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CLIMATE GOVERNANCE: INNOVATING THE PARIS AGREEMENT AND EXPANDING GREEN TECH

Global Challenge Update

Over the last two centuries, global mean sea-level temperature has increased roughly one-degree centigrade (1°C). About half of that increase has occurred in the last thirty years. According to the best scientific evidence assembled by the UN Intergovernmental Panel on Climate Change (IPCC), at present rates of global greenhouse gas (GHG) emissions, warming will continue at roughly 0.2°C per decade and much faster in the Arctic, where winter temperatures critical to forming and maintaining the ice pack have already risen 3°C. If humankind cannot find a way to limit average global warming to less than 1.5°C (looming as soon as 2030; see Figure 4), further severe consequences are anticipated, including sea level rise of up to one meter by 2100.⁵⁹

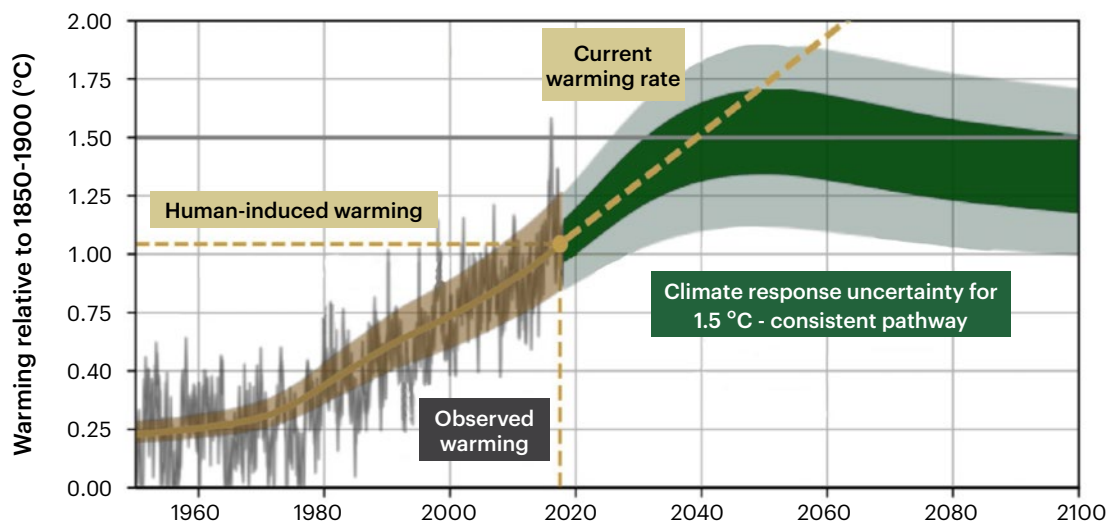
The oceans absorb about 30 percent of emitted carbon dioxide, making them more acidic, and seriously damaging or destroying aquatic food webs and fisheries. We are also seeing unprecedented heat waves, precipitation, storm damage, drought, and desertification

as a result of climate change, and the damage is accelerating. The recent Global Assessment Report on Biodiversity and Ecosystem Services also found that around one million animal and plant species are at risk of extinction, with climate change representing one important contributing factor.⁶⁰ As stated in the *Fourth U.S. Climate assessment*, “Earth’s climate is now changing faster than at any point in the history of modern civilization, primarily as a result of human activities.”⁶¹

Climate change is disrupting human security and national stability around the globe. The long-running conflict in Afghanistan takes place against the background of one of the most severe droughts in its history that has forced farmers to migrate into cities, straining local resources.⁶² While Central American gangs have received the bulk of the attention as a cause for increased migration to the United States, many rural families are forced to migrate due to drought, which has destroyed agricultural productivity.⁶³ In the Nigerian Sahel, desertification has parched traditional pastoral lands, forcing herders to

FIGURE 4

IPCC Projections for Global Warming



SOURCE: IPCC, *Special Report on Global Warming of 1.5 °C*, Chapter 1 - Technical Annex 1.A, Fig 12.

BOX 7

The Katowice Climate Package

- ▶ **On mitigation:** further guidance in relation to nationally determined contributions (NDCs), common time frames, and modalities, work programme, and functions under the Paris Agreement of the forum on the impact of the implementation of response measures;
- ▶ **On adaptation:** further guidance on adaptation communication;
- ▶ **On finance:** identification of the information to be provided

by parties in accordance with Agreement Article 9.5 (ex ante finance transparency), matters relating to the Adaptation Fund, and setting a new collective quantified goal on finance;

- ▶ **On technology:** scope of and modalities for the periodic assessment of the Technology Mechanism, and the technology framework
- ▶ **For the transparency framework:** modalities, procedures, and guidelines for action and support;

The global stocktake (Paris progress report due in 2023); and

- ▶ **For implementation and compliance:** modalities and procedures for the effective operation of the committee to facilitate both.

SOURCE: IISD, “A Brief Analysis of the Katowice Climate Change Conference.”

encroach increasingly on farmlands, while population pressure pushes farmers into remaining pastoral lands. Endemic violence in 2018 displaced upwards of 300 thousand people.⁶⁴ That same year, California suffered two of its deadliest wildfires, linked to a prolonged drought.⁶⁵ Ninety percent of Lake Chad, bordering four states in north-central Africa, has disappeared, depleting local fisheries.⁶⁶ The war in Syria also has roots in a climate-change-implicated drought that forced people into cities, contributing to a war that has claimed hundreds of thousands of lives, facilitated the rise of ISIS, and nearly destabilized Iraq.⁶⁷

Negotiations on how to cope with climate change have been ongoing since 1992 under the auspices of the UN Framework Convention on Climate Change (UNFCCC). The IPCC is its scientific assessment arm and annual “Conferences of the Parties” (COPs) are the principal negotiating venues. *Mitigating* potential damage from climate change was a dominant consideration for much of the UNFCCC’s existence but the slippage of time and growing evidence of adverse climate-related impacts around the world have focused increased attention on *adaptation and resilience* to climate change as well.

Current Global and Regional Responses

In December 2015, 195 states signed the Paris Climate Agreement at COP 21. Signatories pledged to make voluntary carbon emission reductions with a goal of holding global temperature increases to no more than 2°C.⁶⁸ Since the agreement took effect, in November 2016, negotiations have focused on rules for implementation.⁶⁹ In 2018, COP 24 finalized the Katowice Climate Package (or “Rulebook”), a 236-page set of guidelines for states to achieve the Paris Agreement goal of limiting temperature increases to well below 2°C and helping countries adapt and prepare.⁷⁰ Among the provisions, participating states agreed to report their climate impact, and the UN will produce a five-year update on progress towards carbon reduction and report on climate financing (“the Stocktake”; see Box 7).⁷¹

Reflecting the UN’s growing sense of urgency about climate change, in September 2019 the Secretary-General will convene a second “Climate Action Summit” (the first was in 2014) in New York with the announced intent to “rapidly accelerate

action to implement the Paris Agreement” in six “action portfolios” and three “key areas” (see Box 8).⁷²

In addition to the Paris Agreement and September Climate Action Summit, the UN General Assembly passed Resolution 72/277 in May 2018, which mandated a review of current global environmental laws and updates. The most recent meeting took place in Nairobi, Kenya, where over one hundred states came together to discuss gaps in environmental laws, including those related to climate. Many concerns were raised, including intellectual property rights relating to the transfer of technology, the lack of laws concerning international trade, and other gaps.⁷³

Climate adaptation and resilience have come to the fore since COP 21. The Paris Agreement

instituted a five-year technical examination process on adaptation seeking ways to strengthen and understand adaptation.⁷⁴ In early 2019 the World Bank took the lead in financing adaptation by increasing funds for low and middle-income states to U.S. \$50 billion from 2021 to 2025,⁷⁵ providing institutional support for states to centralize adaptation in policy, investment, and implementation. The independent Global Commission on Adaptation (GCA), launched in June 2018 and led by former UN Secretary-General Ban Ki-moon, Bill & Melinda Gates Foundation co-chair Bill Gates, and World Bank CEO Kristalina Georgieva,⁷⁶ will submit a report to the UN Climate Action Summit and initiate a year of action in October 2019 to push policy makers on the issue. COP 25, to be held in

BOX 8

UN Climate Action Summit 2019

ACTION PRIORITIES

Finance: mobilizing public and private sources of finance to drive decarbonization of all priority sectors and advance resilience;

Energy Transition: accelerating the shift away from fossil fuels and towards renewable energy, as well as making significant gains in energy efficiency;

Industry Transition: transforming industries such as Oil and Gas, Steel, Cement, Chemicals and Information Technology;

Nature-Based Solutions: Reducing emissions, increasing sink capacity and enhancing resilience within and across forestry, agriculture, oceans and food systems [“AFOLU” – agriculture, forestry, oceans, and land use]], including through biodiversity conservation, leveraging supply chains and technology;

Cities and Local Action: Advancing mitigation and resilience at urban and local levels, with a focus on new commitments on low-emission buildings, mass transport and urban infrastructure, and resilience for the urban poor;

Resilience and Adaptation: advancing global efforts to address and manage the impacts and risks of climate change, particularly in those communities and nations most vulnerable.

OTHER KEY AREAS

Mitigation Strategy: to generate momentum for ambitious Nationally Determined Contributions (NDCs) and long-term strategies to achieve the goals of the Paris Agreement.

Youth Engagement and Public Mobilization: To mobilize people worldwide to take action on climate change and ensure that young people are integrated and represented across all aspects of the Summit, including the six transformational areas.

Social and Political Drivers: to advance commitments in areas that affect people’s well-being, such as reducing air pollution, generating decent jobs, strengthening climate adaptation strategies, and protecting workers and vulnerable groups.

SOURCE: UN, “Climate Action Summit 2019.”

BOX 9

Country Spotlight: Bangladesh

Bangladesh is one of the countries considered most vulnerable to the devastating effects of climate change, with its dense population (about 1,116

people per square kilometer), 20 percent of land less than one meter above sea level, and location in a region prone to severe cyclones. The majority of the population works in agriculture, and climate change is increasing soil salinization, threatening to destroy local food production and force more people into the already-crowded cities.

In response, Bangladesh has invested billions of dollars in tackling climate change; it has become internationally recognized for its innovative techniques to adapt, build resilience, and prepare its population. These include building over 200 cyclone shelters for its residents on vulnerable islands and developing new technologies to prevent the salinization of its agriculture. Additionally, the government has taken steps to educate its people on ways to conduct more climate-friendly farming in different environments. One government program, in partnership with UNDP and other NGOs, is empowering women and girls to take action on climate change. The Bangladesh Climate Trust Fund, the first trust fund to finance climate resilience projects in a least developed country, supports this and other innovative initiatives.

SOURCES: World Population Review, "Bangladesh Population 2019." World Bank, "Bangladesh." UNDP, "Bangladesh Climate."

Santiago, Chile, shortly after the Climate Action Summit, will make adaptation a central component of its action program.

Why the Status Quo Remains Insufficient

Many organizations, agencies, and scientists believe that the Paris Agreement does not go far enough to keep climate change below the 1.5°C target, even if states adhered to the goals of the agreement. A significant vulnerability is that all of the Paris Agreement targets, the Nationally Determined Contributions (NDCs), are voluntary and subject to unilateral change. In 2017, the United States—the second largest emitter of greenhouse gases in the world—announced that it would step out of the deal, effective November 2020. Brazil's president Jair Bolsonaro has threatened to leave as well, endangering the Amazon River Basin, which is a central filter of carbon dioxide.⁷⁷

Despite the clear and present climate risks, the world's most-capable states have failed to act aggressively enough. Among the G20, not one NDC is set to meet 2030 targets established in the Paris Agreement.⁷⁸ In 2017, fifteen of its members saw their energy-related carbon emissions increase, sending a powerful message of inaction around the world. Moreover, while the Paris Agreement established a broad global adaptation goal, and COP 24 at Katowice advanced "communications" and funding for adaptation, no standards to measure achievement were agreed upon. Commitments to the financial vehicles intended to help developing countries and vulnerable populations develop greater climate change resilience have fallen far short of the Paris goal of U.S. \$100 billion per year by 2020. At COP 24, delegates agreed to consider raising that amount in deliberations starting November 2020.⁷⁹ Meanwhile, climate-induced challenges to the most vulnerable, low-lying countries continue to intensify (see Box 9).

Priority Recommendations for 2020

6. Facilitate and strengthen linkages between the UNFCCC and other international regimes and organizations and civil society actors dealing with climate change

While the UNFCCC is considered the primary body in the UN to combat climate change, there are many

other agencies taking action, from the International Civil Aviation Authority and the International Maritime Organization to the UN Environment Programme (UNEP).⁸⁰ In addition, international clubs such as the G20 have implemented climate initiatives, and many cities are even charting their own path. To streamline the process, the Albright-Gambari Commission recommended that the international community strengthen linkages between the UNFCCC and other regional and global institutions. Formal memoranda can accomplish this, allowing the UNFCCC Secretariat to assume a more significant coordinating role in climate initiatives and improving information sharing.

The UNFCCC process has created several means for non-state actors to contribute to concerted “climate action.” COP 20 in Lima (2014) created the “Nazca Portal,” incorporated into the Paris Agreement “as the official portal to showcase the contributions of the so-called ‘non-Party stakeholders,’” in climate change.⁸¹ COP 22 added the Marrakech Partnership for Global Climate Action “to strengthen collaboration between Parties and non-Party stakeholders to allow greater mitigation and adaptation action.”⁸² COP 24 saw unofficial side events from non-state actors pushing to have a more formal role in climate negotiations, and the UNFCCC has a process for non-state actors to gain observer status and monitor negotiations, but the primary way for non-state actors to exert influence is still to pressure their respective national governments to take certain negotiating positions, including by serving on government delegations to the COP.⁸³

A critical path to facilitate these linkages will be to use the upcoming COP 25 where states will report on their progress towards fulfillment of their commitments to the Paris Agreement and very likely highlight challenges to accomplishing the goals they have set. Additionally, the Global Pact for the Environment has formed an ad hoc committee to examine gaps in international law, which as progress continues will provide a forum to facilitate linkages with the UNFCCC. The upcoming UN Climate Action meeting in September 2019 will provide a forum for action on these concerns, and the UN 2020 Leaders Summit should aim to give focus to the efforts by mandating measurable adaptation goals within NDCs.

7. Define one or more global climate adaptation goals and gauge their achievement in terms of measurable improvements in local human security; finance support for adaptation from revenues formerly directed to fossil fuel subsidies

Adaptation can take many forms, from building flood control infrastructure to planning when to plant crops, and involves multiple levels of governance, from local to global. Individual states and localities should be responsible for developing “climate-resilient development pathways” (CRDPs) that best meet their needs. But adaptation might be faster, deeper, and more cost-effective if lessons and experience—including approaches to governing and managing adaptation—from many places experiencing similar climate-related vulnerabilities and economic circumstances were more readily shareable. Effective sharing and learning are hampered at present because, in the words of the IPCC’s 2019 Special Report, “approaches, reporting procedures, reference points, and data sources to assess progress on implementation across and within nations are still largely underdeveloped.”⁸⁴ Development of “indicators and standardized approaches to evaluate and compare adaptation over time and across regions, countries, and sectors would enhance comparability and learning.”⁸⁵ However, as also noted by the IPCC,

A number of constraints continue to hamper progress on adaptation [measurement and evaluation], including ... an absence of comprehensive and systematically collected data on adaptation to support ... assessment and comparison, a lack of agreement on indicators to measure, and challenges of attributing altered vulnerability to adaptation actions.⁸⁶

The Special Report stressed the importance of “independent private and public reporting and statistical institutions” to monitor and evaluate climate adaptation efforts and underlined that the “creation and enhancement of these institutions would be an important contribution to an effective transition to a low-emission world.”⁸⁷

Although adaptation is already a component of the UN’s “Climate Action” Sustainable Development Goal, and the World Bank is making



A GREEN TECHNOLOGY LICENSING FACILITY WOULD FACILITATE GREEN TECHNOLOGY ACCESS IN THE GLOBAL SOUTH

notable strides with developing states, the centrality of adaptation in coping with climate change and the urgency of the need, worldwide, requires much greater attention to what works well where and how, shared as soon and as broadly as possible. Both the UN 75 Leaders Summit (September 2020) and COP 26 (November 2020), building on what will then be known from such sources as the Global Commission on Adaptation's first full "year of action," should aim to give focus to these efforts and stress the importance of *measurable adaptation goals* in NDCs and *means to better evaluate and share* successes (and failures) of adaptation across a wide range of stakeholders.

Globally, countries spent roughly U.S. \$310 billion in 2016 on fossil fuel subsidies, over 80 percent of it to support fossil fuel consumption.⁸⁸ To fund both transformational adaptation and the means to monitor and evaluate what does and does not work, governments should *redirect revenues currently spent on fossil fuel subsidies to support climate adaptation programming*, both domestically and, in line with Paris and subsequent arrangements, in developing countries with the most immediately vulnerable populations.

8. Establish a Green Technology Licensing Facility within the Green Climate Fund

Currently, there are active programs to foster the transfer of technology and adaptation to the

Global South, but there are still myriad licensing and intellectual property laws that can hinder the process. The Climate Technology Centre and Network (CTCN), a joint effort of UNEP and the UN Industrial Development Organization, together with a large number of collaborating partners, offers technical assistance, access to knowledge, and co-operation "among climate technology stakeholders," primarily on behalf of developing countries around the world.⁸⁹ The UNFCCC's Green Climate Fund is partnering with CTCN to support about U.S. \$5 billion in green development projects.⁹⁰ However, despite the advances in funding and technical assistance, there are still financial barriers to licensing green technology applications.

To ensure the expansion of green technology into the Global South, the Albright-Gambari Commission recommended establishing a Green Technology Licensing Facility within the Green Climate Fund. It would facilitate green technology access in the Global South by lowering barriers arising from different intellectual property rights and trade laws and requirements.⁹¹ The facility would encourage licensing and transfer of technology to developing countries while protecting intellectual property rights to incentivize the development of green technology as well as availability in developing countries. The facility could also work with technology firms to promote the transfer of technology to the Global South.⁹²

The best path forward for the Green Technology Licensing Facility may be to lean on the commitments in the Katowice rulebook to provide green technology to the Global South. Additionally, at COP 25 in December 2019, states will present their first progress reports on NDCs to implement the Paris Agreement. As states show progress in some areas but have problems with technology implementation, a proposal that would ease bureaucratic and intellectual property barriers would be appealing.

9. Vigorously pursue emissions reductions in "short-lived climate pollutants" like methane as an "early win" while CO₂ reduction strategies and technologies mature

Methane, the principal component of "natural gas," is widely used in heating, cooking, electricity generation, and increasingly, as a less polluting alternative

to diesel fuel in urban transit and other transport applications. U.S. production has grown 55 percent since 2006 as hydraulic fracturing (“fracking”) techniques have made “unconventional gas” more accessible, making the United States a net exporter of natural gas since 2017.⁹³ Burning natural gas instead of coal to generate electricity or diesel to power buses is a relative gain for the environment (especially for breathing), but 2–3 percent of methane production and distribution is now estimated to be lost to the atmosphere every year.⁹⁴ That is a serious and growing problem.

Methane has a “radiative forcing” (warming) effect in the atmosphere that is, pound for pound, up to two *orders of magnitude* greater than CO₂ in the short term with a global warming potential (as of 2012) equivalent to 40 percent of global CO₂ emissions.⁹⁵ However, because methane has an “atmospheric lifetime” of about a decade, cutting emissions to zero would wash out its warming effects in about ten years. Cutting net CO₂ emissions to zero would halt *further* warming but not make the world cooler because CO₂ stays around for a very long time. Any gains from reducing “short-lived climate pollutants” like methane would be lost in a decade or so if CO₂ emissions continued. So in order to stabilize warming *and roll it back*, it is crucial to haul back steeply on both methane and CO₂.

Fortunately, reducing methane emissions is doable at a reasonable cost—indeed, with substantial *cost recovery*, since not-lost gas is marketable—and doable with available technology.⁹⁶ And if initiated promptly and broadly, it would start to produce measurable results as the globe approaches the timeframe in which global temperatures are anticipated to “overshoot” 1.5°C.

What now seems most lacking on the methane emissions reduction front is the political imperative. A March 2016 U.S.-Canada joint statement pledged to reduce methane emissions in the oil and gas production sector to 40–45 percent below 2012 levels by 2025.⁹⁷ Obama-era draft regulations to implement that vision were blocked by the Trump administration.⁹⁸ The emerging UN pact for the environment may be another avenue of approach to achieve methane and other short-lived pollutant reductions.

10. Establish a multilateral mechanism to govern climate engineering research and experimentation, especially solar radiation management

As climate change intensifies, there will be a stronger push to use active technological measures to reverse its effects, often referred to as “climate engineering” or “geoengineering,” but at present it is a very controversial proposition. The IPCC’s 2019 Special Report does not use “geoengineering,” referring instead just to carbon dioxide removal (CDR) and solar radiation management (SRM). And in March 2019, the fourth UN Environment Assembly rejected a resolution that would have commissioned the UNEP to assess the current state of knowledge on geoengineering.⁹⁹ CDR encompasses engineering pathways aiming to “reduce [CO₂] concentrations already in the atmosphere.” SRM involves “remedial measures” intended “to temporarily reduce or offset warming.”¹⁰⁰ Both categories are umbrellas for multiple activities.¹⁰¹

SRM is primarily associated with “stratospheric aerosol injection” (seeding the earth’s upper atmosphere with cooling aerosols like sulfur dioxide, a familiar component of urban smog).¹⁰² Aerosol injection would need to be actively and uniformly sustained for decades, could have uneven regional impacts,¹⁰³ and whenever its mission is deemed fulfilled, would need to be reduced gradually to avoid “termination shock,” or rapid reversion to warmer temperatures as injection ends.¹⁰⁴

Regarding management and governance of SRM, the IPCC notes that,

There is robust evidence but medium agreement for unilateral action potentially becoming a serious SRM governance issue An equitable institutional or governance arrangement around SRM would have to reflect views of different countries and be multilateral because of the risk of termination, and risks that implementation or unilateral action by one country or organization will produce negative precipitation or extreme weather effects across borders. Some have suggested that the governance of research and field experimentation can help clarify uncertainties surrounding deployment of SRM¹⁰⁵

The Albright-Gambari Commission recommended the creation of an international board, most likely within the ambit of the UNFCCC, to monitor the development, advise on the wisdom, and manage the testing and application of these technologies, particularly those involving atmospheric solar radiation management and other large-scale albedo management techniques. The board should be staffed by top experts capable of evaluating research for efficacy, ethical, and safety considerations along with considering the potential for irreversible unintended consequences. Any field experimentation involving atmospheric SRM beyond a certain small scale will inevitably involve testing on human subjects. UN Member States should treat the board's decisions on such testing as binding, although the gravity of the issues involved would also argue for paths to appeal those decisions.

With growing concern over the worsening effects of climate change, the impetus to find ways to reverse these effects will only grow. While primary attention for the upcoming COP 25 is on states showing their progress on implementing pledges for the Paris Agreement, the COPs have always been forums for new proposals. Current talks on the Global Pact for the Environment and the upcoming Climate Summit at the United Nations in September offer other paths to address this gap in international climate governance.

Proposals Beyond 2020

Negotiate carbon subsidy reduction targets, aiming at zero fossil fuel subsidies by 2025

Carbon-emitting fossil fuels continue to be subsidized across the world. Despite pledges to phase out fossil-fuel subsidies from the G20 and all UN Member States through the Sustainable Development Goals, total worldwide subsidies have only increased, with 2017 outpacing 2016 by U.S. \$30 billion (including increased subsidy programs in some of the most prosperous economies).¹⁰⁶ Subsidy reduction steps have been difficult, in part because of the power and profit of the fossil fuel industry; another factor is the burden placed on states facing energy insecurity. According to the International Monetary Fund, more efficient fossil fuel pricing can significantly lower global carbon emissions (by upwards of 28 percent), reduce fossil fuel air pollution by close to

50 percent, and even increase government revenue by close to 4 percent of GDP.¹⁰⁷ A goal of phasing-out all fossil fuel subsidies by 2025 would be desirable—perhaps making use of World Trade Organization environmental exceptions on tariffs (GATT Article XX) for the purpose of taxing carbon on trade.

The International Court of Justice Should Provide Advisory Opinions on Climate Change

The Albright-Gambari Commission also encouraged the General Assembly and other authorized bodies to seek an advisory opinion from the International Court of Justice (ICJ) on the obligation of states to pursue climate action, thereby reshaping the role of international law in curbing emissions. Such an approach could build on the precedents set in pronouncing authoritative interpretations of international law in cases concerning genocide (1951, 2007, and 2015) and the legality of nuclear weapons (1996). The ICJ is well suited, for instance, to provide an advisory opinion in relation to the existential threat that small island states face due to climate change. In 2016, this idea was given renewed impetus through a proclamation of support by the World Conservation Congress of the International Union for the Conservation of Nature. Moreover, it can build on practice from regional human rights courts, in particular the Advisory Opinion of the Inter-American Court of Human Rights on the environment and human rights of February 2018. Rather than substituting for further negotiations (e.g., toward strengthening the 2015 Paris Agreement on Climate Change), an ICJ advisory opinion could play a constructive role in complementing negotiations by allowing all states the chance to be heard at a relatively high level of generality (leaving the specifics to be worked out through negotiations).¹⁰⁸