in France, and 100% of the meals served in nurseries are sourced from organic farming. This is an exemplary policy and a tool for public health, social justice, and ecological transition.

What we are doing in Paris goes even further: our policy to combat global warming permeates all our actions. We have voted on numerous plans that inform all our policies: the 4e Climate Plan, the Biodiversity Plan, the Local Bioclimatic Urban Plan, the Resilience Plan and, of course, the Health and Environment Plan. They form a coherent whole that enables us to anticipate, plan and see further ahead.

It is also in this spirit that we built our bid for the 2024 Olympic and Paralympic Games. The Paris Games were an extraordinary success, but also a real lever for ecological and social transformation. Proof of this is that the Seine has finally been returned to the people of Paris. One hundred years after it was banned, they can swim in it again.

And it is not only Paris that is taking action. The movement launched by the 1,000 mayors who gathered at City Hall in 2015 has continued to grow, organize, and take shape. It led to the launch of the *Coalition for High Ambition Multilevel Partnerships for Climate Action* (CHAMP) initiative, the result of these multilateral and multilevel dynamics, which are now essential levers for local climate action. This collective work by cities around the world, and the results it has achieved and measured, are now being highlighted at City Hall through the exhibition "From Paris to Belém." I am thinking, for example, of Copenhagen, which in the 1990s had one of the most polluted ports in Europe. By installing smart retention basins to filter river water before it reaches the port, Copenhagen has been able to create several swimming areas in the city. Innovative policies are everywhere: ultra-low emission zones (ULEZ) in London; the greening and pedestrianization of the canal in Utrecht; the creation of new green spaces including hills and streams in Medellín; in Beijing, the transformation of a steelworks into an ecological park, symbolizing the city's urban renewal; the redevelopment of Banco Bay in Abidjan; the redevelopment of the banks of the Tiber in Rome; the "Breathe Rio de Janeiro" initiative to reduce air pollution in Rio, and solar-powered street lighting in Nouakchott. The list is long, and all over the world, mayors are working hard and innovating. This is another reason why cities are indispensable and why they are the driving force behind climate action. They are all moving in the same direction.

These concrete actions demonstrate the unique potential of local areas in the fight against global warming. They require unwavering, ongoing commitment and great determination. I can testify to this, as can many of my colleagues. We mayors are constantly confronted with unprecedented violence: powerful and organized lobbies, constant attempts to discredit us, caricature us, and orchestrated campaigns to make us back down. This is a recurring pattern, because we are often the first to oppose fossil fuel interests, as we did in Paris when we signed the treaty on the non-proliferation of fossil fuels.

Faced with this constant, organized, and aggressive pressure, cities must also turn to the courts to defend their environmental policies. This was the case in May 2018, when my friends, the mayor of Brussels, Philippe Close, and the former mayor of Madrid, Manuela Carmena, and I took legal action in the European courts following the *"dieselgate"* scandal, which granted car manufacturers a veritable "license to pollute." And we won. This victory proved that cities can make their voices heard in the face of industrial powers, in the name of public health.

There are many other obstacles. The past decade has been marked by considerable opposition to those who wanted to take action, notably with the US withdrawal from the Paris Agreement. However, US cities have continued to fight. We are also facing the rise of climate skepticism, climate revisionism, and mistrust of science, which runs counter to all rational considerations, as well as all forms of populism that profit from and feed on this mistrust. or the proliferation of disinformation campaigns amplified

by social media, all of which have been challenges that we have had to address directly. And we have done so with ever greater force. One of the peaceful weapons we have deployed is the "15-minute city," which enables citizens to get involved in their local communities and become agents of change for themselves, their children, and their grandchildren. In other words, for the rights of future generations.

Despite the headwinds, we must stand firm. The climate emergency is not a distant threat: it is here. The figures are clear, and scientists have been warning us for years. 2024 was the hottest year on record, with an average temperature 1.6°C above pre-industrial levels. It was also marked by a dramatic acceleration of extreme weather events: melting ice and rising sea levels, Cyclone Chido in Mayotte last December, deadly floods in Valencia in the fall, devastating fires in Los Angeles in January, and most recently, the floods in Texas. The year 2025 is also likely to break all records. These are not scientific abstractions, they are everyday reality and, sadly, the future of humanity.

So, of course, we must celebrate the tenth anniversary of the Paris Agreement. But today, at the global level, we could reach a global temperature rise of +3°C by 2100. Without COP21, it must be said, it would have been worse.

To stand firm and achieve these goals, mayors have organized themselves alongside international organizations and willing states. This momentum has given rise to a new, multi-level multilateralism that is now essential for tackling the major global challenges ahead. This has been achieved through international networks of cities, such as C40, which now has 97 member cities among the largest in the world; AIMF; the Global Covenant of Mayors (GCoM), which brings together more than 12,000 mayors representing more than one billion citizens, or about 15% of the world's population; and the OECD's Mayors for Inclusive Growth initiative. These are the spearheads of this climate alliance. Between 2015 and 2023, average per capita emissions fell by 6.3% in C40 cities, while those of their national governments remained stable. None of this would have been possible without COP 21.

That is why mayors have been campaigning for greater recognition of the role of local governments in global climate governance. At COP 28 in Dubai in 2023, mayors were included in the official conference agenda for the first time, with the Local Climate Action Summit. This is obviously a positive sign, but much more needs to be done. This is the whole point of CHAMP, an ambitious advocacy initiative aimed at integrating local contributions into nationally determined contributions (NDCs) and, at the same time, facilitating direct financing for cities for the ecological transition, commensurate with their actions. The Pact for the Future, adopted by the United Nations General Assembly in 2024, also significantly strengthens the place of cities in international negotiations.

Despite these undeniable successes and the place that cities have been recognized as having since COP21, it must be said clearly: they remain marginalized in international climate governance and financing. While global climate finance currently stands at $1.9 trillion per year, cities receive less than 10%.

Mayors need direct access to finance now more than ever to fully assume their responsibilities and go further.

This context gives particular resonance to the next COP 30, to be held in Belém, Brazil, in 2025, under the presidency of Luiz Inácio Lula da Silva. This conference could well be our last chance. It must mark a decisive turning point towards more inclusive climate governance under the auspices of the United Nations. COP 30 will be as important as COP 21.

Belém, in the heart of the Amazon, will champion the essential alliance between climate and biodiversity. This COP will also see a decisive strengthening of financial and political commitments to cities, as well as a reconsideration and respect for the global South by the North, an intensified fight against disinformation, and the consolidation of global climate justice.

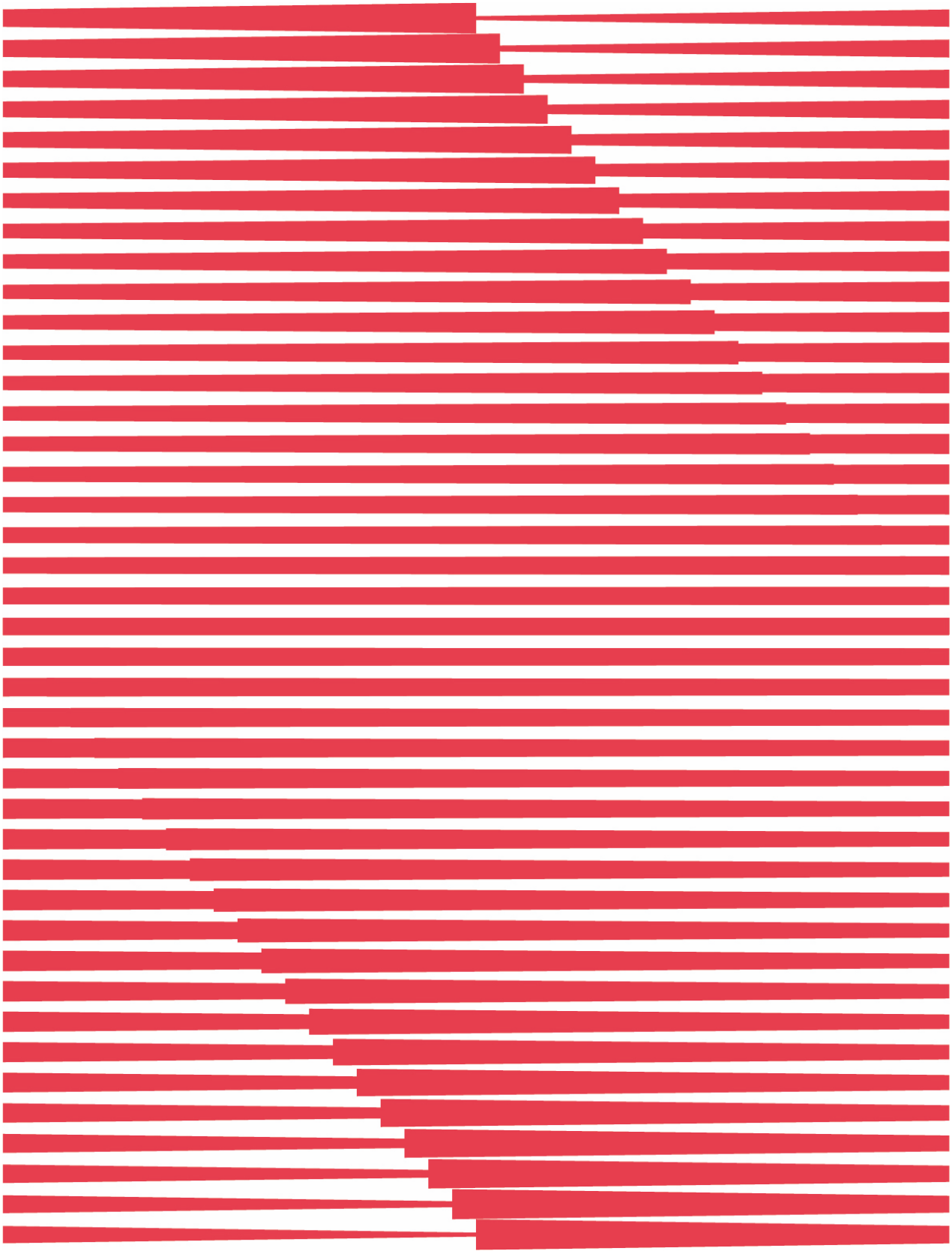
The Belém COP will be the COP of cities, the COP of hope. I will never tire of repeating this. Nothing will happen without them. Because they are the democratic level par excellence, the one that best represents the citizens, territories, and human communities of our entire planet.

Finally, to renew our climate ambitions in these difficult times for the climate and for democracy, it is essential that the planets align once again. All the humanist forces must come together, as they did in Paris ten years ago. With cities alongside states.

Ten years after Paris, let us ensure that Belém is the birthplace of a new agreement for the climate and for humanity. May it give us the strength to face the challenges of the present with hope. We owe it to those who are alive today. We owe it to future generations.

I believe in this deeply and I am fully committed to it.

New imaginaries and legal innovations



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The quest for a Global Pact on Environmental Rights

Turning a new page in the history of diplomacy, the 1972 Stockholm Declaration placed environmental challenges at the forefront of international concerns. It solemnly outlines key principles that still resonate today. After stating in its preamble that "man is both creature and moulder of his environment," it recognizes in Principle 1, on the one hand, his "fundamental right to [...] adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being" and, on the other hand, as a counterpoint, his "solemn responsibility to protect and improve the environment for present and future generations."

Nevertheless, more than fifty years later, the scientific data is clear: the state of our environment continues to deteriorate.[1] As humanity faces a triple global crisis—climate change, biodiversity loss, and pollution—it has become crucial to incorporate and effectively enforce key legal principles, rights, and duties into our legal systems, with binding authority. This must first be accomplished at the international level. International cooperation is obviously vital, given the nature of climate and environmental issues, which are shared by all nations and thus, go beyond individual borders.

This was the goal of the Global Pact for the Environment project, spearheaded by France following a civil society initiative. Following a proposal made by the Environment Commission of the *Club des Juristes*,[2] an initial draft was prepared by an international network of approximately 100 lawyers, led by the Commission and chaired by Laurent Fabius, then President of the French Constitutional Council.[3] Fabius, the architect of the Paris Agreement, believed that the sectoral climate treaty should be expanded into a broader treaty covering key environmental law principles. The launch of negotiations on the draft Pact was successful, highlighted by a United Nations General Assembly resolution on May 10, 2018, titled "Towards a Global Pact for the Environment",[4] which was adopted almost unanimously.[5] However, the discussions among nations, mainly held in 2019 in Nairobi at the United Nations Environment Programme (UNEP) headquarters, ended without agreement.[6]

Despite this setback, the draft Global Pact for the Environment remains a benchmark widely discussed among legal scholars.[7] It also reflects other similar initiatives. These include the 22-point draft "Proposed legal principles for environmental protection and sustainable development" in Annex 1 of the 1987 Brundtland Report, the "Draft international covenant on environment and development" proposed in 1995 by the Commission on Environmental Law of the International Union for Conservation of Nature (IUCN) and the International Council of Environmental Law (ICEL), the draft "Universal Declaration of Human Rights" drafted in 2015 by a group of lawyers chaired by Corinne Lepage, and the "International Covenant on Human Rights to the Environment" proposed in 2017 by the International Center for Comparative Environmental Law (CIDCE).

Admittedly, this requirement for a foundational document outlining key environmental principles is currently challenged by a rise of populism and identity politics. However, now more than ever, it remains essential to establish a major global pact on environmental rights, one that reaffirms the core values guiding environmental efforts and provides a basis for all sector-specific environmental texts.

In a classic review or outlook exercise, our analysis first examines the weaknesses of international environmental law (I), then proceeds to explain why and how the

1. Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2022: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2022); Maria-Antonia Tigre, *The Evolution of International Environmental Law amidst Political Gridlock: Environmental Rights as a Common Ground* (SJD thesis, Elisabeth Haub School of Law at Pace University 2022).
2. A commission that the author has the honor of chairing. See Environment Committee of *Le Club des Juristes*, *Increasing the Effectiveness of International Environmental Law* (2015) https://www.leclubdesjuristes.com/rapport-renforcer-lefficacite-du-droit-international-de-lenvironnement-devoirs-des-etats-droits-des-individus/#_ftn1.
3. For more information and documentation on the Global Pact for the Environment project, see the Pact's website: https://globalpactenvironment.org. See also the website of the Green Rights Coalition, an NGO accredited by UNEP, which aims to promote this initiative: https://www.greenrightscoalition.org.
4. United Nations General Assembly, *Towards a Global Pact for the Environment* UN Doc A/72/51 (7 May 2018).
5. The resolution was adopted by 143 votes in favor, 5 against (United States, Russia, Syria, Turkey, and the Philippines), and 7 abstentions (Saudi Arabia, Belarus, Iran, Malaysia, Nicaragua, Nigeria, and Tajikistan).
6. For a detailed account of the history of the Pact project, see Y Aguila, 'Le projet de Pacte mondial pour l'environnement: un témoignage en quatre saisons' in M Prieur, E Gaillard and MA Mekouar (eds), *Immersion dans les coulisses de la diplomatie environnementale internationale* (Mare & Martin 2023).
7. See in particular, Y Aguila and JE Viñuales (eds), *A Global Pact for the Environment: Legal Foundations* (C-EENRG 2019). For other doctrinal references, see the aforementioned Pact website, under the 'documents' section.

adoption of a Global Pact on Environmental Rights could help reshape the field (II).

I. Current situation: weaknesses in international environmental law

If we were to take stock of the overall situation, we would undoubtedly be able to identify the strengths of environmental multilateralism. Specifically, we would highlight the normative dynamism of the field, since there are as many as 1,500 treaties related to the environment,[8] whether directly or indirectly. However, the focus here is on the persistent weaknesses in this area.

A fragmented legal field

International environmental law is characterized by conventions that address specific topics separately, such as climate, ozone, desertification, biodiversity, the protection of certain animal species, waste, and chemical use. Each of these sectoral conventions exists as a distinct entity and functions independently, with no coordination among these different legal instruments.

The proliferation of international sectoral texts has caused confusion and reduced accessibility in international environmental law. Legal practitioners, judges, and lawyers often come across, unexpectedly while handling cases, an international environmental convention they had never heard of before.

In December 2018, the UN Secretary-General issued a report titled "Gaps in international environmental law and environment-related instruments: towards a Global Pact for the Environment,"[9] which examines international environmental law and identifies gaps in multilateral environmental agreements, environmental governance, and institutions. The report emphasizes that "the proliferation of multilateral environmental agreements and the resultant distinct and separate mandates ignore the unity, interconnectedness, and interdependence of the Earth's ecosystem" and advocates for the creation of a "comprehensive and unifying" international instrument that includes all principles of environmental law. The adoption of a Pact on the right to a healthy environment would therefore serve as the long-awaited cornerstone of international environmental law.

Fragmented institutions

When standards are scattered, governance tends to be as well, which is why today we observe not only the UNEP administration (around 2,000 employees), but also a range of services and secretariats that oversee various sectoral conventions in this area. The most prominent include the secretariat of the United Nations Framework Convention on Climate Change (nearly 500 people in Bonn) and the secretariat of the Convention on Biological Diversity (more than 100 people in Montreal). This proliferation of entities creates administrative burdens and remains unclear to all stakeholders, including governments, businesses, and NGOs. It can lead to contradictions that hinder effective environmental protection.

A technical legal field

International environmental law is also marked by the proliferation of relatively technical standards. There are agreements on chemicals, pollutants, ozone, hazardous waste, and, of course, greenhouse gas reduction.

This set of rules, sometimes referred to as "industrial environmental law," plays an important, even leading role in international law. Admittedly, this is justified by the scientific background of the subject and its main goal of regulating industrial activities' impact. However, it can also be explained by the fact that, in diplomatic contexts with tensions and disagreements over core values, it is sometimes easier to agree on purely technical standards than on broad principles.

As a result, international environmental law has increasingly become a technical field that is hard for citizens to navigate and has shown limited openness to approaches grounded in respect for fundamental rights.

An unambitious legal field: the diplomat's dilemma

Historically, states have found it challenging to pass ambitious and binding texts to protect individuals' right to a healthy environment.

As a result, we observe what might be called the "diplomat's dilemma": negotiators must often choose between an ambitious agreement and a universal one. But they cannot have both. If the agreement is ambitious, few states will agree to sign it; if it aims to be universal, diplomats are often forced to scale back their ambitions to include as many states as possible.

A legal field with few restrictions

To resolve this dilemma, a common solution is to adopt a text that seems ambitious in its content but is not particularly binding on its signatories. Consequently, ambitious international standards often have little legal force (for example, due to the lack of sanctions) and can even fall under soft law. This is evident in major declarations and founding texts adopted over the past 50 years, from Stockholm to Rio, including the 1982 World Charter for Nature. It also applies to the Sustainable Development Goals, adopted in 2015 as a non-binding United Nations General Assembly resolution. Similarly, the recognition

8. S Maljean-Dubois, 'Les forces et les faiblesses du droit international face aux défis planétaires: quelles nécessaires évolutions?' in L Boisson de Chazournes (ed), *L'effectivité du droit international face à l'urgence écologique* (Collège de France 2024).
9. UN Secretary-General, *Gaps in International Environmental Law and Environment-Related Instruments: Towards a Global Pact for the Environment* UN Doc A/73/419 (December 2018).

of the right to a healthy environment in July 2022 gained majority support from states because it was framed as a simple United Nations General Assembly resolution rather than a genuine treaty.

The Paris Agreement itself is no exception to this observation: while it is legally binding in form, as it holds the status of an international treaty rather than a simple declaration, it is based on nationally determined contributions (NDCs), which are voluntary and left to the discretion of individual states. Moreover, it establishes a system of sanctions less severe than that of its predecessor, the Kyoto Protocol. It is true, however, that since the unanimous advisory opinion issued by the International Court of Justice on July 23, 2025, national contributions are no longer seen as purely voluntary: the Court now considers them to be part of more binding legal obligations under, not only international treaties, but also customary international law, with international responsibility in case of non-compliance.[10]

The weakness of enforcement is also reflected in the feebleness of sanction mechanisms. In international law, justice is only an option. Recognition of the compulsory jurisdiction of the International Court of Justice remains voluntary—France is one of the few countries in Europe that has refused it. Most environmental treaties are exempt from judicial sanctions. At best, they set up monitoring of compliance through compliance committees, which, with few exceptions, cannot be referred to by individuals and have limited authority. Lastly, countries can always choose to withdraw from agreements to avoid possible sanctions.[11]

A negotiated legal field

In reality, international environmental law merely reflects a system of global governance that is still mostly based on a contractual approach, where only the consent of states to self-restraint can form the basis of law. As a result, negotiations are permanent, giving pride of place to the primacy of national interests and self-interest. The adoption of texts relies on the so-called "consensus" method, which often leads to the rule of the minority—specifically, the minority of states that are both powerful and opposed to environmental progress. Foremost among these is the United States, which is absent from many environmental agreements.

Thus, the history of international environmental negotiations has been marked by a long series of failures, from the 2009 Copenhagen Conference on climate change to the 5th session of the Intergovernmental Negotiating Committee on a treaty on plastic pollution, held in Geneva in August 2025, and the discussion of the draft Global Pact for the Environment in Nairobi in 2019. Each time, history repeats itself: the 193 UN member states are unable to reach an agreement on a text, often because a majority in favor of the project is blocked by a minority of states that hinder the progress and ambition of the treaty.[12]

Another concept, based on recognizing a global public interest that is superior and external to the national interests of States, as the foundation for the binding force of international law, would undoubtedly be possible… But it is probably too early for this to become a reality.[13]

II. Outlook: A Global Pact to Reshape International Environmental Law

The persistence of a gap

When we take a step back, one thing becomes clear to the observer: there is no legally binding international document on environmental rights.

The contrast with other human rights is striking. Numerous international conventions protect specific human rights: the 1979 Convention on the Elimination of All Forms of Discrimination against Women, the 1984 Convention against Torture and Other Cruel, Inhuman, or Degrading Treatment or Punishment, and the 1989 Convention on the Rights of the Child. Above all, in 1966, two international treaties gave legal force to the human rights recognized by the 1948 Universal Declaration, distinguishing between two broad categories: the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social, and Cultural Rights. However, third-generation rights, or environmental rights, are not yet covered by such a Covenant. John H. Knox, former Special Rapporteur on the human right to a healthy environment, noted that "Were the Universal Declaration of Human Rights to be drafted today, it is hard to imagine that it would fail to include the right to a healthy environment, a right so essential to human well-being and so widely recognized in national constitutions, legislation and regional agreements."[14]

The parallel with French law is interesting: after the Declaration of 1789, which primarily addresses civil and political rights, and then the Preamble of 1946 for economic and social rights, the Environmental Charter of 2004 established a new category of rights, environmental rights. There is nothing comparable on the international level.

10. ICJ, *Advisory Opinion on Obligations of States in respect of Climate Change* (23 July 2025) General List No 187, § § 234–236, 237–249, 309–315.
11. See, for example, Canada's withdrawal from the Kyoto Protocol in 2011, when it failed to meet its greenhouse gas emission reduction commitments and was at risk of facing sanctions under the Framework Convention on Climate Change.
12. For a reflection on these failures, see Y Aguila and M-C de Bellis, 'A Martian at the United Nations or Naive Thoughts on Global Environmental Governance' (March 2021) 2 *Revue européenne du droit* 113.
13. See Y Aguila and M-C de Bellis, 'L'intérêt public mondial: un concept pour fonder un système juridique mondial adapté à notre temps' in *Mélanges en l'honneur de Mireille Delmas-Marty* (Mare & Martin 2022) 447; Y Aguila and M-C de Bellis, 'On the Concept of a Global Public Interest: Some Reflections' (2022) *Environment Policy and Law*.
14. UN Secretary-General, *Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment* UN Doc A/73/188 (19 July 2018).

Granted, there are major declarations, such as the 1972 Stockholm Declaration and the 1992 Rio Declaration. Admittedly, these texts have had a significant influence as sources of inspiration. The principles they establish have shaped international agreements and national laws. However, these soft law instruments have no legal weight on their own and therefore cannot be used in court.

Just as the 1966 Covenants legally reinforced the rights established in the 1948 Declaration, it is now time to adopt a third Covenant to formally enshrine the principles derived from these major environmental declarations into binding law.

The need for a foundation of shared core values

Adopting a major global text on environmental rights would signify a return to international environmental law rooted in fundamental values, as affirmed in 1972. Currently, this legal field appears to have lost its broad vision and concentrates only on technical rules. Values must serve as the foundation of international environmental law; without them, it is doomed to instability and to facing enforcement challenges.

Every society needs shared values. This is clear in the foundational texts, from the Magna Carta to the Declaration of Human Rights, and the Declaration of Independence. These values are not merely symbolic. They are the glue that unites societies, the compass that points the way forward, and encourages us to transcend national and individual self-interest.

President Barack Obama's words resonate here: "[S]ometimes we think people are motivated only by money, or they're only motivated by power, or these very concrete incentives. But people are also inspired by stories… You think about the United States of America. We have a really good story called the Declaration of Independence. 'We hold these truths to be self-evident that all men are created equal…' That's a wonderful story… [W]hen the Declaration was made, there really was not United States. It was just a good story that they were telling about what could be. And then people were attracted to that story. And it led to independence… It inspired movements around the world. So, yes, the stories we tell each other are very, very important."[15]

Without a set of general principles to refer to when the temptation to disregard international commitments increases, international environmental law is destined for instability and stays vulnerable to some actors taking a free rider approach.

Therefore, it is essential to revisit the fundamental principles that unite all nations in environmental protection. In this context, such a Pact could serve a role similar to that of a constitution. In a legal system, the Constitution is a document that stands the test of time, a repository of fundamental norms that we aim to safeguard from the shifting tides of political majorities. It also serves as a yardstick against which laws and regulations enacted by parliaments and governments—inherently temporary—can be evaluated. Likewise, in an aspirational sense, a comprehensive global text that consolidates environmental values could be considered a form of global constitution for environmental protection.

The possible content of a Global Pact on Environmental Rights

Such a Pact could enshrine fundamental environmental rights and responsibilities and, more broadly, the core principles that would underpin government action on environmental issues. Its content can be interpreted in different ways, but its broad outlines are easy to imagine.

Some of these principles are already included in non-binding texts that have been adopted, notably the Stockholm Declaration of 1972 and the Rio Declaration of 1992, as well as the General Assembly resolution of July 2022 on the right to a healthy environment. Other, more recent principles should also be incorporated to update these major declarations.

The draft Global Pact for the Environment, drawn up in 2017 by an international network of hundreds of lawyers, offers one example among many of the principles that could be included in such a text.[16] It naturally encompasses the right to a healthy environment and its counterpart, the duty to protect the environment, which are the two cardinal values and the foundation for all others, already implicit in Principle 1 of the Stockholm Declaration. It would also affirm intergenerational equity, which involves the obligation to consider the rights of future generations, the principle of integrating environmental requirements into all public policies, and the three related principles of prevention, precaution, and remediation of environmental damage. These include the polluter pays principle, the three major procedural rights of public access to information, public participation in environmental decision-making, and access to environmental justice, as well as newer principles such as the requirement for resilience and the principle of non-regression.

Most of these principles are already recognized in many countries through national legislation and regional agreements. A document formalizing them at the international level should therefore, in theory, be able to gain widespread support.

15. Barack Obama, 'Remarks at YSEALI Town Hall, Vietnam, 25 May 2016' https://obamawhitehouse.archives.gov/the-press-office/2016/05/25/remarks-president-obama-yseali-town-hall.

16. The Pact drafted in 2017 is available at: https://globalpactenvironment.org/uploads/EN.pdf.

The failure of negotiations in 2019 regarding the draft Global Pact for the Environment revealed that the benefits of its adoption were not always recognized, even by some countries that advocate for environmental protection, which sometimes questioned its actual impact. It is therefore important to recall the legal effects of such a document.

First, adopting a Pact would strengthen and safeguard the core principles of environmental law.

Admittedly, these rights have already been affirmed in declarations; however, their recognition in a binding treaty would lend them greater legal force. Such a shift from soft law to hard law has an illustrious precedent in the incorporation of the content of the 1948 Universal Declaration of Human Rights into the 1966 international human rights covenants.

Granted, these principles are already embedded in the national legislation of many states. However, on the one hand, some countries have not yet recognized all of these principles. On the other, and more importantly, enshrining principles that are recognized nationally into international law has the immense legal benefit of sanctifying them and protecting them from political shifts. Of course, following such a shift, a state can always choose to withdraw from an international agreement, as seen twice with the United States' withdrawal from the Paris Agreement. Nonetheless, this path is more complex in terms of international public opinion. Each state is thus subject to the scrutiny of global citizens.

Second, adopting such a Pact would generate positive momentum in both domestic and international legal systems.

National legislators could find a job description there, as they would be responsible for passing laws to implement the principles of the Pact. For example, the principles of public information and participation, after being included in the Aarhus Convention, have gradually been turned into laws within the member states of that convention.

Furthermore, adopting such a Pact would have an impact on national judges. Even in countries with a dualist tradition, the principles could, at the very least, serve as a source of inspiration for domestic courts, which could consider interpretations given by courts of other member states. In countries with a monist approach, like France, the Pact could even be directly invoked before domestic courts, as such a treaty would clearly satisfy the criteria established by case law regarding the direct effect of international conventions.[17]

In this way, national judges would thoroughly fulfill their role as "guardians of the promises" made by states,[18] ensuring they adhere to their international environmental commitments. In line with this, in the case of Urgenda v. Netherlands,[19] the Supreme Court of the Netherlands determined that the Dutch government had violated the European Convention on Human Rights, particularly the duty of care arising from Articles 2 and 8 relating to the rights to life and privacy, by not sufficiently reducing greenhouse gas (GHG) emissions. Similarly, in the Grande-Synthe case,[20] the French Council of State ruled that the French government failed to take the necessary measures to cut GHG emissions and thus violated domestic law as interpreted in light of the Paris Agreement.

Finally, at the international level, such a Pact would lay the groundwork for new developments, both legislative and jurisdictional.

On the one hand, as the cornerstone of international environmental law, the Pact would provide guidance for future sector-specific treaties. As negotiations in specific sectors take place, new standard environmental policies will inevitably need to incorporate the shared objectives, values, and principles outlined in the Pact. Some treaties might even explicitly refer to the Pact, especially in the area of investment: the Pact would serve as the common standard adopted by all States in the realm of environmental human rights.

On the other hand, international courts could apply the Pact or draw inspiration from it to establish or develop customary environmental principles that even states not ratifying the Pact would have to follow. An example of this approach is provided by the advisory opinion of the International Court of Justice from July 23, 2025, which affirms the right to a healthy environment even though this right is not explicitly recognized in any treaty[21]: it relies on a combination of soft law international instruments (such as the Stockholm and Rio declarations and the United Nations General Assembly resolution of July 28, 2022) as well as hard law (especially regional agreements) to conclude that "under international law, the human right to a clean, healthy, and sustainable environment is essential to the enjoyment of other human rights."

To take this further, one could imagine the creation of an International Environmental Court whose main mission would be to ensure that states comply with the principles of the Pact. Currently, monitoring the proper implementation of States' environmental commitments is essentially entrusted to administrative monitoring

17. In accordance with the requirements of the *GISTI* ruling by the French Council of State of April 11, 2012, it is generally accepted that most provisions of a comprehensive treaty on environmental rights are not solely intended to regulate relations between states and also do not require any additional acts to have legal effect concerning individuals.
18. Y Aguila, 'Petite typologie des actions climatiques contre l'État' (2019) *AJDA* 1853.
19. *Urgenda Foundation v State of the Netherlands* (Supreme Court of the Netherlands, 20 December 2019).
20. *Commune de Grande-Synthe* (Conseil d'État, 1 July 2021) no 427301.
21. ICJ, *Advisory Opinion on Obligations of States in respect to Climate Change* (23 July 2025) General List No 187, § § 387–393.

committees, or "compliance committees," established by each sectoral treaty, which have limited investigative and enforcement powers. The only sanctions that most of these committees can impose are constraints related to the international and diplomatic image of their counterparts, through a "name and shame" mechanism. The creation of an International Environmental Court would have the advantage of contributing to the effectiveness of the principles affirmed by the Pact. In line with the recognized rights and duties, its jurisdiction could be extended to major multilateral environmental agreements.

Conclusion: Is the Pact a realistic utopia?

Some might contend that the current period, marked by high tensions on the international stage, is not conducive to the adoption of such a text. This is probably true. However, this should not be an obstacle to reflection. Sooner or later, we will have no choice but to overhaul our international institutions. The current system, established in 1945, is no longer suited to the demands of our time. Admittedly, it is difficult to know when that moment will come: history teaches us that, unfortunately, human societies need catastrophes, wars, or other revolutions to question themselves. But this uncertainty does not prevent us from preparing the path.

In this respect, the current period of intellectual ferment in the face of global change is reminiscent of the Age of Enlightenment. In the 18th century, Voltaire, Montesquieu, Locke, Rousseau, and others were not concerned with when their ideas would ultimately triumph. They forged concepts—separation of powers, social contract, direct democracy—that would later inspire the drafters of fundamental texts such as the Declaration of Independence of 1776 and the Declaration of the Rights of Man and of the Citizen of 1789.

When the time comes, the overhaul of global governance will probably involve the international endorsement of key principles, particularly in the area of environmental protection. The only question that will then arise is why these principles were not enshrined earlier in a major, foundational text. In this sense, the draft Pact may be a utopia, but it is, to quote Mireille Delmas Marty, a "realistic utopia."[22]

22. M Delmas-Marty, *Le travail à l'heure de la mondialisation* (Bayard/Collège de France 2013) Annex II, 'Une utopie réaliste: humaniser la mondialisation'.

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Legal Theories of Liability for Climate Harm

This article provides a preliminary examination of perhaps the most complex aspect of the surge in climate litigation,[1] namely the conceptualisation of liability for climate harm[2].

The climate for speaking about the climate has changed very significantly in the last few years, and particularly in the last few months. The positions have become deeply polarised, with limited space for genuine dialogue and collaboration, despite the urgency of the situation, once again stressed by the extreme heat and the wildfires in this summer of 2025. Europe, as a continent, has been largely spared from the backlash against discourse about climate change. But the topic of climate liability may well be another matter altogether, if one judges by the clampdown on climate activism and the positions of some States in the hearing of early December of 2024 before the International Court of Justice (ICJ) in the advisory proceedings on climate change.

A word first about what I will understand here by 'legal theories of liability'. I use this expression to refer to a normative explanation of why an entity is liable or responsible, under the law, for a specific type of negative outcome: climate harm. I will characterise the terms 'climate harm' below. The 'legal theories' encompass a wide range of normative explanations, with boundaries difficult to set specifically, given that many legal systems and types of claims are involved.

Yet, however broad, the expression is also intended to exclude a range of legal theories that have been mobilised in climate litigation seeking so-called 'forward-looking' remedies, i.e. the requirement for an entity to do better in the future without drawing the consequences of the harm it may have caused in the past. Claims against companies or States for lack of diligence or mitigation ambition, claims for misinformation or greenwashing or misleading investors, and several other types of claims, may raise issues of liability, but they can be distinguished for present purposes from what my main focus is here: legal theories that may ground a tort-like claim for climate harm that has materialised.

I will structure my analysis in three main parts. First, I will very briefly introduce some empirical elements relating to climate change and its impact. This will provide the necessary context to better understand issues of attribution, causation and the conceptualisation of climate harm. Second, I will identify the main ways in which liability for climate harm has been structured or articulated in legal terms. Third, I will discuss in more detail the issue of liability for climate harm in the context of the advisory opinion rendered by the International Court of Justice on 23 July 2025 on the obligations of States in respect of climate change.[3]

1. Climate change from a liability perspective

Let me start with some empirical elements. The fundamentals of climate change will be well trodden ground for most readers. The United Nations Framework Convention on Climate Change (UNFCCC) provides a useful definition of climate change in its Article 1(2), namely "*a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods*".[4] In this definition, we have already two core aspects of any theory of liability for climate harm, namely 'change' and 'attribution'. Both are complex.

Let me begin with 'change' first. Climate change is a highly condensed and aggregate expression, which we need to flesh out to determine which change is deemed to be harmful. The expression "climate change" would normally evoke an increase in global average temperature, or sea-level rise or the increased frequency or severity of certain extreme weather events. But there are many other faces of climate change, and they can be seen at a range of scales, from abstract to highly specific. One can think of floods, wildfires, disease vector redistribution or food crises. Which face we focus on is relevant to understanding and attributing a given 'climate harm'. There is indeed a difference between interference with the climate system as such, the types of extreme weather events driven by it, a specific extreme weather event, and the specific harm suffered by an entity. What connects the

1. See J. Setzer, C. Higham, *Global Trends in Climate Change Litigation: 2025 Snapshot* (London: Grantham Research Institute on Climate Change and the Environment, LSE); M. Wewerinke-Singh, S. Mead (eds.), *The Cambridge Handbook of Climate Litigation* (Cambridge University Press, 2025).
2. This is a revised and updated version of my lecture for the fourth edition of the 3VB-NUS Arbitration Lecture, delivered on 13 May 2025. My remarks are made in a purely academic capacity and must be understood as mere observations about a phenomenon that is unfolding before our very eyes, and not as the expression of personal or professional stances.
3. International Court of Justice, Advisory Opinion, Obligations of States in respect of Climate Change, 23 July 2025, I.C.J. Reports (2025).
4. United Nations Framework Convention on Climate Change, 9 May 1992, 1771 UNTS 107.

myriad manifestations of climate change together is their complex but common cause, emissions of greenhouse gases, mainly carbon dioxide and methane, from fossil fuel use and land-use change. This link is unequivocal, in the terminology of the Intergovernmental Panel on Climate Change (IPCC).[5]

Yet, from a legal liability standpoint, the alignment of empirical or scientific attribution and legal attribution, in some cases, may require a fuller causal link, from 'end-to-end' or, in other words, from the emissions of a specific entity all the way to a specific injury or loss of another entity. This is possible in the current state of attribution science.[6] Empirical understanding of end-to-end attribution follows three, or perhaps four, steps: first, the link between the specific GHG emissions of an entity over a period of time (relevant emissions can follow different scopes 1 to 3) and changes in the global average temperature can be established in the current state of science (through a reduced complexity models); second, the link between temperature change and localised types of impacts (pattern scaling methods – models – are used to generate scenarios linking climate change to regional/local impacts) and/or specific extreme weather events can be clarified (probabilistic event attribution – multi-model and multi-method – according to the protocol of the World Weather Attribution Group[7] or 'storyline approaches' which plausible causal reconstructions, much like building a factual explanation in a case); third, a specific injury or damage can be linked to the type of event or the specific event (whether through an empirical damage function in the model or through more direct before-and-after reconstructions).

Although end-to-end attribution is empirically possible, from a legal standpoint, it is not necessarily required, at least for some theories of liability. This takes me to the discussion of the legal theories on the basis of which a certain climate-related harm may be attributed to an entity deemed responsible for it.

2. Legal articulation of liability for climate harm

In legal terms, such considerations may be addressed in a range of ways. One frequent approach is to acknowledge that an activity (technically a "transaction") necessarily carries some undesired side effects (technically "negative externalities") which must be borne financially (technically "internalised") by the participants in the transaction (technically the "polluters") rather than by third parties or the environment itself. Another is to allocate the responsibility for the harm arising from a given activity to the entity that conducts the activity, irrespective of the level of diligence it displays (strict liability). This is another form of internalisation, in that the activity or transaction typically remains lawful and the reparation required is standardised. A third approach is to consider that the conduct or transaction is unlawful and that all the harm resulting from it must be fully repaired. The normative explanations linking the conduct, the harm and the extent of the reparation are more complex in this latter case, because the allocation is much more fact-sensitive. For ease of reference, I will refer to these three broad approaches, respectively, as "cost internalisation", "strict liability" (or general legal allocation), and "responsibility" (or specific empirical/legal allocation).

The broad policy and legal principle underpinning cost internalisation is the polluter-pays principle, as formulated in a wide range of international and domestic legal instruments.[8] To be clear, the polluter-pays principle can be used also in other contexts, including strict liability and responsibility. However, its focus is not to prohibit the transaction but to make participants to the transaction pay (or internalise) the cost borne by third parties.

This can and has been applied in the context of climate change in a growing number of *carbon pricing* mechanisms. It is of course very complex to say what the "social cost of carbon" to be internalised is. An entire sub-field of economics is devoted to this question, which is, at the end of the day, a normative one. A 2023 study[9] of some 6000 estimates concluded that the social cost of emitting an extra tonne of carbon dioxide has been estimated to as little as USD 9 and as much as USD 525, hardly a base for a clear carbon pricing signal. The World Bank's *State and Trends of Carbon Pricing* 2024 identified 75 carbon pricing systems (carbon taxes and trading schemes) in operation, covering nearly a quarter of global emissions but setting in their great majority a rather low carbon price which, in all likelihood, it is insufficient to drive the behavioural change needed for a decarbonisation pathway consistent with the Paris Agreement. To put it simply, we are "well below" the cost of carbon that would be consistent with the Paris goal to limit temperature increase to "well below 2C", and even more so for the 1.5C target.

Moving to *strict liability*, perhaps the most debated development are the so-called "climate superfund" statutes in US States such as Vermont,[10] New York[11] and possibly others soon, including California, Maryland and Massachusetts.[12] These statutes are modelled on

5. Intergovernmental Panel on Climate Change, *Synthesis Report of the IPCC Sixth Assessment Report (AR6). Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Summary for Policymakers (2023), statement A.1.
6. C. W. Callahan, J. S. Mankin, 'Carbon majors and the scientific case for climate liability' (2025) 640 *Nature* 893. For a broader discussion of attribution science as it concerns litigation see M. Burger, J. Wentz, R. Horton, 'The Law and Science of Climate Change Attribution' (2020) 45 *Columbia Journal of Environmental Law* 57.
7. See https://www.worldweatherattribution.org/
8. See P. Schwartz, 'Principle 16: The polluter pays principle', in J. E. Viñuales (ed.), *The Rio Declaration on Environment and Development. A Commentary* (Oxford University Press, 2015), pp. 429–450.
9. R. S. J. Tol, 'Social cost of carbon estimates have increased over time' (2023) 13 *Nature Climate Change* 532.
10. Climate Superfund Cost Recovery Program, 10 V.S.A. § 596.
11. Climate Change Superfund Act, S.2129-B/A.3351-B.
12. See California (Polluters Pay Climate Cost Recovery Act, S.B. 1497); Maryland (Responding to Emergency Needs from Extreme Weather Act, H.B. 1438 and S.B. 958); Massachusetts (Climate Change Adaptation Cost Recovery Act, H.B. 872 and S.B. 481).

the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),[13] better known as "Superfund", which concerns the decontamination of hazardous waste sites. Under the climate superfund statutes, companies which have emitted more than a certain threshold of greenhouse gases (e.g. 1 billion metric tonnes, for Vermont) in a given past period (1 January 1995 to 31 December 2024, for Vermont; 1 January 2000 and 31 December 2024 for New York) are strictly liable to make "compensatory payments" covering a share of the costs incurred by the State as a result of climate change proportional to their share of emissions (estimated by means of "source attribution"). The identification of the "responsible parties" is of course a key aspect. These are defined as entities "engaged in the trade or business of extracting fossil fuel or refining crude oil" which, according to a determination of the regulator, have reached the requisite level of emissions in the reference period. Responsible parties do not include "any person who lacks sufficient connection with the State to satisfy the nexus requirements of the U.S. Constitution". The volume of payments that may have to be made could reach billions of USD.

With respect to *responsibility*, according to one estimate,[14] as of March 2025, some 68 lawsuits had been filed specifically seeking financial redress for climate harms. Approximately half of all 68 cases concern the fossil fuel industry and most have been filed in the US, followed by Brazil and Indonesia. A range of legal bases have been used in the growing body of climate litigation, but in specific relation to responsibility, as characterised earlier, three main rationales can be identified. I'd like to discuss each of them briefly, before examining a case-study more closely.

The first rationale relies on a *private tort law - or civil liability - framing*, which relates to the protection of the interest of the injured party. Whereas this framing is the most basic one, it is complex in terms of causality and attribution. From a scientific perspective, it would require the establishment of what has been called "end-to-end" attribution of a specific harmful outcome to the specific emissions of a given entity.[15] It must be shown that "but for" the conduct of the defendant, the plaintiff would not have been injured as it was. In such a case, the responsible entity and its contribution to the climate harm have to be identified empirically. Less demanding theories can allocate liability on the basis of the "share" of the problem caused. This can be understood as a variation of market share liability, as initially developed by California's Supreme Court in *Sindell v. Abbott Laboratories* (1980).[16] In such a variation, the impossibility to identify the specific manufacturer whose product is to blame for the injury is overcome by allocating liability to all manufacturers based on their market share or their share of the contribution to the harm. Some possible illustrations of cases - some pending - where these theories are at play are *Lliuya v. RWE* (Higher Regional Court in Hamm),[17] *Hugues Falys et al v. Total Energies* (commercial court of Tournai, Belgium),[18] *Asmania et al v. Holcim* (Cantonal Court of Zug, Switzerland)[19] or *Greenpeace and ors v. Eni* (Supreme Court (Corte di Cassazione) of Italy).[20] In *Lliuya*, which was decided on 28 May 2025, a German appeals court considered that a claim by a Peruvian farmer, who had argued that RWE's emissions had contributed to the melting of a glacier near his hometown and therefore had to compensate in part for the adaptation costs, was "plausible and substantial" (schlüssig und erheblich) under German private law (section 1004, para. 1, second sentence of the German civil code (BGB), read together with sections 677 and 812), but it failed on the specific facts of the case. Thus, it set the principle that causation and attribution can indeed be established in a claim for climate harm, dismissing a range of recurrent arguments used by defendants.

Theories based on proportional contribution to the problem can also be deployed for the *protection of a public interest*. In this public law framing, akin to that of public nuisance, two main theories can be identified. One is a variation of proportional liability but with a focus on a type of impact. This is sometimes characterised as requiring only "general" rather than "specific" causation. Rather than attributing the effects of a specific event (e.g. the July 2024 European heatwave) to a specific conduct, the focus is on linking the increased frequency and severity of heatwaves (or other types of events) to climate change, and climate change to the defendants' conduct, through their contribution. Possible examples are provided by some 26 lawsuits by counties, municipalities and cities in the US against fossil fuel majors, some of which rely on public nuisance, or *Smith v. Fonterra* (pending before New Zealand Courts), where the relevance of public nuisance in the context of climate change was specifically recognised.[21] The other possible articulation of the theory is even more general. It links the conduct of the defendant to the broadest form of climate harm, namely interference with the climate system itself. Given the scientific and political consensus that anthropogenic emissions of greenhouse gases over time are the cause of climate change, the only aspect that would need to be determined is the extent of an entity's contribution to climate change as a problem. Possible illustrations could include, again,

13. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq. (1980).
14. Zero Carbon Analytics, 'Companies face financial risks from growing climate damage litigation', *Briefing – Energy and Transport* (March 2025).
15. See the previously cited study of Callahan and Mankin: C. W. Callahan, J. S. Mankin, 'Carbon majors and the scientific case for climate liability' (2025) 640 *Nature* 893.
16. *Sindell v. Abbott Laboratories*, 26 Cal. 3d 588, 607 P.2d 924, 163 Cal. Rptr. 132 (1980).
17. *Lliuya v. RWA*, Hamm Higher Regional Court (Oberlandesgericht Hamm), Germany, Case I-5 U 15/17, Judgment (28 May 2025)
18. *Hugues FALYS, LDH, GREENPEACE & FIAN v. SE TE*, 230.184—Tribunal de l'entreprise du Hainaut, division de Tournai (3th ch.), Belgium (pending).
19. *Ibu Asmania, Arif Pujianto, Edi Mulyono and Pak Bobby v. Holcim*, Cantonal Court of Zug, Switzerland (pending)
20. *Greenpeace and others v Eni*, Italian Supreme Court (Corte di Cassazione (Sezioni unite civili)), Case 13085/2024, Order of 18 February 2025.
21. See the latest decision in the case, by New Zealand's Supreme Court, *Michael John Smith v. Fonterra Co-operative Group Ltd* [2024] NZSC 5 (7 February. 2024) (Smith v Fonterra), paras. 143-173.

Smith v. Fonterra, where a new tort of harm to the climate system was argued alongside the torts of public nuisance and negligence[22]; *Held and others v. Montana,* to the extent that it frames constitutional rights as protecting a stable climate system[23]; the recognition in the human rights litigation context of a right to a stable climate;[24] and the position of certain States and international organisations in the ICJ proceedings on climate change.

The third basis on which responsibility for climate harm could be established concerns *non-linear outcomes or the triggering of tipping points*. The question here concerns responsibility for adding the straw that breaks the camel's back. Here, the straw is of course the incremental concentrations of greenhouse gases from anthropogenic emissions, and the camel's back is the climate system. A less inelegant way of explaining this non-linear dynamic is the answer given by one of the characters of Hemingway's novel *The Sun also Rises*, when asked how he went bankrupt: "two ways" he replies, "gradually, and then suddenly". The core issue is who is responsible for the marginal tonne(s) of greenhouse gases that tip the system, whether all emitters, or only large emitters or possibly a single emitter or group thereof? This question is wide open and could be approached in different ways, most likely through a strict liability system or through a public law prism focusing on the risk generated by large emitters. Its complexity lies in the possible disconnect between the merely incremental contribution to the problem and the disproportional damage caused by it. Tipping-point litigation has not materialised yet, at least in the form of a liability for climate-harm claim. But it may not be that far, given the increasing recognition of the high risks involved in adding greenhouse gases.

3. Responsibility for climate harm in the ICJ advisory opinion on climate change

In order to illustrate in some more detail the range of issues raised by establishing responsibility for climate harm, it is useful to make reference to the important advisory opinion rendered by the International Court of Justice (ICJ or the Court) on 23 July 2025.[25] Of course, advisory opinions are mere advice, in this case given to the UN General Assembly, which requested the opinion. But the law clarified by the Court is itself binding and the Court's interpretation will in all likelihood be widely followed by other courts, both at the domestic and international levels.

I will not address the entire set of issues covered by the advisory opinion, but only the specific issue of responsibility for climate harm. I will do so first in relation to the process of drafting of the UN General Assembly resolution making the request, i.e. resolution 77/276 of 29 March 2023 (the Request), with the important caveat that almost every word in that resolution was carefully negotiated. Then I will discuss how the issue featured in the written and oral pleadings.

As a short prelude to the discussion of the resolution, let me mention briefly that there have been many views, often highly critical, about the formulation of the questions. I think that constructive criticism was an important part of the process, although what could be gathered from it was minimal, both because of the major political constraints resulting from the negotiation and, also, because no alternative drafting was ever articulated, except for certain details that, often, were politically out of the cards. In hindsight, what matters is that the formulation of the question achieved the intended outcome.

The Request put two questions to the Court. The second question was initially the only question, and it focuses on "legal consequences", which is in the terminology of the ICJ a short-hand for responsibility. The first question was added as a "forward-looking" question, and during the negotiations there were attempts at keeping only the first question, about obligations, and discard the second, about responsibility. There is naturally much to be said about all this, but in an effort to remain self-contained, let me note that the arguments developed in the voluminous written and oral submissions were variations between two poles of the spectrum, one emphasising a forward-looking narrative centred around the UNFCCC and the Paris Agreement as the sole or main instruments and excluding issues of responsibility, and the other stressing, on the contrary, the applicability of much wider body of international law and the accountability focus of the second question, which expressly relied on the terminology of the ILC Articles on State Responsibility. The Court sided resolutely with the latter position, rejecting arguments based on the *lex specialis* maxim. It concluded that a much wider body of obligations governs the conduct responsible for climate change, understood to encompass both emissions of greenhouse gases and production of fossil fuels,[26] and that the legal consequences of breaching such obligations are governed by the general international law on State responsibility for internationally wrongful act. [27]

The theory of responsibility for internationally wrongful act articulated by the Court largely reflects the submissions of States such as Vanuatu and organisations such as the Melanesian Spearhead Group, the African Union and the

22. *Smith v Fonterra*, paras. 71-175.
23. *Held and others v Montana*, Supreme Court of Montana, case number DA 23-0575, Judgment of 18 December 2024, paras. 20-30.
24. *Case of Verein Klimaseniorinnen Schweiz and others v. Switzerland*, ECtHR Application no. 53600/20, Judgment of the Grand Chamber (9 April 2024), paras. 519 and 544; *Emergencia Climática y Derechos Humanos (Interpretación y alcance de los artículos 1.1, 2, 4.1, 5.1, 8, 11.2, 13, 17.1, 19, 21, 22, 23, 25 y 26 de la Convención Americana sobre Derechos Humanos; 1, 2, 3, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17 y 18 del Protocolo Adicional a la Convención Americana sobre Derechos Humanos en materia de Derechos Económicos, Sociales y Culturales "Protocolo de San Salvador", y I, II, IV, V, VI, VII, VIII, XI, XII, XIII, XIV, XVI, XVIII, XX, XXIII, y XXVII, de la Declaración Americana de los Derechos y Deberes del Hombre)*, CIADH Opinión Consultiva OC-32/25 de 29 de mayo de 2025. Serie A No. 32, paras. 295-297.
25. *Obligations of States in respect of climate change*, Advisory Opinion of 23 July 2025, General List No 187 (Advisory Opinion)
26. Advisory Opinion, para. 94.
27. Advisory Opinion, paras 171 and 420

Organisation of African, Caribbean and Pacific States. Like the Higher Regional Court in Hamm in *Lliuya v. RWE*, the Court did not reach any specific determination of responsibility, but it recognised the principle of responsibility. For present purposes, four main elements can be identified.

The first is an emphasis on assessing a conduct, the characterisation of which was woven into the text of the resolution requesting the opinion (mainly at preambular paragraph 5, in fine, as well as in questions (a) and (b)). What is on trial from this perspective is a conduct by certain responsible entities. The latter are States with large historical and/or present emissions of greenhouse gases or large production of fossil fuels. What the Court called, following the submissions of Vanuatu, the "relevant conduct" "*encompass*[ed] *the full range of human activities that contribute to climate change, including both consumption and production activities*" and it "*is not limited to conduct that, itself, directly results in GHG emissions, but rather comprises all actions or omissions of States which result in the climate system and other parts of the environment being adversely affected by anthropogenic GHG emissions*".[28] Later, when addressing specifically the issue of responsibility, the Court gave examples of what may constitute a wrongful act: "*fossil fuel production, fossil fuel consumption, the granting of fossil fuel exploration licences or the provision of fossil fuel subsidies… may constitute an internationally wrongful act*".[29] Such a wide and at the same time specific statement is remarkable from the Court, particularly in an opinion rendered unanimously by all 15 judges.

The second element is the characterisation of the climate harm at stake. In question (b), the type of climate harm at stake was characterised as interference with the climate system as such, specifically "*significant harm to the climate system and other parts of the environment*". Underpinning this focus is the fact that the causal link between anthropogenic GHG emissions and climate change is "unequivocal" in the terminology of the IPCC, which reflects both a scientific and a political consensus, given the procedure for the adoption of summaries for policy makers. States naturally also referred to a range of specific impacts, as well as specific injuries, but the broad focus on harm to the climate system was retained both in the question and in the opinion rendered by the Court. On this point, the Court noted that: "*with regard to obligations under customary international law, the Court observes that the most significant primary obligation for States in relation to climate change is the obligation to prevent significant harm to the climate system and other parts of the environment… which applies to all States, including those that are not parties to one or more of the climate change treaties*".[30] From a 'torts' perspective, this is a recognition that the old no harm (nuisance) tort, turned into a broader obligation of care, encompasses a specific tort to the climate system itself. Of course, international law is not common law and, much like in a civil law context, there is no need for the recognition of a specific 'tort'. But it is nevertheless remarkable that such specification was provided. Read by one of the judges from the common law tradition, Judge Charlesworth, the range of obligations at stake include this type of specific harm, as she noted by reference to the content of the right to a clean, healthy and sustainable environment: "*it is important to emphasize that the right has both substantive and procedural features as well as special obligations towards those in vulnerable situations, discussed further below. It includes the right to a safe climate*".[31]

The third element concerns the need to disentangle, in a complex context such as that of cumulative emissions of greenhouse gases over time from a multitude of sources in many States, the specific contribution of each responsible entity. In this regard, the Court made three important clarifications. First, it is not the emissions themselves but the conduct that generates or allows such emissions which is at stake.[32] Second, although it may be scientifically complex to apportion which effects can be attributed to which State, from the legal perspective such apportionment remains possible under current rules.[33] Third, it is entirely possible to account for a plurality of both responsible and injured States under existing law,[34] and "States other than injured States" (Article 48 of the ILC Articles on State Responsibility) may also invoke the responsibility of those States which have breached their international obligations, and they will not need to establish a specific injury to themselves but only harm to the climate system and other parts of the environment.[35]

The latter point leads to the fourth element, which concerns the articulation of the legal consequences. These consequences go well beyond the relationship between responsible entities and injured parties. The extensions rests both on (i) the *erga omnes* (for customary international law) and *erga omnes partes* (for treaty obligations) nature of some of the primary rules at stake, including human rights, the prevention principle and the obligations arising under the climate change treaties, a breach of which triggers secondary obligations for third parties and international organisations, and (ii) the broad conceptualisation of those on the receiving end, including States – whether injured, specially affected or particularly vulnerable – as well as individual and collective human rights subjects, present and future. The Court expressly addressed this distinction, and it only noted that it made a difference for the remedies that can be claimed: "*while a non-injured State may pursue a claim against a State in breach of a collective obligation, it may not claim reparation for itself. Rather, it may only make a claim for cessation of the wrongful act and assurances and guarantees of non-repetition, as well as for the performance of the obligation of reparation in the interest of the injured State or of the beneficiaries of the obligation breached.*"[36]

28. Advisory Opinion, para. 94.
29. Advisory Opinion, para. 427
30. Advisory Opinion, para. 409.
31. Separate Opinion of Judge Charlesworth, para. 9.
32. Advisory Opinion, para. 427-428.
33. Advisory Opinion, para. 429.
34. Advisory Opinion, para. 431.
35. Advisory Opinion, para. 442.
36. Advisory Opinion, para. 443.

4. Concluding observations

In closing, I would like to recall the observation I made at the beginning of this contribution. The climate for speaking about the climate has changed very significantly in just a few years and months. Liability for climate harm is likely the most sensitive issue of all in this context. The fact that the International Court of Justice now considers the conduct responsible for climate change as a conduct that, rather than being deemed lawful, must be seen, in principle, through the prism of internationally wrongful acts is very significant.

The former exception (unlawfulness of the conduct) is now deemed the rule, and the former rule (lawfulness of the conduct) is now deemed the exception. This is a major change, because the possibility that such conduct may be a tort/unlawful no longer faces a steep upward legal slope. In turn, regulatory approaches such as carbon pricing that assign cost while implying the lawfulness of a conduct become less compelling. Between mere carbon pricing and tort-like liability, strict liability approaches – which include liability caps and do not call into question the lawfulness of the conduct – may arise as a viable alternative despite the polarisation of the discourse about climate liability.

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The Habitability Principle

What is the purpose of law amid the unprecedented destruction of the conditions for life on Earth? This question arises as we reach the end of the first quarter of the 21st century, confronted with the contrast between, on one hand, unprecedented levels of global warming and the collapse of biodiversity, and on the other, the plateauing of legal measures aimed at protecting living conditions on Earth. Climate change, biodiversity loss, disease, death, economic loss, migration, conflict–everything is interconnected. Ten years after the Paris Agreement, which marked a significant diplomatic, political, civic, and legal push for climate and environmental action, the law–more necessary now than ever–has been weakened. Evidence of this can be seen in how environmental law–the branch of law we could reasonably expect to serve as a safeguard against attacks on living conditions–is being undermined on two fronts.

The legitimacy of environmental law is under attack. "Drill baby drill," "biggest deregulatory action in U.S. history,"[1] highlight how environmental law is in the crosshairs of those who–in bad faith and under the guise of simplification - not only in the United States but also in Europe and France - respond to the unabashed call against environmental law as a so-called "unjustified constraint" and "an obstacle to competitiveness," all to benefit the force that is currently causing the most massive and systematic destruction: extractivism, understood here as the unlimited form of the extractive economy.

The effectiveness of environmental law is being questioned. Whether out of disillusionment or conviction, as the climate and ecological crisis worsens, there is a growing sense of doubt about the ability of environmental law to prevent climate, ecological, and human catastrophes, undermining the substantial body of environmental legislation that has been developed over time. This decline is aggravated by overlapping crises–security, health, climate, social, and democratic–amid efforts to pit goals against one another: ending wars, making ends meet, or saving the planet.

Dialogue between a lawyer and a philosopher. It is in this context that we must understand the publication of the outcome of a long-running discussion that began several years ago, after COP21, between a lawyer and a philosopher. The original enigma of this dialogue was the need to understand the underlying reasons for the law's inability to protect Earth's life-supporting conditions. Its goal was to outline the foundations the law would need to overcome this weakness and confront today's climate and ecological crises. Far from any legal fix claiming to solve the problem quickly, the goal here was to take the time to question, from a high-level analytical perspective and over a century-long span, the structural changes necessary for environmental law and the most fundamental law to protect what must be protected: humanity in its interdependence with the biosphere and the ongoing story of life on Earth.

Harnessing legal creativity to revitalize the law in response to threats to life on Earth. Given the historic scale of climate and environmental challenges, now is not the time to give up, but to commit to action through the law. A surge of initiatives demonstrates how much society is mobilizing by using the law as a powerful tool. Similar to the post-World War II period for human rights, at a time when humanity and all life on Earth are at risk, the law needs a new impetus.

To achieve this, it is necessary to understand the path that has led environmental law–a branch of law supposedly dedicated to protecting living conditions–to its current plateau, from which it appears that the foundation of environmental law is fundamentally weakened by the absence of a protected core value (I). From this point on, the task of rebuilding becomes feasible by discovering, through a combination of philosophical reasoning and legal analysis, a principle capable of strengthening an improved environmental law, enshrined at the highest fundamental legal level: the habitability principle (II).

I. Understanding how environmental law is capped

To understand how we reached the current limitations of environmental law, it is important to examine the causes, some of which are known (A) and others–certainly the most fundamental–are often ignored (B).

A. The well-known causes

A technical law. Environmental law is an "engineers' law," because it's based on scientific standards, from which it derives part of its legitimacy. However, an excessive tendency to translate scientific concepts–such as biodiversity, greenhouse gases, ecosystem services, and pollutants–into legal terms without explaining their legal context makes the law hard for litigants and authorities, especially

1. Statement by Lee Zeldin, new administrator of the US Environmental Protection Agency appointed by President Trump, March 12, 2025.

judges, to access, understand, and enforce. Additionally, there is a tendency to frame environmental obligations in a formal, accounting-oriented way. For example, the requirement to publish corporate sustainability reports under the 2022 *Corporate Sustainability Reporting Directive* (CSRD), which is highly technical and complex, adds to the perception that the law is difficult to comprehend.

A diluted law. Environmental law has become a victim of its own success. From a "fledgling" law, it has transformed into an "omnipresent colossus radiating across all branches of law"[2] but shows, in the absence of an overall reading plan, significant signs of disorder. Thus, in cases of environmental damage where administrative, civil, and criminal penalties are incurred for the same acts, the lack of coordination rules creates a risk of unfortunate legal gaps or overlaps.[3] Excessive regulation makes the enforcement of environmental law more cumbersome, which fuels resistance and calls for deregulation.

A fragmented law. Environmental law has become internationalized thanks to human solidarity, with no customs officers to stop pollution at borders. Meanwhile, a complex system of local, national, regional, and international regulations has developed, revealing different types of interdependence among states, public and private actors, and regulatory bodies. However, this system also creates inconsistencies and tensions that hinder the enforcement of environmental laws. Divergent interpretations of common rules have arisen. The Swiss parliament and government have refused to comply with the April 9, 2024, ruling of the European Court of Human Rights in the case of the Swiss Grandmothers, which condemned Switzerland for its inaction on climate change. Swiss officials considered that the efforts their country had already made were sufficient.

An underenforced law. Environmental law, regardless of its nature—imposed, negotiated, or spontaneous—faces inconsistent penalties that depend not only on the applicable rules but also on various unpredictable factors: the competence of the involved parties (victims, lawyers, magistrates), the context of the dispute (severity, location, personalities of the parties). It is also worth noting—whether through negligence or intentional omission—that the environment lacks a dedicated chapter in the French Penal Code, which is one of the major reference codes that nonetheless implicitly reflects our society's core values. In 2023, the Molins report criticized that, in cases of environmental damage, "judicial responses are unsatisfactory due to their lack of responsiveness and firmness."[4] The same observation applies to the law on classified facilities for environmental protection, despite the theoretical importance of the administrative sanctions enacted. Lenient for some and a legal lottery for others, the penalties for environmental damage, as they are currently enforced, create harmful legal uncertainty.

A disorganized law. The history of environmental law shows that it was created empirically in response to economic, social, and ecological issues, often after disasters, "without the conceptual and methodological foundations necessary for the development of any autonomous discipline."[5] We built the train—pollution, classified facilities, climate, waste, biodiversity—but without the rails and the map to steer it. In France, the codification[6] in 2000 did establish some framework through environmental principles: prevention, precaution, polluter pays, public participation. However, many believed this was not enough, stating that "it would have been necessary to dare to undertake a truly innovative legislative codification,"[7] such as by integrating international and European law. What had worked so far had reached its limits because no law can function without a solid foundation. It is therefore understandable why environmental law must "face a barrage of questions that shake it [...] to its core."[8]

The technical, diluted, fragmented, underenforced, and disorganized environmental law, through its history, content, and implementation, is losing legitimacy and effectiveness. There are "blind spots"[9] even in environmental doctrine, which, due to the weight of the distinction between public and private law, neglects certain major issues: accounting, taxation, and insurance are just a few examples.[10] All these characteristics make environmental laws particularly vulnerable to political attacks. In this era of multiple crises, the phenomenon is worsened by a fundamental cause that has been ignored until now: the absence of a clearly identified protected core value.

B. The often-ignored cause: the lack of a core protected value

The law "protects values" and "regulates relationships". The law is a strong marker supporting the values that human societies have agreed to uphold. According to one author, "to evaluate a normative system, it is necessary to choose a reference value, a meta-norm, against which the system can be measured."[11] The law thus protects several core values: human dignity, property rights, the integrity of the nation, the state, and public peace, among others. Moreover, in a structured society, the law "regulates relationships" through concepts like obligations,

2. Agathe Van Lang, *Droit de l'environnement* (5th ed. PUF 2021) para. 11 (free translation from French original).
3. Laurent Neyret, 'La sanction en droit de l'environnement – Pour une théorie générale' in C Chainais and D Fenouillet (eds), *Les sanctions en droit contemporain*, vol. 1 (Dalloz 2012) 533.
4. François Molins (ed), *Le traitement pénal du contentieux de l'environnement* (Presses Universitaires d'Aix-Marseille 2023) 10.
5. Pierre Lunel and others, 'Pour une histoire du droit de l'environnement' (1986) 1 *Revue juridique de l'environnement* 43.
6. Pierre Lascoumes and Gilles J Martin, 'Des droits épars au Code de l'environnement' (1995) 30/31 *Droit et Société* 323.
7. Michel Prieur and others, *Droit de l'environnement* (Dalloz 2023) para. 13.
8. Laurent Fonbaustier, 'Les nouveaux objets en matière environnementale' (Nov 2024) 13 *Titre VII, L'environnement* 59
9. Gilles J Martin, 'Les angles morts de la doctrine juridique environnementaliste' (2020) 1 *Revue juridique de l'environnement* 67.
10. *Ibid.*
11. Emmanuel Dockès, *Valeurs de la démocratie* (Dalloz, Méthodes du droit 2004) 123.

property, and family. The protection of values and the regulation of relationships are deeply interconnected.

The fragility of environmental law revealed by the lack of an identified core value. An axiological perspective on environmental law reveals a "lack of solid conceptual foundation"[12] that weakens its legitimacy and effectiveness. Unlike other specialized branches of law, which have gradually become independent from the common legal framework while maintaining the strength of their deeply rooted values (such as criminal business law related to criminal law, labour law connected to contract law, intellectual property law tied to property law, etc.), environmental law has been constructed empirically, drawing from numerous branches of law, each of which has been diluted into an indistinct whole. Without roots firmly anchored in a foundational and protective common legal framework, and without a shared meta-value that provides comprehensibility, coherence, meaning, resilience, and solidity, environmental law—confronted with high expectations and criticism—exposes its vulnerability.

Hindered by its weak infrastructure, environmental law faces fundamental paradoxes on three levels.

The existence of environmental law: consensus and dissent. The first paradox concerns the existence of environmental law. On one hand - it should be remembered - there is general agreement on the existence and substance of environmental law. It is recognized at the national, regional, and international levels as a distinct branch of law, with its core principles (prevention, precaution, polluter pays, public information, and participation), its principles (authorisation based approach), and its key concepts (resources, species, ecosystems, habitats, pollution, sustainable development, etc.), its regimes (rights of nature, biodiversity law, pollution and nuisance law, natural resources law, environmental economic law, rural and cultural environmental law, environmental liability), as well as its institutions (agencies, councils, and commissions). On the other hand, environmental law faces disputes over both its legitimacy and effectiveness: as its legitimacy erodes, it opens the door to deregulation, while its lack of effectiveness breeds disillusionment about its capacity to deliver on its promises.

The relevance of environmental law: progress and regression. A second paradox involves the relevance of environmental law in its ability to regulate human activities related to the environment. On one hand, there is a strong belief that environmental law can serve as a lever to establish a new system where the relationship between humans and all life on Earth is ordered by an alliance focused on health, safety, and the prosperity of their interdependence. On the other hand, environmental laws are targeted in hopes of returning to the old system of competition between humans and all life on Earth. The two opposing visions nevertheless pursue a common goal of serving humanity: one by advancing environmental law, the other by opposing it. In any case, progress and regression highlight the dual nature of environmental law, whose strength is a powerful lever for transformation.

The essence of environmental law: exclusive value and inclusive value. While environmental philosophers have resolved to boldly address questions like "What kind of value the natural world presents?" and "How humans should approach it?", "environmental lawyers… largely ignored the questions that philosophers were pursuing."[13] The debate, which leans more toward ethics than law, is often polarized between the instrumental value and intrinsic value of the environment. It is reduced to a conflict between opposing systems of relations between humanity and all living things, leading to believe that one of these values should prevail.

Instead of choosing an exclusive value, which is necessarily limited because it is not shared, a useful theory of value protected by environmental law calls for identifying a shared and widely accepted higher value at the intersection of the different visions of humanity reflected in reconciled legal systems. To restore the legitimacy and effectiveness of environmental law and address the challenge that the law can protect more than just humanity—recognizing its interdependencies and encompassing all life on Earth—we need to discover what this core protected value is that supports it.

II. Rebuilding environmental law based on the habitability principle

Overcoming the fundamental fragility of environmental law. As we have seen, the limitations of environmental law are not merely a matter of legal content. Instead, they are the symptom of a deeper weakness in the very infrastructure of environmental law—a cathedral whose deep foundations, in this case the core value it is meant to protect, have never been laid. This lack of supporting force is crucial for understanding both the decline in the legitimacy and effectiveness of environmental law and how easily environmental deregulation is now happening. Deprived of its core value, environmental law is unable to meet the critical challenges of this century.

In the 20th century, societies embraced the principle of dignity to defend human rights against inhumanity. As the 21st century begins, humanity must adopt a protective value that can renew the legitimacy and effectiveness of the law, helping it confront the existential threats of climate and ecological risks. This is the promise of the "habitability principle" (A), which is already emerging and, even unconsciously, guiding environmental law toward

12. Serge Gutwirth, 'Trente ans de théorie du droit de l'environnement: concepts et opinions' (2001) 26 *Environnement et Société* 5.

13. Patrick Baard, 'Rights of Nature Through a Legal Expressivist Lens: Legal Recognition of Non-anthropocentric Values' (2024) *Ethical Theory and Moral Practice* (citing Jedediah Purdy, 'Our Place in the World: A New Relationship of Environmental Ethics and Law' (2013) 62 *Duke Law Journal* 857).

a process of overhaul—placing an improved law, in its various aspects, at the top of the hierarchy of rights (B).

A. From the principle of dignity to the habitability principle

In the 20th century: dignity as the foundation of human rights. Humanity has already faced an existential quest for protected values in the past. In the 20th century, in the aftermath of unprecedented barbarities inflicted by humans upon themselves, the community of states decided to unite around a shared fundamental value—human dignity—and to forge a common legal framework that would serve as a bulwark against inhuman acts: human rights law. Human dignity—the philosophical and legal guarantee of an authentically human life—prevailed because of its unifying and prescriptive potential. It can be found in moral philosophy in words of common sense: already in Montaigne—"Every man carries the entire form of human condition".[14] In law, where it is "easier to know what we reject than what we desire,"[15] faced with the shock of dehumanization caused by World War II, "the urgent need was to prohibit a return to inhumanity."[16] The Charter of August 8, 1945, establishing the Nuremberg Tribunal, then enshrined a new category of crimes: crimes against humanity. The way was open for the world to acquire a "treasure that must be carefully safeguarded"[17]: "recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world,"[18] an "inviolable,"[19] "inalienable and sacred"[20] principle, enshrined by the French Constitutional Council as a principle of "constitutional value"[21]: dignity. On this subject, the words of Robert Badinter found in the French Constitutional Council's deliberations say a lot about the importance of naming dignity: "it is good that today, against all the temptations that may arise tomorrow, we enshrine the principle of safeguarding human dignity." By discovering the fundamental value capable of underpinning human rights, the world in general and the world of law in particular have come together, beyond their differences, to form a common project and propel society into the future. Human rights law, despite attacks from those who claim to see it as a tool of domination and despite the return of the rule of force by those who, in bad faith and with cynicism, do not hesitate to justify the worst crimes in the name of dignity, remains necessary.

Even though it cannot prevent all crimes, human rights law serves as a collective guide that stops us from normalizing inhumane behaviour or forgetting it. That's why society is better *with* it than *without* it. To endure the test of time and the resurgence of barbarism, human rights law has a strong framework that draws its power from an intangible foundation: dignity.

The inventiveness of the law called upon by historical upheavals. What is interesting in the parallel between the foundations of human rights law and environmental law is their relationship to history - or: "how does history call upon the law?" The recognition of dignity was a response to an unimaginable shock, which is exactly what we are facing today with climate and ecological changes. Although there is obviously no direct similarity in content between the ecological crisis and the atrocities of World War II, the common element in both contexts, each in its own century, is the necessity to invoke the inventive forces of law to protect, implicitly, an existential value that was once beyond our reach. Today, in confronting the ecological crisis, we need the same legal ingenuity that was called upon during the civilizational crisis sparked by the crimes committed during World War II.

The revelation of an implicit protected value. In 1945, at the start of the Nuremberg trials, US prosecutor Jackson, who was also a judge on the US Supreme Court, declared that by prosecuting crimes against peace, society condemns conduct that offends "the moral sense of mankind." These crimes were so severe that our moral and legal conscience could not understand them. They were so damaging, the prosecutor added, that "civilization cannot tolerate their being ignored, because it cannot survive their being repeated." Dignity, the foundation of human rights, then served to restore our moral compass, reminding us collectively of what must be protected.

Today, the scope of the climate and ecological crisis, in terms of the upheaval and suffering it causes to humans and non-humans, strikes at the moral sensibilities of humanity. However, so far, humanity does not have a clearly defined legal value that would allow it to respond to the extent of the damage. In a broad and systemic way, we humans are causing harm to the world that could not have been imagined in previous centuries: mortgaging the Earth's habitability for humanity and other forms of life. We recognize that we are damaging something fundamental, but we lack the words to express and define it within shared law. The challenge is to collectively establish the protected value commensurate with this damage, to create a collective compass that will keep us from losing hope in our humanity, and to enshrine in the marble of the law the non-negotiable value we must uphold to elevate society to meet the challenges of this century. This is what the habitability principle aims to address.[22]

The need for a protected value despite the major attacks it faces today. In the current geopolitical climate,

14. Michel de Montaigne, *Essays* (1580, M Rat ed, 1958) Book 3, Chapter 2.
15. Mireille Delmas-Marty, *Résister, responsabiliser, anticiper* (Seuil 2013) 126.
16. *Ibid.*
17. Mireille Delmas-Marty, *Aux quatre vents du monde* (Seuil 2016) 85.
18. Preamble to the Universal Declaration of Human Rights of December 10, 1948.
19. Art. 1, Charter of Fundamental Rights of the European Union of December 7, 2000.
20. Preamble to the French Constitution of 1946.
21. *Conseil constitutionnel* Decision no 94-343/344 DC (27 July 1994).
22. We draw inspiration here from Hans Jonas's "principle of responsibility" and Marc Bloch's "principle of hope" to identify something different from an epistemological and normative perspective: the discovery of a value protected by law, similar to how *dignity* was revealed to provide human rights with a new foundation.

a common objection might be that dignity, failing to prevent the modern tragedy of crimes against humanity, seems powerless and therefore useless. This objection confuses the temporary failure to enforce a principle with its inherent ineffectiveness. It overlooks two distinct roles of dignity as a protected value: its instrumental role in preventing crimes now (dignity as a "tool for action") and its foundational role in collectively raising awareness beyond moral blindness (dignity as a "sense of sight"). A society that did not recognize dignity as a protected value after the atrocities of World War II would lack the moral clarity needed to see the profound difference between human and inhuman conduct. In this sense, dignity functions as a system of collective moral guidance: it shows everyone the boundaries of humanity, even when it cannot prevent certain powers from crossing them. To conclude from the failure of international action in a specific conflict that human dignity is "powerless and therefore useless" is like saying criminal law is useless because crimes still happen. It's important to remember that even when hindered, dignity has driven progress: since 1945, it has reshaped global law by underpinning the universal abolition of slavery, the creation of supranational human rights courts, and the establishment of the International Criminal Court. Furthermore, law also works over the long term, with fundamental principles serving as ongoing structural constraints, influencing the political costs of violations and paving the way for future sanctions, even without immediate intervention. While the instrumental role—its practical function—may currently be obstructed by geopolitical realities, its foundational role remains essential for the century ahead. When the hand falters, it's unfair to blame the eyes or conclude that the sense of sight is useless. Dignity as an accepted value enables us, collectively and openly, to differentiate between the human and the inhuman. It inscribes into the most fundamental stone, collectively and consciously, what constitutes an unacceptable transgression, thereby preventing—not immediate barbarism, which it can only slow—but its moral normalization. Even if it cannot prevent the existence of evil, it at least stops us from trivializing it. Dignity isn't a shield against every form of violence, but it is a vital part of the very foundation of our legal civilization and its architecture.

When it comes to habitability, we are in a state of global moral blindness, where damaging the conditions for life on Earth is not yet recognized as the absolute harm it truly is. The habitability principle as a protected value does not primarily aim to magically prevent every attack on the environment. Instead, it seeks to help us collectively recognize the fundamental inhumanity of undermining habitability for life, and therefore for ourselves. It establishes the normative foundation necessary for effective action. Just as dignity gradually underpins and structures the protection of individuals despite occasional failures, habitability could serve as the foundation for protecting living conditions through a binding normative framework. From this perspective, how can we define the habitability principle so that it can reshape our legal system's approach to our relationship with life on Earth?

The foundational discovery of science: the interdependence between humanity and the living world. The ecological and climate crisis highlights the connection between the health of the natural world and the future of human societies. The report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) dated December 17, 2024, dedicated to the "assessment of the interlinkages among biodiversity, water, food and health,"[23] delivers a clear diagnosis: "nature is essential to our very existence," but it is degrading worldwide due to multiple human factors, to the extent that "continuation of current trends in direct and indirect drivers will result in substantial negative outcomes for biodiversity, water availability and quality, food security and human health." Environmental scientists argue that we must respond with profound "economic, demographic, cultural, and technological change." No law will be sufficient to address the current ecological and climate crisis until the interdependencies between humans and all living things are protected by a legal and moral principle as comprehensive as the principle of dignity. Therefore, it is urgent that humanity recognizes this reality and establishes "common legal boundaries, shared responsibilities, but also accepted differences"[24] to preserve life on Earth. In light of this, the habitability principle emerges, not just as a scientific fact, but as a philosophical concept and an ethical value.

From a philosophical perspective, the concept of habitability helps us go beyond two limits of the traditional view of our relationship with life on Earth.

Moving from separate entities to interdependent relationships. One of the main limitations that habitability seeks to overcome is that, in traditional environmental ethics, the focus was on the intrinsic value of separate entities: species, individuals, and ecosystems. However, this approach has revealed its shortcomings by fostering structural competition between humans and nature. With habitability, we realize that it is primarily the relationships between entities that matter, because it is interdependencies that enable human and non-human life to exist and thrive. If the biosphere is composed of interdependencies, then current environmental law, which mainly emphasizes separate entities, cannot effectively achieve its goals. That's why it must, like law at its most fundamental level, focus on the relationships between different forms of life.

The ecological crisis is both a crisis of human societies and a crisis of biodiversity, but it is also a crisis of our relationship with living things. Recognizing this helps us move away from dualistic thinking. From this perspective, the first concept of habitability considers the threats to it:

23. IPBES, *Interlinkages among Biodiversity, Water, Food and Health: The Nexus Assessment* (17 December 2024).
24. Mireille Delmas-Marty, *Sortir du pot au noir* (Buchet Chastel 2019) 83.

threats to habitability should be viewed as threats to the interdependent relationships within the living, especially between humanity and all life on Earth.

The habitability principle, i.e., habitability as a protected core value, is not intended to replace or weaken existing environmental law concepts—such as species, protected environments, and others—or their core principles, including prevention, precaution, the polluter pays principle, and public participation. Instead, it seeks to provide a broad normative foundation for these principles at the most fundamental level of the legal hierarchy, just as dignity underpins and strengthens the legal framework of the manifold human rights—such as the right to life and physical integrity, the right not to be subjected to inhuman or degrading treatment, the right to one's image, and the right to information—which protect the human person.

Moving from an inert and passive environment to active habitability produced by life. The second limitation that the philosophical concept of habitability seeks to address comes from the idea that an environment's habitability is not simply determined by a list of *inert*, non-living, and *passive* parameters, such as a certain level of atmospheric oxygen below which Earth is no longer habitable for humans. This static view, reflected in law through thresholds and levels to be respected, species and spaces to be protected, has shown its limitations. It overlooks the fact that, across various dimensions, habitability is *an active phenomenon produced by life*. For example, at each local level, it is the ecological interactions between insects, soil fauna, bacteria, and fungi that sustain conditions for the healthy functioning of ecosystems, such as agriculture, and thus the habitability of environments. Habitability is therefore not an inert or passive phenomenon but the result of living activity. That is why the law must protect living organisms in their interactions.

Habitability for life. When we discuss the habitability principle, we often automatically think of it as habitability for humans. This unconscious bias reveals how modern people view their world: as a backdrop of passive objects that serve as a habitat for humans, which they must create or maintain through their actions. This implicit worldview is flawed when compared to the perspective offered by mature scientific ecology: Earth is a planet where it is the daily, ancient activity of life that makes each environment liveable for all forms of life. As writer Richard Powers notes: "That's the trouble with people, their root problem. Life runs alongside them, unseen. Right here, right next. Creating the soil. Cycling water. Trading in nutrients. Making weather. Building atmosphere. Feeding and curing and sheltering more kinds of creatures than people know how to count."[25] Habitability is never automatically present but always a product of a process. And it is not mainly created by humans; rather, it is primarily built by the interconnected activity of life—for life. We have viewed the living world as a mere background when, in fact, it is an active builder.

In this approach, what is named and valued here is habitability for life. It recognizes that it is the activity of the network of living beings weaved together that makes the world habitable for all forms of life, including humans. We are not the architects of Earth's habitability; we are its beneficiaries. This is the key originality of the habitability concept presented here, in contrast with traditional ideas focused on monospecific habitability by or for humans alone.[26] And this habitability is not limited to the conditions necessary for organic survival but also includes the conditions for thriving and flourishing.

Understanding apparent habitability to identify true habitability. Over the past few centuries, humanity has taken a path of development that has increased its extractive capacities at the expense of the web of life. When pushed to extremes, this approach, based on the illusion that human action can make the world habitable by systematically taking control of the living world, becomes self-destructive. Apparent habitability has masked the fact that it is the actions of living beings that make habitability possible, for life and therefore for humans. Recognizing the agency of living beings allows us to break free from the mistaken modern narrative, which portrays "nature" as passive, static, and inhospitable—where humans impose their technical mastery onto matter in a project of improvement, seen as the only way to make the world liveable—for humans alone. Yet, what our best sciences show beyond doubt is something else: it is the agency and interdependent activity of diverse life forms that makes Earth habitable for each of these forms, including humans, from the beginning—and still today, at every moment.[27] The 20th century confused true habitability with apparent habitability, where the illusion that only humans should be accommodated turned into a proven uninhabitability for all life—and thus for humans as well. The desire to live in isolation ultimately leads to inability to survive at all. In the 21st century, we must recognize true habitability, which alone can ensure the prosperity and future of life. This philosophical perspective emphasizes that undermining true habitability is undermining life's very capacity to sustain its own existence. It is a crime against the fundamental logic of life.

Defining habitability. Habitability, in its most general sense, can be defined as *the quality of any environment at any spatial or temporal scale where the conditions for the health and prosperity of each form of life are created through the interconnected activities of the diversity of life*. This definition has four key implications: it acknowledges a creative dynamic (habitability arises from the ongoing

25. Richard Powers, *The Overstory* (WW Norton & Co 2018) 143.

26. See on this point, Baptiste Morizot and Suzanne Husky, *Rendre l'eau à la terre* (Actes Sud 2025) ch 13, 'La vie aménage le monde pour la vie' (formulating the concept of habitability for life).

27. A more detailed version of this thesis, based on natural and social sciences, can be found in the second part of Baptiste Morizot, *Raviver les braises du vivant. Un front commun* (Actes Sud/Wildproject 2020).

activity of living beings); a virtuous cycle (life generates the conditions necessary for its own continuation); scalar universality (the concept applies from local ecosystems to the entire biosphere); and essential interdependence (each type of life contributes to the conditions of habitability for many others, forming loops of recursive dependence). Habitability, therefore, refers to this: *the home of each form of life is built by the interconnected activity of life diversity*. When applied to humanity, habitability relates to *the interdependence between the safety and prosperity of human societies and the health of the living world*.

Habitability is a factual property of life on Earth; the habitability principle is its translation into a norm, which any agent capable of normativity can discover. It recognizes that any attack on the ability of living beings to carry out their spontaneous vital activities on an environmental scale is an attack on habitability for life, and therefore for us humans, since we are a manifestation of life. We will henceforth refer to this axiom as "the habitability principle." It refers to the value according to which *respect for what creates the conditions for habitability for life on Earth is of paramount importance*. As a norm, does this principle deserve to become a protected value at the core of our civilizational legal architecture?

Habitability is the product of life on Earth. Even if we focus only on protecting conditions suitable for humans, it is essential to preserve the entire living world and the health of ecosystems because their actions create and sustain habitability for *us humans*. There can be no climate regulation occurs without healthy ocean ecosystems, no agriculture is possible without resilient ecosystems capable of withstanding climate change, and no land water exists without the water cycles driven by plants. Habitability never involves a single species in isolation: since life is interconnected, we cannot safeguard human habitability at the expense of other life forms. Protecting habitability always means safeguarding both human life *and* the biosphere, as the biosphere contributes to habitability for humans *and itself*.

The legitimacy of habitability as a protected value: the relationship between habitability and human dignity. The scientific and philosophical shift of the 21st century involves recognizing that the definition of humanity includes its essential interdependencies with the rest of the living world. As a result, humanity itself, through its ecological, material, and social dimensions, is woven into the fabric of life on Earth. Humanity is not an island; it is an archipelago of relationships. Therefore, interdependencies must be protected when we envision a right that genuinely safeguards humans. Protecting humans without safeguarding what sustains them is like protecting a ghost. Here, humanism and ecology converge beyond legal systems and traditions to form a humanism of interdependencies—a "relational humanism"[28] where "for the good of humans, we must first think of ourselves as living beings"—creating a shared foundation to anchor the habitability principle. After traditional humanism, which is expressed through the principle of dignity, relational humanism is expressed through the habitability principle.

The habitability principle is based on a theoretical framework that values both the relationships between terms and the terms themselves—such as humans, species, and environments. What matters is not only the beings but also the connections that sustain their existence. This shift in perspective allows it to escape the conflict between anthropocentrism and ecocentrism because it emphasizes interdependencies. It is neither purely anthropocentric nor ecocentric: it is relational. In this view, it becomes clear that protecting life is essential to maintaining habitability for humans, since our relationships with all life on Earth are defined by two fundamental conditions: a shared destiny and mutual vulnerability.

Does better protecting nature undermine human dignity? In a relational understanding of humanism, protecting life and protecting humans can no longer be seen as opposing concepts. Opposing the protection of humans to the protection of living beings is like opposing a river to its source. International law recognizes this: "environmental damage has negative implications, both direct and indirect, for the effective enjoyment of all human rights."[29] Judges understand: to those who oppose an improved legal framework for the protection of nature by invoking the risk that dignity will be sidelined, they respond, on the contrary, that when humanity protects the interdependencies between humans and all living things, dignity is not sidelined: it is amplified.[30] From these elements, it is possible to identify a common basis in the form of a deduction: if habitability conditions the exercise of human rights, and if human rights are based on a protected core value, then habitability is in turn a protected core value.

In other words, in an uninhabitable environment, no dignified human life is possible. That is why habitability is a prerequisite for the expression of human dignity. In environments rendered uninhabitable by human actions that reduce the capacity for life to sustain itself, the possibility of dignity is no longer protected. Since human dignity is a core legal value, habitability, which is its prerequisite, must also be a core legal value because it is foundational to dignity. We have collectively failed to recognize that dignity depends on another value that has not been protected. Dignity rests on habitability, the way a cathedral rests on its foundations. Dignity can only be exercised if this fundamental value is truly recognized

28. See Baptiste Morizot, 'L'écologie contre l'humanisme, Sur l'insistance d'un faux problème' (2018) 10 *Essais, revue interdisciplinaire d'humanités* 105; Baptiste Morizot, *Les Diplomates* (Wildproject 2016) pt 3.
29. UNGA, Res. 76/300, on the Right to a Clean, Healthy and Sustainable Environment, July 8, 2022.
30. Spanish Constitutional Court, Decision *Mar Menor* (20 November 2024).

and established at the highest normative level: this is the habitability principle.

In the 21st century: habitability as the foundation of environmental law. In the 20th century, faced with human atrocities, society established dignity as a non-negotiable and imprescriptible foundation capable of supporting the edifice of human rights, enabling it to withstand the onslaught of inhumanity. In the 21st century, faced with the existential threats caused by the ecological and climate crisis, and the inability of environmental law—due to its history and infrastructural weaknesses—to protect humanity, society needs to unite behind a foundation similar to the principle of dignity, which, through its common recognition and higher value in the hierarchy of norms, will ensure its sustainability. This is what the "habitability principle" proposes. Just as dignity is a property of humans, habitability is a property of life on Earth. "Every man carries the entire form of human condition," says dignity. "Every man carries the entire form of living condition," says habitability. In the 20th century, dignity helped humanize society; in the 21st century, habitability must help sustain the interdependencies that make up humanity.

B. A new foundation for environmental law

The process of rebuilding environmental law. From ethics to law, the habitability principle as a core value emphasizes respecting the relationship between humans and all life on Earth. This principle supports the health, prosperity, and future of both humanity and the biosphere, driving a reconstruction of environmental law. Confronted with the vulnerability of a weakened legal framework lacking a protected founding value, the habitability principle opens the way for a stronger environmental law capable of meeting the challenges of life on Earth.

Science is betting on the law to protect the interdependencies between humanity and the biosphere. The 2024 IPBES Report "Interlinkages among Biodiversity, Water, Food and Health: The Nexus Assessment"[31] states that one of the major levers for protecting the sustainability of biodiversity and humanity is to strengthen environmental laws and policies and their implementation, as well as the rule of law in general. The reference to "the rule of law in general" reveals that the protection of interdependencies, and therefore habitability, goes beyond environmental law alone and falls within the most fundamental level of law.

The law, meanwhile, unknowingly, as in *The Purloined Letter*, already implicitly points to habitability as a protected core value. It is there, in the centre of the room, waiting to be named and given a unified framework to elevate environmental law to the level of higher rights, serving as guardian of this century's existential challenge. To find it, we need to examine the current contradictions that limit environmental law and, at the same time, provide the tools for its reform. Confronted with the reality of interconnectedness, an emerging movement is forming to strengthen environmental law from its current weakened state.

Habitability as a fundamental legal principle and its application across different branches of law. The origin of this idea is essential: it comes from a higher level. While we identified the remedy of habitability based on the diagnosis of the limitations of environmental law, this principle extends beyond it and is among the most fundamental principles of law. In other words, the habitability principle is not limited to environmental law; it belongs to fundamental law, allowing it to influence various legal fields. In the name of dignity, legislators and judges can prohibit or impose behaviours in different areas—such as bioethics law, medical law, administrative law, contract law, detainee rights law, and others—when necessary. Likewise, only as a fundamental principle can habitability remove obstacles across different legal areas—such as administrative law, criminal law, contract law, and economic law[32]—whenever living conditions are at risk.

To achieve this, it must pursue several higher legal pathways involving species, space, time, and values.

An "interspecific" law. Faced with a dualistic, limited environmental law that separates the interests of humanity from those of the biosphere, even though their destinies are deeply linked, interspecific environmental law—now expanded and increasingly regarded as the law designed to protect the conditions for life on Earth—is gaining legitimacy and intensity. It thus becomes a higher form of law, serving as a safeguard of the habitability of life, no longer merely regulatory, and no longer confined to administrative policing alone.

In international law, the recognition of the interdependence between humans and all living things dates back to the Earth Summit in Rio in 1992, where states proclaimed that "the Earth, home of humankind, forms an interdependent whole." More recently, this was reiterated in the United Nations General Assembly Resolution of July 28, 2022, on the right to a clean, healthy and sustainable environment, which states that "environmental damage has negative effects on the exercise of all human rights." The historic opinion of the International Court of Justice of July 23, 2025, delivered unanimously by the judges, affirms that "the human right to a clean, healthy and sustainable environment is essential for the enjoyment of other human rights."[33]

In French law, the Environmental Charter, which is part of the constitutional framework, states that "natural resources and balances have shaped the emergence of humanity" and that "the future and very existence of

31. IPBES, *Interlinkages among Biodiversity, Water, Food and Health: The Nexus Assessment* (17 December 2024).

32. Aude-Solveig Epstein, *La transformation écologique du droit économique* (IERDJ 2025).

33. International Court of Justice, Advisory Opinion of 23 July 2025, Obligations of States in respect of Climate Change, General List No. 187.

humanity are inseparable from its natural environment." For the French Constitutional Council, "the preservation of the environment must be pursued in the same way as the other fundamental interests of the Nation"[34] and must therefore be elevated to the highest level in the hierarchy of values protected by law: constitutional value. The dual movement of internationalization and constitutionalisation of environmental protection has created a common foundation for maximum protection, through higher law, of the relationship between humanity and all life on Earth.

An "international" law. If we hope to preserve the prosperity and long-term survival of both humanity and the biosphere, we must address the contradiction between true solidarity in facing global environmental threats and the current nationalist withdrawal on environmental issues. On a warming planet, "the fate of humanity depends in part on the convergence of legal systems around common values."[35]

A sign of the increasing importance of international law supporting environmental protection, this area of law, which has long been programmatic, is becoming more legally binding, despite ongoing challenges. In its advisory opinion of July 2025, the International Court of Justice stated that environmental treaties, and beyond that, customary international law and international human rights law, impose an obligation on all states, regardless of whether they have ratified specific treaties, to prevent significant damage to the climate system and the environment.[36]

International criminal law also addresses this issue. Within international law, its role is to ensure—through widespread condemnation—the protection of values that the global community deems worthy of the highest protection.[37] It is no coincidence that the prohibition against harming elements essential to human life is becoming more significant. The European directive on the protection of the environment through criminal law promotes harsher punishments for environmental crimes, especially in cases of intentional offenses causing catastrophic environmental damage.[38] There is an increasing movement that calls for the most serious environmental crimes to be addressed as crimes against humanity. The Draft Policy on Environmental Crimes issued by the Office of the Prosecutor of the International Criminal Court aims to advance "accountability for environmental crimes under the Rome Statute,"[39] thus helping to expand the concept of crimes against humanity to include crimes against habitability. Just as universal condemnation of crimes against humanity has highlighted dignity as a core human rights value, universal condemnation of widespread or systematic attacks on life on Earth is revealing habitability as a fundamental, structural value of law.

All these advances in international law, which certainly need to be refined, remind us that a liveable Earth is not just another commodity but a core value of human societies that demands a unified response globally.

An "intergenerational" law. The effects of human actions on the environment extend over time. The global community is built on the memory of a shared past where development that benefited a few came at the expense of the environment for everyone, and on the vision of a shared future in which "choices made to meet the needs of the present do not compromise the ability of future generations and other peoples to meet their own needs."[40]

There is a contradiction between the long timeframes involved in risks to habitability and the short timeframes involved in environmental policies, reflecting a dual deficit of memory and foresight. The time has now come to acknowledge responsibility for the past and to project that responsibility into the future.

A responsibility for the past. Addressing global environmental damage that endangers the Earth's habitability, especially affecting vulnerable populations the most, is an increasing issue of intergenerational justice. The principle of compensating for transboundary environmental harm was affirmed as international law by the International Court of Justice in its February 2, 2018, ruling in *Costa Rica v. Nicaragua*. Recently, in its advisory opinion of July 23, 2025, on "Obligations of States in respect of Climate Change," the Hague Court stated that violations of climate obligations are considered "internationally wrongful acts of States, which are to be ascertained on the basis of the primary rules and the customary rules on State responsibility" and may lead to a right to reparation under certain conditions.

A responsibility for the future. The preamble to the Declaration on Future Generations adopted by the United Nations in September 2024 states that "we must learn from our past achievements and failures, and their consequences, in order to ensure a more sustainable, just and equitable world for present and future generations, and understanding the interconnectedness of past, present and future." Gradually, responsibility toward future generations is becoming a binding legal principle: in international law, where it appears in several texts—the United Nations Charter, the Rome Statute, the Paris Agreement, in particular—in regional law, in the Treaty on European Union, the Charter of Fundamental Rights, and the appointment of a European Commissioner for Intergenerational

34. *Conseil constitutionnel* Decision no 2022-843 DC (12 August 2022), Law on emergency measures for the protection of purchasing power.
35. Mireille Delmas-Marty, *Sortir du pot au noir* (Buchet Chastel 2019) 10.
36. International Court of Justice, Advisory Opinion of 23 July 2025, Obligations of States in respect of Climate Change, General List No. 187.
37. By extension of the function of criminal law in national law. See André Vitu, *Traité de droit criminel: Droit pénal spécial*, vol I, 7th edn (Cujas 1982) para. 22.
38. Directive (EU) 2024/1203 of the European Parliament and of the Council of April 11, 2024 on the protection of the environment through criminal law, recital 21.
39. Statement by the ICC Prosecutor, February 16, 2024.
40. Preamble to the Environmental Charter appended to the French Constitution by Constitutional Law No. 2005-205 of March 1, 2005.

Fairness—in national law, where the concept is present in more than half of the constitutions of the world's states. A jurisprudential movement favouring constitutional courts considering future generations "has gained momentum and is accelerating."[41] This trend has led to several major decisions.[42]

As human societies recognize their shared memory and common future—beyond cultural differences—a collective responsibility for maintaining the habitability of the planet for both present and future generations is emerging. The Inter-American Court of Human Rights recently formalized this principle in its advisory opinion on the climate emergency and human rights, published on July 3, 2025, in which it describes "the obligation not to cause irreversible damage to the climate and the environment"[43] as a rule of *jus cogens*, that is, a mandatory norm "accepted and recognized by the international community of States as a whole"[44] from which there can be no derogation.

An "inclusive" law. While we all rely on interdependencies with all life on Earth, debates continue about the intrinsic or instrumental value of the environment, which would be exclusive of any other. Beyond their apparent opposition, these ethical debates, reflected in the legal sphere, converge on two points: the importance of protecting the relationships between humanity and all life on Earth; and the confidence, to achieve this, in resorting to higher legal instruments.

Two movements particularly illustrate this pursuit of maximum protection grounded in fundamental legal principles.

The extension of personality. The movement for the rights of nature has gained momentum over the past fifteen years, aiming to go beyond the limitations of environmental law by extending personality rights. Aside from the debates it sparks, this movement offers several important lessons, as shown by the Spanish Constitutional Court in its November 20, 2024, decision on the Mar Menor lagoon: 1. The "current legal protection system is insufficient, despite significant regulatory instruments" to safeguard it. 2. "the well-being of people depends on the well-being of ecosystems"; 3. the law provides a "sufficiently open framework" that allows legislators to develop environmental protection rules "from a wide variety of perspectives and approaches"; 4. granting legal personality to the Mar Menor is a technical regulatory tool that enables economic, social, and environmental aspects to coexist, complementing other legal tools aimed at preserving human health and safety through the protection of living organisms' health. Clearly, regardless of the symbolic importance sought, the use of law here aims to "emphasize[] its structural role in the vital balance of the conditions that make this planet inhabitable. This approach reinforces a paradigm focused on the protection of the ecological conditions that are essential for life."[45]

The renewal of property. By reinterpreting the concept of "common goods," economists, followed by lawyers, are calling for us to move beyond "destructive property rights" or the "Tragedy of the Commons,"[46] where environmental goods belong to no one and are overexploited by everyone—toward a "protective property right" or "prophylaxis of the commons"—where environmental resources are shared, managed, and preserved by the community to ensure their sustainability.[47] The concept of environmental commons is recognized in international law, encompassing the seabed, outer space, the Moon, and celestial bodies, as well as certain animal species, natural parks, and cultural and artistic heritage related to the environment. Furthermore, the "increased"[48] use of the common good and related concepts—in both discourse and practice—aims to strengthen the protection of the relationship between humanity and all living environments by elevating it to a high level of law.

Conclusion

Moving toward a sustainable way of living on Earth. If, in the 21st century, society agrees that habitability should become, for ecological issues, what dignity was in the 20th century for human issues; and if, in the 21st century, humanity, aware of its fragility, strives to revive, in light of the habitability principle, the legitimacy and effectiveness of the law in the service of living conditions; then society will be able to move more confidently toward a sustainable way of inhabiting the Earth, respecting this world of interdependencies where the security of humanity and the health of life share a common destiny.

Several legal avenues can be pursued at higher levels of law—national and supranational—to reinforce the habitability principle. Here are a few examples among many others.

Constitutional protection of habitability. At the State level, constitutional protection is a crucial means of ensuring the safeguarding of living conditions on Earth, as the Constitution is the highest law of a nation—a contract made by the constituent people that goes beyond political circumstances, rooted in history, and oriented toward the future. Some constitutions include an "eternity clause" that guarantees fundamental rights in broad terms for

41. L Fabius, 'The constitutional judge and future generations' (Symposium, *Dans l'espace de justice, les pratiques juridictionnelles au service du futur*, Cour de cassation, Paris, 21 November 2024) ; and previously: International event *Justice, Future Generations, and the Environment*, Conseil constitutionnel, 7 February 2024.
42. See S Djemni-Wagner (ed), *Droit(s) des générations futures* (Institut des études et de la recherche sur le droit et la justice (IERDJ) 2023).
43. Inter-American Court of Human Rights, *Advisory Opinion on Climate Emergency and Human Rights* (29 May 2025, published 3 July 2025) para. 287.
44. Vienna Convention on the Law of Treaties (23 May 1969) 1155 UNTS 331, art 53.
45. Inter-American Court of Human Rights, *Advisory Opinion on Climate Emergency and Human Rights* (29 May 2025, published 3 July 2025) para. 280.
46. Garrett Hardin, 'The Tragedy of the Commons' (1968) 162(3859) *Science* 1243.
47. Elinor Ostrom, *Governing the Commons* (Cambridge University Press 1990).
48. J Rochfeld, 'Préface' in *Les communs en droit de l'environnement* (Special issue, 2022) *Revue juridique de l'environnement* 7, 11.

both the present and the future, as seen in Germany and Japan. Because respecting the interdependence between humanity and all life is essential for the prosperity and the posterity of mankind, it must be protected permanently at the highest norm level: the constitutional level. Article 21 of the Dutch Constitution states that "the government shall be concerned with the habitability of the territory and the protection and improvement of the environment." The constitutional judge, who preserves the Constitution's vitality through flexible interpretation, plays a vital role in implementing the habitability principle. Active constitutional jurisprudence already works to elevate environmental protection to the level of fundamental freedoms and to influence law constitutionality accordingly. In 2021, Germany's Constitutional Court in Karlsruhe invalidated the climate law, stating that "the Basic Law requires that the natural foundations of life be cared for in such a way that they can be passed on to future generations."[49] In France, after recognizing in 2022 that "the preservation of the environment must be pursued on an equal footing with the other fundamental interests of the Nation,"[50] on August 8, 2025, for the first time, it issued a censorship decision based on the autonomous right of everyone to live in a balanced and healthy environment (Art. 1, Environmental Charter), considering that laws permitting exemptions from the ban on using certain treatment products in agriculture—which have "an impact on biodiversity [...], water and soil quality" and pose "risks to human health"—deprived the constitutional right to the environment of "legal guarantees."

In the future, the constitutional judge could go further and enshrine the constitutional value of habitability. In France, as in the past, in the 1994 "bioethics" decision, the Constitutional Council derived the principle of safeguarding dignity from the first sentence of the Preamble to the 1946 Constitution, which states that every human being has inalienable and sacred rights, it could, tomorrow, derive the principle of safeguarding habitability from the Environmental Charter, interpreted in light of the 1946 Preamble.

49. German Federal Constitutional Court, Order of 24 March 2021, 1 BvR 2656/18, 1 BvR 78/20, 1 BvR 96/20, 1 BvR 288/20.
50. *Conseil constitutionnel* Decision no 2022-843 DC (12 August 2022), Law on emergency measures for the protection of purchasing power.

Criminal protection of habitability. Criminal law, described by Emile Durkheim as the "common conscience" of a society in which interdependence has created organic solidarity,[51] reveals the most essential values of a society. The ongoing movement to criminalize the most serious environmentally damaging behaviours at the national, regional, and international levels illustrates the cardinal importance of protecting the relationship between humanity and all life on earth.

In international criminal law, in particular, while in the 20th century the international community focused on the concept of crimes against humanity to protect dignity, in the 21st century it might focus on the concept of crimes against habitability to defend itself from serious and systematic attacks that threaten its health, security, and interdependence with the biosphere.

As we finish writing these lines, a major step forward has been taken by the international justice system, which acknowledges that climate and environmental issues are an "existential problem of planetary proportions that imperils all forms of life and the very health of our planet."[52] As such, say the judges, a sustainable solution must be found that "requires human will and wisdom—at the individual, social and political levels—to change our habits, comforts and current way of life in order to secure a future for ourselves and those who are yet to come."[53] Confronted with unprecedented climate and environmental challenges, the law cannot do everything, but it can do quite a lot by establishing prohibitions and protected values that will help society move forward: "From an eminently juridical perspective, the prohibition of conducts that irreversibly harm the vital equilibrium of the interdependent ecosystems that make the survival of present and future generations on a habitable planet viable, and their normative hierarchy, can be deduced from general principles of law."[54] Yesterday, the Nuremberg Tribunal gave its voice to dignity; today, international justice gives its voice to habitability. Let us hear.

51. Émile Durkheim, *De la division du travail social* (Quadrige, PUF 2013) 79 and following.
52. International Court of Justice, Advisory Opinion of 23 July 2025, Obligations of States in respect of Climate Change, General List No. 187, para. 456.
53. *Ibid.*
54. Inter-American Court of Human Rights, *Advisory Opinion on Climate Emergency and Human Rights* (29 May 2025, published 3 July 2025) para. 292.

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Human rights: a pathway out of the climate crisis

I. The climate crisis is a human rights crisis

In 2015, States adopted the Paris Agreement, agreeing to respect, promote and consider their human rights obligations when taking climate action. In the ten years since, there has been growing recognition that the climate crisis is a human rights crisis – and that human rights offer a pathway out.

Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from undernutrition, malaria, diarrhoea, and heat stress alone. The number of people at risk of floods is expected to increase by some 400 million to 2.6 billion by 2050. By that same date, three out of four people worldwide could face the impacts of drought, while climate change could put another 80 million people at risk of hunger.

My Office has played a part in documenting the impact of climate change on the rights to food and health, on women, people with disabilities, older people, children, and migrants.

We have analysed key themes, including how to deal with the loss and damage already caused by our changing climate, and how to support a just transition to renewable energy. Our work has informed the push for greater ambition in mitigating climate change as a matter of human rights obligation, highlighted the disproportionate impacts of climate change on people in vulnerable situations, and emphasized the rights of those affected to information and to justice and remedy, and to participate in decisions that affect them.

We have integrated this work in a broader push for environmental justice in the context of multiple planetary crises. The United Nations General Assembly recognized the interdependence of human rights and the environment in 2022, when it passed resolution 76/300, on the human right to a clean, healthy and sustainable environment. This landmark resolution noted that "environmental degradation, climate change, biodiversity loss, desertification and unsustainable development constitute some of the most pressing and serious threats to the ability of present and future generations to effectively enjoy all human rights."

This right has also been recognized by the United Nations Human Rights Council, and integrated in the Global Framework on Chemicals, the Global Biodiversity Framework, and decisions of the Conference of the Parties to the United Nations Framework Convention on Climate Change.

Most recently, the International Court of Justice issued a landmark opinion that unequivocally found that States' human rights obligations apply and are actionable in the context of climate change.[1]

There have also been important developments at the regional level. In July 2025, an Advisory Opinion from the Inter-American Court of Human Rights found that States need to adopt measures to protect human rights from the impacts of climate change. Similarly, the European Court of Human Rights has found that Member States of the Council of Europe have legal obligations related to climate change.

The number of countries that recognize the right to a healthy environment has grown to 164. This recognition improves protection of the environment and supports those seeking to defend it.[2] A court in South Korea recently found that the country's climate change law violated the constitutional right of youth petitioners to a healthy environment.[3] A court in Germany recently accepted, in principle, the link between emitters there, and damage caused by melting glaciers in Peru.[4]

Many of these judicial rulings, legal pleadings, and multilateral negotiations have cited and drawn on the work of my Office, and the United Nations human rights mechanisms.

However, these developments have not been matched by ambition and action by the international community. The Paris Agreement has led to progress; without it, humanity would be headed to over four degrees of heating, and that figure is now three degrees. But there are key challenges to its implementation. For example, its monitoring and compliance framework is inadequate; climate commitments are voluntary and determined by national governments; negotiations lack transparency; and there are limited opportunities for participation by women's groups, Indigenous Peoples, children and young people, trade unions, and others.

1. Advisory Opinion of the International Court of Justice on Obligations of States in respect of climate change (23 July 2025) available at: https://www.icj-cij.org/case/187/advisory-opinions.
2. A/HRC/43/53, para. 13 *cf.* OHCHR, Press Release, *Immediate action crucial to ensure right to healthy environment, says UN expert*, 18 October 2024 available at: https://www.ohchr.org/en/press-releases/2024/10/immediate-action-crucial-ensure-right-healthy-environment-says-un-expert.
3. Do-Hyun Kim et al. V. South Korea (2024)
4. Luciano Lliuya v. RWE AG (2025)

II. We need new approaches to climate action

A new political approach to address the climate emergency is urgently needed – one that embraces human rights as the compass for a sustainable future.

I believe this new approach should be grounded in a fundamental reassessment of our relationship with nature, acknowledging the hard scientific evidence that we and our environment are totally interdependent. Our political and economic choices should be guided by facts, rather than seeking to dominate the natural world and make it bend to our will.

The misconception that nature is a hierarchy, with homo sapiens at its apex, is at the root of the planetary crises wreaking havoc across our world. Every year, we consume some 1.8 times more resources than our planet can regenerate[5], with no apparent regard for the consequences. Meanwhile, the extraction and burning of fossil fuels is trapping humanity in a furnace as climate impacts hit every country – with huge human and economic costs. Our global food systems – which allow massive waste while millions go hungry – are driving an unprecedented loss of biodiversity. One million of the world's estimated 8 million plant and animal species are threatened with extinction.[6] And by 2050, there could be more plastic in the ocean than fish.

It does not have to be this way. The Intergovernmental Panel on Climate Change has found that rights-based approaches lead to more effective and sustainable climate action.[7] Ensuring that all policies embrace human rights, and recognizing that those rights are intrinsically linked with the rights of nature, provides a roadmap to a sustainable future.

How would that future look? The building blocks are already there.

First, full implementation of the Paris Agreement is a fundamental requirement. But the transition to renewables must go much further, much faster, while respecting all human rights including the right to a clean, healthy and sustainable environment.

I welcome growing support for a proposed Fossil Fuel Non-Proliferation Treaty that seeks to end the expansion of new oil, coal and gas projects, and accelerate the transition to renewable energy. Last year, renewables made up over 90 per cent of the new power capacity built around the world. Renewable energy has become the cheapest power option[8] in most places. The cost of electricity from solar power fell by 85 per cent between 2010 and 2020.[9] And the signals from almost all G20 economies are clear: they are scaling up the transition to renewables.

A systemic shift towards sustainable societies has concrete implications across many economic sectors. These changes – from transport, to supply chains, to healthcare, to finance – need to be rapid, coherent, and founded on human rights. My Office has developed the holistic concept of a human rights economy, where all government policies related to the economic sector should have a clear focus on advancing human rights and protecting the planet.

For example, in a human rights economy, States would equitably phase out fossil fuel subsidies and regulate environmentally destructive activities. They would invest in renewable energy sources, sustainable food systems, and social safety nets to help people adapt and adjust. Investors and businesses would transparently disclose and liquidate investments in sectors that divest from sectors that are harming our climate and our environment – including fossil fuels. Today's balance sheets often fail to take account of the hidden expenses associated with climate chaos and environmental degradation. It is time we adopt policies that do.

Second, climate action must be based on equality and justice. It is unacceptable that the countries and people that did the least to cause the climate crisis are paying the highest price. Those responsible must pay up.

At COP29 in Baku, developed countries agreed to triple climate finance to 300 billion dollars by 2035, and all parties agreed to increase finance to developing countries from public and private sources to at least 1.3 trillion dollars per year by 2035.

Yet, projections estimate over 10 trillion dollars are needed per year between 2030 and 2050. So we need far more ambition and cooperation between Governments, multilateral development banks, the private sector and investors, and communities.

We need to find new, creative sources to fund climate action – from green bond markets to windfall taxes on fossil fuel companies – and a serious reform of the financial architecture. I fully support the proposal by Brazil's G20 Presidency for a billionaire tax to go towards climate finance and reducing inequality

Climate finance must be accessible to the people most affected, including women, young people and children, and Indigenous Peoples.

Climate justice goes beyond financial support; it must also involve addressing historical injustices, fostering healing, and promoting reconciliation. Transitional justice, a framework originally designed to help societies recover from

5. https://overshoot.footprintnetwork.org/newsroom/press-release-2025-english/
6. https://www.unep.org/facts-about-nature-crisis
7. Summary for Policymakers in: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2023) paras C.5.2 and C.5.3.
8. https://www.irena.org/-/media/files/irena/agency/publication/2022/mar/irena_weto_summary_2022.pdf?la=en&hash=1da99d3c3334c84668f5caae029bd9a076c10079
9. https://www.irena.org/publications/2021/Jun/Renewable-Power-Costs-in-2020

authoritarianism and conflict, can help guide responses to the deep-rooted harms of the climate crisis. This includes truth-telling and uncovering what the fossil fuel industry knew about the harms of its products and contribution to climate change, and when.

A commission of inquiry made up of scientists, environmental lawyers, Indigenous representatives, and human rights experts could help expose the full extent of environmental damage, identify responsible parties, and shape accountability. Reparation and remedy are crucial, particularly when harm is irreversible. Those affected by climate-related destruction deserve compensation and rehabilitation, and businesses must be held accountable for foreseeable damage they have knowingly caused through their operations.

Climate justice demands action centred on the needs of people who have been most affected. That includes Indigenous Peoples, women and girls, people with disabilities, local communities, and minorities. The rights of young people and children – and of future generations – must be paramount.

Third, I believe respect for the rights of nature has a part in these approaches. I welcome increasing recognition of aspects of those rights at both national and international levels.

For example, the 2022 Kunming-Montreal Global Biodiversity Framework acknowledges that the rights of nature are vital to its successful implementation. Following the Treaty of Waitangi in New Zealand, certain rivers have been granted legal identity and can be defended in court against environmental damage.

Ecuador was the first country to recognize the rights of nature in its national constitution. These rights are also recognized at different levels of governance in Bolivia, India, Spain, Uganda, the United States of America, and beyond.

For many Indigenous Peoples, the rights of nature are part of their worldview, practices, and traditional laws. They understand that protecting nature necessarily reinforces human rights – particularly the right to a clean, healthy, and sustainable environment.

I believe governments today need to develop governance models and legal frameworks that integrate different worldviews and perspectives, including those that recognize the rights of nature. I encourage academics and legal scholars to build on current laws, traditions and practices to consider how these models could evolve. This could lead to stronger environmental and human rights laws that recognize legal standing for nature and its defenders; protect against environmental harm; recognize the crime of ecocide, including potentially under the Rome Statute of the International Criminal Court; and ensure corporations are held to account.

Conclusion

Around the world, many Governments are failing to meet the urgency of this moment. They are also out of step with their people, who overwhelmingly support strong climate action. Disinformation and division are having a deadly impact, and the existential threat of climate change has too often been de-prioritized. We need to put it right back at the top of the international agenda.

The COP30 Brazilian Presidency has called for a global mobilization, the Mutirão, to build momentum for climate action. People everywhere need to push for change, within their own communities and beyond, because widespread public pressure will help Governments take the necessary action.

Ten years after the adoption of the Paris Agreement, we need governance that is guided by the fundamental values and principles that unite us all, and a global movement for change, founded on human rights and human dignity.

Rémy Heitz · Prosecutor General
at the Court of Cassation
(*Cour de cassation*)

The Future of Environmental Liability: Criminal Law Aspects

Ten years after its adoption, the Paris Agreement remains a landmark in the history of the fight against climate change. Signed on December 12, 2015, at the end of COP21, in an atmosphere of gravity and hope, it embodies the moment when the international community united to acknowledge that rising temperatures posed an existential threat to human societies, planetary stability, and fundamental rights. In a capital still shaken by the attacks of November 13, the signing of the agreement sparked rare political emotion, greeted with a standing ovation. This new kind of document committed the 196 parties to keeping global warming "well below 2°C," with an aim to continue efforts to limit the increase to 1.5°C, a threshold demanded by the most vulnerable countries and supported by science as the dividing line between disruption and a tipping point.

The Agreement also reflects a global scientific consensus based on the work of the IPCC, emphasizing the urgent need to reduce emissions. The acknowledgment of the link between human activities and climate change is now universally accepted at the diplomatic level, marking a shift from the divisions seen in earlier negotiations, especially in Copenhagen in 2009.

But beyond this climate sequence, the past decade has seen the rise of global environmental awareness, including issues like biodiversity loss, pollution, resource depletion, and damage to the oceans. The 2019 IPBES[1] report, called the "IPCC of biodiversity," estimates that one million plant and animal species are now at risk of extinction.[2] In 2022, the United Nations Environment Programme and Interpol estimated that illegal profits from environmental crime worldwide reached nearly €280 billion annually, surpassing those from drug-related crimes. They also reported a 5-7% annual increase in environmental crimes globally. These crimes include industrial pollution, species trafficking, illegal deforestation, illegal fishing, and toxic waste.[3]

Furthermore, environmental damage also poses a security risk. While the January 2025 report from the European Copernicus observatory highlights that 2024 is likely to be the hottest year on record, several studies conducted in various countries, including the United States, Spain, and South Korea, show that rising temperatures encourage acts of violence and crime. According to a study by researchers from Princeton and Berkeley, a 1°C increase in temperatures above the seasonal norm is enough to raise the number of violent crimes, such as domestic violence, murder, and rape, by 4%.[4]

Faced with this situation, civil society is pursuing legal action. Legal cases are increasing, both before administrative and judicial courts, often initiated by environmental groups, citizen organizations, and even local governments.

In this context, has environmental criminal justice followed this fundamental shift? Has it also experienced a decade of consolidation and expansion?

France is now preparing to transpose European Directive 2024/1203 on the protection of the environment through criminal law, adopted on April 11, 2024.[5] This directive significantly expands the scope of environmental offenses (from 9 to 20), strengthens the liability of legal entities, imposes penalties proportional to turnover, and, for the first time in a European document, mentions behaviors "comparable to ecocide." This transposition could serve as an opportunity for an ambitious overhaul of environmental criminal law, which is currently burdened by regulatory inflation.

This change is all the more necessary given that, at the same time, several public reports—including those from the General Inspectorate of Justice and the General Council for the Environment and Sustainable Development in 2019,[6] and the report published under the auspices of the Public Prosecutor's Office of the Court of Cassation in 2023[7]—have highlighted the shortcomings of criminal justice: limited investigative resources, jurisdictional fragmentation, and a lack of environmental awareness among judicial actors.

The upcoming decade could therefore bring a change in perspective. Criminal law, which has long hesitated to

1. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.
2. IPBES, *Global Assessment Report on Biodiversity and Ecosystem Services* (2019).
3. INTERPOL and UNEP, *The Rise of Environmental Crime: A Growing Threat to Natural Resources, Peace, Development and Security* (2022).
4. Solomon M Hsiang, Marshall Burke and Edward Miguel, 'Quantifying the Influence of Climate on Human Conflict' (2013) 341(6151) Science 1235367.
5. Directive (EU) 2024/1203 of the European Parliament and of the Council of 11 April 2024 on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC.
6. IGJ and CGEDD, *Une justice pour l'environnement, Mission d'évaluation des relations entre justice et environnement* (2019).
7. François Molins (ed), *Le traitement pénal du contentieux de l'environnement* (Presses Universitaires d'Aix-Marseille (P.U.A.M.) 2023).

treat environmental damage as more than collateral harm, is now being asked to serve as a means of deterrence, justice, and redress. But it remains to be seen whether it can fulfill this ambition.

I. A decade of shaping French environmental criminal law: between institutional affirmation and the quest for effectiveness

Over the past decade, France has progressively shifted its approach to environmental criminal law. Long relegated to a residual function of administrative or economic law, environmental criminal law has become an independent, specialized field. It has developed to address the increasing severity of environmental damage, the complexity of violations, and the need for clear criminal responses. This change has led to reforms in criminal offenses, the development of specialized judicial actors, and the adaptation of procedural tools to meet modern challenges.

1. Normative developments: moving toward stricter penalties for environmental offenses

The Climate and Resilience Act of August 22, 2021[8]—the result of the work of the Citizens' Climate Convention in 2020[9]—was a significant step in reforming environmental criminal law. Notably, this law established the offense of ecocide, outlined in Article L. 231-3 of the Environmental Code, defined as intentional pollution or a manifestly deliberate breach of a specific obligation that results in serious, long-lasting, or widespread impacts on health, flora, fauna, or the quality of air, soil, or water. Although ambitious in its language, this offense, which applies nationally, differs considerably from the international ecocide project discussed in international forums in that its scope is more limited.

Additionally, the same law strengthened the penalty system by raising fines to substantial levels (up to €4.5 million).

This strengthening of regulations was accompanied by a reform of the judicial system, aimed at offering a more specialized and consistent criminal response to the technical and legal complexity of environmental offenses.

2. Specialization in environmental justice: an institutional response to complexity

This specialization in the criminal justice response took shape in 2021 with the creation of regional environmental centers (PREs). Established by Article 15 of Law No. 2020-1672 of December 24, 2020[10] and organized by Decree No. 2021-286 of March 16, 2021,[11] these centers—now located in thirty-seven courts—have broadened their jurisdiction to cover the entire scope of their court of appeal for complex environmental offenses, as well as civil actions seeking compensation for ecological damage. With appointed magistrates, specialized assistants, and improved cooperation with the French Office for Biodiversity, regional directorates for environment, planning, and housing, and decentralized services, the PREs bring together technical expertise and facilitate faster case resolution. However, the 2023 report by the General Inspectorate of Justice highlights inconsistent practices, a shortage of personnel, and the lack of unified activity indicators. It recommends dedicated funding, mandatory staff training, and the creation of a national support network to turn the PREs into genuine "territorial leaders in environmental justice."[12]

Additionally, there are the Operational Committees for Combating Environmental Crime (COLDEN), established by decree in September 2023, chaired by public prosecutors, which coordinate the relevant judicial, administrative, and technical services at the local level.

On the investigative side, the creation in 2023 of the Command for the Environment and Health (CESAN) within the national gendarmerie will enable investigations to be coordinated, threats to be analyzed, data to be centralized, and international cooperation to be promoted. It will draw on more than 4,000 trained gendarmes responsible for environmental and health security issues throughout France, both in mainland France and overseas, and will exercise functional authority over the Central Office for the Fight against Environmental and Public Health Offenses (OCLAESP). This interministerial judicial police unit, established in 2004, is responsible in particular for complex investigations into trafficking related to the environment, public health, and animal abuse.

Against this backdrop of reassessing the effectiveness of environmental criminal law, the criminal policy circular of October 11, 2023, marked a notable shift. It designates environmental offenses as a national priority, directing prosecutors to appoint specialized advisors, enhance statistical monitoring of environmental offenses, and utilize all available tools, including alternatives to prosecution. But the circular also emphasizes another essential mechanism: inter-institutional cooperation. It advocates for stronger connections between judicial authorities and administrative agencies through local or regional agreements.

8. Law No 2021-1104 of 22 August 2021 on combating climate change and strengthening resilience to its effects, JO 24 August 2021.
9. The Citizens' Convention—gathering 150 randomly selected citizens tasked with proposing measures to fight climate change—had explicitly expressed its desire to create an offense of ecocide, understood in a broad sense: as an international crime against the planet's safety, subject to prosecution worldwide, similar to crimes against humanity. In its proposals (measure 4.5.1), it called for full recognition of ecocide in both French and international law.
10. Law No 2020-1672 of 24 December 2020 on the European Public Prosecutor's Office, environmental justice, and specialized criminal justice, art 15, JO 26 December 2020.
11. Decree No 2021-286 of 16 March 2021 establishing the jurisdiction and organization of regional centers specializing in environmental offences, JO 18 March 2021.
12. Inspection générale de la justice, *Une justice pour l'environnement – Mission de suivi, Rapport d'évaluation* (in François Molins (ed), *Le traitement pénal du contentieux de l'environnement* (Presses Universitaires d'Aix-Marseille 2023)) 41–45.

Meanwhile, the circular from May 11, 2021, encouraged prosecutors to systematically pursue criminal liability for legal entities. These guidelines show a growing recognition that criminal justice cannot be fully effective without close coordination with environmental enforcement and police agencies. Nor can it succeed without suitable legal tools, which are gradually being updated.

3. Renewed legal instruments to enhance effectiveness and responsiveness

In response to recurring criticism of the slow and inefficient environmental justice process, new tools have been introduced to improve the responsiveness of criminal proceedings.

The 2016 Biodiversity Act and the 2019 Act strengthening environmental policing expanded access to special investigation techniques (wiretapping, geolocation, infiltration) for environmental offenses, thereby acknowledging their connection to organized crime.

The Environmental Public Interest Judicial Agreement (CJIP),[13] introduced by the law of December 24, 2020, represents another significant innovation. Inspired by the anti-corruption CJIP, it enables prosecutors to reach an agreement with a company accused of an environmental offense, in exchange for a fine (up to 30% of the company's turnover), a requirement to rectify ecological damage, and a compliance audit. This process avoids criminal proceedings and enables a swift and proportionate response, particularly in complex cases with substantial economic implications. Implemented by numerous local public prosecutors' offices, particularly in water pollution cases, it has rapidly expanded to surpass the financial CJIP.[14]

Finally, environmental summary proceedings enable the judge for liberties (*juge des libertés*) or investigating judge (*juge d'instruction*) to order urgent protective measures (such as compliance, suspension of activity, or restoration) in cases of an imminent risk to the environment. This procedure, as confirmed by the Court of Cassation in a ruling dated January 28, 2020, is not subject to the characterization of a criminal offense, which reinforces its preventive usefulness.[15]

This overhaul of French criminal law occurred within an international and European context that posed both particular and crucial challenges.

13. Editors' note: the Public Interest Judicial Agreement (*Convention judiciaire d'intérêt public* (CJIP)) is the French equivalent of the US and British Deferred Prosecution Agreement (DPA).
14. CJIPs are listed on the Ministry of Justice website. As of May 22, 2025, there were 35 Environmental CJIPEs out of a total of 62 (See https://www.justice.gouv.fr/documentation/ressources/conventions-judiciaires-dinteret-public).
15. Cour de cassation, Criminal Division, 28 January 2020, No 19-80.091.

II. A European dynamic: between renewed ambitions andsystemic limitations

The past decade has seen the development of a stronger environmental legal framework at both European and international levels. The increase in regulatory initiatives and the growing recognition of environmental justice by regional courts demonstrate real institutional momentum. However, these advancements still face significant structural and political challenges, especially regarding the effectiveness of environmental criminal law in a fragmented and politically diverse environment.

1. A European regulatory revival center on Directive 2024/1203

The key text for this period is the very recent Directive (EU) 2024/1203 of April 11, 2024, on environmental protection through criminal law. In May 2021, the European Parliament urged the European Commission and the Council of the European Union to prioritize combating environmental crime.[16]

This new directive replaces Directive 2008/99/EC and marks a step change: it broadens the list of environmental offenses from 9 to 20, increases the liability of legal entities, introduces substantially higher fines (up to 5% of global annual turnover), and mandates Member States to establish specialized investigation mechanisms. The text also calls for coordination with administrative and environmental authorities to ensure the effectiveness of criminal prosecutions.

Furthermore, at the urging of the European Parliament, which was itself challenged by non-governmental organizations such as the Stop Ecocide Foundation, the directive formalizes, for the first time in an EU document, the idea of conduct comparable to ecocide, without explicitly using the term, but by referencing offenses that cause widespread, long-lasting, and irreversible environmental damage.

To promote the implementation of the European framework and, more broadly, to facilitate the prosecution and punishment of largely internationalized crime, France actively cooperates with Europol and Eurojust, especially in the context of joint investigations with multiple European countries. Joint investigation teams have been set up to fight international waste trafficking.

Finally, joint training for stakeholders is a vital part of cooperation. The EU funds cross-training programs for police officers, customs officials, and magistrates (e.g., through the CEPOL Academy or the European Judicial Training Network) to foster a shared culture of fighting environmental crime. France also supports bilateral initiatives: in 2024, the Gendarmerie organized a joint

16. European Parliament resolution of 20 May 2021 on the liability of companies for environmental damage (2020/2027(INI)).

exercise with Spain on tracking electronic waste traffickers. Additionally, the National School for the Judiciary has launched a specific module on environmental criminal law available to magistrates from other Member States. All these efforts aim to close the gap between the increasing sophistication of green crimes and the often fragmented and delayed responses of the authorities. They are strengthened by initiatives from the Council of Europe.

2. The Council of Europe Convention on the Protection of the Environment through Criminal Law: towards a common framework for cooperation

On May 14, 2025, the Council of Europe adopted a Convention on the Protection of the Environment through Criminal Law, designed to fill the gaps in the Bern Convention (1979) and strengthen cooperation among states in prosecuting serious environmental offenses. This convention is the first legally binding international instrument focused on fighting environmental crime. It features a broad definition of environmental offenses, improves cross-border evidence sharing, and calls for the establishment of specialized national units coordinated at the European level.[17]

Its purpose is to prevent and combat environmental crime effectively; to promote and improve national and international cooperation in the fight against environmental crime; and to establish minimum standards to guide States in their national legislation. It commits States to prosecuting intentional or grossly negligent offenses against nature and promotes restorative justice through ecological remediation tools and educational sanctions.

3. The case law of the European Court of Human Rights: an indirect but growing lever

Although the ECHR does not directly sanction environmental damage, it has gradually developed protective case law based on Articles 2, 6, and especially 8 of the Convention. Article 8, which guarantees the right to respect for private and family life, has been the main means for "indirect" environmental protection since the *Lopez-Ostra v. Spain* ruling,[18] whenever an environmental violation has serious consequences for an individual's private life or health.[19]

The *Verein KlimaSeniorinnen Schweiz v. Switzerland* judgment,[20] known as Swiss Seniors, marks a significant milestone: the Court confirms that a serious breach by a State of its climate commitments can be considered a violation of the right to privacy due to the predictable exposure to climate risks that threaten the health and dignity of the applicants.

This decision expands established case law, notably *Öneryildiz v. Turkey*[21] and *Tătar v. Romania*,[22] which impose positive duties on States to prevent serious environmental risks. In a landmark article, Siofra O'Leary, a former president of the ECHR, interprets this development as a crucial step toward protecting future generations, highlighting that the Court is evolving its flexible interpretation of the Convention to address the systemic challenges posed by climate change.[23]

Thus, while the ECHR does not directly establish criminal liability for states or companies, its case law increasingly influences the practices of national judges and serves as an important tool in strategic climate litigation. This occurs in a particular context, which places the judicial institution under pressure.

III. Criminal justice under pressure: between social expectations, the quest for effectiveness, and the limits of the repressive model

The rise of environmental criminal justice over the past decade has occurred amidst profound changes: increased environmental awareness, unprecedented citizen activism, the internationalization of standards, and more technically complex cases. But these advances are accompanied by structural tensions: between the need for a swift, visible repressive response and the requirements of caution and certainty specific to criminal law; between the search for expressiveness in criminal law, such as with the crime of ecocide, and the realities of investigation, burden of proof, and judicial timelines. These tensions challenge the very purpose of environmental criminal law and prompt us to reconsider its role in a society facing systemic dangers.

1. Social pressure on the justice system: toward the demanded criminalization of environmental issues

Citizens are no longer content with petitions or protests: they are pursuing legal action. From the Citizens' Climate Convention, which explicitly called for ecocide to be recognized as a crime, to the many climate and environmental lawsuits filed by NGOs, local authorities, and even younger generations, civil society is demanding a criminal response proportional to the damage caused. This movement is driven by an increasing sense of ecological injustice, fueled by the belief that polluters are seldom prosecuted, while environmental activists are frequently prosecuted.

Furthermore, the rise of environmental activism over the past decade has led to an increase in acts of civil

17. Council of Europe Convention on the Protection of the Environment through Criminal Law (opened for signature 5 October 2023, Riga).
18. *López Ostra v Spain* App no 16798/90 (ECtHR, 9 December 1994) Series A no 303-C.
19. Frédéric Sudre, 'La jurisprudence "environnementale" de la Cour européenne des droits de l'homme au prisme de la "vie privée"' (2025) 30 *Revue Justice Actualités* (April).
20. *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 (ECtHR, 9 April 2024).
21. *Öneryıldız v Turkey* App no 48939/99 (ECtHR, 30 November 2004) 41 EHRR 20.
22. *Tătar v Romania* App no 67021/01 (ECtHR, 27 January 2009).
23. Síofra O'Leary, 'The contribution of the European Court of Human Rights to the protection of the environment and future generations' (2023) 4 *Quarterly Review of Human Rights*

disobedience—such as blockades, intrusions on industrial sites, symbolic coverings of monuments or works of art, mowing, and removal of portraits of the head of state. Although these actions are often claimed to be nonviolent, they still violate common law rules, exposing the perpetrators to criminal charges, especially for damage, trespassing, or obstruction.

This situation places the criminal justice system in a delicate position. Prosecutors and, more broadly, the judicial authorities are tasked with making a complex decision: upholding republican legality while considering the political or societal goals of these mobilizations, which are often supported by a claim of public interest—the protection of the environment—and moral imperatives of ecological survival.[24]

The Court of Cassation has gradually developed a nuanced case law on this issue, aligning with the ECHR. It strives to uphold freedom of expression and assembly in a democratic society, while reaffirming the limits set by public order and respect for others' rights. In a landmark ruling on April 26, 2022,[25] the Criminal Division overturned a conviction for property damage against an environmental activist, ruling that the judges had not adequately balanced the right to free expression, as protected by Article 10 of the ECHR, with the needs of criminal prosecution.

This case law is directly inspired by the criteria established by the ECHR, particularly in the *Éon v. France* judgment,[26] which states that courts must determine whether interference with freedom of expression serves a legitimate purpose, is prescribed by law, and is proportionate to the objective pursued. In the *Ludes and Others v. France* judgment, the ECHR found that the conviction of activists for removing presidential portraits did not breach Article 10.[27] It emphasized the careful review by domestic courts in assessing proportionality, considering the activism context. The Court concluded that the penalties—small, suspended fines—were not disproportionate to the legitimate aim pursued.

The application of these principles, especially the principle of proportionality, to new forms of environmental activism requires increased legal dialogue and ongoing vigilance to prevent criminal law responses from becoming tools for deterrence or stigmatization.

In this context, the public prosecutor's office plays a particularly visible role. Prosecutors are on the front lines when it comes to evaluating facts, deciding whether to pursue charges, and sometimes suggesting alternatives to prosecution in sensitive cases. The report by the working group led by Attorney General François Molins[28] rightly stressed the importance of striking a balance between being firm in prosecuting offenses and recognizing the unique nature of certain forms of protest, especially in the environmental sector. It called for a contextual understanding of the facts, proper training for magistrates, and careful monitoring of the continually evolving European case law.

2. The challenges of effectiveness: evidence, expertise, time frame

Furthermore, environmental criminal justice continues to face several structural challenges. The proliferation of legislation, the lack of precise assessment of environmental crime, and the limitations of the repressive model raise questions about the true effectiveness of criminal law in this area. In a 2021 study, the Ministry of Justice's statistical service showed that between 2015 and 2019, prosecutors handled 86,200 cases with identified perpetrators related to environmental damage, which is less than 1% of all criminal cases with identified perpetrators during this period. Between 2015 and 2019, 6,190 people were tried in criminal court for environmental offenses, representing 0.3% of all people tried.[29]

Major operational obstacles also need to be addressed. First, regarding evidence: environmental offenses often involve complex causal chains, delayed effects, and numerous actors and factors. It is hard to pinpoint individual responsibility within systemic or industrial dynamics. Second, concerning scientific expertise: this is crucial to assess the extent of ecological damage but demands scarce resources, time, and close collaboration between judges, investigators, and specialists. Third, with regard to time constraints: the duration of criminal proceedings (investigation, expert assessments, and judgment) clashes with the urgency of the ecological situation. Water pollution may be judged ten years after the incident, rendering penalties ineffective for both redress and deterrence.

French environmental criminal law suffers from disorganized regulatory proliferation: over 2,000 offenses spread across 15 codes, sometimes featuring outdated classifications and lacking strategic clarity. French environmental criminal law suffers from historical fragmentation due to successive reforms, which are organized primarily around the Environmental Code but also rely on other codes, such as those for rural areas, forestry, mining, public health, and maritime transport, among others. This dispersion multiplies the sources and specific regimes, making it particularly difficult for practitioners to understand.

Moreover, the hierarchy of offenses is not always consistent. Some serious environmental violations are labeled

24. Sonya Djemni-Wagner, 'Militantisme écologiste et désobéissance civile' (2021) 5 *Études* 55.
25. Cour de cassation, Criminal Chamber, No 21-82.251.
26. *Éon v France* App no 26118/10 (ECtHR, 14 March 2013).
27. *Ludes and Others v France* Apps nos 40899/22, 41621/22 and 42956/22 (ECtHR, 3 July 2025).
28. See note 467.
29. Ministry of Justice Statistical Service, *Le traitement du contentieux de l'environnement par la justice pénale entre 2015 et 2019*, Infostat Justice no 182 (April 2021).

as minor offenses or petty crimes, while others with less serious impacts may face harsher penalties. This inconsistency in how offenses are treated raises questions about the law's symbolism, clarity, and expressive purpose.

The aforementioned report on the criminal handling of environmental disputes recommends a legislative overhaul, calling for the reconstruction of a clear, hierarchical, and effective environmental criminal law.

Furthermore, the lack of reliable indicators for environmental crime restricts public authorities' ability to calibrate their actions. The report by the general inspectorates of the Ministries of Justice and Ecology, titled "Justice for the Environment," mentioned above, pointed out in 2019 the insufficiency of statistical data on cases opened, prosecution rates, and the types of offenses.

To be effective, environmental criminal law must be equipped, simplified, and designed to deliver quick and targeted responses.

3. Prevention, redress, deterrence: what are the aims of environmental criminal law?

The development of environmental criminal law raises a classic question: what do we really expect from punishment in this area? Prevent future offenses by punishing past illegal behavior? Repair the damage done, including irreversible ecological harm? Deter through the threat of visible punishment? Or to symbolically mark a boundary by defining what is intolerable and setting social standards?

These functions sometimes overlap: environmental restoration is often illusory in cases of ecosystem destruction; deterrence is unreliable when confronting powerful or transnational actors; prevention requires structural measures that extend far beyond criminal sanctions alone.

Above all, these functions cannot be viewed only on a national level but clearly have a global dimension.

4. The future of international cooperation: towards an ecological international criminal justice system?

As environmental challenges transcend borders and take on a global dimension, criminal justice can no longer be viewed solely within a national context. There is an increasing need for a coordinated and legally robust international response, both to prevent impunity and to ensure sanctions are effective. In this regard, several converging trends, at both the global and European levels, are supporting the gradual development of international environmental criminal justice.

Globally, the debate over ecocide as the fifth international crime under the Rome Statute, which established the International Criminal Court (ICC), has gained momentum in recent years. In June 2021, a group of experts commissioned by the Stop Ecocide Foundation proposed a formal definition of this crime, understood as: "unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts."[30] This initiative aims to add an act that recognizes the serious nature of systematic attacks on the biosphere to the list of the most severe crimes under international law—genocide, crimes against humanity, war crimes, crimes of aggression. To legally recognize ecocide as a distinct crime, an amendment to the Rome Statute is needed, which requires the agreement of two-thirds of the States Parties.

Without waiting for such expansion, in 2024, the Office of the Prosecutor of the ICC announced its intention to include serious environmental crimes in the analysis of certain international crimes, particularly those linked to armed conflict situations or mass population displacement.[31] The intentional destruction of ecosystems or large-scale environmental pollution could thus, in certain cases, be considered as elements that constitute crimes against humanity or war crimes. This move reflects a growing acknowledgment of the ecological dimension of serious violations of international humanitarian law and fundamental rights, and it opens the door to a broader interpretation of international criminal law.

At the European Union level, another project is emerging: expanding the powers of the European Public Prosecutor's Office to address environmental crimes. Originally established in 2021 to combat offenses affecting the Union's financial interests (such as subsidy fraud, VAT fraud, and corruption), its mandate could be broadened to include other areas of serious cross-border crime. Environmental crime, which by nature is widespread and structurally transnational (including waste trafficking, maritime pollution, and trafficking in protected species), is among the first candidates for this extension.

Although it remains hypothetical in the short term, the idea is gaining ground, supported by certain countries, such as Germany. If implemented, this reform would overcome the current limitations of traditional judicial cooperation by entrusting a single European authority with the management of complex investigations, with the authority to take direct action in all participating countries.

Pending this development, Eurojust continues to play a key role in coordinating environmental prosecutions among Member States, facilitating information exchange, resolving jurisdictional conflicts, and ensuring compliance with the *ne bis in idem* principle. The Court of Justice of the European Union (CJEU), as the guarantor of the consistent interpretation of EU law, may also be called upon to rule on important preliminary questions in this expanding area.

30. See https://www.stopecocide.earth/legal-definition.
31. Office of the Prosecutor of the ICC, *Statement on Environmental Crimes in Conflict Contexts* (2024).

Thus, the future of environmental criminal justice is also being played out at the international and European institutional levels.

Conclusion

The Paris Agreement sparked unprecedented global momentum. This decade has seen the emergence of a profound legal awareness, including in the criminal justice system, in the wake of climate commitments. The justice system, especially environmental criminal justice, has gradually become a tool for effectiveness and exemplarity. From recognizing ecological damage to increasing civil society mobilization, through national legislative reforms and European progress, the past decade has delivered tangible promises.

Despite continuing weaknesses, environmental criminal justice has clearly increased in visibility, consistency, and ambition. In France, as at the European level, legislative, institutional, and doctrinal developments reflect a new focus on making criminal law a relevant tool to address the severity of ecological damage. The rise in criminal offenses, court specialization, experimentation with innovative procedural tools, and the growing acknowledgment of ecological harm all indicate a deep structural shift.

However, the outlook now seems to be darkening. The momentum for institutionalization has been replaced by a phase of multiple tensions: some states are retreating from their climate and environmental commitments, populists are criticizing the justice system and expertise, the rule of law is under threat, and civil liberties are being eroded, even in Europe. Ecology itself is becoming a topic of ideological divisions, when it is not accused of hindering sovereignty or growth.

But it would be simplistic to end this cycle on a defeatist note. Because the need for action remains. It is more urgent, more demanding, and more irreversible. The driving forces are present: supranational courts that innovate, magistrates who specialize, citizens who take up the law, associations, scientists, and lawyers who do not give up. Environmental criminal justice is neither a luxury nor a utopia; it is one tool among many for confronting the Anthropocene and preserving what can be preserved. It is up to us to provide the means for it to rise to the challenges of the century ahead.

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Empowering countries in their zero-carbon industrial journey

Ten years after the Paris Agreement, climate change mitigation policy discourse remains detached from practical policy implementation. On the one hand, the economic and legal literature on climate change emphasizes the role of economy-wide carbon pricing and the reduction of fossil fuel subsidies as the most efficient and effective way to reduce emissions.[1] This stems directly from the polluter-pays principle whereby agents causing damage to third parties or the environment are expected to compensate society for it. On the other hand, successful policy experience for bringing technologies to markets points to policy instruments that reduce investment risk and create market volume which in turn reduces manufacturing costs.[2] This, however, requires productive capacities and therefore applies to lead markets for green technologies.

In stark contrast with traditional economic debates, actual climate action has triggered a global race towards technological dominance in the new green sectors, led by China, Europe and less so the US.[3] This is the result of comprehensive industrial policies characterised by state support to domestic green industries. China, Europe and the US have each in their own way deployed green industrial strategies, in a historical break with a long-standing tradition limiting state aid and state involvement. This race has resulted in a rapid decline in technology costs in those regions up to the point where parity is reached with their fossil equivalent.

In attempting to pursue their own zero-carbon industrial development, developing countries, however, face stringent state aid rules as part of global trade treaties. State aid, in which preferential treatment is given to domestic relative to foreign firms, whether for acting on climate or for boosting domestic competitiveness in international markets, generally breaches international trade and investment rules under WTO and other inter-regional or bilateral trade treaties. Therefore, green industrial policies frequently breach state aid rules.[4] However, state support of some form is usually necessary to develop new green domestic productive capabilities to supply domestically low-carbon solutions in the context of limited financial capacity to increase imports. Thus developing countries are constrained by trade agreements to remain reliant on imports for decarbonisation.

Emerging and developing countries also have limited capacity to join the green technological race as they face structural challenges limiting their access to finance. Beyond the trade and investment rules, irrespective of whether carbon is priced, climate action is largely hampered by lack of financial resources[5], excessive financial risk[6] and limited productive capacity for low-carbon technologies and solutions that are increasingly cost-competitive elsewhere[7]. Developing countries notably face limited capacity to import zero-carbon technologies to reduce their emissions due to limited availability of hard currency, while foreign investors are deterred by currency risk[8].

Currency risk arises when investment is made in foreign currency, but revenues accrue in domestic currency, and the recipient domestic industry or the government assumes the currency conversion risk. Under adverse exchange rate fluctuations, domestic companies or the government with external debt positions could face foreign currency liquidity problems, leading to currency devaluation in a vicious cycle. Meanwhile, increased imports in the form of zero-carbon technologies can deteriorate the current account balance in the absence of compensating exports, which also increases risks of currency devaluation.

The result is that developing countries face a twin challenge: limits to accessing low-carbon technologies

1. I. W. Parry, S. Black and K. Zhunussova, 'Carbon Taxes or Emissions Trading Systems?: Instrument Choice and Design', *Staff Climate Notes*, *2022*(006).
2. M. Grubb et al. (2021), EEIST report, https://eeist.co.uk/eeist-reports/the-new-economics-of-innovation-and-transition-evaluating-opportunities-and-risks/
3. X. Li, M. Du, 'China's Green Industrial Policy and World Trade Law', *East Asia* (2025).
4. H.B. Asmelash, 'Energy Subsidies and WTO Dispute Settlement: Why Only Renewable Energy Subsidies Are Challenged', *Journal of International Economic Law*, Volume 18, Issue 2, June 2015, 261–285.
5. See IMF, "Global Financial Stability Report", October 2023. [See Chapter 3: *Financial Sector Policies to Unlock Private Climate Finance in Emerging Market and Developing Economies*]. See also Climate Policy Initiative. *Accelerating Sustainable Finance for Emerging Markets and Developing Economies*, 2024.
6. N. Ameli, O. Dessens, M. Winning *et al.*, 'Higher cost of finance exacerbates a climate investment trap in developing economies', *Nat Commun* 12, 4046 (2021) ; A. Prasad, E. Loukoianova, A. X. Feng, and W. Oman. 'Mobilizing Private Climate Financing in Emerging Market and Developing Economies', *Staff Climate Notes* 2022, 007 (2022).
7. B. Li, Q. Liu, Y. Li, S. Zheng, 'Socioeconomic Productive Capacity and Renewable Energy Development: Empirical Insights from BRICS', *Sustainability*, 15(7), 2023.
8. J. Rickman, S. Kothari, N. Ameli et al., The 'Hidden Cost' of Sustainable Debt Financing in Emerging Markets, 17 October 2024.

due to lack of finance and unsustainability of their current account, and limits to fostering domestic green industrial development due to trade agreements proscribing state aid, restricting their options for climate action.

Understanding currency and sovereign risk in the context of climate action

Green industrial policies have underpinned most zero-carbon technological progress to date and have been largely financed in domestic currency in advanced economies. This has been achieved using either dedicated public financing and regulatory mechanisms, development banks, investment funds or other forms of allocation of financial resources.[9] Successful industrial policies include programs that mitigate investment risk and create bankable volumes of low-carbon projects, bringing their costs down to or near parity with fossil fuels, and pushing them towards mass markets. Advanced economies use and issue so-called "hard" currencies, characterized by low liquidity premia and easily convertibility into any other type of currency, facilitating the import of green technologies where they are not available domestically. Hard currencies acquire their status by their use in the trade of goods and services, the depth of the financial markets and the perceived trust in their institutions.

In emerging and developing countries, financing zero-carbon investment using domestic currency and financial markets is constrained due to limited domestic productive capacity for green technologies and limited convertibility of the local currency. Most developing and emerging countries possess relatively "weak" currencies, affected by limited convertibility for international financial transactions and face higher liquidity premia[10]. In countries of limited domestic productive capabilities for green technologies, zero-carbon investments rely on imported productive capital and intermediate goods, requiring hard currency to support their transition. This may lead these countries to increase their level of external debt, competing with other basic needs such as importing medical equipment or IT components. Their balance of hard currency flows constrains their pace of transition towards net-zero[11], unless they can increase exports, typically consisting of primary commodities including fossil fuels.

Sovereign risk, the risk of investing in particular countries, leads international investors to require higher returns, reflected in higher financing rates. In periods of low global interest rates, developing and emerging countries usually experience inflows of funds as international investors take advantage of differentials via 'carry trade'. [12] In the absence of sufficiently stringent macroprudential frameworks, this can expose domestic agents in emerging economies to excessive external debt burdens that can become unsustainable when external conditions change, such as with an increase of interest rates in the US or Europe. Sovereign risk includes the possibility of global financial cycle shifts, capital flight, and turmoil in financial markets, interrupting investment. Together with currency risks, sovereign risks deter investment in many economically viable and necessary projects for a zero-carbon transition.

Realistic and effective climate action lies with green industrial policy

Addressing climate change becomes easier and cheaper the more we do it. The costs of key zero-carbon technologies have come down in recent years to achieve parity or near-parity with incumbent fossil fuel technologies.[13] This includes solar and wind energy, and electric vehicles. The bulk of investment bringing costs down have been made in leading markets, largely the EU, China and the US, opening access to effective climate action worldwide. However, not all countries can benefit due to financial constraints.

Zero-carbon productive capacity will be required to be built in developing economies beyond China, in order to achieve global climate action. To manage currency risks and to support resilient economic development away from unsustainable extractive models, developing countries must develop their own capacity to produce domestically decarbonization solutions. This suggests that zero-carbon solution manufacturing must spread outside of lead markets into developing economies. The upfront investment required for doing so could be substantial and building up competitiveness a significant challenge. But the long-term impact of sustained green industrial policy offers a way out of the cascading barrier of unsustainable reliance on imports, currency risk and lack of finance.

The transition cannot be achieved by advanced economies alone and developing economies risk being left behind with costly and inefficient fossil fuel technologies. High-carbon systems could become entrenched and increasingly difficult to phase out due to lack of hard currency financial resources, even when they are more expensive than renewable and low-carbon technology. Without real prospects of competitiveness with technologies from advanced economies, and with wavering fossil fuel markets worldwide, developing economies may find themselves in corner situations, with regards to foreign

9. See M. Grubb et al, *EEIST Report*, 2021: https://eeist.co.uk/eeist-reports/the-new-economics-of-innovation-and-transition-evaluating-opportunities-and-risks/; G.F. Nemet, *How solar energy became cheap: A model for low-carbon innovation*, *op. cit.*
10. D.M. Prates, 'Beyond Modern Money Theory: A Post-Keynesian approach to the currency hierarchy, monetary sovereignty, and policy space'. *Review of Keynesian Economics*, 8(4), 2020, 494–511.
11. This is one dimension of a possible mid-transition trap. See E. Espagne, W. Oman, J.F. Mercure, R. Svartzman, U. Volz, H. Pollitt, E. Campiglio, *Cross-border risks of a global economy in mid-transition* (Vol. 184), International Monetary Fund, 2023.
12. S. Filipe, J. Nissinen, M. Suominen, 'Currency carry trades and global funding risk', *Journal of Banking & Finance*, Volume 149, 2023.
13. See M. Grubb et al, *EEIST Report*, *op.cit.* ; G.F. Nemet, *How solar energy became cheap: A model for low-carbon innovation*, *op.cit.*

currency liquidity, in which ageing inefficient and polluting high-carbon capital cannot be replaced for cleaner capital.

Breaking the doom loop of currency risk and industrial under-development for climate action in emerging countries, the case of Brazil

There are not many ways to overcome the twin challenge of currency risk and industrial under-development in developing countries: it must involve innovative financing mechanisms and relaxing or re-interpreting state aid rules. Expecting advanced economies to finance the entire transition of developing countries is not a realistic prospect, as the former face their own domestic financing challenges for the transition. It is much less costly for advanced economies to relax stringent state aid rules as part of treaties with developing economies that proscribe trading partners from developing their own green industries. Meanwhile, the currency risk problem can be overcome with the use of appropriate currency hedging mechanisms, which can substantially reduce the cost of the zero-carbon transition.

Different de-risking strategies for investment in emerging and developing markets have recently been promoted[14], but these are marred by potential contingent fiscal risks. In these approaches, private investors are rewarded for investing in risky markets via subsidies and guarantee mechanisms. Government budgets and development aid are expected to leverage private finance through targeted guarantee support and regulatory frameworks that allow for the emergence of investible asset classes, the exchange rate risk guaranteed by the public budget. However, in adverse scenarios, the transfer of risk from private to public budgets can become unsustainable.[15]

In contrast, Brazil has designed sustainable mechanisms to absorb currency risk in support of an ambitious climate action plan.[16] As part of the Ecological Transformation Plan[17] developed by the Brazilian Ministry of Finance in cooperation with the Interamerican Development Bank (IDB), the EcoInvest instrument[18] aims at managing the exchange rate volatility and boost persistently low levels of investment (See Figure 1). Low interest rates are guaranteed by a public fund, Fundo Clima,[19] for a series of targeted sectors and for companies that at the same time manage to attract external funding. A dedicated hedging mechanism ensures that these external funds are covered against excessive exchange rate volatility. While the uptake and success of these programs remains to be observed, this model could be considered more broadly across the developing world. It requires, however, an existing stock of foreign currency reserves, which is not available in many countries.

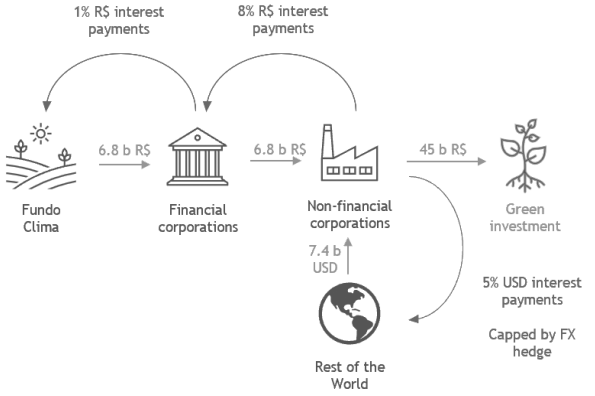

Figure 1: The blended finance instrument of the EcoInvest program, part of the Brazilian Ecological Transformation Plan

Conclusion

The twin barrier formed by currency risk and constraints to state aid from multilateral trade rules results in many countries becoming unable to either develop domestic capabilities to act on climate, or obtain those capabilities from abroad, and leads to limited capacity to act on climate change overall. This results in difficult debates over commitments from advanced economies for financial support to developing economies that have, up to now, been vastly insufficient to address the magnitude of the climate problem. But the problem may well be seen using the wrong lens, since empowering countries to develop profitable domestic zero-carbon industries does not necessarily require huge financial transfers from North to South. Instead, it requires developing facilities to absorb currency risk, and ways to allow investment in domestic productive capabilities that do not contravene trade agreements.

The creation of facilities and financial instruments to manage currency risk, along with innovative use of international trade and investment law to avoid costly court cases in the context of climate action could unlock ambitious action on climate change globally. The innovative Brazilian approach to mitigating currency risk within the framework of its Ecological Transformation Plan, demonstrated in the run up to COP30 in Belem, could offer a blueprint for a mechanism to mitigate currency risk and attract foreign climate finance. Meanwhile, making trade and investment law work for climate concerns rather than against is a critical element for a successful global zero-carbon transition. The essential goal is to empower countries to develop and scale zero-carbon productive capacities to meet climate challenges while contributing to resilient economic development.

14. V. Laxton and E. Choi, *Mobilizing Private Investment in Climate Solutions: De-risking Strategies of Multilateral Development Banks*, WRI: World Resources Institute, 2024.
15. D. Gabor, 'The wall street consensus', *Development and change*, *52*(3), 2021, 429-459.
16. The macro and financial impacts of this mechanism have been assessed under the C3A (Coalition for Capacity on Climate Action) initiative together with the Ministry of Finance of Brazil. See here: https://www.climatecapacitycoalition.org/
17. Ecological Transformation Plan (2023) https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/english-version/documents/pte-19-10-2023-ecological-transformation-plan.pdf
18. Eco Invest program (2023) https://sisweb.tesouro.gov.br/apex/f?p=2501:9::::9:P9_ID_PUBLICACAO_ANEXO:22252
19. https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/Social_and_Environmental_Responsibility/climate_fund_program.html

Luis Vassy · President of Sciences Po
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Redefining climate action: the intellectual challenge taken up by Sciences Po's Paris Climate School

In 2025, the environmental crisis is no longer an abstraction. Exceeding the targets set by the Paris Agreement—to limit global warming to 1.5°C above pre-industrial levels—marks a historic turning point. Its effects are now part of everyday life: extreme heat waves, prolonged droughts, and natural disasters are disrupting the functioning of our societies and weakening our economies. The humanities and social sciences, which have long been marginal in these debates dominated by the so-called "hard" sciences, are now highlighting the scale of the political, economic, and social implications. According to Adrien Bilal, runner-up for the 2025 Best Young Economist Award, the economic losses associated with global warming could be up to six times higher than conventional estimates, reaching up to 25% of global GDP per additional degree.[1] The European Central Bank, in collaboration with the University of Oxford, has shown that extreme drought in Europe would jeopardize more than 15% of the eurozone's economic output.[2] These data invite us to consider the **systemic nature of this crisis**, that is, to view it as a threat capable of simultaneously destabilizing several interdependent dimensions of our societies.

However, this existential crisis faces a democratic paradox. Although polls indicate that citizens are deeply concerned,[3] climate policies often encounter resistance and opposition. In some contexts, this hostility manifests as an explicit denial of scientific knowledge. In the United States, the Department of Energy has disseminated false information to legitimize deregulation policies,[4] while between January and June 2025, 847 instances of terms such as "climate change" being removed from official websites were recorded.[5] In Europe, questions are being raised about the fairness of the efforts required and their relevance in the face of persistent inaction by the world's largest emitters. This discrepancy highlights the political and social dimensions of the ecological transition: it is not merely a technical question of adjusting energy trajectories, but involves conflicts over values, development models, and distributive justice among groups, territories, and generations.

In this context, universities have a crucial role to play. More than ever, we need to learn from several decades of climate action at all levels of governance—public, private, local, national, and international. This involves going beyond a purely technical interpretation of the issues, not to challenge them but to connect scientific knowledge to economic levers and political, legal, and social dynamics. The goal is not only to anticipate risks better but also to train actors capable of leading the profound transformation of organizations and societies in response to challenges of increasing and continually accelerating scale. While several leading universities, such as Stanford (Doerr School of Sustainability) and Columbia (Climate School), have already embarked on this path, no European institution has yet opted for a school of humanities and social sciences specifically dedicated to ecological transition.

This is precisely the challenge that Sciences Po intends to take up with the creation of the Paris Climate School. Drawing on the institution's unique expertise in the humanities and social sciences, this new school combines a multi-scale approach to ecological transition with a strong commitment to interdisciplinarity, which includes structured dialogue with the so-called "hard" sciences. It is based on a broad conception of ecological transition, which encompasses not only the fight against global warming but also the preservation of biodiversity, the sustainable management of natural resources, and the analysis and management of risks related to disasters and adaptation.

The aim is to train a new generation of decision-makers. The Paris Climate School offers an integrated teaching approach that combines life sciences

1. A Bilal and DR Känzig, 'The Macroeconomic Impact of Climate Change: Global vs Local Temperature' NBER Working Paper No 32450 (National Bureau of Economic Research, May 2024, rev Nov 2024).
2. Andrej Ceglar, Francesca Danieli, Irene Heemskerk, Mark Jwaideh & Nicola Ranger, 'The European economy is not drought-proof' (ECB Blog, 23 May 2025) https://www.ecb.europa.eu/press/blog/date/2025/html/ecb.blog20250523~d39e3a7933.en.html ('Surface water scarcity alone puts almost 15% of the euro area's economic output at risk.')
3. Ipsos and CESI Engineering School, *Climat et transition énergétique: les Français dubitatifs – Jour de la Terre 2025* (Paris, Ipsos 22 April 2025) (Global Advisor study, conducted online in 32 countries, including France, January 24–February 7, 2025).
4. Stéphane Foucart, 'Scientists outraged by climate-skeptic report commissioned by Trump administration' *Le Monde* (6 August 2025).
5. Isabella Pacenza, Gretchen Gehrke, Rob Brackett et al, *Climate of Suppression: Environmental Information Under the Second Trump Administration* (Environmental Data & Governance Initiative 6 August 2025) https://envirodatagov.org/publication/climate-of-suppression-environmental-information-under-the-second-trump-administration/ ('Removing nearly 900 important changes—including 847 suppressions of terms like 'climate change'—on federal websites between January and June 2025.')

and technological innovations with insights from the humanities and social sciences. It fuses foundational knowledge with case studies and practical examples, particularly those provided by private companies. Far from being limited to just a collection of knowledge, the approach encourages a genuine dialogue between understanding biophysical scales (climate, biodiversity, resources) and analyzing the political, economic, and social dynamics connected to them. This crossover emphasizes the connections and interdependencies between natural phenomena and human organizations. It aims to equip students with the tools they need to analyze ecological controversies, navigate between different levels of governance—from local to global—and understand the tensions inherent in ecological transition. At the same time, the school develops applied thinking on risk management and adaptation, on how public and private constraints interact, and on the concrete conditions for organizational transformation. Finally, this program seeks to enhance leadership skills, promote robust decision-making, and cultivate the mindset of reflexivity and foresight necessary to anticipate and support changes of such magnitude.

The Paris Climate School is therefore not just a place for sharing knowledge but also a space for intellectual production and experimentation. By integrating education, research, and action, it aims to contribute to the renewal of analytical frameworks for ecological transition and train individuals capable of operating in an environment marked by instability and urgency. It will serve as a platform for public discussion, where new ways of thinking and acting can be developed in response to the upheavals of this century. Through this initiative, Sciences Po is highlighting its commitment to actively contributing to the reinvention of the knowledge and practices necessary to address the existential challenge of ecological transition.

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The Role of Businesses in Fighting Global Warming[1]

Faced with a critical decade, businesses have an essential role to play in helping to address social and environmental challenges that are more than just a simple evolution, but a veritable upheaval: global warming, biodiversity crisis, ever-increasing social inequalities, a geopolitical context undergoing rapid reconfiguration in a climate of unprecedented uncertainty, ideological fragmentation of political thought in most countries, and more. Among these challenges, the climate crisis is one of the most crucial issues, calling into question the very conditions of habitability on Earth, as the International Court of Justice solemnly reiterated in its Advisory Opinion of July 23 on the obligations of States in relation to climate change.[2] So what are the mechanisms that accelerate or, on the contrary, slow down the transition of companies, particularly the climate transition? What dynamics can be used to strengthen the momentum of companies in the face of these challenges?

The contribution of businesses to overcoming these challenges is all the more necessary as they reach unprecedented proportions. Many multinational companies operate in regions of the world where national legislation is inadequate, while value chains have become globalized, spanning several continents. Until now, technological transitions were initiated by the emergence of an innovation, prepared by one or more players, who eventually imposed it and rendered previous, less efficient techniques obsolete. Today, this is no longer the case: the driver of change is not the discovery of a new solution, but rather an exogenous imperative. It is by reaching planetary limits that we are collectively called upon to take action, even though not all the solutions already exist. The reflections presented here are based on the report produced by the Club des juristes, "L'entreprise engagée face aux défis du 21eme siècle" (The committed company facing the challenges of the 21st century), chaired by Isabelle Kocher de Leyritz.[3]

In the 1970s, in line with Milton Friedman's view that the function of a company is to maximize shareholder profit, agency theory made it possible to align the interests of managers with those of shareholders so that corporate decisions were guided solely by the pursuit of profit, to the detriment of the various impacts of corporate activities. The growing awareness since the 2000s of the major environmental and social challenges facing us has led us to "take corporate responsibility seriously" in adapting to these challenges.[4] In this vein, Kofi Annan launched an appeal at the 1999 Davos Economic Forum for a pact of shared values and principles between businesses and the United Nations in order to "give capitalism a human face," an appeal that led to the creation of the Global Compact. Since then, this momentum has led to the deployment of legal regulations aimed at guiding companies to take into account the negative externalities of their activities on human rights and the environment. This movement first resulted in the introduction of the first forms of non-financial reporting, before evolving into more substantial obligations of vigilance.

Two approaches emerged from the work carried out as part of the *Club des juristes* report. On the one hand, it appeared necessary to rethink liability law so that it is no longer just a mechanism for punishing past behavior attributable to a single actor, but becomes a lever for engaging companies in favor of the future (1).

On the other hand, consideration was given to the legal regulations introduced since the 2000s, which were understood as contributing to the construction of what we call here a "law of commitment" that goes beyond previous forms of regulation based on the imposition of limits and prohibitions, which can be described, by contrast, as a "law of limits" (2).

It is in light of these reflections that we analyze the worrying decline currently unfolding in the name of economic competitiveness, the European Commission's new mantra, which is being used to justify the unraveling of the patiently woven regulatory fabric. The new European political majority that emerged from the parliamentary elections in the spring of 2024 was one of the main causes of this backlash, with populist parties consistently presenting environmental regulations as unfounded bureaucratic constraints. Secondly, the report "*The future of European competitiveness—A competitiveness strategy for Europe*," coordinated by Mario Draghi in September 2024, brought the issue of simplification to the European Union's table. Finally, the profound changes in the geopolitical environment with Donald Trump's rise to power in the

1. The analyses and positions expressed below are solely those of the author.
2. ICJ, Advisory Opinion on the Obligations of States with Respect to Climate Change, July 23, 2025.
3. "L'entreprise engagée face aux défis du XXI° siècle" (Committed companies facing the challenges of the 21st century), I. Kocher de Leyritz, B. Parance and A. Stévignon, Le Club des juristes, November 2024.
4. A. Supiot and M. Delmas-Marty (eds.), *Taking Responsibility Seriously,* PUF, 2015.

United States further reinforced the belief that European regulations, a major obstacle for businesses, needed to be challenged. This resulted in the European Commission presenting two *omnibus* directive proposals in February 2025, with the aim of delaying and reducing the content of the CSRD and CS3D directives.[5] Without going into detail here about provisions that have not yet been definitively adopted, the main point to note is that it tends to greatly reduce the scope of companies subject to such regulations and that it aims to lighten the resulting obligations. However, in light of the above considerations, it seems to us more necessary than ever to stay the course in the face of the social and environmental challenges of the 21st century (3).

1. The world has changed: rethinking responsibility as a commitment to the future

1.1 Unprecedented challenges for businesses, particularly the climate challenge

Global warming is now rightly identified as the most serious risk facing humanity in the 21st century. As United Nations Secretary-General Antonio Guterres hammered home at the 27th session of the Conference of the Parties, "*It is the defining issue of our age. It is the central challenge of our century.* [...] *The deadly impacts of climate change are here and now*".[6] For the International Court of Justice, it is nothing less than an "*existential problem of global proportions, which endangers all forms of life and the very health of our planet*".[7]

The consensus that can be deduced from international climate standards (including the UNFCCC, the Paris Agreement, the Glasgow Pact, and the European Climate Law) and the most authoritative scientific reports (notably the IPCC reports) concludes that there is an urgent need to limit global warming to 1.5°C. The world's highest court has also taken note of this, stating in its recent opinion on the obligations of States with regard to climate change that the objective of limiting warming to 1.5°C is "*considered by all, on the basis of scientific data, to be the one to be pursued under the* Paris *Agreement*".[8]

However, entire sectors of the economy are identified as problematic due to their emissions potential, while the remaining global carbon budget–i.e., the maximum volume of greenhouse gases that can still be released into the atmosphere without exceeding the 1.5°C warming target–is being depleted faster than expected. The remaining global carbon budget to meet the 1.5°C target was estimated at 510 $GtCO_2$ by the IPCC in 2022[9], but was revised downwards to 130 $GtCO_2$ at the beginning of the year[10]: at this rate, it is expected to be exhausted in the coming years. The risk of climate runaway with the reaching of *tipping* points has never been greater.[11] Thus, as the years go by, the challenges to be met and the progress to be made by both public and private actors are only growing in proportion to the inadequacy of collective efforts.

It should also be emphasized that the climate crisis is only the tip of the iceberg, because in the background, the exceeding of other planetary boundaries, as highlighted by the *Resilience Center* at Stockholm University,[12] and the collapse of biodiversity are equally colossal challenges. The links between climate and biodiversity are becoming increasingly apparent, as evidenced by the 2021 joint report by the IPCC and IPBES, which warns against siloed analysis.[13]

Thus, the multiple environmental crises pose unprecedented challenges for companies, which are not only negatively impacted in the exercise of their activities but are also called upon to overcome them.

1.2 The need to rethink civil liability

In theory, one could consider that the role and legal responsibility of a company is to ensure that it complies with the increasingly narrow limits set by the legislator and to conduct its activities within this framework. However, this concept, which could be described as historical, is no longer entirely satisfactory. Civil liability, as still defined today in Article 1240 of the Civil Code as "Any act whatsoever by a person that causes damage to another obliges the person at fault to repair it," reveals its limitations in a context of emerging risks that are unprecedented in terms of their scale, scope, and potentially irreversible nature.[14]

Firstly, the concept of accountability, which establishes the responsibility of a single actor in a clearly identified causal chain, is no longer relevant in a context where an entire system is at the root of the massive destabilization observed[15]. The scientific complexity of the issues

5. COM(2025)80 and COM(2025)81: https://commission.europa.eu/publications/omnibus-i_en.
6. A. Guterres, "COP 27 Opening Address," Nov. 7, 2022. Original quote (free translation): "*It is the defining issue of our age. It is the central challenge of our century.* [...] *The deadly impacts of climate change are here and now.*"
7. ICJ, Advisory Opinion on the Obligations of States in Relation to Climate Change, July 23, 2025.
8. ICJ, Op. cit., § 224.
9. IPCC, AR6, WGIII, "Mitigation of Climate Change," Summary for Policymakers, Apr. 2022, p. 18, Table SPM.2, "Key characteristics of the modelled global emissions pathways."
10. Indicators of Global Climate Change, Key indicators of global climate change 2024.
11. McKay, A. et al. (2022), "Exceeding 1.5°C global warming could trigger multiple climate tipping points," *Science,* Vol. 377/6611, p. 1. See also: OECD, "Climate Tipping Points: Insights for Effective Policy Action," 2022, pp. 8 and 9.
12. In 2009, the Resilience Center at Stockholm University identified nine planetary boundaries that must not be exceeded in order to maintain life on Earth without risk, in a framework that was updated in 2023. Scientists have established that six of the nine planetary boundaries have now been exceeded: climate change, biosphere integrity, disruption of nitrogen and phosphorus biogeochemical cycles, land use change, freshwater use, and the introduction of new entities.
13. IPCC and IPBES, Biodiversity and Climate Change, 2021.
14. See the triple mutation of risks described by J. Rochfeld, *Les grandes notions du droit privé,* Notion 8, La responsabilité, Puf, 3rd ed. 2023.
15. F. Vallaeys, "Responsabilité sociale, gouvernance et soft law: trois définitions philosophiques à usage des 'forces imaginantes' de la régulation hybride",

and their systemic nature blur the line between actions and their impacts: beyond individual actions that cause identified damage, we are now faced with global damage resulting from the impacts of the activities of a multitude of actors.

Furthermore, from a collective point of view, it seems inappropriate to think in terms of *retrospective* compensation because the aim is to prevent the worst from happening: we are now faced with collective impacts that are literally irreparable, and we must try to prevent or mitigate their occurrence rather than imagine how to repair them.

Finally, the complexity of the issues at stake and the constantly evolving understanding of these issues and how to respond to them make the regulatory exercise particularly difficult. The effort of the law, particularly environmental law, to set safe boundaries, limits that no one must exceed, set at levels such that if everyone respects them, the safety of the whole is assured, is confronted with the systemic nature of the issues, highlighted by the concept of planetary boundaries. These systemic issues are further complicated by scientific and technological uncertainties, which further complicates the choice of institutional responses. These uncertainties also help explain why environmental regulations have often been perceived as overly technical and siloed. It therefore seems illusory to think that legislators can define the necessary limits exhaustively and at the right speed. The law of limits must therefore be combined with a law of commitment.

Simply raising environmental constraints quickly enough to restore a system of limits that must be respected to ensure the protection of the collective is not enough, especially since the period we are living in is also characterized by a pressing need to come up with new solutions. It is as much a question of inventing a secure future as it is of putting an end to some of our current practices. The world therefore needs pioneers now more than ever. Corporate responsibility cannot therefore be seen solely as a responsibility for the past and calls for the emergence of a right to commitment for the future.

1.3 Promoting responsibility as a commitment to the future: moving beyond the law of limits to the ***law of commitment***

The development of a "right of commitment" now appears necessary to support the business movement and respond to global and societal challenges. Unlike the historical "right of limits," the right of commitment places greater emphasis on the future and on the specific purpose that the company seeks to achieve, across all sectors of activity. Each economic actor must assess its position in light of the best possible evaluation of what is emerging for its sector, whether it is directly affected by the activities of its own factories or whether it generates activities among its suppliers or customers that will be called into question. Beyond a simple logic of greening, it is a question of deploying a strategic approach to what the activity in question will be in a sustainable world and the right speed of movement to achieve it.

From this perspective, responsibility, perceived as a commitment to the future, must not only contribute to supporting the company in this strategic vision, but also "reward" it for its efforts. Thus, the right to commitment, on the one hand, maintains a dimension of control by requiring the company to anticipate and prioritize the risks that its activity poses to the environment through the modernized concept of the duty of vigilance: this duty is, in a way, called upon to bring up the rear by gradually raising the minimum standards below which it is not possible to fall. On the other hand, it reinforces the obligation to publish information in support of the emergence of the new representation of success, to facilitate the comparison of companies on cross-cutting issues and to highlight the most committed and resilient companies, thus encouraging each company to define and pursue its own transition mission.

2. The virtues of a legal system that promotes corporate engagement

The more a company questions its model in light of ongoing developments and anticipates the necessary sacrifices and technological breakthroughs to be made, the more it strengthens its resilience in the face of future changes. Therefore, the legal system cannot limit itself to setting limits that companies must comply with; it must promote a representation of success that is favorable to committed companies and encourage them to go beyond the minimum requirements to shape the contours of a desirable future. This right to commitment is thus based both on the obligation of transparency arising from reporting (2.1) and on the substantial obligation arising from the duty of vigilance (2.2).

2.1 The ability of reporting to influence how success is portrayed in favor of committed companies

Originally, the obligation of transparency took the form of an obligation to report on social and environmental issues: the aim was to make non-financial reporting equivalent to the financial reporting used by investors to make their investment decisions. Following in the footsteps of France, which had paved the way in 2001 by imposing a non-financial reporting obligation on listed companies, on October 22, 2014, the European Union adopted,[16] a directive aimed at harmonizing this type of requirement at the EU level. However, this first generation of reporting left companies a great deal of freedom in terms of the format

in K. Martin-Chenut, R. de Quénaudon (dir.), *Développement durable: mutations ou métamorphoses de la responsabilité?*, ed. A. Pedone, 2016, p. 138.

16. Directive (EU) 2014/95 of October 22, 2014, known as the "NFRD" (Non-Financial Reporting Directive)

of the data to be provided, focusing its requirements on the thematic areas of information to be covered.

It therefore became necessary to go further by improving the comparability of non-financial information provided by all companies and strengthening its reliability through more thorough monitoring. This was the aim of the *Corporate Sustainability Reporting* Directive (CSRD) adopted in December 2022,[17] which significantly expanded the scope of companies subject to such reporting in order to make sustainability reporting, the new term adopted, the true *counterpart* of financial reporting. To this end, it standardized the information to be published by the ESRS (European Sustainability Reporting Standards) proposed by EFRAG and adopted by the European Commission in delegated acts, the first of which was published on July 30, 2023.

This directive is revolutionizing reporting through four highly innovative features. Firstly, it definitively establishes that sustainability issues extend throughout the company's supply chain beyond its legal scope, by examining both upstream (orders placed with suppliers) and downstream (customers' use of the products and services sold to them). Second, it enshrines the principle of double materiality, breaking away from the American model: alongside financial materiality (the influence of these issues on the company's business development and results), impact materiality (the impact of the company's activity on sustainability issues) is also affirmed. Thirdly, it moves away from the sole focus on ESG by incorporating strategy, questioning companies not only on their greenhouse gas emissions, for example, but also on the proportion of their revenue that is considered "transition risk" and also on transition opportunities. Finally, fourthly, it focuses on the company's dynamics by requiring it to publish a transition plan for its activities, the financial resources allocated to this plan, and those allocated to activities with a high transition risk.

Substantially challenged by the Omnibus proposal, the bureaucratic drift of the CSRD has been highlighted: the directive would have made reporting excessively complex with its multiple required information points. However, this somewhat simplistic interpretation overlooks the ambition of the text, which was to push companies to conduct a structured and demanding review of their impacts, strategies, and business models. It was not so much the requirements of the directive that undermined its effectiveness, but rather the refusal of certain companies to accept the challenge, faced for the first time with a requirement to assess their business practices, strategic choices, and societal role. The coordination between the various European regulations could certainly have been better thought out, and a longer implementation period would undoubtedly have facilitated the adoption of these new obligations. However, it would be simplistic to dismiss the complexity of the system as pure bureaucratic excess, when it was clearly intended to bring about change, which certain players ultimately preferred to circumvent rather than respond to.

While the European decisions are not yet known,[18] it is imperative that reporting reflects the company's ability to become resilient, i.e., capable of adapting to the changes that lie ahead. On the one hand, in most sectors of activity, technologies will have to evolve and supply chains will have to become more circular in the face of resource scarcity. However, there are considerable differences between economic actors in terms of both their transition risks (the proportion of activities that will have to be transformed, slowed down, or discontinued as a result of the transition) and their ability to seize transition opportunities, which their reporting should reveal. On the other hand, when the entire system is at stake and resource extraction, production, consumption, and logistics methods must all evolve at the same time, each player must evolve in their own part of the game. Reporting should then reflect the speed at which the company is moving towards more virtuous practices in its own part of the game, i.e., the dynamics of the transition it is undertaking.

2.2 The ability of the duty of vigilance to encourage companies to better consider risks across the entire value chain

The emergence of legislation on the duty of vigilance represents a decisive innovation in business law. It illustrates in concrete terms what we have referred to as the emergence the *law of commitment*: a right that is no longer limited to setting boundaries or punishing breaches, but which seeks to structure the behavior of economic actors from a proactive perspective of responsibility.

In this regard, the French law of March 27, 2017,[19] relating to the duty of vigilance of parent companies, is a pioneering piece of legislation in terms of protecting human rights and fundamental freedoms, worker health and safety, and the environment. It arose from the realization that companies could no longer turn a blind eye to the conditions under which the products they sell are manufactured and services are provided: a need for accountability was emerging. Its provisions are innovative in two ways. On the one hand, they require companies not only to control their internal risks, but also to take into account the systemic effects of their activities on human rights and the environment–in other words, to structurally address planetary boundaries and minimum social standards throughout their value chain. Second, the law innovates through the flexibility of the duty of vigilance: it is an evolving standard of behavior that is

17. Directive (EU) 2022/2464 of December 14, 2022, known as the "CSRD" (Corporate Sustainability Reporting Directive)

18. On July 31, 2025, EFRAG published a simplified set of reporting standards (" Exposure Drafts (ED) of the Amended ESRS"), reducing data points by 57% (https://www.efrag.org/en/amended-esrs).

19. Law No. 2017-399 of March 27, 2017 on the duty of vigilance of parent companies.

designed to adapt over time to new social and environmental challenges—such as the growing problem of plastic or persistent pollutants.

This law was a real revolution for companies, which can no longer hide behind the global nature of their activities to ignore the risks in this area and must demonstrate a certain proactivity in preventing risks and mitigating serious harm, or face legal action to obtain a court order to bring their plan into compliance (Art. L. 225-102-1C. com.) or face civil liability proceedings (Art. L. 225-102-2C. com.). While the results of the first few years of the law's application have been mixed,[20] the legal framework for the first of the actions provided for by the law was recently clarified in the "La Poste" case: the Paris Court of Appeal, in a ruling dated June 19, 2025,[21] confirmed the importance of risk mapping, incidentally pushing companies to take advantage of the law and go beyond the logic of compliance.

In line with French law, Directive (EU) 2024/1760 on corporate sustainability due diligence[22] (known as *the Corporate Sustainability Due Diligence Directive* or CS3D), adopted in June 2024, aims to establish a common set of obligations at the EU level in order to end regulatory asymmetry between Member States and raise the level of protection of human rights and the environment by companies operating in the European market. Like the French law, the directive has a broad scope covering the entire "chain of activities" and, under Articles 8 and 9, requires an analysis of actual or potential negative impacts and a prioritization based on the severity and likelihood of risks. This approach thus requires companies to conduct a cross-cutting risk analysis, forcing them to adopt a sector-approach to identifying and prioritizing risks and potential violations, beyond the sole legal sphere of control.

However, the directive has been the subject of intense debate in recent months[23]. The so-called *"Omnibus"* package, presented by the Commission on February 26, 2025, aims to revise certain substantial elements of the directive, in particular the broad scope of the duty of vigilance, but also the requirement for the effective implementation of climate transition plans provided for in Article 22. The Council's position[24] goes even further in its regression. In a joint statement on August 21 on the framework agreement for reciprocal, fair, and balanced trade between the United States and the EU, the EU stated its commitment to making efforts to ensure that the CS3D and CSRD "do not impose excessive restrictions on transatlantic trade." It also promised to "work to address US concerns regarding the imposition of due diligence requirements on companies from non-EU countries with high-quality relevant regulations"[25].

However, it should not be forgotten that, regardless of the outcome of the texts currently under discussion, the duty of vigilance incumbent on companies is not limited to the 2017 law. The Court of Cassation—the supreme court for civil and criminal cases in France—considers that companies informed of a scientifically substantiated risk are bound by a duty of vigilance.[26] The French Constitutional Council also affirms, on the basis of Articles 1 and 2 of the Environmental Charter, that "everyone has a duty of care with regard to environmental damage that may result from their activities."[27] In a recent landmark ruling in the "Dieselgate" case, the First Civil Chamber of the Court of Cassation went even further[28]: it interpreted the articles of the Civil Code on which the claim was based in the light of Articles 1 and 2 of the Environmental Charter, and relied on the above-mentioned principle established by the Constitutional Council to rule that "delivering to a purchaser a motor vehicle equipped with a device" that was rigged to underestimate emissions harmful to the environment constitutes a serious breach by the seller of its obligation to deliver goods in conformity with the contract, justifying the termination of the contract. In other words, as part of its obligation to deliver goods in conformity with the contract, the seller is required to exercise vigilance regarding environmental damage that may result from the sale of its goods, an obligation that falls within the scope of the contract and may form the basis for a request for termination of the contract. The broad scope of the obligation of vigilance in environmental matters is thus clearly established.[29]

In this context, and although the Green Deal is increasingly under threat, it is all the more important for companies to stay the course.

3. Staying the course in a strained geopolitical context

In an increasingly ideological political context, there are strong reasons for companies to stay the course, which can be achieved through the strength of leadership.

3.1 Strong reasons to stay the course

On the one hand, from a general perspective, it appears that many countries are moving forward with

20. See the Duty of vigilance Radar updated in October 2024: https://plan-vigilance.org/devoir-de-vigilance-une-opacite-persistante-et-des-entreprises-toujours-sans-plan/.
21. CA Paris, Division 5-Ch. 12, June 17, 2025, La Poste, RG No. 24/05193. See also TJ de Paris, December 5, 2023, La Poste, RG No. 21/15827.
22. Directive (EU) 2024/1760 of the European Parliament and of the Council of June 13, 2024 on corporate sustainability due diligence.
23. E. Pataut, "Omnibus?", *RTD eur.*, 2025, p. 5; D. Bureau, "In praise of negligence?", *JCP G* No. 22, act. 654; Th. Duchesne, "Omnibus package: let's run away!", BJB No. 4, p. 33.
24. https://www.consilium.europa.eu/en/press/press-releases/2025/06/23/simplification-council-agrees-position-on-sustainability-reporting-and-due-diligence-requirements-to-boost-eu-competitiveness/
25. https://policy.trade.ec.europa.eu/news/joint-statement-united-states-european-union-framework-agreement-reciprocal-fair-and-balanced-trade-2025-08-21_en
26. Cass. 1st civ., 7 March 2006, n° 04-16.180, Bull. civ. I, n° 143.
27. Cons. const., 8 avr. 2011, n° 2011-116 QPC; Cons. const., 10 nov. 2017, n° 2017-672 QPC (free translation).
28. Civ. 1st, 24 sept. 2025, pourvoi n° V 23-23.869, "Affaire Dieselgate".
29. Sur ce point et en amont de la décision du 24 septembre 2025, v. G. Leray, "La prise en considération des décisions du Conseil constitutionnel par le juge judiciaire en matière environnementale", *JCP E*, n° 01, 2025, 1006.

their transition, even if the United States is going against the grain. In this regard, recent studies show that China is engaged in a profound energy revolution that has enabled it to reduce its greenhouse gas emissions in a global context of increase. It has also just introduced a reporting mechanism for its companies based on the concept of double materiality.

Furthermore, the claim that European regulations distort competition for European companies rings hollow, given that the European Union has finally had the courage to impose its regulations on foreign companies operating on its territory, following the example of the United States, which has long practiced the extraterritorial application of its laws, a practice that has been widely criticized. Both the CSRD and CS3D directives were to apply to foreign companies with significant turnover on European soil, while the carbon border adjustment mechanism is currently being consolidated.

Finally, these regulatory requirements contribute to the security of the economic system as a whole by forcing companies to develop a better strategic vision: a majority of companies appreciate that the implementation of the CSRD has enabled them to strengthen their strategic vision and better integrate risks, and that it offers a guarantee of transparency and comparability of corporate sustainability reports.[30] In the same vein, the European Central Bank warns against lowering standards, emphasizing that the financial system needs high-quality and sufficient climate data from companies.[31] It is therefore the strength of leadership that enables us to stay the course.

3.2 The strength of leadership to stay the course

In this highly unstable political context, companies are adopting contrasting positions. Among the companies that have produced their first sustainability report under the CSRD, a number have praised the virtues of the exercise and do not intend to back down. However, the move to relax standards initiated by the European Commission is also seen as likely to slow down team involvement and deprioritize ESG issues.[32] In this context, the transformation of companies ultimately rests heavily on their shoulders and on the leadership of their executives.

As the report "The committed company facing the challenges of the 21st century" highlights, the leadership of executives and boards of directors is the cornerstone of the transition of committed companies[33]. In a context of constant trade-offs between conflicting demands, the board of directors becomes the link where the company's convictions crystallize, convictions that will underpin all the most important decisions, particularly those relating to strategy and investment. These convictions will be embodied in three areas of transition: defining the company's purpose based on its raison d'être; the risks and opportunities of transition, including the sacrifices it must make; and finally, how it should approach value sharing.

Beyond all these considerations, what ultimately emerges from the heated debates on the subject in a highly uncertain geopolitical context under American influence is an ideological opposition. Does Europe still want to offer a development model based on respect for the environment and the preservation of human rights, or does it intend to bow to the diktat of Donald Trump, who categorically rejects these regulations, which in his view should not apply to American companies? Let us hope that the convictions of the most committed companies do not waver in the face of this temporary backlash.

30. In May 2025, a survey conducted by the #WeAreEurope collective, in partnership with HEC Paris, revealed that 61% of European companies are in favor of the current CSRD, while 51% reject the Omnibus reform project, thus contradicting the prevailing discourse on the impact of this regulation (https://www.hec.edu/en/society-organizations-institute/news/les-entreprises-europeennes-soutiennent-massivement-la-directive-csrd-selon-une-derniere-etude).
31. Letter from Christine Lagarde, President of the ECB, to the European Parliament, August 15, 2025.
32. See, in particular, the study conducted by Deloitte, ANDRH, and ORSE, "CSRD and beyond: one year on, what is the outcome?", July 2025: the survey was conducted among more than 80 companies and found that 54% of companies believe that the omnibus has a limited impact following the efforts already made, but 28% of organizations believe that these changes may slow down team involvement and deprioritize ESG issues.
33. See the second part of the report, pp. 57–90.

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Ecocides: A Realistic Implementation Strategy

1. Ecocides

The idea of establishing ecocide as a crime has been under discussion for over half a century.[1] However, to date, we still lack a universally accepted legal definition that can address all the challenges posed by environmental protection on the planet. It also appears from academic debate and existing crimes of ecocide in various legal systems that it would be more appropriate to speak of *ecocides* rather than *ecocide*, i.e., under the same name, we find a set of serious criminal behaviors related to the environment, whose perpetrators are states and/or corporations.

The first type involves environmental destruction associated with armed conflict, which started with the Vietnam War and which we are bitterly reliving today with Ukraine.[2] The Rome Statute addresses this initial concept of ecocide in its Article 8 § 2 b) iv), which punishes acts of war that intentionally cause environmental damage that is disproportionate to military objectives.[3] The description of damage as "widespread, long-term, and severe" reflects a result that, with minor variations, has become broadly accepted and is included in most definitions of ecocide.

However, since international humanitarian law is clearly anthropocentric, there is little hope that this concept can be applied today. There are no normative references that provide the precision required by criminal law to determine under what circumstances an attack is disproportionate to the military objectives pursued.[4] Additionally, this concept only applies to international armed conflicts.

Most proposals address a second type of ecocide, which involves causing significant, long-lasting, and widespread harm to an ecosystem, the environment, or the quality of soil, water, or air. Coastal pollution from oil spills, such as those in the Gulf of Mexico, the Erika, or the Prestige, fall into this category. Many national legal systems and several academic initiatives already define a form of ecocide that matches this kind of environmental disaster. Most of these, aiming to punish or deter the most severe actions—and therefore imposing harsher penalties—require the behavior to be intentional, although some laws consider negligence or malice as sufficient.

The third type of ecocide would fall under what criminology calls States corporate crimes[5]: companies may take part in government efforts to destroy or diminish large forest areas or, in another version, a weak and corrupt government may authorize companies to extract natural resources by damaging natural environments. This type of ecocide has not been included in national laws and has also been overlooked by most theoretical proposals. This omission is especially noteworthy when considering that these are the most serious assaults on the environment and

1. On the criminalisation of ecocide, see R A Falk, 'Environmental Warfare and Ecocide—Facts, Appraisal, and Proposals' (1973) 4 *Bulletin of Peace Proposals*; R de Vicente Martínez, *Hacia un Derecho penal internacional medioambiental: catástrofes naturales y ecocidio* in D Crespo and AN Martín (eds), *Derecho penal económico y Derechos humanos* (Valencia 2018); M A Gray, 'The International Crime of Ecocide' (1996) 26 *California Western International Law Journal* 218 ff; P Higgins, *Eradicating Ecocide: Laws and Governance to Prevent the Destruction of our Planet* (London 2010) 458; A Nieto Martín, 'Hacia un Derecho penal internacional del medio ambiente' (2012) 16 *Anuario de la Facultad de Derecho de la Universidad Autónoma de Madrid* 137 ff; L Neyret (ed), *Des écocrimes à l'écocide* (Bruylant 2015) esp 87–263; E Fronza and N Guillou, 'Vers une définition du crime international d'écocide' in L Neyret (ed), *Des écocrimes à l'écocide* (Bruylant 2015) 126 ff; E Fronza, 'Sancire senza sanzionare? Problemi e prospettive del nuovo crimine di ecocidio' *Legislazione penale* (17 March 2021).
2. L Neyret, 'Réveiller l'écocide' (2023) 4 *Revue de Science Criminelle et de droit pénal comparé* 767 ff; S Maruf, 'Environmental Damage in Ukraine as Environmental War Crime under the Rome Statute: The Kakhovka Dam Breach in Context' (2024) 22(1) *Journal of International Criminal Justice* 99; V Molenti, 'The Long Road to the Criminalization of Ecocide: Legal Issues and Dynamics of Regulatory and Social Effectiveness' (2021) 4 *Diritto penale contemporaneo*.
3. For commentary, see KJ Heller and JC Lawrence, 'The Limits of Article 8(2)(b)(iv) of the Rome Statute: The First Ecocentric Environmental War Crime' (2007) 20 *Georgetown International Environmental Law Review*; S Freeland, *Addressing the Intentional Destruction of the Environment During Warfare Under the Rome Statute of the International Criminal Court* (Intersentia 2015); M Gillett, 'Eco-Struggles. Using International Criminal Law to Protect the Environment During and After Non-International Armed Conflict' in C Stahn, JS Easterday and J Iverson (eds), *Environmental Protection and Transitions from Conflict to Peace* (OUP 2017) 234; H Brady and D Re, 'Environmental and Cultural Heritage Crimes: The Possibilities Under the Rome Statute' in M Bohlander, M Böse, A Klip and O Lagodny (eds), *Justice Without Borders: Essays in Honour of Wolfgang Schombourg* (Brill 2018) 129.
4. Recently, see International Committee of the Red Cross, *Guidelines on the Protection of the Natural Environment in Armed Conflict* (2020) https://www.icrc.org/en/publication/4382-guidelines-protection-natural-environment-armed-conflict. Several proposals have been put forward to include ecocide among the five core crimes. See, for example, Republic of Maldives, Written Statement, 18th session of the Assembly of States Parties to the Rome Statute of the International Criminal Court (3 December 2019) 2 https://asp.icc-cpi.int/sites/asp/files/asp_docs/ASP18/GD.MDV.3.12.pdf; Republic of Vanuatu, Statement, 18th session of the Assembly of States Parties to the Rome Statute of the International Criminal Court (3 December 2019) 3–4 https://asp.icc-cpi.int/sites/asp/files/asp_docs/ASP18/GD.VAN.2.12.pdf; Kingdom of Belgium, Statement, 19th session of the Assembly of States Parties to the Rome Statute of the International Criminal Court (14–16 December 2020) 4 https://asp.icc-cpi.int/sites/asp/files/asp_docs/ASP19/GD.BEL.14.12.pdf.
5. RC Kramer, RJ Michalowski and D Kauzlarich, 'The Origins and Development of the Concept and Theory of State-Corporate Crime' (2002) 48(2) *Crime & Delinquency* 263; D Whyte, 'Regime of Permission and State Corporate Crime' (2014) 3(2) *State Crime Journal* 237; A Nieto Martín and M Muñoz de Morales, 'Introduction' in A Nieto Martín, M Muñoz de Morales and J Dopico (eds), *Vertes et justes: responsabilité pénale et diligence raisonnable dans les organisations multinationales*, vol I (BOE 2025) 18 ff.

they stem from policies of organizations, whether a state or a large corporation.[6] This kind of ecocide also aligns with forms of macrocriminality that are structurally similar to those seen in crimes against humanity or genocide.

Finally, it is also important to highlight that creating an ecocide crime is often connected to societal demands to fight climate change.[7] The connection makes sense symbolically, considering the expressive power of this concept and the need for a criminal law response to climate change.[8] However, it is not technically accurate to reduce climate change to a problem of environmental pollution. The environment and the climate are two protected interests with distinct characteristics, so the behaviors deserving criminalization are also different. Criminal law intervention to punish behaviors impacting the climate, which could eventually be included in a future criminal law on climate, requires different criminalization techniques than those used in environmental criminal law.[9]

2. The process of harmonizing the crime of ecocide: actors and norms

Any discussion about the debate on the ecocide over recent decades would be incomplete without also examining the dynamics, forces, and key players involved. These include academics and academic institutions, as well as activists; both groups have proposed important legislative ideas. There are also national lawmakers who have added ecocide crimes to national laws in various contexts and in successive waves.

The recognition of ecocide in national law started in Vietnam in 1970 and then spread to Eastern European countries. More recently, it has been incorporated into the penal codes of France and Belgium. While the *nomen iuris* remained the same during this wave, the content and core elements of ecocide have evolved: this process is similar to how the crime against humanity originated in the London Charter, which initially required a connection to armed conflict but later evolved to no longer require this condition.

International organizations have also played a significant role in this area. During the 1970s and 1980s, the Sixth Committee of the United Nations formulated definitions for this concept in the Code of Crimes Against Humanity.[10] Similarly, in recent years, the Office of the Prosecutor of the International Criminal Court has issued several policy documents focused on the criminal protection of the environment to promote the role of the International Criminal Court.[11]

Although related to the broader discussion on climate justice and not specifically to the creation of the crime of ecocide, it is also worth mentioning the activities of the European Court of Human Rights,[12] the International Court of Justice,[13] and several national courts that have issued pioneering decisions on international environmental protection.

More recently, however, the European Union (EU) and the Council of Europe have undeniably taken a leading role. Within these two organizations, it is worth highlighting the momentum provided by the European Parliament[14] and the Parliamentary Assembly of the Council of Europe[15] to ensure that the final text of the directive on the protection of the environment through criminal law and the corresponding Council of Europe convention includes a concept that bears a certain "family resemblance" to the crime of ecocide as defined in some countries.[16] After substantial debate, it is noteworthy that in both texts, this concept is regarded as an aggravated offense rather than a separate offense.

The EU has also expressed its intention to carry out a comprehensive harmonization process. Similar to the 1990s,

6. A Nieto Martín, 'Le droit pénal international comme instrument de gouvernance mondiale' in G Giudicelli and others (eds), *Cheminer avec Mireille Delmas-Marty. Mélanges ouverts en l'honneur de Mireille Delmas-Marty* (Mare & Martin 2022).
7. L Arenal Lora, 'El crimen internacional de ecocidio: respuesta normativa al problema global del cambio climático' in Z Cabot, S Pallares and C Marullo (eds), *La lucha en clave judicial contra el cambio climático* (2022).
8. The process of criminalization requires a legal definition. The symbolic and communicative function is not sufficient. Francoise Tulkens emphasizes the importance of a precise definition of the crime that is consistent with the principle of legality. See Françoise Tulkens, 'Quel est le contexte juridique du vrai-faux "procès" de Monsanto?' *Le Monde* (16 October 2016); L d'Ambrosio, 'La codification de l'écocide en droit français: l'urgence et le symbole' (2025) 1 *Revue de science criminelle et de droit pénal compare*.
9. On this concept, see J Satzger and N von Maltitz, *Klimastrafrecht: Die Rolle von Verbots- und Sanktionsnormen im Klimaschutz* (Nomos 2024); A Nieto Martín, 'No mires arriba: la respuesta del Derecho penal a la climático' (2022) 26 *Anuario de la Facultad de Derecho de la Universidad Autónoma de Madrid (AFDUAM)*.
10. United Nations, *Report of the International Law Commission on the Work of Its Forty-Eighth Session* (6 May–26 July 1996).
11. International Criminal Court, *Policy Paper on Case Selection and Prioritization* (15 September 2016) para. 41 https://www.icc-cpi.int/sites/default/files/itemsDocuments/20160915_OTP-Policy_Case-Selection_Fra.pdf; International Criminal Court, 'The Office of the Prosecutor launches public consultation on a new policy initiative to advance accountability for environmental crimes under the Rome Statute' (2024) https://www.icc-cpi.int/news/office-prosecutor-launches-public-consultation-new-policy-initiative-advance-accountability-0. For commentary, see R Pereira, 'After the ICC Office of the Prosecutor's 2016 Policy Paper on Case Selection and Prioritization: Towards an International Crime of Ecocide?' (2020) 31(2) *Criminal Law Forum* 179.
12. *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 (ECtHR, 9 April 2024).
13. ICJ, *Advisory Opinion on Obligations of States in Respect of Climate Change* (23 July 2025) https://icj-cij.org/sites/default/files/case-related/187/187-20250723-adv-01-00-en.pdf.
14. European Parliament, 'Resolution of 20 January 2021 on Human Rights and Democracy in the World and the European Union's Policy on the Matter, Annual Report 2019 (2020/2208(INI))' https://www.europarl.europa.eu/doceo/document/TA-9-2021-0014_IT.html; V Molenti, 'La lunga strada della criminalizzazione dell'ecocidio: questioni giuridiche e dinamiche di effettività normativa e sociale' (2021) 4 *Diritto penale contemporaneo*.
15. Directive (EU) 2024/1203 of the European Parliament and of the Council of 11 April 2024 on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC. For commentary, see M Faure, 'The EU Environmental Crime Directive 2024: A Revolution in EU Environmental Criminal Law?' (2024) 36(3) *Journal of Environmental Law* 323.
16. Ecocide has become a criminal offense in several countries: Vietnam, Ukraine, Russia, Armenia, Belarus, Moldova, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, France, and Belgium. These provisions are the result of various dynamics that we have mentioned. The first criminalization coincided with the Vietnam War, and the second, more recent one began in recent years. Today, with the directive, a new dynamic is likely to emerge.

when the United States collaborated with the Organization for Economic Cooperation and Development (OECD) to expand its groundbreaking law on foreign corrupt practices (Foreign Corrupt Practices Act), the EU and the Council of Europe also worked closely together in this area. The European Commission was given a mandate that allowed it to be the lead negotiator within the Council of Europe. As a result, the Convention reflects the text of the Directive, which it seeks to extend not only to all Council member states but also to other countries (non-member countries can indeed join Council of Europe Conventions).

This whole set of actors, soft law and hard law standards, academic proposals, policy documents, and more, illustrates the interactions that typically occur, to use Mireille Delmas-Marty's words, on the path toward criminal law harmonization.[17] For example, we can see how the significant proposal by Stop Ecocide, led by Philip Sands,[18] has significantly influenced national legislative processes. We can also point out the French legislature's decision to diverge from that definition, which itself served as a key element in the drafting of the European and Council of Europe directives.

This entire harmonization process is based on two seemingly distinct axes that are destined to converge: the international and the national level. The debate on ecocide has been and continues to be driven mainly by efforts to establish a crime under international criminal law, either by adding a fifth–and new–autonomous crime to the Rome Statute or by creating a dedicated international criminal court for the environment. Therefore, if the criminalization of ecocide succeeds, it would possess the features of any international crime: no statute of limitations, no immunity before international courts, and universal jurisdiction. In this scenario, ecocide could establish a new phase in international criminal law, shifting focus toward protecting economic and social rights and potentially leading to new criminal offenses beyond the current "Nuremberg model."[19]

While the international aspect has dominated academic discussion, progress has been made at the national level, where, as we have noted, more legal systems are adopting this concept. However, the definition of these ideas remains part of an ongoing dialogue with international proposals. It is through this interaction that the importance and ultimate significance of the European directive become clear. Positioned within the international (more specifically, regional) realm–the unique harmonization space within the EU–it signifies a strong commitment to the key role of national laws in addressing the most severe examples of transnational environmental crime.

3. The global criminal law strategy

This, in summary, is the current state of affairs regarding the prosecution of ecocide. The missing account is the development of a strategy for the future that is adapted to the new era. Since Trump's arrival in the White House, international criminal law has been in a particularly fragile state, under attack. Besides sanctions imposed by the United States, there is also the conduct of European countries such as Hungary, Italy, and, to some extent, Germany, which are challenging the authority of the International Criminal Court. In this context, it is not very realistic to insist on making ecocide the fifth fundamental international crime–the creation of which has raised doubts among some scholars.[20] The idea of an international convention on ecocide, establishing a hierarchical enforcement system under the authority of an international criminal court, is politically unrealistic today.

However, the strategy to be followed is not solely national but is part of *global criminal law*:[21] a multi-level post-state governance system that aims to protect international legal assets, such as the environment. The term "governance" includes all controlZ activities through which various actors, as well as public and private institutions, combat certain forms of transnational crime. To make this approach more effective, it is crucial to remember that we are not dealing with one "ecocide," but with "ecocides," meaning various serious forms of environmental crime, ranging from protecting strategically important sites from a global perspective (such as the Amazon or Antarctica) to safeguarding biodiversity, and involving criminal phenomena as grave as trafficking in protected species, illegal mining, or illegal fishing that cause environmental damage. It is true that ecocide, which has become an international crime, stands at the top of the pyramid in international environmental criminal law. However, the fact that this goal may seem unachievable in the current political climate should not cause us to lose sight of the bigger picture, nor should it diminish the accomplishments made or the potential for future progress.

In this alternative–and, where applicable, complementary–model of criminal law internationalization, collaboration and teamwork among different actors and standards are essential.

17. M Delmas-Marty, M Pieth, U Sieber and J Lelieur, *Les chemins de l'harmonisation pénale* (Société de législation comparée 2008).
18. See https://www.stopecocide.earth/legal-definition. NGOs have played a vital role in the movement to criminalize ecocide from the beginning. Notably, Polly Higgins, founder of the Earth Law Alliance, has contributed to defining ecocide. Her definitions can be found in Polly Higgins, *Eradicating Ecocide: Laws and Governance to Prevent the Destruction of Our Planet* (Shepheard-Walwyn 2010); Id., Ecocide Law, Mission Lifeforce, https://www.missionlifeforce.org/ ecocide-law; and also, End Ecocide on Earth; End Ecocide Sweden; Global Alliance for the Rights of Nature. Aside from these efforts, the push for global climate justice continues to grow, as detailed in the Global Climate Litigation Report, UNEP 2020: https://www.unep.org/resources/report/global-climate-litigation-report-2020-status-review.
19. On the continuities with the "Nuremberg model" and the discontinuities that the creation of an international crime of ecocide would imply, see E Fronza, '¿Hacia un nuevo Derecho penal económico internacional? El ejemplo del ecocidio' in *Un derecho penal humanista: Libro homenaje al profesor Luis Arroyo Zapatero*, vol. 2 (2021) 1391 ff.
20. Among others, see Kai Ambos, "Protecting the Environment through International Criminal Law?" *EJIL:Talk!* (29 June 2021) https://www.ejiltalk.org/protecting-the-environment-through-international-criminal-law/.
21. See in particular, A Nieto Martín, *Global Criminal Law: Postnational Criminal Justice in the Twenty-First Century* (Palgrave Macmillan 2022).

For example, the guidance documents issued by the Office of the Prosecutor of the International Criminal Court[22] can act as catalysts for reporting the most serious cases of environmental crime: those that constitute war crimes or are akin to crimes against humanity. It is still too soon to assess the effectiveness of these prosecution policies, but one key aspect will definitely be the search for strategic allies, just like with the ICC and Eurojust in the context of the war in Ukraine.[23]

NGOs specializing in environmental issues and the scientific community are also called upon to play a key role. For example, it would be very helpful for them to collaborate in forming an institution, which could be private, capable of providing technical and legal assistance to governments or communities in need. This would be an essential tool in this effort. The proposal by the research group led by Laurent Neyret[24] on eco-crimes and ecocide offered an interesting model: the *Green*,[25] whose functions can serve as an example. In the area of corruption and asset recovery, we have a model that can also be used: the Basel Institute on Governance, which offers high-quality technical assistance to governments and judges in recovering assets linked to corruption. An institution that would work with governments, judges, and police forces in countries with limited capacity to prosecute major environmental crime cases would be very useful. Of course, it is important to emphasize the value of strategic litigation, such as that carried out in France by Sherpa, *Notre Affaire à Tous*, and *Intérêt à Agir*, or in Germany by the Center of Constitutional and Human Rights.

As already noted, the impetus provided by the EU directive and the Council of Europe Convention to national standards gives national legislators a significant role to play. In this regard, the recent UCLA initiative to provide them with guidance on the classification of ecocide is invaluable.[26]

When implementing the directive, special attention should be given to establishing rules of jurisdiction that allow for its extraterritorial application. The ability, as outlined in the directive, to extend jurisdiction to a legal person with its registered office in an EU country when the criminal offense occurs abroad is notably significant. Jurisdiction is exercised regardless of the perpetrator's nationality, embodying a principle of active personality specific to the legal entity that is independent of the individual's nationality.[27] This aims to require European companies to uphold environmental standards worldwide, no matter where they operate. However, for EU countries to prosecute such offenses, the condition of double criminality must be satisfied, which represents a significant obstacle in states that do not restrict the exploitation of their natural resources.

In this post-national multilateralism model, the Council of Europe should play a decisive role, similar to that of the OECD in the fight against corruption. Besides promoting the signing of its Convention, it should encourage public-private cooperation and seek allies among countries willing to lead the fight against environmental crime. The advantage, unthinkable just a few years ago, is that we now have two hard law standards, the Directive and the Convention, which represent the first form of international environmental criminal law that, in addition to the concept of ecocide, addresses other types of serious transnational environmental crimes such as trafficking in waste, protected species, ozone-depleting gases, products from illegal deforestation, ship dismantling, and more. The Directive and the Convention also address issues characteristic of environmental criminal law, such as the criminal liability of legal persons, the inclusion of which is essential for developing reparation models, for example, based on restorative justice settings.[28]

4. Conclusion

In conclusion, returning to Mireille Delmas Marty and her inspiring analysis of the forces that play a leading role in harmonization processes, it is now necessary to identify which countries will choose to take on the role of the main actor. If the strategy is to depend on national criminal law, no matter how active international organizations may be, without their cooperation, little can be accomplished. Until now, the United States has led harmonization efforts, from drug trafficking to corruption, which has sometimes caused this harmonization to be mistaken for an Americanization of criminal law.[29] The key question now is which countries are able to develop standards and procedures against serious environmental crimes based on their national laws. The bigger question for the future, as in other areas of international relations, is whether there are countries other than the United States that have the capacity to undertake this task.

22. In particular, the recent 'Draft Policy Paper on Environmental Crimes under the Rome Statute', *op. cit*.
23. A V Marica, 'La solidaridad de la UE con Ucrania¿una demostración de fuerza? Análisis del papel de Eurojust y Europol en la investigación y enjuiciamiento del núcleo de delitos internacionales (CIC) cometidos por Rusia en Ucrania' (2023) *Revista de Derecho Político* 119 267 ff.
24. L Neyret (ed), *Des écocrimes à l'écocide* (Bruylant 2015).
25. The GREEN introduced by the Neyret proposal is a research and investigation group focused on the environment. It serves as a mechanism for examining and reporting acts that constitute ecocide. GREEN exemplifies how we can "imagine" through the law. It is important to note that this concept has been adopted by the Council of Europe's proposal on the environment.
26. Working Group on the National Criminalisation of Ecocide, *Manual for a National Criminalisation of Ecocide* (UCLA School of Law 12 February 2025) https://law.ucla.edu/sites/default/files/PDFs/Promise_Europe/MANUAL_FOR_A_NATIONAL_CRIMINALISATION_OF_ECOCIDE-5.pdf.
27. A Lascuráin and AB Valverde, 'Champ de compétence: quand les infractions commises par des personnes morales sont-elles poursuivies en Espagne?' in A Nieto Martín, M Muñoz de Morales and J Dopico (eds), *Verdes y justas: responsabilidad penal y diligencia debida en las organizaciones multinacionales*, vol I (BOE 2025) 315 ff.
28. T Vormbaum and G Werle, *Transitional Justice – The Legal Framework* (Springer 2022); A Nieto Martín, 'Justicia empresarial restaurativa y víctimas restaurativas' in P Galain and E Saad-Diniz (eds), *Responsabilidad empresarial, derechos humanos y la agenda del derecho penal corporativo* (2021); A Nieto Martín, 'Ecocidio y justicia restaurativa: el Derecho Penal Internacional post-Núremberg' (2020) *Almanaque de Derecho*.
29. A Nieto Martín, 'Américanisation ou européisation du droit pénal économique?' (2006) *Revue de science criminelle et de droit pénal comparé* 767.

Pedro Sánchez · Prime Minister of Spain
Luiz Inácio Lula da Silva · President of Brazil
Cyril Ramaphosa · President of South Africa

Joining forces to overcome global challenges

2025 will be a pivotal year for multilateralism. The challenges before us—rising inequalities, climate change, and the financing gap for sustainable development—are urgent and interconnected. Addressing them requires bold, coordinated action—not a retreat into isolation, unilateral actions, or disruption.

Three major global gatherings offer a unique opportunity to chart a path toward a more just, inclusive and sustainable world: the Fourth International Conference on Financing for Development (FfD4) in Seville (Spain), the 30th Conference of the Parties (COP30) to the United Nations Convention on Climate Change (UNFCCC) in Belém (Brazil) and the G20 Summit in Johannesburg (South Africa). These meetings must not be business as usual: they must deliver real progress.

A multilateral moment we cannot waste

Trust in multilateral institutions is under strain, yet the need for dialogue and global cooperation has never been greater. We must reaffirm that multilateralism, when ambitious and action-oriented, remains the most effective vehicle for addressing shared challenges and advancing common interests. We must build on the successes of multilateralism, in particular the 2030 Agenda and the Paris Agreement. The G20, COP30, FfD4 must serve as milestones in a renewed commitment to inclusiveness, sustainable development, and shared prosperity. This will require strong political will, the full participation of all relevant stakeholders, a creative mindset, and the ability to understand the constraints and priorities of all economies.

Tackling inequality through a renewed financial architecture

Income inequality is widening—both within and between nations. Many developing countries struggle under unsustainable debt burdens, constrained fiscal space, and barriers to fair access to capital. Basic services such as health or education must compete with growing interest rates. This is not just a moral failing; it is an economic risk for all. The global financial architecture must be reformed to provide countries in the Global South with greater voice and representation and fairer and more predictable access to resources.

We must advance debt relief initiatives, promote innovative financing mechanisms, and work on identifying and addressing the causes of the high cost of capital faced by most developing countries. The G20, under the South African Presidency, is prioritizing these three areas. At the same time, Seville's FfD4 will be a defining moment to secure commitments for stronger international financial cooperation for sustainable development, including through better taxation of global wealth and negative externalities, the enhancement of domestic resource mobilization, and for a more impactful and effective rechanneling of Special Drawing Rights.

Financing just transitions towards clean and climate-resilient development

For many developing countries, just climate transitions remain out of reach due to lack of funds and development constraints. This must change. At COP30 in Belém, a summit hosted in the heart of the Amazon, we must ensure that our climate finance commitments translate into concrete action.

The success of COP30 will depend on whether we can bridge the gap between promises and delivery. Under the UNFCCC, key foundations for COP30 will be the submission of new and ambitious Nationally Determined Contributions (NDCs) by all parties and the Baku to Belém Roadmap to scale up financing to developing country Parties for climate action from all public and private sources to at least USD 1.3 trillion per year by 2025. We need to significantly scale up climate adaptation finance, leverage private sector investment, and ensure that Multilateral Development Banks take a greater role in climate financing. The Seville conference will complement these efforts by ensuring that climate financing does not come at the cost of development.

A global and inclusive response to global threats

The world is increasingly fragmented, and this is precisely why we must redouble our efforts to find common ground. Johannesburg, Belém and Seville must serve as beacons of multilateral cooperation, showing that nations can unite around common interests.

In Seville, we will work to mobilize both public and private capital for sustainable development, recognizing that financial stability and climate action are inseparable. In Johannesburg, the G20 will reaffirm the importance of inclusive economic growth. And in Belém, we will stand together to protect our planet.

As we look ahead to 2025, we call on all nations, international institutions, the private sector and civil society to rise to this moment. Multilateralism can and must deliver—because the stakes are too high for failure.

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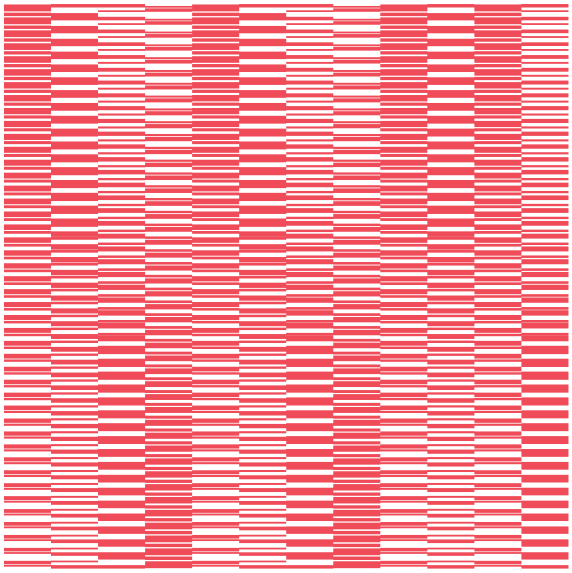

CLIMATE CHANGE: THE CRITICAL DECADE

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