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The Space Between Grand Optimism and Grim Determination: Finding a Pathway Forward in International Climate Change Law

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THE SPACE BETWEEN GRAND OPTIMISM AND GRIM DETERMINATION: FINDING A PATHWAY FORWARD IN INTERNATIONAL CLIMATE CHANGE LAW

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I. Introduction

We find ourselves at a point in time when maintaining hope in our collective efforts to address climate change is more important and, yet, more challenging than ever. Reason to feel pessimistic about both the effects of climate change and the failures of our legal and political efforts to address climate change abound. A recent report from the Intergovernmental Panel on Climate Change (IPCC) emphasizes that the we are already experiencing impacts to natural and human systems, that land and ocean ecosystems and the services they provide have and will continue to change, and that "pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems".[1] Yet, despite more than 25 years of debate and effort, we continue to lack governance structures of sufficient scale and intensity to address the growing climate crises. Progress has been made and continues to be made, but the pace and depth of that progress is inadequate to limit dangerous anthropogenic climate change. The task of responding to climate change, thus, grows more daunting by the day.

In his prescient article from 2003, *Building Bridges over Troubled Waters: Eco-Pragmatism and the Environmental Prospect*, Professor Dan Farber noted that in the face of such daunting environmental challenges "excessive pessimism can be paralyzing, but blithe optimism can be fatal."[2] Taking on the particular challenge of climate change, as understood in 2003, Farber contended that although climate change "presents one of the most intractable commons problems. . .even here there is hope, despite the U.S. government's abandonment of international negotiations on the subject."[3] Hope, as Farber envisioned it then, rested largely on the advent of a technological revolution and the development of effective alternative energy technologies that would enable significant emissions reductions. Hope also, inevitably, included the eventual reversal of political course by the US government. Between 2003 and 2018, of course, much has happened. Our understanding of climate science has deepened, with the result of

[1] IPCC, *Global Warming of 1.5°C*, D1 (Oct. 6, 2018), https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

[2] Daniel A. Farber, *Building Bridges Over Troubled Waters: Eco-Pragmatism and the Environmental Prospect*, 87 MINN. L. REV. 851, 852 (2003) (the report further notes that "these systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options").

[3] Farber, *supra* note 2, at 867.

intensifying concerns about the pressing nature of the challenge. The United States has shifted from a laggard to a leader to an opposition force in international climate change negotiations as executive power shifted from Presidents Bush, to Obama, to Trump. Energy technologies have evolved tremendously and to positive end, but the needed energy revolution is still in progress and has yet to offer the necessary pathway to widespread change.

In framing environmental challenges as involving the Herculean task of finding a balance between understandable pessimism and fleeting optimism, Farber suggested that the "best reason not to despair is simply that on occasion we have somehow managed to overcome . . . barriers" to successfully address environmental challenges.[4] Farber was focused on a range of environmental challenges, of which climate change was just one. His frame, however, proved prophetic to the complex dynamics of optimism and pessimism that have characterized climate law and policy and that have, over time, made it increasingly difficult to maneuver and push forward with hope within an increasingly urgent and time-constrained space.

That space was given additional contour and urgency six years after Farber framed the governance challenge when, in their seminal article, *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, Johan Rockström et al. proposed the "novel concept, planetary boundaries, for estimating a safe operating space for humanity with respect to the functioning of the Earth System."[5] Using the concept of planetary boundaries, Rockström et al. identified nine planetary boundaries[6] that humans need to remain within to ensure that humanity can live and persist sustainably. In delineating these nine planetary boundaries, two were defined as core boundaries, the crossing of which "has the potential on its own to drive the Earth System into a new state should they be substantially and persistently transgressed."[7] One of these two core boundaries is the climate system. In determining the planetary boundary for climate change, the authors noted both the general challenges inherent in establishing planetary

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[4] *Id.* at 883.

[5] Johan Rockström et al., *Planetary Boundaries: Exploring the Safe Operating Space for Humanity*, 14(2) ECOLOGY & SOC'Y 32, 33 (2009) (In key part, Rockström et al. identify "key Earth System processes and attempt to quantify for each process the boundary level that should not be transgressed if we are to avoid unacceptable global environmental change." They define unacceptable change "in relation to the risks humanity faces in the transition of the planet from the Holocene to the Anthropocene.").

[6] *Id.* at 32 (These seven are: climate change (CO_2 concentration in the atmosphere <350 ppm and/or a maximum change of +1 W m^{-2} in radiative forcing); ocean acidification (mean surface seawater saturation state with respect to aragonite = 80% of pre-industrial levels); stratospheric ozone (<5% reduction in O_3 concentration from pre-industrial level of 290 Dobson Units); biogeochemical nitrogen (N) cycle (limit industrial and agricultural fixation of N_2 to 35 Tg N yr^{-1}) and phosphorus (P) cycle (annual P inflow to oceans not to exceed 10 times the natural background weathering of P); global freshwater use (<4000 km^3 yr^{-1} of consumptive use of runoff resources); land system change (<15% of the ice-free land surface under cropland); and the rate at which biological diversity is lost (annual rate of <10 extinctions per million species). The two additional planetary boundaries for which we have not yet been able to determine a boundary level are chemical pollution and atmospheric aerosol loading).

[7] Will Steffen et al., *Planetary Boundaries: Guiding Human Development on a Changing Planet*, SCIENCE VOL. 347, Iss. 6223 at 736. (Feb. 13, 2015), https://science.sciencemag.org/content/347/6223/1259855/tab-pdf (noting that climate change is one of two "core boundaries" – the other being biosphere integrity).

boundaries and the fact that the "climate-change boundary is currently under vigorous discussion" as part of the UNFCCC negotiations leading up to what would ultimately become the Paris Agreement. Acknowledging that there was a growing convergence toward a "2°C guardrail" approach, that is, containing the rise in global mean temperature to no more than 2°C above the preindustrial level, Rockström et al. ultimately proposed a complementary planetary boundary that suggested that carbon dioxide emissions in the atmosphere needed to be contained to 350 ppm.[8] Unfortunately, by the time this planetary boundary concept was proposed and delineated for climate change, the suggested climate planetary boundary had already been transgressed.[9] Despite this transgression, the planetary boundary offered a more precisely delineated physical concept around which to construct and judge governance efforts.

Six years following the publication of *Planetary Boundaries*, the parties to the UNFCCC adopted the Paris Agreement in an attempt to chart a pathway forward towards overcoming the effective paralysis that kept the international community hurtling beyond the edges of the boundary for the climate system. However, by the time the Paris Agreement was adopted, not only had the planetary boundary for climate change already been crossed, but average global concentrations of carbon dioxide were lingering around the 400 ppm mark and continuing to climb.[10]

International climate law, thus, now operates in what could easily be imagined as a paralyzing place. As information continues to amass about the existential challenge that climate change poses for present and future generation and the gap between what we need to do, and what we are committed to doing to address climate change grows, so too does climate related anxiety. Facing this daunting challenge, law and policymakers must find ways navigate and keep pushing forward even as cause for optimism proves harder to find.

Within this frame, this short essay seeks to accomplish three things. First, it seeks to convince the reader to view climate change as one of the greatest legal and political challenges of our time by very succinctly emphasizing some of the anticipated risks and impacts of climate change and the ways in which these impacts shape the way we think about and respond to climate change. Second, it examines the overarching goals of international climate change law and the extent to which the Paris Agreement advances those goals. Third, it considers the most important roadblocks to our collective efforts to address climate change, focusing on the collective action nature of climate change and the perpetuation of an idealized vision of a cooperative international community. The essay concludes by arguing that law is an essential tool in our fight against climate change, but that using law effectively in this context means breaking free of a vision of

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[8] Rockström et al., *supra* note 5, at P (The climate boundary was set based on two factors CO2 concentrations and radiative forcing, with suggested boundary values of "350 ppm CO2 and 1 W m-2").

[9] *Id.* (In addition, Rockström et al. suggested that we had already transgressed three planetary boundaries: for climate change, rate of biodiversity loss, and changes to the global nitrogen cycle).

[10] See *Id.* (reiterating that the planetary boundary for climate change dictated that carbon dioxide levels should not cross 350 ppm in the atmosphere, which is consistent with the secondary goal of the Paris Agreement to stabilize the global temperature at 1.5 degrees Celsius above pre-industrial levels).

law as a top down sweeping tool capable of offering grand solutions. Instead, it suggests that we must think of law as an enabling instrument that can help us make the multitude of changes we need to make to reshape ourselves so as to allow present and future generations to live safely and sustainably.

Part I: The Basic Parameters of the Problem

Conversations about the processes of, and responses to anthropogenic climate change have come to dominate the work of scientists, environmentalists, and policymakers, alike. The focus on anthropogenic climate change, however, remains a relatively recent phenomenon. It bears reminding that this is a young field still struggling to find the optimal mix of tools to address one of the most massive and complex challenges of our time. In fact, it is only over the last thirty years that climate change has been identified as the most pressing environmental challenge of our time, and it is only within the past 25 years that the contours of the now rapidly developing body of climate change law have begun to emerge and take shape. Thus, while we now take for granted the need for collective conversations focused on taking stock of the state of climate change science and climate change law, this was not always the case. Until quite recently, climate change was framed as one of a handful of critical international environmental challenges – as just another complex global environmental problem.[11]

However, as the science and governance responses have evolved and as legal experimentation has progressed, even over this short period of time, it has become increasingly clear that climate change is not just another environmental problem. In fact, it has become apparent that climate change is much more than an environmental challenge. It is and must be treated as much more; it is a problem of human health, human rights, security, and fundamental human and planetary well-being. Ultimately, it is a problem that exposes layers of human vulnerabilities. It is more than international; more than environmental; more than legal. It is, as UN Secretary-General Antonio Guterres has warned, "a direct existential threat" to humankind.[12]

Growing recognition of the existential nature of climatic change has given rise to a rapid period of law and policymaking at virtually every level of governance. In fact, "at all levels, from cities through the international sphere, laws, regulations and court decisions relating to climate change have proliferated. They cover topics ranging from international finance mechanisms to countries impacted by climate change to regulations of the electrical grid to carbon trading systems to aviation emissions"[13] to geoengineering, to automobile and shipping emissions,

[11] For a more robust discussion of the framing of climate change, *see* Cinnamon Carlarne, *Delinking International Environmental Law & Climate Change*, 4 MICH. J. ENVTL. & ADMIN. L. 1, 1 (2014), https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1029&context=MJeal.

[12] United Nations Secretary-General, *Secretary-General's Remarks on Climate Change [as delivered]*, (Sept. 10, 2018), https://www.un.org/sg/en/content/sg/statement/2018-09-10/secretary-generals-remarks-climate-change-delivered.

[13] *See* Daniel A. Farber & Cinnamon P. Carlarne, CLIMATE CHANGE LAW 1 (St. Paul, MN: Foundation Press 2018).

and much more. The emerging body of laws and policies is extensive but fragmented.

One thing that all of these developments have in common is a shared goal of limiting the negative effects of climate change. The evolving systems of law also increasingly reflect the ways in which climate change exposes the extent to which humanity is inescapably entangled in a network of mutuality, and the degree to which our individual actions and the individual harms we suffer affect one another both directly and indirectly.[14] And, while debates persist about particular patterns of change and the most apt legal and political responses, "scientific confidence has grown over the past few decades about the reality of anthropogenic climate change, the role of greenhouse gases in forcing climatic change, and the present and future harmful impacts. It is this scientific knowledge that provides the foundation of legal and policy efforts at the domestic and international level."[15]

Scientific knowledge about the processes of atmospheric climate change also reveals the challenge at the heart of the problem. Regardless of where greenhouse gases are emitted, they enter the atmosphere and are effectively mixed. As a result, while the vast majority of global greenhouse gas emissions may emanate from a small handful of the most powerful states, including the United States, China, and the European Union, these emissions intermingle to force patterns of global climate change that impact the entire planet. Because no state can either unilaterally limit another state's emissions, or protect itself from the combined impacts of climate change, responding to climate change requires international cooperation. In key part, it requires mobilizing the participation of the most powerful states, that is, the largest global economic and political actors who, by and large, are also the most significant greenhouse gas emitters. The future well-being of the vast majority of states, thus, depend on the participation and actions of a small handful of states, making climate change the ultimate commons problem.

Before exploring the ways in which the legal regime has evolved in response to these fundamental governance challenges, it is necessary to concisely frame the challenges climate change poses for humanity and, thus, what is at stake with respect to our efforts to develop effective systems of climate change law.

Although there are areas of uncertainty, the basic facts about anthropogenic climate change, by now, are firmly established. The Earth's climate is changing. The world is warming. Changes in the climate system are driven by anthropogenic – that is, by human – factors. The central debate about anthropogenic forcing of the climate system is settled.[16] We know it is happening. We know it is,

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[14] For a more extensive discussion of the justice, equity, and fairness dimensions of climate change, *see* Cinnamon P. Carlarne & JD Colavecchio, *Balancing Equity and Effectiveness: The Paris Agreement and the Future of International Climate Change Law*, 27 NYU J. ENVTL. L. 107, 110 (2019), https://www.nyuelj.org/wp-content/uploads/2019/05/Carlarne_Balancing-Equity-and-Effectiveness.pdf.

[15] Farber & Carlarne, *supra* note 13, at 2.

[16] *See, e.g.*, NASA: Global Climate Change, *Scientific Consensus: Earth's Climate is Warming*, https://climate.nasa.gov/scientific-consensus/; John Cook et al., *Consensus on Consensus: A Synthesis of Consensus Estimates on Human-Caused Global Warming*, 11 ENVTL. RESEARCH LETTERS 4, 4 (2016).

and will continue to wreck great harm on human and natural systems. The question is not if it is happening, but rather, what does humanity want to do about it.[17]

So, what do these changes look like? As is now well documented, recent years rank at the top of the list of the warmest global temperatures. According to the fifth assessment report by the Intergovernmental Panel on Climate Change, "[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen."[18] In addition, "each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850," and in the Northern Hemisphere, "1983–2012 was likely the warmest 30-year period of the last 1400 years."[19] In fact, the last 4 years have been the warmest years on recent record. Over the past decade, we have also experienced an improbable number of forest fires, droughts, heat waves, floods and record-breaking storms. As the IPCC details in its 2018 *Special Report on Global Warming of 1.5°C*, "human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels", and "[g]lobal warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate."[20]

Given current patterns of greenhouse gas emissions, absent concerted change, we are now on track to reach average global warming of 2°C by the end of the century; this level of warming would leave the earth warmer than it has been in millions of years and expose the planet to far worse impacts even than previously expected. In key part, as the IPCC report highlights, "climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C."[21]

As Priyardarshi Shukla, the co-author of the Special Report summarizes, this most recent assessment highlights the harmful effects of climate change at present levels of warming and at 1.5°C, but demonstrates that "[l]imiting global warming to 1.5°C compared with 2°C would reduce challenging impacts on eco-

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[17] *See, e.g.*, IPCC, *Summary for Policymakers*, *in* IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf; IPCC, *Technical Summary*, *in* IPCC CLIMATE CHANGE 2014, IMPACTS, ADAPTATION, AND VULNERABILITY (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-TS_FINAL.pdf.

[18] IPCC, *Intergovernmental Panel on Climate Change: 2014 Synthesis Report: Summary for Policymakers* 1 (2014).

[19] T.F. Stocker et al., *Summary for Policymakers*, *in* CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS: CONTRIBUTION OF WORKING GROUP I TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IPCC (2013), http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf.

[20] IPCC, *Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C Approved by Governments* 1, 4 (Oct. 8, 2018), https://www.ipcc.ch/news_and_events/pr_181008_P48_spm.shtml.

[21] *Id.* at 11, 24. The report emphasizes that the "avoided climate change impacts on sustainable development, eradication of poverty and reducing inequalities would be greater if global warming were limited to 1.5°C rather than 2°C, if mitigation and adaptation synergies are maximized while trade-offs are minimized."

systems, human health, and well-being",[22] including minimizing impacts such as "stronger storms, more erratic weather, dangerous heat waves, rising seas, and large scale disruption to infrastructure and migration patterns."[23] Renowned climatologist, Michael Mann, states it more clearly, explaining that: "The further we go the more explosions we are likely to set off: 1.5C is safer than 2C, 2C is safer than 2.5C, 2.5C is safer than 3C, and so on."[24] Together, Shukla and Mann's comments highlight the importance of governance efforts designed to limit greenhouse gas emissions and, thus, keep warming below 2°C.

These recent reports refine our understanding of how patterns of climate change could play out in the future, but they also reveal the ways in which climate change is already impacting life on Earth. And, of course, we – all of us – are already beginning to experience the effects of climate change. In recent years, China and Europe experienced record summer heats,[25] devastating floods swept through India and Japan,[26] Arctic sea ice continued to retreat at an alarming pace,[27] toxic algal blooms exploded along the Florida coast,[28] and wide swaths of forests on the US and Canadian West Coast burned.[29] In other words, climate change is already well under way.

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[22] Stephen Leahy, *Climate Change Impacts Worse than Expected, Global Report Warns*, NATIONAL GEOGRAPHIC, (Oct. 7, 2018), https://www.nationalgeographic.com/environment/2018/10/ipcc-report-climate-change-impacts-forests-emissions/; *see also*, *Summary for Policymakers*, *supra* note 20, at 1 (quoting Hans-Otto Pörtner, Co-Chair of IPCC Working Group II: "Every extra bit of warming matters, especially since warming of 1.5°C or higher increases the risk associated with long-lasting or irreversible changes, such as the loss of some ecosystems").

[23] Leahy, *supra* note 22.

[24] *See* Leahy, *supra* note 22; World Bank, *Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience* (2013), http://www.worldbank.org/en/topic/climatechange/publication/turn-down-the-heat-climate-extremes-regional-impacts-resilience (Bolstering the IPCC report, the World Bank similarly considers the warmer, 2 degrees scenario to be devastating, with a dire list of consequences: "the inundation of coastal cities; increasing risks for food production . . . leading to higher malnutrition rates; . . . dry regions becoming drier, wet regions wetter; unprecedented heat waves in many regions. . .[of the world]; substantially exacerbated water scarcity in many regions; increased frequency of high-intensity tropical cyclones; and irreversible loss of biodiversity, including [our beautiful and fundamentally important] coral reef systems.").

[25] *See, e.g.*, Alissa J. Rubin, *Scorching Summer in Europe Signals Long-Term Climate Changes* NY-TIMES (Aug. 4, 2018), https://www.nytimes.com/2018/08/04/world/europe/europe-heat-wave.html; Jason Samenow, *All-Time Heat Records Have Been Set All Over the World this Week*, THE INDEPENDENT (July 5, 2018), https://www.independent.co.uk/environment/heatwave-temperature-records-broken-europe-north-america-eurasia-middle-east-latest-a8432226.html.

[26] *See, e.g.*, Jeffrey Gettleman, *More Than 1,000 Died in South Asia Floods This Summer*, NY TIMES (Aug. 29, 2018), https://www.nytimes.com/2017/08/29/world/asia/floods-south-asia-india-bangladesh-nepal-houston.html; Jessie Yeung et al., *Japan Floods: At Least 122 Dead after Heavy Rain and Landslides*, CNN (July 10, 2018), https://www.cnn.com/2018/07/09/asia/japan-floods-intl/index.html.

[27] National Snow & Ice Data Center, *Arctic Sea Ice Extent Arrives at its Minimum* (Sept. 27, 2018), http://nsidc.org/arcticseaicenews/2018/09/.

[28] *See, e.g.*, Angela Fritz, *How Climate Change is Making 'red tide' Algal Blooms Even Worse*, THE WASHINGTON POST (Aug. 15, 2018), https://www.washingtonpost.com/news/capital-weather-gang/wp/2018/08/14/how-climate-change-is-making-red-tide-algal-blooms-even-worse/?noredirect=on&utm_term=.c9bfdcd68d71; Brigit Katz, *A Toxic Algal Bloom Is Spreading in Florida's Waterways*, SMITHSONIANMAG.COM (July 10, 2018), https://www.smithsonianmag.com/smart-news/toxic-algal-bloom-spreading-floridas-waterways-180969586/.

[29] *See, e.g.*, Kurtis Alexander, *Scientists See Fingerprints of Climate Change All Over California's Wildfires*, SF CHRONICLE (Aug. 3, 2018), https://www.sfchronicle.com/science/article/Scientists-see-fin-

This description is, of course, just a fragment of the picture. The arc of climate change is long, the variables are complex, and our models reach only so far and offer only so much clarity. We find ourselves at a moment in time, however, when our collective understanding of anthropogenic climate change is sharp enough to reveal both our inescapable interconnectedness and the reality that, if we hope to achieve meaningful progress towards mitigating climate change and meaningful progress towards creating a more just world – goals that are not necessarily either complementary or collectively shared, our time frame for doing so grows short.

This leads us to our second theme, which is to investigate the overarching goals of international climate change law, and to consider whether the Paris Agreement moves us forward towards meeting those goals and, ultimately, towards keeping humanity within a safe operating space.

Part II: The State and Purpose of International Climate Change Law

We know that humans are influencing the climate system. We know that the anticipated impact of this human forcing is and will lead to widespread harm. We also know that in order to limit climate change and to minimize the harmful effects of climate change worldwide, we must reduce greenhouse gas emissions. We being all of the state parties to the UNFCCC, but especially the big polluting states. Therein lies the heart of the problem. The causes of climate change are driven by a small handful of very powerful states. The effects of climate change, however, are felt by all of humankind, but especially – most severely and most urgently – in low-income countries and, especially, in those places where people are already experiencing high levels of vulnerability. In other words, climate change is the greatest collective-action problem of our time,[30] but it also gives rise to some of the greatest distributional justice and equity challenges of our time. We – humanity – are all deeply and fully in this together, but only some key state actors have the capacity to limit the causes and consequences of climate change, and even fewer have the will.

As Professor Dan Farber and I have explained elsewhere:

> Obtaining international cooperation on collective action challenges such as this is never easy, and in this case of climate change it is further hindered by uncertainties about the timing and extent of harm, our general lack of experience with problems having multi-century footprints, uncertainty about how to decarbonize our energy systems while continuing to allow economic development, and the perception that short-term, individual state economic interests – particularly the interests of the big polluter

gerprints-of-climate-change-all-13128585.php; John Kurucz, *Summer Wild Fires and Smoke-Clogged Skies the New Normal in B.C.*, VANCOUVER COURIER (Aug. 15, 2018), https://www.vancourier.com/news/summer-wild-fires-and-smoke-clogged-skies-the-new-normal-in-b-c-1.23401953.

[30] *See, e.g.*, Farber & Carlarne, *supra* note 13, at 10-11.

> states, the great power states – are often in conflict with the collective interest of combating climate change on behalf of humankind.[31]

It is, by now, well understood that the stakes of, and barriers to addressing climate change are irrefutably high. So, where are we with our evolving system of climate law, and where do we go from here?

In order to assess the state of international climate change law, we must first ask whether there is a common goal that underpins efforts in this area and the degree to which this goal rests on shared assumptions that have remained true over time. At a very basic level, Article 2 of the UNFCCC defines the ultimate goal of international climate change law as the: "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[32] The 2015 Paris Agreement reiterates this goal, committing parties to "holding 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."[33] Both agreements situate efforts to address climate change within a context that simultaneously seeks to advance equity, sustainable development, and poverty eradication. Consequently, it might be argued that the twin goals of international climate change law are to mitigate climate change – holding it, at a minimum, to less than 2°C – and to do so in a way that advances equity and reduces risks to human populations.

Accepting that limiting anthropogenic climate change to keep humanity with a safe planetary operating space, and doing so in a way that also allows us to move towards a more just world are the goals that sit at the heart of international climate change law, the pressing question is whether the 2015 Paris Agreement advances efforts to achieve these goals.

Upon adoption, the Paris Agreement was widely heralded as a positive step forward in efforts to structure an effective international climate change regime. The Paris Agreement represented the culmination of efforts, begun in Copenhagen in 2009, to create a more flexible and bottom-up model for addressing climate change. As Bodansky describes it, the end result is a bit of "a Goldilocks solution that is neither too strong (and hence unacceptable to key states) nor too weak (and hence ineffective)."[34]

At its core, the Agreement commits the Parties to limiting warming to 2°C above pre-industrial levels while pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels,[35] while also directing the Parties "to

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[31] *Id.* at 3.

[32] United Nations Framework Convention on Climate Change, 1771 U.N.T.S. 107, S. Treaty Doc No. 102-38, U.N. Doc. A/AC.237/18, 31 I.L.M. 849 (1992), available at http://unfccc.int/resource/docs/convkp/conveng.pdf [hereinafter UNFCCC].

[33] *Paris Agreement*, Preamble, Dec. 12, 2015, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (entered into force Nov. 4, 2016).

[34] Daniel Bodansky, *The Paris Climate Change Agreement: A New Hope?*, 110 AM. J. INT'L L. 288, 289 (2016).

[35] *Paris Agreement*, *supra* note 33.

reach global peaking of greenhouse gas emissions as soon as possible. . . and to undertake rapid reductions thereafter. . . on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty."[36] In addition, Parties to the agreement commit to increasing pathways towards adaptation, and to improving climate finance all within a framework focused on reflecting "equity and the principle of common but differentiated responsibilities and respective capabilities".[37] In key part, the Paris Agreement upends the Kyoto Protocol's approach to addressing climate change that was based on establishing one shared international emissions-reduction goal and, instead, creates a system based on the submission of Nationally Determined Contributions (NDCs), wherein Parties detail the contributions they are committing to making to address climate change.[38] NDCs should reflect the Parties' highest possible ambition within the common but differentiated responsibilities framework. That is, the Party must state what it is willing to do to address climate change *and* why its commitment is fair and ambitious.[39] With each subsequent round of NDC submissions, Parties must adopt progressively ambitious goals.

In short, the Paris Agreement "abandons the static, annex-based approach to differentiation in the [UNFCCC] and the Kyoto Protocol, in favor of a more flexible, calibrated approach, which takes into account a country's circumstances and capacities."[40] It represents a move away from the starkly bifurcated view of the world that characterized international climate law for almost twenty years and more directly acknowledges the social realities driving states' highly individualized interests and decisions on when and why they are willing to cooperate and take steps to respond to climate change.

The adoption and rapid coming into force of the Paris Agreement[41] was heralded as a positive move towards facilitating more effective global cooperation on everything from mitigation to adaptation to climate finance, as well as more

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[36] *Paris Agreement*, *supra* note 33, at Art. 4.

[37] *Id.*

[38] Paris Agreement, UNFCCC, 'Adoption of the Paris Agreement', fccc/cp/2015/L.9/Rev.1, 21 (2015), Art. 2 (While the Paris Agreement does not designate a shared global emission-reduction goal it does establish the overarching objective of 'Holding 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, recognizing that this would significantly reduce the risks and impacts of climate change').

[39] *See Lima Call for Climate Action*, Dec. 1/CP.20 (Dec. 14, 2014), *in* COP Report No. 20, Addendum, at 2, UN Doc. FCCC/CP/2014/10/Add.1 (Feb. 2, 2015) (Countries have approached this task differently, with some keeping their statements narrow and concise, while others are using the NDCs process as a platform for talking more broadly about national circumstances and addressing, with specificity, what they believe fairness and ambition mean).

[40] Bodansky, *supra* note 34, at 290.

[41] Paris Agreement, *supra* note 33, at Art. 21 (The Paris Agreement was opened for signature on April 22, 2016 at which time 175 Parties signed the Agreement. By October 5, 2016, the signatory threshold was met, allowing the Paris Agreement to enter into force, which it did on November 4, 2016, less than a year after it was adopted. Article 21 specifies that the Agreement will come into force "thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary." At the time of writing, 183 of the 197 Parties to the Convention have ratified the Agreement).

focused and diversified forms of mitigation experimentation at the state level. Within this context, one of the primary reasons that the Paris Agreement was viewed as a success was because all of the major greenhouse gas emitters became parties to the Agreement and, consequently, submitted NDCs laying out their mitigation goals and strategies. For the first time, key players such as the United States, China, the EU, India, and Brazil were all working together under a framework that called on each of the states to participate in efforts to mitigate climate change, to facilitate adaptation, and to be transparent about their overarching objectives in doing so. Accordingly, pursuant to the Paris Agreement, for the first time, every party to the agreement – regardless of their economic development status – commits to pursuing mitigation efforts, and to being explicit and transparent about the steps they intend to take to do so and why the steps they are taking are fair and ambitious.[42]As of late 2018, 179 (of 183) Parties had submitted their first NDCs.

The ambitious climate-limiting goals embodied by the Paris Agreement and the high levels of party participation reflect growing concerns about the negative impacts of climate change and an increased willingness on the part of states worldwide to work together towards a common solution. The participation of the United States and China is particularly important, given that they are the two largest net global emitters of climate change pollutants and had previously been at odds over their respective roles in contributing to, and alleviating climate change.[43]

Despite these forward-looking developments, when assessing the Paris Agreement based on expected effectiveness to limit climate change, even if Parties fully fulfilled the commitments they make in their NDCs, it is unlikely that this would hold warming below 2°C, much less achieving the more ambitious 1.5°C target.[44] In fact, one estimate suggests that policies existing as of November 2016 would achieve warming of about 3.6°C, but that if Parties fulfilled all of the commitments they have made under Paris this would "limit warming to about

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[42] Paris Agreement, *supra* note 33, at Art. 4. (In key part, however, Article 4 mandates different forms of mitigation commitments from developed and developing country Parties, as such:
"Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.").

[43] *See* The White House – President Barack Obama, *U.S.-China Joint Presidential Statement on Climate Change* (Sept. 25, 2015), https://obamawhitehouse.archives.gov/the-press-office/2015/09/25/us-china-joint-presidential-statement-climate-change (Notably, in the lead up to the Paris meeting, the United States and China - the two largest net greenhouse gas emitters – issued a joint announcement sharing their respective commitments and their renewed commitment to bilateral cooperation).

[44] *Global Warming of 1.5°C, supra* note 1, at D1. (The recent IPCC report highlights the existing mitigation gap:

> "Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions18 in 2030 of 52–58 GtCO2eq yr-1 (medium confidence). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (high confidence). Avoiding overshoot and reliance on future large-scale deployment of carbon dioxide removal (CDR) can only be achieved if global CO2 emissions start to decline well before 2030 (high confidence).").

2.8°C above pre-industrial levels, or in probabilistic terms, likely limit warming below 3.1°C." Accordingly, while the Paris Agreement may push us farther along toward the 2°C goal, there is still a significant mitigation ambition gap.

If, from a pure mitigation-effectiveness perspective, the Paris Agreement falls short, even assuming full Party compliance, which is a naive assumption (particularly given the current US stance)[45], what then makes it historic and the tool to prevent climate disaster? Perhaps it is because "[r]emarkably, all major protagonists endorsed the deal, and countries with diametrically opposed interests supported it"[46] and, thus, it provides the momentum and the platform states need to cooperate and move towards increasingly meaningful and ambitious change. Or, perhaps it is because the Paris Agreement doubles down on the importance of adaptation and places greater emphasis on loss and damage, climate finance, inclusive mitigation mechanisms, and other measures linked to efforts to promote equity and fairness in climate actions.[47] All of these facets are important. Arguably, however, the greatest success of the Paris Agreement is disrupting the previous paradigm of international climate law and offering a new governance model.

In key part, the Paris Agreement responds to the rigidity and deficiencies of the previous approach and makes a sharp turn away from the existing top-down mitigation framework while also inviting a more transparent and inclusive discussion of fairness and centering that discussion as the frame for international cooperation. Disrupting the conventional top-down approach is no small accomplishment. This model emerged from and reflected a traditional form of multilateral environmental agreement and inertia that kept the international community rooted within this conventional form of cooperation even as its utility faltered in the wake of the struggles, first to ratify, and later to implement and move beyond the limited commitments embodied by the Kyoto Protocol, the Paris Agreement's predecessor. In addition, the inclusivity of the Paris Agreement, particularly in its reliance on NDCs, represents an important step forward for procedural justice. As much as the free-form nature of the NDCs invites uncertainties and disparities, it also provides a platform for states to speak to their needs and to ground their contributions in the context of their circumstances. Whereas a top-down prescriptive consensus may be simpler and more efficient, it is also prone to neglecting the most vulnerable, and to suppressing their voices. Even if the substantive goals of the Paris Agreement at first fall short, the states that have the most to lose, and the least capacity to limit climate change now, at least, have a platform to say so, and to play an active part in defining and giving contour to what 'fairness' and 'ambition' mean.

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[45] On June 1, 2017, President Trump declared that the United States would "cease all implementation of the nonbinding Paris Accord and the draconian financial and economic burdens the agreement imposes on our country." The White House, *Statement by President Trump on the Paris Climate Accord* (June 1, 2017), https://www.whitehouse.gov/briefings-statements/statement-president-trump-paris-climate-accord/ (While the United States is still formally a party to the Paris Agreements, its de facto withdrawal from Agreement suggests that, at least in the short-term, the United States will not be taking any formal steps at the federal level to fulfill the commitments set out in the NDC).

[46] Radoslav S. Dimitrov, *The Paris Agreement on Climate Change: Behind Closed Doors*, 16:3 GLOBAL ENVTL. POL. 1, 2 (2016).

[47] For a richer discussion of this issue, *see generally* Carlarne & Colavecchio, *supra* note 14.

Ultimately, the Paris Agreement does not offer a grand solution to climate change. Its greatest success is disrupting the previous paradigm of international climate law that we tried unsuccessfully to use for 20 plus years. That paradigm was static and envisioned big solutions facilitated by high levels of consensus-based state cooperation. That model made sense at the time it was crafted but, ultimately, did not reflect the political or physical realities of climate change. The Paris framework recognizes those deficiencies and provides room to rethink modes of cooperation and diversified strategies for mitigation. It provides a more realistic platform for progress. That is its greatest strength. But, the work of translating the commitments made under the Paris Agreement into real and meaningful actions is only just beginning. In addition, from a pure effectiveness perspective, we remain far from our very basic goal of stabilizing greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system and keep humanity within a safe operating space.

As we stand at this precipice, recognizing the existential importance of limiting climate change and possessing a new international legal agreement to use as the basis for doing so, the next question we must ask is what are the most important roadblocks to our efforts to develop a more effective and equitable system of international climate change law?

Part III: The Roadblocks – Collective Action & the Myth of the International Community

Here, of course, it would be easy to say political will. This is often the default answer for most complex questions of international law and diplomacy. The answer, of course, is much more complex than that because the presence or absence of political will turns on any number of factors. With respect to climate change, the ability to garner political will to support legal efforts to address climate change is influenced by many different aspects of complexity whether it be scientific, economic, social, or cultural. The nature of the political will challenge varies across time and place, as so aptly demonstrated by the populist movements and radical governance shifts that are presently shaping the contours of systems of environmental law worldwide.[48]

At the international level – and with respect to international law – the collective action nature of climate change is what presents the most significant challenge. The notion of a collective action problem is a familiar one and, as discussed, climate change is the quintessential international collective-action

[48] For example, between August and October of 2018, President Trump took dramatic steps to reshape US climate change law; the United Kingdom government warned of the far-reaching impacts of a no-deal Brexit; the French environmental minister resigned in frustration over climate inaction; Australia failed to pass legislation limiting greenhouse gas emissions; Brazil elected as their next president the populist, Jair Bolsonaro, who campaigned on an aggressively anti-environmental platform. *See, e.g.,* Dan Farber, *Another Scary Election (But Not Here)*, LEGAL PLANET (Oct. 22, 2018), http://legal-planet.org/2018/10/22/another-scary-election-but-not-here/; *but see*, Paola Villavicencio Calzadilla & Louis J. Kotze, *Living in Harmony with Nature? A Critical Appraisal of the Rights of Mother Earth in Bolivia*, 7 TRANSNAT'L ENVTL. L. 397, 400 (2018) (discussing the ways in which countries such as Ecuador and Bolivia are pushing for a more progressive re-imagining of environmental law).

problem. Whether we characterize it as a wicked[49] or a massive problem,[50] scientific and political consensus underscores that mitigating climate change demands buy-in and active engagement on the part of all of the developed and emerging economies, while adapting to climate change necessitates local, regional, and international efforts on a scale that is almost impossible to conceive.[51] Responding to both the causes and consequences of climate change, therefore, depends upon high levels of state cooperation. As a result, international climate change law was constructed around the premise of the necessity of cooperation, but also a belief in the possibility of international cooperation.

It is not, however, just the collective action nature of climate change in isolation that impedes progress. It is that this challenge is situated within a larger, ongoing debate in international law about the degree to which we see ourselves as a collective human community – that is, as an international community – that is prepared to act as a collective species.

International climate change law represents the paradigmatic example of the assumption that we are a collective human community and we are prepared to cooperate as such, when in actuality we are really far from a functioning, collective international community.[52] The assumption that there is an international community reflects larger trends in international law that shaped the emerging field of international environmental law and, eventually, climate change law.

As a result, the substance of international climate change law, and a critical challenge underpinning the development of international climate change law can be explained by pointing more directly to how our efforts to address climate change reflect a larger ongoing struggle to decide whether we are, in fact, one collective species capable of functioning as, and on behalf of an international community. This question has taken on even more resonance in recent years with the rise of the populist and authoritarian movements in the US, Europe, and worldwide.

The notion that we are an international community that can and, at times, should function collectively is intertwined with the evolution of international law as a system of law focusing on ways to allow states to co-exist peacefully to a system that, at times, also seeks to facilitate active cooperation around issues of common interest.

In the wake of World War II, international law primarily operated to facilitate peaceful coexistence between sovereign states. The primary goal of international

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[49] *See* Horst W. J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4:2 POLICY SCIENCES 155. (1973).

[50] *See* J. B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CAL. L. REV. 59, 72-80 (2010).

[51] *See* Daniel A. Farber & Cinnamon P. Carlarne, *Climate Change Law* 11 (2018) (Put simply, if every country reduces greenhouse gas emissions, it is possible to limit anthropogenic climate change. Individual state interests undercut these efforts, however, because, bluntly speaking, emissions are associated with economic activity and states are thus incentivized to continue emitting and to free-ride on the emissions reduction efforts of other states).

[52] *See generally* Cinnamon P. Carlarne & Mohamed S. Helal, *A Conversation about Climate Change Law and the 'International Community'*, 9 CLIMATE L. 1 (2018).

law was not to resolve all differences between states, but to recognize those differences and find some form of equilibrium that would enable states to coexist peacefully. In this way, the focus of the evolving body of international law was on establishing and maintaining a minimum of order between potentially antagonistic entities or, to put it more bluntly, to find ways to keep entities peacefully apart – that is, to allow them to peacefully coexist.[53]

In the later part of the twentieth century, as patterns of globalization intensified, states began to identify areas where new forms of international cooperation[54] were needed—e.g., human rights, economic development, environmental protection. Intensifying patterns of environmental degradation, for example, revealed the extent to which emerging challenges such as biodiversity loss, marine pollution, ozone depletion, and acid rain required new forms of transnational cooperation. As the contours of these transnational challenges emerged, there was an effort to frame new governance approaches to address these shared concerns. Notably, as part of these new cooperative governance efforts, instead of being asked to refrain from certain behaviors, states were often tasked with actively undertake something – that is, with adopting positive obligations.[55] To cooperate around these shared interests, states began to develop new institutions to actively bring parties together to establish objectives and obligations, and to assign new divisions of labor designed to help achieve the goals of the common enterprise. The emergence and rapid development of the field of international environmental law in the latter part of the twentieth century aptly demonstrates this trend.[56]

These new cooperative efforts reflected a fundamental shift in the way that we envisioned state-to-state relationships and required much more ambitious efforts on the part of states both individually and collectively. As a result, these collective tasks have proven extremely difficult to accomplish, in part because, as renowned international law scholar George Abi-Saab suggests, they envisage systems of law that "influence society by regulating and channeling social change."[57] In order to effect social change, there is a need not only for a shared sense of community around the issue, but also a complex set of institutions to facilitate cooperative action. This has proven difficult and, in the environmental context, although we have made impressive progress towards developing an in-

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53 *See generally* Wolfgang Friedmann, THE CHANGING STRUCTURE OF INTERNATIONAL LAW (Stevens and Sons et al. 1964).

54 *See generally* Georges Abi-Saab, *Whither the International Community*, 9 EJIL 248 (1998).

55 *See, e.g.*, Mohamed S. Helal, *The Crisis of World Order and the Constitutive Regime of the International System*, 46 FLA. ST. U. L. REV. (forthcoming 2019) (In contrast, in the wake of World War II, international law primarily operated to facilitate peaceful coexistence between sovereign states. The primary goal of international law was not to resolve all differences between states, but to recognize those differences and find some kind of equilibrium that would enable states to coexist peacefully. This largely entailed sets of negative obligations, as opposed to positive obligations).

56 *See generally* Donald K. Anton, *The "Thirty-Percent Solution" and the Future of International Environmental Law*, 10 SANTA CLARA J. INT'L L. 2, 212 (2013) (discussing the rapid growth of environmental norms and instruments). For a detailed discussion of the post 1960's development of domestic environmental law in the United States and other developed countries, *see* Sanford Gaines, *Reimagining Environmental Law for the 21st Century*, 44 ENVTL. L. REP. NEWS & ANALYSIS 10188, 10192-97 (2014).

57 Abi-Saab, *supra* note 54, at 256.

creasingly sophisticated set of normative instruments and complex complementary institutions, these institutions have rarely been able to facilitate the type of cooperation and positive action and change that is needed to resolve many of the most pressing international environmental challenges, including climate change. International will and collective action continues to lag.

The challenges we face in the field of international climate change law epitomize the extent to which grounding governance regimes in optimistic views of international cooperation can both give life to, but ultimately impede the operation of emerging legal regimes. Emerging in the 1990s, climate change law built upon an increasingly sophisticated body of international environmental law that, by then, had been grappling with the challenges inherent in motivating cooperation on transboundary environmental issues for two decades across a variety of bilateral, regional, and international environmental challenges. Between the 1970s and 1992, when the UNFCCC was adopted, for example:

It was estimated that 885 different international environmental legal instruments (hard and soft) and 139 different major international environmental treaties were in existence. In the years between 1972 and 1992 alone, it was said that more than 50 multilateral treaties relating to the protection of the marine environment were concluded. In the years between 1970 and 2004, three hundred and forty-eight multilateral treaties and one hundred and forty nine protocols were concluded, an average of roughly 100 combined instruments every five years until 2005.[58]

These governance instruments embodied a variety of regulatory approaches and reflected an evolving set of environmental norms, all of which presumed the necessity and possibility of extensive international cooperation. The first two decades of experimentation in the field of international environmental law revealed the extent and complexity of global environmental challenges, but also provided models for cooperation on issues such as reducing ozone-depleting substances and curbing trade in endangered species. Incremental success in limiting environmental degradation suggested not only that cooperation was possible, but also that there was an increasing level of awareness and shared concern around environmental challenges and their implications for economic development and human health and well-being.

Building on the momentum and progress achieved during the 1970s and the 1980s, in 1992, members of the international community came together in Rio de Janeiro for the UN Earth Summit. The objective of the Rio Earth Summit was to convince world leaders that "nothing less than a transformation of our attitudes and behaviour" was necessary to "rethink economic development and find ways to halt the destruction of irreplaceable natural resources and pollution of the planet."[59] The Summit was ambitious in scope and intent, bringing together leaders representing 172 different governments, including 108 heads of state, as well as more than 2,400 NGOs and in excess of 17,000 civil society participants and seeking to convince governments of the fundamental need "to redirect interna-

[58] Anton, *supra* note 56, at 213-14.

[59] United Nations – Earth Summit, *UN Conference on Environment and Development* (1992).

tional and national plans and policies to ensure that all economic decisions fully took into account any environmental impact."[60]

The UN Earth Summit represented the culmination of two decades of efforts to develop a collective conscious around transnational environmental challenges. The Earth Summit was infused with a sense of determination and optimism around facilitating international environmental cooperation.[61] The levels of participation, breadth of focus, degree of cooperation, and extent of legal development at the Earth Summit was unprecedented, and has never been repeated in international environmental law. Summit participants grappled with some of the most complex international challenges of our time, yet they approached the growing set of environmental challenges with determination and with optimism.

This is the context in which international climate change law was born. The UNFCCC was adopted at the UN Earth Summit. International climate change law, thus, emerged at the pinnacle of cooperation and optimism about collective efforts to take on international environmental challenges. This collective spirit and aspirational optimism infuses the text of the UNFCCC and early cooperative efforts to address climate change. This optimism was not naïve or ignorant to the challenge at hand. State and non-state actors, alike, understood the scale of the emerging challenge. Yet, even in the face of this challenge, there was a collective sense of cooperation and community. While this state of optimism gradually eroded as negotiations for the Kyoto Protocol began and the massive nature of the climate challenge began to take more granular form, the point of emergence for international climate change law was one of collective spirit and an implicit belief in the ability to foster a shared sense of international community, commitment, and cooperative action around climate efforts.

The origins and early institutions of international climate change law, hence, is grounded in the presumption that the international community is capable of cooperating to achieve meaningful progress on behalf of humankind, despite potentially competing individual state interests. This early view of cooperation informed the shape of the UNFCCC and the Kyoto Protocol and infused the first two decades of international climate change negotiations.[62] The sense of collective interest and commitment is the basis upon which the climate regime is built

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60 *Id.*

61 'Agenda 21: Programme of Action for Sustainable Development; Rio Declaration on Environment and Development; Statement of Forest Principles: The Final Text of Agreements Negotiated by Governments at the United Nations Conference on Environment and Development (UNCED)', 3-14 June 1992, Rio De Janeiro, Brazil. New York, NY: United Nations Dept. of Public Information (1993), at ¶ 2.1. (See, for example, the 95 different references to 'international community' that occur in Agenda 21 and, in particular, the language in Chapter 2:

> "In order to meet the challenges of environment and development, States have decided to establish a new global partnership. This partnership commits all States to engage in a continuous and constructive dialogue, inspired by the need to achieve a more efficient and equitable world economy, keeping in view the increasing interdependence of the community of nations and that sustainable development should become a priority item on the agenda of the international community. It is recognized that, for the success of this new partnership, it is important to overcome confrontation and to foster a climate of genuine cooperation and solidarity. It is equally important to strengthen national and international policies and multinational cooperation to adapt to the new realities.")

62 *See, e.g.*, Carlarne & Helal, *supra* note 52, at 240-42.

and it has created an essential platform for establishing a fundamental set of shared goals and norms. During the first two decades of operation, it prompted parties to begin reducing their domestic emissions and created platforms for cooperation on mitigation, adaptation, climate finance, and technology transfer. This model, however, fell well short of mobilizing the extent of international cooperation necessary to ensure the level of large-scale, long-term global reductions in greenhouse gases needed to curb climate change.

Ultimately, the prevailing model of law represented by the Kyoto Protocol, premised on one shared emissions reduction goal, minimally differentiated and maximally reliant on a collective sense of obligation, failed to mobilize the extent of international cooperation necessary to limit the causes and consequences of climate change. Recognizing the limits of this approach, in 2009, the parties to the UNFCCC began to move towards a new model that responded more directly to the highly individualized circumstances, objectives, and interests of individual states. The resulting institution, the Paris Agreement, represents and inflection point in international climate change law. In key part, as discussed, the Paris Agreement offers the parameters for a new approach to climate change that is premised on motivating more individualized forms of cooperation and mitigation. This model embraces a pluralistic vision of international cooperation that is conducive to facilitating state (and non-state) efforts to experiment and be more ambitious in their individual and collective efforts to address climate change. The new model of cooperation and individualization that the Paris Agreement represents responds to the fundamental political reality that cooperation is seldom selfless and that states are motivated by a variety of factors but, ultimately, by highly individualized, as opposed to collective concerns.

As we find ourselves at a moment in time when populist and authoritarian movements worldwide are putting increasing pressure on already fragile cooperative international institutions, it is an opportune moment to ask whether, in fact, there is an 'international community' or whether, even if the absence of this mythical international community we can acknowledge the existence of the incontestably global, collective interests that bind us and require us to come together for a common goal, and for our common good.[63] With respect to the evolving body of international climate change law, the relevant question is whether we have built up enough of a sense of awareness of the individualized and collective risks of climate change, and enough of a normative and institutional foundation around climate change to support efforts to cooperate with respect to this profound challenge.

[63] *See* Carlarne & Helal, *supra* note 52. (For a much more robust investigation of the ways in which early efforts to address climate change presumed the existence of an international community that would facilitate the level of cooperation needed to structure effective solutions to a massive and complex collective-action problem, and how reliance on this vision hampers efforts to think critically about how to address the causes and consequences of climate change).

Part IV: Abandoning Grand Optimism in Favor of Grim Determination

This essay does not attempt to construct a sense of grand optimism around past or present international efforts to address climate change. In fact, it instead deliberately "sin[s] against the prime American idol, optimism"[64] and encourages the deconstruction of grand optimism and discourages over-emphasis on the search for grand solutions. Instead, it hopes to motivate a sense of grim determination and a willingness to fight for incremental progress at every level of governance.

Optimism allowed us to identify the challenge of climate change and to come together to craft the foundations of international climate change law. Optimism infused our belief in a cooperative international community. Ultimately, however, stubborn optimism and the belief in traditional solutions to a problem that defies traditional responses has slowed us down. We had an idea that climate change was susceptible to high-level, large-scale fixes and that law – law at the international level and law at the state level – could be used as the essential foundations for that fix. That has not proven to be the case.

Therefore, to the extent that we think optimism means that we can come together as an international community to find grand solutions to climate change and that law will be the foundation upon which those grand solutions are built, this essay seeks to chip away at that idealized vision. Instead, it argues for dismantling a vision of international climate change law constructed on optimism about the possibility of grand solutions to allow for a vision of international climate change law grounded in the inevitably incremental and fragmented hard work of whittling away at the challenges climate change poses even when the task before us is daunting and does not lend itself to easy solutions but, instead, requires experimentation, vision, leadership and, ultimately, lots of fixes that add up to something bigger.

Twenty plus years of experience in crafting a system of international climate change law has demonstrated that fresh thinking and new approaches are needed. This does not mean that we have not made progress at every level of governance. In fact, as climate law has matured, a complex climate regime consisting of diverse and varied systems of governance has emerged.[65] Climate change law, in fact, "has shown a remarkable degree of resilience in adapting to barriers."[66] There may never be a grand solution to climate change, but there are many opportunities for real and meaningful change, for change that matters in big and small ways to humanity's ability to operate within a safe space.

However we choose to approach it, the stakes of responding to climate change are high and getting higher and we are at a critical moment in determining our collective future. Sweeping success is no longer a realistic goal, but gradual, hard fought for, incremental successes are. As Farber reminds us: "[w]hat we do know. . . is that success is possible despite the existence of serious obstacles.

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[64] John F. Ross, *How the West Was Lost,* THE ATLANTIC (Sept. 10, 2018), https://www.theatlantic.com/ideas/archive/2018/09/how-the-west-was-lost/569365/.

[65] *See, e.g.*, Robert O. Keohane & David G. Victor, *The Regime Complex for Climate Change*, 9 PERSPECTIVES ON POL. 7. (2011).

[66] Farber & Carlarne, *supra* note 13, at 3.

Whether success will be achieved is up to us; neither success nor failure is mandated by human nature or the logic of human institutions."[67]

Despite existing mitigation gaps and deepening concerns around pervasive risks and the equity issues surrounding the distribution of those risks, the Paris Agreement represents a step forward towards creating a more effective international framework for limiting climate change. It may not reflect the coalescence of the international community, as such, but it does reflect a more intentional effort to come together to work individually and cooperatively towards achieving a common goal for the common good. That type of cooperation suggests progress, persistence and, ultimately, the type of grim determination essential to cultivating a safe and sustainable path forward for humanity.

[67] Farber, *supra* note 2, at 875.