7

Climate Change

Paradise Lost

Consisting of thirty-two atolls and one raised coral island dispersed over an area of the central Pacific larger than India, Kiribati (pronounced *KIRR-ih-bass*) is a breathtaking tropical paradise.[1] Straddling the equator, its atolls are surrounded and laced through with shimmering turquoise waters. Towering coconut palm trees and stilt houses line its beaches. Marine life is abundant; fishers in sarongs gather shellfish at low tide. But for Kiribati's roughly 119,000 permanent residents, the beauty and wonder of their ancestral homeland is overshadowed by impending cataclysm: the devastating impacts of global climate change.

Historically, Kiribati has not suffered from cyclones and similar severe weather, since those rarely occur near the equator.[2] However, climate scientists have long warned of changing weather patterns in the Pacific, predicting that global warming would cause island nations to experience severe weather events with greater frequency.[3] In 2015, heavy seas and winds from Tropical Cyclone Pam struck Kiribati, flooding and destroying homes and buildings, contaminating freshwater wells, and destroying sea walls.[4] Already reliant on significant development assistance, with the lowest gross domestic product of any sovereign state in Oceania, Kiribati lacks the resources needed to recover from a natural disaster of this magnitude.[5]

[1] *See* 'Kiribati', Wikipedia, https://en.wikipedia.org/wiki/Kiribati. The Kiribati archipelago covers 3,441,810 square kilometers. Ibid.
[2] Karen Allen, 'We need to talk about cyclones', ReliefWeb, 12 March 2016.
[3] See, e.g., Wenju Cai et al., 'Anthropogenic Impacts on Twentieth-Century ENSO Variability Changes' (2023) 4 *Nat. Rev. Earth & Env't* 407.
[4] Ron K. Hoeke et al., 'Severe Flooding in the Atoll Nations of Tuvalu and Kiribati Triggered by a Distant Tropical Cyclone Pam' (2020) *Front. Mar. Sci.*, 22 January 2021.
[5] Ibid.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

More terrifying yet for Kiribati is the rising sea. Kiribati is a low-lying nation, with most land less than two meters above sea level.[6] According to the Intergovernmental Panel on Climate Change (IPCC), between 1901 and 1971 the average rate of sea level rise was 1.3mm per year, increasing to 1.9mm per year between 1971 and 2006, and further accelerating to 3.7mm per year between 2006 and 2018.[7] By 2100, the sea level around Kiribati is estimated to rise between 520 mm (20.5 inches) and 910 mm (36 inches), and possibly much more.[8] In 1999, two of Kiribati's islands, Abanuea and Tebua Tarawa, flooded and disappeared underwater entirely.[9] As these trends continue, much more of Kiribati's landmass will be lost to the rising sea.[10] Nonetheless, the most probable and imminent existential crisis Kiribati faces is the threat of higher seas and more frequent extreme weather combining to render its islands uninhabitable long before they are buried by the sea.[11]

The principal cause of rising sea levels is global warming.[12] The IPCC reports global surface temperature reaching 1.1°C above 1850–1900 levels in 2011–2020.[13] Rising global temperature is melting glaciers and ice sheets at an unprecedented pace, all the while expanding the volume of the ocean as sea water warms. The IPCC's leading headline in its 2023 Synthesis Report is that "[h]uman activities, principally through emissions of greenhouse gases, have unequivocally caused global warming."[14] Greenhouse gases (GHGs) – carbon dioxide, methane, nitrous oxide, and fluorinated gases – trap heat energy from the sun within the earth's

[6] Rodney Dekker, 'Island neighbours at the mercy of rising tides', Austrl. Broadcasting Corp., 9 December 2011.

[7] Intergovernmental Panel on Climate Change, 'Climate Change 2023 Synthesis Report' (2023), p. 46.

[8] 'IPCC 6th Assessment Report Sea Level Projections: Median projections of global and regional sea level rise, relative to 1995–2014 baseline', NASA, https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool.

[9] 'Tarawa, Kiribati', European Space Agency, 25 September 2020, www.esa.int/ESA_Multimedia/Images/2020/09/Tarawa_Kiribati.

[10] Mark Nevitt, 'Key Takeaways from the Glasgow Climate Pact', Lawfare, 17 November 2021 [hereinafter Key Takeaways] (reporting the finding that 20 percent of some Pacific Island nations' landmass is likely to disappear underwater by 2040).

[11] Jane McAdam, *Climate Change, Forced Migration, and International Law* (Oxford: Oxford University Press, 2012), p. 119.

[12] Rebecca Lindsey, 'Climate Change: Global Sea Level', National Oceanic and Atmospheric Administration, 19 April 2022, www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level.

[13] Intergovernmental Panel on Climate Change, 'Climate Change 2023 Synthesis Report: Summary for Policymaker', IPCC (2023), p. 4 [hereinafter IPCC, SPM].

[14] Ibid.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

atmosphere, raising global surface temperatures.[15] GHGs are created by a host of industrial, agricultural, and consumer practices, including the harvesting, transporting, and burning of coal, oil, natural gas, solid waste, and trees. Past and present GHG emissions have already locked in considerable environmental damage. The IPCC concludes that "[s]ea level rise is unavoidable for centuries to millennia due to continuing deep ocean warming and ice sheet melt, and sea levels will remain elevated for thousands of years."[16] However, the IPCC also affirms that "deep, rapid, and sustained GHG emissions reductions would limit further sea level rise acceleration and projected long-term sea level rise commitment."[17]

Put concretely, whether Kiribati faces half a meter, a full meter, or more than a meter of sea level rise by 2100 depends on the extent to which the international community is prepared to mitigate global warming by making "deep, rapid, and sustained" reductions to global GHG emissions. Even under optimistic forecasts, however, Kiribati will need robust sea walls and elevated dwellings to remain habitable. If Kiribati's citizens are to remain on their islands, the international community must assist Kiribati in implementing adaptation measures to cope with higher sea levels. Mitigation and adaptation are essentially the two policy choices available to address climate change constructively.

Kiribati is sometimes referred to as the "canary in the coal mine" of climate change, since it was among the first countries to suffer devastating harm from global warming, serving as a warning to others.[18] Many other countries are now experiencing similar effects, however, and there is mounting evidence that global warming is accelerating faster than expected just a few years ago. Three years after authoring a widely publicized "warning of a climate emergency" that attracted 15,000 expert signatories,[19] seasoned climate scientists William Ripple and Christopher Wolf offered this alarming assessment:

> In 2023, we witnessed an extraordinary series of climate-related records being broken around the world . . . This year, exceptional heat waves have

[15] Katharine Hayhoe, *Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World* (New York: Simon and Schuster, 2021), p. 49.
[16] IPCC, SPM, p. 18.
[17] Ibid.
[18] Danny Rose, 'Pacific Nations Like "Canary in Coal Mine"', News.com.au, 19 November 2015.
[19] William J. Ripple et al., 'World Scientists Warning of a Climate Emergency' (2020) 70 *Bioscience* 8–12.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

> swept across the world, leading to record high temperatures. The oceans have been historically warm, with global and North Atlantic sea surface temperatures both breaking records and unprecedented low levels of sea ice surrounding Antarctica . . . In addition, June through August of this year was the warmest period ever recorded, and in early July, we witnessed Earth's highest global daily average surface temperature ever measured, possibly the warmest temperature on Earth over the past 100,000 years . . .
>
> We are venturing into uncharted climate territory. Global daily mean temperatures never exceeded 1.5-degree Celsius (°C) above pre-industrial levels prior to 2000 and have only occasionally exceeded that number since then. However, 2023 has already seen 38 days with global average temperatures above 1.5 °C by 12 September – more than any other year – and the total may continue to rise . . . Similarly, on 7 July 2023, Antarctic sea ice reached its lowest daily relative extent since the advent of satellite data . . . Other variables far outside their historical ranges include the area burned by wildfires in Canada, which may indicate a tipping point into a new fire regime.[20]

These accelerating changes to the global environment pose grave dangers not only for low-lying island nations, such as Kiribati, but also for countries elsewhere, whether they be in the Global North or the Global South. Climate change knows no borders, and its adverse effects threaten to leave no people or territory unharmed.

This chapter examines the international community's efforts to address climate change. As we shall see, the overarching method is international cooperation within an institutional framework supplied by international law. States and international organizations have established a supranational framework – the UN Framework Convention on Climate Change (UNFCCC) and related instruments – to articulate and implement mitigation and adaptation policies. We argue that this framework reflects the norms of mandatory cooperation, and it holds cautious promise for equitably allocating the costs of mitigation and adaptation in developing countries hard hit by climate change, such as Kiribati.

Governing the Climate Commons

When the UNFCCC entered into force in 1994, the international community formally recognized that "change in the Earth's climate and its adverse effects are a common concern of humankind" and that this

[20] William J. Ripple et al., 'The 2023 State of the Climate Report: Entering Uncharted Territory' (2023) *Bioscience* 1–10 (references omitted) [hereinafter Uncharted Territory].

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

common concern requires "the widest possible cooperation by all countries and their participation in an effective and appropriate international response."[21] Similarly, the Convention on Biodiversity identifies the "conservation of biological diversity" (not animal life per se) as "a common concern of humankind."[22] By explicitly specifying in treaties that these issues constitute common concerns of humanity, the international community has signaled that states' sovereign rights to exploit resources within their domestic jurisdiction are coupled with a concomitant obligation to cooperate with other states in advancing sustainable development and preventing catastrophic environmental harm.

In 2015, representatives from 196 states met near Paris to negotiate and draft an agreement that would address climate change at the global level. These talks ultimately produced the Paris Agreement.[23] Its principal aim is to promote the adoption of policies that will reduce GHG emissions, thereby "[h]olding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels."[24] The scientific consensus is that warming above 2°C will result in "irreversible, catastrophic harm."[25]

A further objective of the Paris Agreement is "[i]ncreasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development."[26] The Global Commission on Adaptation points to several serious harms likely to occur if the international community does not provide adequate resources for adaptation:

- Without adaptation, climate change may depress growth in global agriculture yields up to 30 percent by 2050. The 500 million small farms around the world will be most affected.

[21] UN Framework Convention on Climate Change, New York, 9 May 1992, 1771 UNTS 107, pmbl. [hereinafter UNFCCC].
[22] UN Conference on Environment and Development: Convention on Biodiversity, 6 June 1992, 31 ILM 822, pmbl.
[23] Adoption of the Paris Agreement, Paris, 12 December 2015, FCCC/CP/2015/L.9/Rev.1, Annex.
[24] Paris Agreement to the United Nations Framework Convention on Climate Change, 13 December 2015, art. 2(a), *in* Rep. of the Conference of the Parties on the Twenty-First Session, Paris, 29 January 2016, UN Doc. FCCC/CP/2015/10/Add.1, Annex [hereinafter Paris Agreement].
[25] Key Takeaways.
[26] Paris Agreement, art. 2(b).

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

- The number of people who lack sufficient water at least one month per year will soar from 3.6 billion today to more than 5 billion by 2050.
- Rising seas and greater storm surges could force hundreds of millions of people in coastal cities from their homes, with a total cost to coastal urban areas of more than USD 1 trillion each year by 2050.
- Climate change could push more than 100 million people in developing countries below the poverty line by 2030.[27]

As the chief means of attaining mitigation and adaptation goals, the Paris Agreement envisions all countries developing and periodically ratcheting up "nationally determined contributions" (NDCs) to address climate change.[28] NDCs are to be submitted to the United Nations every five years and then used to assess states-parties' compliance with their ongoing commitments, as we explain in this section.[29] Sensitive to the concerns of developing countries, the preamble affirms "the principle of equity and common but differentiated responsibilities and respective capabilities."[30] More concretely, the Paris Agreement provides a framework for preexisting commitments of USD 100 billion a year in climate finance for developing countries by 2020, and for further financial assistance subsequently.[31] Although the plan's success depends on the willingness of countries to follow through on these commitments and develop and adhere to meaningful NDCs, we have suggested in previous writing that the obligation of states to do so is explained by the idea that states, severally and jointly, are fiduciaries of humanity.[32]

Implementation of the Paris Agreement is followed and pursued by the institutional framework inaugurated by the UNFCCC. The centerpiece of this framework is the annual Conference of the Parties to the UNFCCC (COP). The COP is the supreme decision-making body of the UNFCCC. Running concurrently is the Conference of the Parties, serving as the Meeting of the Parties of the Paris Agreement (the CMA series), and the Conference of the Parties to the Kyoto Protocol (the CMP series). So, for example, in Glasgow in 2021 there were concurrent meetings of the 26th

[27] 'Adapt Now: A Global Call for Leadership on Climate Resilience', Report, Global Commission on Adaptation (September 2023), p. 3.
[28] Paris Agreement, arts. 3, 4.
[29] Ibid. art. 4(9).
[30] Ibid. pmbl.
[31] Joe Thwaites et al., 'What Does the Paris Agreement Do for Finance?', World Resource Inst., 18 December 2015.
[32] Evan J. Criddle and Evan Fox-Decent, *Fiduciaries of Humanity: How International Law Constitutes Authority* (Oxford: Oxford University Press, 2016), pp. 348–349.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

session of the Conference of the Parties to the UNFCCC (COP26), the 16th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP16), and the 3rd session of the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement (CMA3). The main result of COP26/CMA3 was the Glasgow Climate Pact, an agreement of the 197 Parties in attendance that built on various commitments found in the Paris Agreement.[33] Before turning to some of the specific measures in the Glasgow Pact, however, we set out now the numerous ways the legal regime established by the Paris Agreement reflects the norms of mandatory cooperation.

Like the UNFCCC, the Paris Agreement acknowledges that mitigating climate change and its adverse effects is "a common concern of humankind."[34] Although the Paris Agreement is careful to protect developing countries with the principle of "common but differentiated responsibilities," all states parties are expected to participate in the Agreement's regime of international cooperation. Nonetheless, while the Kyoto Protocol establishes legally binding GHG emission-reduction targets for developed countries,[35] the Paris Agreement does not. The Kyoto Protocol adopts a "top-down" approach that imposes emission-reduction targets on wealthier nations. The Paris Agreement, by contrast, relies on a "bottom-up" method that requires all states to develop NDCs, either by themselves or jointly with others, including through the use of "internationally transferred mitigation outcomes" (typically, a developed country would finance realization of a developing country's NDC).[36] The Agreement calls for each party's successive NDC to ratchet up or "represent a progression beyond" the prior NDC.[37] States parties are likewise legally required to submit their NDCs to the United Nations and a public registry, report on progress every two years, and have their progress reports reviewed by technical experts and peers.[38] In fact, each state's NDCs and progress toward them are transparently displayed and

[33] Glasgow Climate Pact, 13 Nov. 2021, in Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, Glasgow, 13 November 2021, UN Doc. FCCC/PA/CMA/2021/10/Add.1 [hereinafter Glasgow Pact].
[34] Paris Agreement, pmbl.
[35] Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 10 December 1997, UN Doc FCCC/CP/1997/7/Add.1, 37 ILM 22, art. 3.
[36] Paris Agreement, art. 6.
[37] Ibid. art. 4(4).
[38] Ibid. art. 13.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

assessed on a publicly available website.[39] The Agreement further envisions a "global stocktake" every five years to assess collective progress toward its objectives.[40]

The Paris Agreement seeks to strike a balance that takes into account state autonomy and self-determination, on the one hand, and the urgent need for a global response to climate change, on the other. State autonomy is respected through the use of NDCs that states are legally entitled to design and implement as they wish. The demands of climate change are reflected in the legal requirement to establish, implement, and report periodically on progress toward NDCs. This activity is wedded to the annual COP meetings under the UNFCCC framework, as described above. In this context, states retain an overarching obligation from the UNFCCC to "protect the climate system for the benefit of present and future generations of humankind,"[41] and to do so cooperatively, such as through the negotiated use of "internationally transferred mitigation outcomes."[42] Thus, explicitly and implicitly, the UNFCCC and the Paris Agreement require states to negotiate with one another in good faith, and on an ongoing basis, for the purpose of developing and implementing NDCs capable of achieving collectively the goals of the Paris Agreement. In the event of a dispute concerning the interpretation or application of the UNFCCC or the Paris Agreement, the controversy is remitted to the International Court of Justice (ICJ), arbitration, or conciliation.[43] The Paris Agreement thus embraces a form of mandatory cooperation akin to the form established under the UN Convention on the Law of the Sea,[44] where contending parties are obligated to negotiate in good faith, resorting to third-party dispute resolution only if necessary.

The principle of sovereign equality is respected under the Paris Agreement because no state is entitled to dictate terms to another, and every state is ultimately responsible for the content of its NDC. The principle of joint stewardship is put into action by the Paris Agreement's delegation to states of the responsibility to craft meaningful

[39] See 'Climate Action Tracker', https://climateactiontracker.org/about/ ("The Climate Action Tracker is an independent scientific project that tracks government climate action and measures it against the globally agreed Paris Agreement aim of 'holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C.'").
[40] Paris Agreement, art. 14.
[41] UNFCCC, art. 3(1).
[42] Paris Agreement, art. 6.
[43] Ibid. art. 24 (referring to UNFCCC, art. 16).
[44] UN Convention on the Law of the Sea, 10 December 1982, 1833 UNTS 3.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

NDCs to reduce GHG emissions and address the adverse effects of climate change. Joint stewardship assumes an institutional and democratic form through the Paris Agreement's annual COP and CMA conference series. Every party has one vote, allowing the COP/CMA conferences to speak collectively on behalf of all.[45]

The Glasgow Climate Pact

Six years after the signing of the Paris Agreement, COP26 in Glasgow gave the international community an opportunity to assess progress, grapple with challenges, and strengthen NDCs. Held during the COVID-19 pandemic, COP26 demonstrated states' willingness to take new decisions and strengthen commitments. Over fifty formal decisions were adopted.[46] In addition, COP26 secured near-global net zero NDCs from 153 countries, such that over 90 percent of world gross domestic product and around 90 percent of global emissions are now covered by net zero commitments.[47] Significantly, the Glasgow Pact cemented 1.5°C as the primary global temperature ceiling, with the more severe impacts of 2°C warming emphasized.[48] The Pact also emphasized near-term

[45] Paris Agreement, art. 25. Of course, mandatory emission standards established under Kyoto could also be said to reflect sovereign equality (the equality of sovereigns to negotiate and enter treaties) and could be subject to joint stewardship via the UNFCCC Conference of Parties. Organizing principles can explain and justify any number of reasonable policies that fall within their ambit. Our thesis here is that NDCs operate within a multilateral framework that has significant mandatory components, notwithstanding the discretion left to states to craft their own NDCs. NDCs can be fairly characterized, therefore, as operating within a regime of mandatory cooperation that is helpfully explained by sovereign equality and joint stewardship.

[46] See 'Outcome of the Glasgow Climate Change Conference—Advance Unedited Versions (AUVs) and list of submissions from the sessions in Glasgow', United Nations Climate Change, https://unfccc.int/process-and-meetings/conferences/glasgow-climate-change-conference-october-november-2021/outcomes-of-the-glasgow-climate-change-conference.

[47] UN Climate Change Conference UK 2021, 'COP26: The Glasgow Climate Pact', pp. 5–7, https://webarchive.nationalarchives.gov.uk/ukgwa/20230311050139mp_/https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf [hereinafter Glasgow Pact explainer]. The term "net zero" refers to GHG emissions being reduced or removed from the air through various means – e.g., improved energy efficiency, use of renewables, electrification – with the result that the GHG emissions produced by humans are balanced to zero (or close to it) by GHG emissions removed from the air. See UN Climate Action, 'For a livable climate: Net-zero commitments must be backed by credible action', www.un.org/en/climatechange/net-zero-coalition.

[48] Glasgow Pact, paras. 20–22.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

action aimed at 2030, such as "reducing global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level and to net zero around mid-century as well as deep reductions in other greenhouse gases."[49] The Paris Agreement, by contrast, only refers to achieving net-zero "in the second half of this century."[50] The Glasgow Pact also invited the Parties to "consider further actions to reduce by 2030" methane and other non-carbon dioxide GHGs, whereas the Paris Agreement is silent on methane and other non-carbon dioxide GHGs.[51] Possibly the most significant novelty in the Pact, however, is its call on the Parties to accelerate "efforts towards the phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies."[52] This is the first time an international instrument has expressly called for a reduction in the use of coal, which alone is responsible for roughly 40 percent of all current carbon dioxide emissions.[53]

The many joint commitments in the Glasgow Pact are the product of negotiation and cooperation that aims for consensus within the COP/CMA framework. Crucially, these multilateral decisions and commitments include major GHG producers, such as China, India, Russia, and the United States. In the case of the provision on coal, China and India resisted the original language that called for a phasing out of coal power but did agree to a progressive "phasedown."[54] This is consistent with mandatory cooperation's norm calling on states to negotiate matters of common concern in good faith without prescribing predetermined outcomes.

Mandatory cooperation in this context assumes that states wear two hats. One is the hat of their people's representative, a role that requires them to bargain zealously for their people's welfare. The other hat is worn as a joint steward of humanity, where they are called on, with other states, to safeguard the earth's environment. As their people's representative, they are entitled to seek reasonable accommodations consistent with "the principle of equity and common but differentiated responsibilities."[55] As

[49] Ibid. para. 22.
[50] Paris Agreement, art. 4(1).
[51] Glasgow Pact, para. 37.
[52] Ibid. para. 36.
[53] Ripple et al., 'Uncharted Territory', p. 8.
[54] Joanna Depledge et al., 'Glass Half Full or Glass Half Empty? The 2021 Glasgow Climate Conference' (2022) 22 *Climate Pol'y* 147. A positive bilateral surprise was an agreement between the United States and China to take steps on a series of issues including methane emissions, transition to clean energy, and decarbonization. See Key Takeaways.
[55] Paris Agreement, pmbl.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

a steward of humanity, they are tasked with ensuring that equity and reasonableness frame the claims made by individual states, including their own. Plausibly, China and India's insistence on "phasedown" rather than "phase out" falls within the margin of maneuver they enjoy as both their people's representatives and good stewards of humanity.

Some might be surprised that China and India compromised at all. Why did they not just walk away and refuse to set up any standard for measuring the reduction of coal power? Let us assume that China and India believed that it was in their interest to compromise, either for the sake of reputational gain or because they themselves were being affected by climate change or were otherwise concerned about its possible effects on them. Whatever their actual motivation, the presence of a self-interested reason for compromising does not imply that they did not have an obligation to negotiate in good faith. By agreeing to take part in the COP/CMA process, they agreed to negotiate and participate in good faith, and thereby incurred an obligation to do so. Moreover, they would likely present themselves and their interlocutors as having an obligation to negotiate in good faith, since good faith is the least that can be reasonably expected of contending parties who must negotiate a collective approach to a common concern. Accordingly, for Parties within the COP/CMA framework, good faith and mandatory cooperation are the overarching practices to which they are committed.

It is equally clear from the record of proceedings and negotiations that the Parties view the provisions of the Glasgow Pact as binding and authoritative. The Parties' self-understanding of the Pact is noteworthy because, unlike the Paris Agreement, which is formally a treaty within the UN system, the Glasgow Pact is not a treaty but rather a "soft law" instrument of international law. As a decision of COP26/CMA3 (Decision 1/CMA.3), it resembles in form a resolution of the UN General Assembly. Now, many of the Pact's provisions recall and seek urgent implementation of articles from the Paris Agreement. For example, paragraph 26 "[e]mphasizes the urgent need for Parties to increase their efforts to collectively reduce emissions through accelerated action and implementation of domestic mitigation measures in accordance with . . . the Paris Agreement."[56] In these cases, the Pact can piggyback on the Agreement by serving as an authoritative interpretation of the relevant articles of the Agreement, which unquestionably are legally binding under international law.

[56] Glasgow Pact, para. 26 (emphasis omitted).

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

The open-textured nature of many of the Agreement's provisions means that even the novel and specific commitments from the Pact, such as the coal phasedown, may be read as giving content to those provisions. For example, the coal phasedown may be understood as part of the commitment from Article 4(1) of the Agreement to "reach global peaking of greenhouse gas emissions as soon as possible."[57] Moreover, even where the Glasgow Pact enshrines commitments that cannot be brought into the four corners of the Paris Agreement, Joanna Depledge, Miguel Saldivia, and Cristine Peñasco rightly observe that "COP decisions still shape the obligations and expectations of parties and stakeholders, and have the advantage of immediate and global applicability, since they do not require domestic ratification to take effect."[58]

Regrettably, not everything on which states agreed prior to Glasgow has come to pass, exposing the relative frailty of UNFCCC framework. The Glasgow Pact notes "with deep regret" the failure of developed countries to meet the goal previously set of mobilizing jointly USD 100 billion per year by 2020 to support mitigation in developing countries, while welcoming increased transparency and pledges that surpass this goal.[59] The Pact also calls on developed countries "to at least double their collective provision of climate finance for adaptation of developing parties from 2019 levels by 2025."[60] It is far from clear that even this apparently ambitious goal is adequate. The International Energy Agency estimates that "[b]y the end of the 2020s, annual capital spending on clean energy in [developing] economies needs to expand by more than seven times, to above USD 1 trillion, in order to put the world on track to reach net-zero emissions by 2050."[61] While price-tags such as this are eye-watering, the Global Commission on Adaptation has calculated that investing USD 1.8 trillion globally in five adaptation areas – early warning systems, infrastructure resiliency, dryland crop production, protecting mangroves, and water resource management resiliency – would

[57] Paris Agreement, art. 4(1).
[58] Depledge et al., 'Glass Half Full or Glass Half Empty?', p. 151.
[59] Glasgow Pact, paras. 43–48. The OECD confirmed that climate finance in 2019 totaled USD 79.6 billion. See OECD 'Climate finance provided and mobilised by developed countries: Aggregate trends updated with 2019 data', Report (2021) *Climate Finance and the USD 100 Billion Goal*.
[60] Glasgow Pact, para. 18.
[61] International Energy Agency, 'Financing Clean Energy Transitions in Emerging and Developing Economies' (2021), p. 14.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

produce total net benefits of USD 7.1 trillion.[62] The challenge for policymakers will be harnessing the ambition underlying the Glasgow Pact to convince developed countries to invest jointly in mitigation and adaptation measures that are in their long-term economic as well as climate interest.

COP28 and the First Global Stocktake

Held in Dubai in December 2023, COP28 brought together more than 150 heads of state and government and some 85,000 participants, including representatives of national delegations, civil society organizations, business, indigenous peoples, and international organizations. The major outcome from the conference was the first global stocktake on climate matters prescribed by the Paris Agreement.[63] In what the United Nations hailed as "a demonstration of global solidarity," nearly two hundred parties reached consensus on the stocktake, which provides assessments of mitigation and adaptation efforts to date, the state of the climate, and prescriptions on what needs to done.[64] The headline-grabbing novelty was the stocktake's call for "[p]hasing out inefficient fossil fuel subsidies" and "[t]ransitioning away from fossil fuels."[65] Expressing "serious concern that 2023 is set to be the warmest year on record," the agreement calls on parties to implement "deep, rapid and sustained reductions in global greenhouse gas emissions of 43 per cent by 2030 and 60 per cent by 2035" so as to limit warming to 1.5°C with limited overshoot.[66] Reaffirming "equity and the principle of common but differentiated responsibilities," the stocktake recognizes that time frames for peaking temperatures in different countries "may be shaped by sustainable development, poverty eradication needs and equity and be in line with different national circumstances."[67] Mitigation prescriptions include "[t]ripling renewable energy capacity globally and doubling the global

[62] Global Commission on Adaptation, pp. 3–4.
[63] First global stocktake, 13 December 2023, in Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its fifth session, United Arab Emirates, 12 December 2023, UN Doc. FCCC/PA/CMA/2023/L.17 [hereinafter Stocktake].
[64] UN Climate Change Press Release, 13 December 2023, 'COP28 Agreement Signals "Beginning of the End" of the Fossil Fuel Era', UN Climate Change, 13 December 2023 [hereinafter Beginning of the End].
[65] Stocktake, para. 28.
[66] Ibid. paras. 5, 28.
[67] Ibid. para. 26.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

average annual rate of energy efficiency improvements by 2030."[68] The stocktake likewise affirms ambitious adaptation measures to contend with the effects of climate change, especially on the most vulnerable states, such as Kiribati. For example, the Parties acknowledge "that climate change impacts are often transboundary in nature and may involve complex, cascading risks that require knowledge-sharing and international cooperation for addressing them."[69] In fact, the agreement devotes an entire section to "International Cooperation," recognizing "the importance of international cooperation, including transboundary cooperation, for contributing to progress towards the goals of the Paris Agreement."[70]

At COP29 in 2024, states established a new climate finance goal to increase the scale of international assistance to developing countries from the previous goal of USD 100 billion annually to 300 billion annually by 2035.[71] At COP30, in 2025, governments have committed to present new NDCs that are "economy-wide, cover all greenhouse gases and are fully aligned with the 1.5°C temperature limit."[72] On our view, states bear a legal obligation to both their people and humanity to advance these goals through good faith cooperation. We consider now the argument in favor of viewing their cooperation as mandatory.

Recalcitrant States

Arguably, the international community has elected to place climate change policy under joint stewardship precisely because a healthy global environment is a non-excludable public good, and so the reduction of GHG pollution and adaptation poses a serious collective action problem. Self-interested states would prefer to free ride, letting others bear the cost of mitigation measures, while they themselves avoid those costs while benefitting from a relatively healthy environment. The logic of the prisoner's dilemma encourages states to pursue their narrow self-interest, since whether or not other states shoulder the burden of climate mitigation, a state will typically do better economically by avoiding the burden. But, of course, if a plurality of heavily polluting states adopted

[68] Ibid. para. 28(a).
[69] Ibid. para. 52.
[70] Ibid. para. 156.
[71] 'COP29 UN Climate Change Conference Agrees to Triple Finance to Developing Countries, Protecting Lives and Livelihoods', UN Climate Change, 24 November 2024.
[72] Ibid.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

this policy, climate mitigation would be severely threatened if not doomed. The mandatory cooperation of the Paris Agreement and Glasgow Pact addresses this collective action problem by providing a framework for joint stewardship that makes the development and implementation of NDCs transparent, with the hope that national policymakers may be held accountable. Of course, this approach depends on policymakers caring about climate change and the Agreement's multilateral process, or at least caring about the consequences of refusing to participate in good faith. The quality of states-parties' participation in the COP/CMA framework, their ability to reach consensus on deeply contentious and high budget matters, and their public commitment to the goals of mitigation and adaptation suggest that, in general, most states at most times care a lot about climate change and want to be known as good global climate actors. But, regrettably, not all states at all times.

Pursuant to his "America First" policy, US President Donald Trump indicated early in his first term that the United States would withdraw from the Paris Agreement.[73] Article 28 of the Agreement provides that a party may give notice of withdrawal "any time after three years from the date on which the Agreement has entered into force" for that party, but the withdrawal takes effect only one year after notification.[74] The United States submitted its withdrawal notification on November 4, 2019, and formally withdrew from the Paris Agreement on November 4, 2020, one day after the presidential elections in which Joseph Biden prevailed. Withdrawal made the United States a free rider on the mitigation efforts of others, and was a brazen assertion of unilateralism in breach of the United States' joint stewardship obligations. The assertion was especially brazen because, as noted, the Paris Agreement does not subject states-parties to emission-reduction quotas or targets. States must merely develop some climate change mitigation policy in nonbinding (but good faith) negotiations with others and subject the policy's implementation to public review. Withdrawal from the Paris Agreement was therefore an outright rejection by the United States of international legal norms requiring mandatory cooperation in the field of climate change. This jeopardized collective action on the environment, in part because the United States is one of the world's largest carbon emitters,

[73] Jonathan Easley, 'Trump cements "America First" doctrine with Paris withdrawal', The Hill, 2 June 2017.

[74] Paris Agreement, art. 28(1)–(2). The United States formally stated its intention to withdraw in an official note to the United Nations delivered on August 4, 2017. See UN Depositary Notification, 4 August 2017, C.N.464.2017.TREATIES-XXVII.7.d.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

and in part because defections from collective action regimes and open free riding breed resentment and may prompt further defections.

The United States' withdrawal did not have grave practical implications in the short term because the Biden administration signaled during and immediately after the 2020 election that it would rejoin the Paris Agreement.[75] Nonetheless, upon his return to the White House in January 2025, President Trump initiated a second US withdraw from the Paris Agreement,[76] potentially prompting other states to follow.[77] It is worth reflecting, therefore, on whether a recalcitrant state is entitled to go it alone and do as it pleases with respect to climate policy.

We suggest that the substantive and procedural norms of mandatory cooperation are binding independent of their codification in the Paris Agreement or the Glasgow Pact. The rationale for the theory proceeds from the premise that states' GHG emissions spill over into the global atmosphere possessed in common by all. As discussed in Chapter 6, transboundary environmental harm triggers duties of mandatory cooperation, such as duties to share information, negotiate in good faith, demonstrate due regard for other states and their nationals, and reduce harm where practicable.[78] In the climate change context, where transboundary pollution harms all states, the duties of mandatory cooperation become omnilateral. A practical way to specify and satisfy these duties within a regime that respects sovereign equality and avoids unilateralism is to authorize states to serve as coequal joint stewards of the atmosphere within an institutional framework such as the UNFCCC. For this charge to be legally meaningful, states must have some obligation to take it seriously.

The legal obligation to cooperate with other states in addressing the harmful effects of climate change derives in part from the issue's long-standing status under the UNFCCC, the Convention on Biodiversity, the

[75] President Biden signed an executive order to this effect on January 20, 2021, his first day in office. See Joseph R. Biden, Jr., 'Acceptance on Behalf of the United States', The White House, 20 January 2021, www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/#:~:text=Biden%20Jr.%2C%20President%20of%20the,20th%20day%20of%20January%2C%202021.

[76] Max Bearak, 'Trump Orders a U.S. Exit From the World's Main Climate Pact', NY Times, 20 January 2025. At the time of writing the United States remains a party to the UNFCCC. Ibid.

[77] See Daniel Politi and Ana Ionova, 'Argentina Mulls Exiting Paris Climate Deal', NY Times, 15 November 2024.

[78] See, e.g., Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, 25 February 1991, 1989 UNTS 310 (1997).

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

Paris Agreement, and the Glasgow Pact as a "common concern of humankind." This status is evidence of a customary rule that states have an obligation to work together in good faith to mitigate climate change because the environment is an important and nonexcludable public good on which humanity depends. Further evidence of such a customary rule is discernible from the relationship between a state and its people, on the one hand, and the state and humanity, on the other. As fiduciaries of their people and joint stewards of humanity, states owe both their people and humanity an obligation to do what is reasonably necessary to safeguard the environment. Because climate change is quintessentially a collective action problem, addressing it effectively necessarily requires states to negotiate mitigation and adaptation measures together in good faith.

Mandatory cooperation in a context in which the United States has withdrawn from the Paris Agreement would require the United States to take good faith steps to mitigate climate change and provide for adaptation. The United States would enjoy wide discretion to design and implement mitigation measures, much as states-parties to the Paris Agreement enjoy broad authority over the development and implementation of NDCs. The United States would also, however, be under an obligation to exercise that discretion in a way that did not subvert the collective mitigation efforts of other states, and in a manner that demonstrated due regard for other states touched by its GHGs. In addition, mandatory cooperation would entail procedural obligations of investigation, consultation, negotiation, and possibly third-party dispute resolution. Thus, even if the United States were to again withdraw from the Paris Agreement, and for a lengthier duration, it may still be bound by substantive and procedural customary norms of mandatory cooperation that call on the United States to have due regard for the environmental interests of other states, including Kiribati and others suffering climate harms now.

This again raises the question of compliance. What if the United States withdraws and explicitly refuses to recognize the validity or applicability of any international legal obligations in this sphere? Such a move could have far-reaching, and potentially disastrous consequences for global efforts to combat climate change. Purely as a conceptual matter, however, the compliance problem does not appear any more or less pressing here than in other areas of international law. Moreover, issues of compliance go to states' motivations for complying with international norms and the likelihood of their compliance with them, whereas our project has been to

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

theorize norms that are already part of international legal practice. While practical concerns counsel publicists to take compliance seriously, elaborating the nature and implications of legal principles, as we have tried to do, is a separate inquiry.

A further issue raised by the prospect of customary norms of mandatory cooperation concerns whether the persistent objector doctrine would apply, such that unwilling states can legally opt out of multilateral regimes. In our view, these states would be in the same legal position as states that attempt to negotiate a settlement of a dispute in good faith but simply cannot reach amenable terms with the counterparty. Like these states, persistent objectors would remain subject to norms that prohibit them from adopting measures or positions that undermine the efforts of other states to develop an equitable multilateral framework. They would also remain subject to the obligation to continue to pursue good faith efforts to reach a mutually acceptable outcome. We recognize that, as a general matter, holding states to a customary obligation to seek third-party dispute resolution over climate change mitigation measures might appear, at this point in the evolution of international law, more prescription than description. However, it is a prescription wholly consonant with the principles of sovereign equality and joint stewardship that underlie mandatory cooperation's other norms. And, as we explain now, it is also a prescription that international courts and tribunals appear ready to endorse, just as they have affirmed duties of mandatory cooperation for other matters of international concern, such as maritime delimitation and transboundary pollution.

Adjudicating Climate Change Mitigation

Within the past several years, international courts and tribunals have received several requests for advisory opinions on states' international obligations concerning climate change mitigation. In December 2022, the Commission of Small Island States on Climate Change and International Law (COSIS), an organization that represents climate-vulnerable states like Kiribati, requested an advisory opinion from the International Tribunal for the Law of the Sea (ITLOS).[79] COSIS asked the tribunal to specify states' obligations to preserve and protect the marine

[79] Request for an Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law, Advisory Opinion, 21 May 2024, ITLOS [hereinafter ITLOS Advisory Opinion].

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

environment under the UN Convention on the Law of the Sea (UNCLOS) in light of the deleterious impact of GHGs on the global climate.[80] A month later, Chile and Colombia requested that the Inter-American Court of Human Rights (IACtHR) prepare an advisory opinion concerning states' climate-related obligations under the American Convention on Human Rights.[81] The request for an advisory opinion specifically invited the Court to clarify, inter alia, states' "cooperative obligations" for mitigating climate change.[82] On March 29, 2023, the UN General Assembly adopted resolution 77/276 with the support of 150 states, requesting an advisory opinion from the ICJ on "the obligations of States under international law to ensure the protection of the climate system and other parts of the environment from anthropogenic emissions of greenhouse gases for States and for present and future generations."[83] Within just four months, these requests for advisory opinions vaulted states' obligations with respect to climate change to the center stage of international adjudication.

The ITLOS tribunal, the IACtHR, and the ICJ have now delivered landmark advisory opinions concerning climate change. The ITLOS tribunal unanimously affirmed that states-parties to UNCLOS bear duties to "prevent, reduce, and control" the emissions that contribute to oceanic warming and acidification.[84] States' duties to curb GHGs are not limited to their voluntarily determined contributions under the Paris Agreement; to satisfy UNCLOS, states must "take *all necessary measures* to prevent, reduce and control marine pollution from anthropogenic GHG emissions, including measures to reduce such emissions."[85] The measures states take to prevent, reduce, and control GHG emissions must be reasonably calculated to protect the marine environment,

[80] Ibid.
[81] Request for an Advisory Opinion on Climate Emergency and Human Rights to the Inter-American Court of Human Rights from the Republic of Columbia and the Republic of Chile (9 January 2023), Advisory Opinion, 29 May 2025, IACtHR [hereinafter IACtHR Advisory Opinion].
[82] Ibid.
[83] UN Gen. Assembly, Request for an Advisory Opinion of the International Court of Justice on the Obligations of States in Respect of Climate Change, UN Doc. A/77/L.58 (1 March 2023); see also Maria A. Tigre, 'It Is (Finally) Time for an Advisory Opinion on Climate Change: Challenges and Opportunities on a Trio of Initiatives' (2024) 17 *Charleston L. Rev.* 623 (offering background on the three requests for advisory opinions).
[84] ITLOS Advisory Opinion, para. 197.
[85] Ibid. para. 223 (citing UNCLOS article 194, para. 1) (emphasis added).

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

consistent with the requirement of due diligence under customary international law.[86]

Significantly, the ITLOS tribunal also offered a resounding endorsement of mandatory cooperation for climate change mitigation. The tribunal emphasized that "the duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment under [both UNCLOS] and general international law."[87] The "core" of this obligation, the tribunal explained, is states' duty to cooperate in "developing a common regulatory framework 'for the protection and preservation of the marine environment.'"[88] Under UNCLOS, states must "endeavour to harmonize" their regulatory responses to climate change, exercising "stringent" due diligence to adopt common rules, standards, and recommended practices and procedures to protect and preserve the marine environment from the adverse impacts of GHGs.[89] Due diligence requires states to expend substantial effort, consult with one another in good faith,[90] and cooperate in undertaking and promoting scientific research and exchanging information and data about oceanic pollution.[91] Perhaps most striking, the tribunal declared that these obligations of mandatory cooperation are not fully exhausted by the UNFCCC and the Paris Agreement:

> The adoption of a particular treaty, such as the UNFCCC or the Paris Agreement, does not discharge a State from its obligation to cooperate, as the obligation requires an ongoing effort on the part of States in the development of new or revised regulatory instruments, in particular in light of the evolution of scientific knowledge.[92]

Thus, mandatory cooperation may require the international community to take more aggressive measures now and in the future to prevent, reduce, and control the escalating impacts of GHGs on the global environment.

[86] Ibid. paras. 206, 258.
[87] Ibid. para. 296 (citing MOX Plant (Ireland v. United Kingdom), Provisional Measures, Order of 3 December 2001, ITLOS Rep. 2001, p. 95, at p. 110, para. 82).
[88] Ibid. paras. 300–01 (quoting UNCLOS article 197); see also paras. 302, 305 (concluding that the resulting rules, standards, and procedures may be binding or nonbinding, and involve both global and regional frameworks).
[89] Ibid. paras. 230 (citing UNCLOS art. 194, para. 1), 241, 243, 256–258, 307, 309.
[90] Ibid. para. 308 (citing Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion of 2 April 2015, ITLOS Reports 2015, p. 4, at pp. 59–60, para. 210).
[91] Ibid. paras. 313–321 (discussing the application of UNCLOS arts. 200–201).
[92] Ibid. para. 311.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

The advisory opinions of the IACtHR and the ICJ were released as this book went to press and go further still. Linking state obligations to address climate change to human rights enshrined in the American Convention of Human Rights, the IACtHR frames its analysis as responding to "the climate emergency" of "climate change, pollution, and biodiversity loss."[93] Breaking new ground, the IACtHR finds that states are subject to a peremptory or *jus cogens* norm of international law to safeguard humanity against "anthropogenic conducts with irreversible impacts on the vital equilibrium of the planetary ecosystem," since these conducts "undermine the conditions required *sine qua non* for the enforceability of fundamental human rights that are already protected under international law by peremptory provisions."[94] Further, the IACtHR dedicates a lengthy section to "The Obligation of Cooperation," finding that "[t]he obligation of States to cooperate in good faith forms part of customary international law" and that "cooperation is a cardinal principle established in the OAS Charter."[95] The Court observes that, as a general matter, "the obligation of cooperation has special relevance in all contexts in which the international community pursues common objectives or faces problems that require collective solutions," and that this is "precisely the case in relation to addressing the causes and impacts of climate change."[96]

The ICJ's Advisory Opinion is likewise unequivocal in its prescription of mandatory cooperation to address climate change.[97] The Court observes at the outset that states-parties to the UNFCCC, the Kyoto Protocol, the Paris Agreement, UNCLOS and other environmental treaties have interlocking treaty-based obligations of mitigation and adaption to address climate change.[98] The ICJ also finds that states have a duty under customary international law "to prevent significant harm to the environment" that applies "to global environmental concerns."[99] And, just as significantly, the Curts affirms "that the duty of States to cooperate for the protection of the environment is a rule whose customary character has been established."[100] Emphasizing the customary status of

[93] IACtHR Advisory Opinion, para. 42.
[94] Ibid. para 290.
[95] Ibid. paras. 247, 248.
[96] Ibid. para. 253.
[97] Obligations of States in Respect of Climate Change, Advisory Opinion, 2025 ICJ Rep. (23 July) [hereinafter ICJ Advisory Opinion].
[98] ICJ Advisory Opinion, paras. 116–270.
[99] ICJ Advisory Opinion (Summary), p. 6.
[100] ICJ Advisory Opinion, para. 140.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press

the duty to co-operate, the Court notes that the "duty to co-operate is intrinsically linked to the duty to prevent significant harm to the environment, because unco-ordinated individual efforts by States may not lead to a meaningful result."[101] The customary duty to cooperate "is applicable to all States," the Court says, although its demands are sensitive to "the common but differentiated responsibilities and respective capabilities principle."[102] The customary duty applies "regardless of whether a State is a party to the climate change treaties."[103] The ICJ concludes that "[c]o-operation is not a matter of choice for States but a pressing need and a legal obligation."[104]

Conclusion

It is far beyond the remit of this chapter to offer a forecast of our climate future. However, let us return for a moment to Kiribati, the "canary in the coal mine."[105] Should the worst or even the fairly bad come to pass in the near future, the world will have to choose between very costly adaptation measures or providing space and status elsewhere for a people who will have become climate refugees.[106] For now, the President of Kiribati, Taneti Maamau, seeks funding from developed countries "in the billions" to physically raise some portion of Kiribati's land mass to escape the encroaching sea.[107] "The wealthy countries are after all responsible for what we are facing," President Maamau says.[108] Whether developed countries step up may depend, in part, on whether they recognize and embrace their obligation to cooperate on fair terms as joint stewards of the environment.

[101] Ibid. para 141.
[102] Ibid. para 305.
[103] Ibid. para. 315.
[104] Ibid. para 308.
[105] Danny Rose, 'Pacific Nations Like "Canary in Coal Mine"'.
[106] We address some of the options on forced migration in Chapter 11.
[107] Oliver Milman, '"No Safe Place": Kiribati Seeks Donors to Raise Islands from Encroaching Seas', The Guardian, 18 November 2022.
[108] Ibid.

https://doi.org/10.1017/9781009304993.008 Published online by Cambridge University Press