

# **THE EARTH’S ATMOSPHERE AS A GLOBAL TRUST: ESTABLISHING PROPORTIONATE STATE RESPONSIBILITY TO MAINTAIN, RESTORE AND SUSTAIN THE GLOBAL ATMOSPHERE**

*Thomas Boudreau Ph.D.\**

## **SUMMARY**

Expanding upon the important work already accomplished by the Paris Agreement (2015), the United Nations General Assembly (UNGA) can help create the international legal framework needed by recognizing, in a nonbinding resolution as a first step, the Earth’s atmosphere as a global trust and thus helping to create the necessary legal capacity-building among nation-states to monitor, maintain as well as restore the Earth’s atmosphere for future generations.

*DEDICATED TO THE MEMORY OF WANGARI MAATHAI, KENYA*

## **I. INTRODUCTION**

### **BEYOND PARIS — THE NEXT STEP:**

The Paris Agreement of 2015 calls for capacity building for developing states as an important step in combatting climate change; a critical component of such capacity building must be creating and enhancing the global legal framework required for insuring transparency and sustainable development by progressively reducing the dangers of climate change for developing countries.<sup>1</sup>

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\* Professor Thomas Boudreau, Salisbury University, Salisbury, MD, USA. Former Private Advisor, Executive Office of the UN Secretary General (1982-1987). Author of *Sheathing the Sword: The UN Secretary General and the Prevention of International Conflict* (1991).

<sup>1</sup> Paris Agreement, in United Nations Framework Convention on Climate Change [UNFCCC], Conference of the Parties, Rep. on its Twenty-First Sess. [COP Report No. 21], Annex, Art. 2, UN Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015)

Such a global legal framework can be initiated by the United Nations General Assembly (UNGA) in support of the capacity building goals of the Paris Agreement (2015). The first step is for the UNGA to recognize in a nonbinding resolution the Earth's Atmosphere as a Global Trust. Once the UNGA takes this preliminary step, it can then call for the rapid negotiation and ratification of a treaty to achieve such legal recognition. Alternatively, should this course of action fail, a group of interested states or a regional organization can also initiate negotiations for the drafting and fast track ratification of such a treaty. As we shall see, the legal status of all of the Earth's other Commons—the Oceans, near Outer Space, and Antarctica have been recognized in explicit and sometimes contested treaties or conventions.<sup>2</sup> *Only the Earth Atmosphere as a whole has no binding international treaty that recognizes it as a Global Trust or part of the Common Heritage of Humanity for present and future generations.*<sup>3</sup> For instance, the United

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(advance version) [hereinafter Paris Agreement 2015]; See also Joeri Rogelj et. al, *Paris Agreement Climate Proposals Need a Boost to Keep Warming Well Below 2 C.*, 534 NATURE 631-639 (2016); Lavanya Rajamani, *Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics*, INT'L COMP. L.Q. 493-514 (2016); Anthony Robbins, *How to Understand the Results of the Climate Change Submit: Conference of Parties21 (COP21) Paris 2015*, 37 J. PUB. HEALTH POL'Y 129-132 (2016).

<sup>2</sup> There are actually three UN Conferences on the Law of the Sea and the first and third resulted in Conventions; we cite only the third and most recent here, described as UNCLOS III. See The United Nations Convention on the Law of the Sea, UN Doc. A/Conf 62/122 (Oct 7, 1982); Also see: Lee, Luke T. "The Law of the Sea Convention and Third States." *The American Journal of International Law*, vol. 77, no. 3, 1983, pp. 541–568.; For Antarctica, there is the Antarctica Treaty System, cited as *Handbook of the Antarctic Treaty System*, US Department of State, Washington DC, 2002. Also see: Joyner, Christopher C. "Governing the frozen commons: The Antarctic Regime and Environmental Protection (*Univ. of South Carolina*, 1998). I would like to pay tribute here to Chris Joyner as a gentleman-scholar and pioneer legal expert on the global commons; For near outer space see: *"Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies"*. *United Nations Office for Disarmament Affairs*. (1967); Also UNGA resolution 2222(XXI) of December 1966.

<sup>3</sup> See *supra* note 1 and *infra* note 4. Other international agreements on climate change besides Paris Agreement 2015, addressing the atmosphere mainly deal with specific issues, or the emission of specific elements into the atmosphere. They do not recognize the global atmosphere as an explicit *res communis* protected by law. See, for example, The Convention on Long-Range Transboundary Air Pollution, often abbreviated as Air Pollution or CLRTAP, (1983). See also Christopher C. Joyner, "Legal implications of the concept of the common heritage of mankind," 35 INT'L &

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Nations Framework Convention on Climate Change (UNFCCC) addresses a state's contribution of greenhouse gases (GHGs) to the atmosphere; it does little or nothing to establish the legal status of the global atmosphere *in toto* in its own right as an entity or trust in international law.<sup>4</sup> Furthermore, the UNFCCC as a treaty has also been observed more in the breach than as law; GHGs — especially carbon dioxide (CO<sub>2</sub>) — has continued to increase in the global atmosphere since its ratification in 1994. For instance, according to CO<sub>2</sub> Earth, the world emits 48% more carbon dioxide from the consumption of energy now than it did in 1992 when the first Rio summit took place.<sup>5</sup> In view of this, the apparent inability of the UNFCCC or the ensuing Conference of the Parties' (COP) process so far to curb the increase of GHGs may be due to the lack of any *a priori* legal recognition of the Earth's Atmosphere as an enduring trust for present and pending generations. Specifically, unlike the nebulous legal status of the atmosphere in the UNFCCC, the recognition by developing states concerning the Earth atmosphere as an explicit trust will provide well established legal remedies concerning the violation of fiduciary duties. We will explore these possible remediation and remedy regimes shortly. The point is that

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COMP L.Q. 190, 190-99 (1986) (This article has an overview of the global commons treaties).

<sup>4</sup> The United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature at the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro (also known by its popular name, the Earth Summit). To see the text of UNFCCC, see: 1771 UNTS 107; S. Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992). The Conference of the Parties (COP), set up to monitor progress on the UNFCCC, since 1995, meeting every year, to determine if parties are keeping their commitments to voluntary cut carbon emissions. Yet, during most of the UNFCCC time frame, worldwide net emissions of greenhouse gases from human activities have increased dramatically by estimates ranging from 35 to 48 percent (from 1990 to 2010.). For a variety of estimates on the dramatic increase in CO<sub>2</sub> in the global atmosphere since Rio in 1992, see *infra* note 5.

<sup>5</sup> A 48% increase in global CO<sub>2</sub> since RIO. See Earth's Co<sub>2</sub>, <https://www.co2.earth/> (last visited Mar. 6, 2017). Other groups confirm this, or have similar estimates; see: "Emissions of carbon dioxide, which account for about three-fourths of total emissions, increased by 42 percent over this period." Quoted from web page of United States Environmental Protection Agency, Climate Change Indicators: Greenhouse Gases, 3/2/ 2017 at: <https://www.epa.gov/climate-indicators/greenhouse-gases>. Also see increases for first 15 years after Rio: Michael R. Raupach et. al, *Global and Regional Drivers of Accelerating CO<sub>2</sub> emissions*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, 10288-10293 (2007).

the prolonged diplomatic negotiations over voluntary carbon cuts as embodied in the UNFCCC and COP processes have simply not worked yet to cut the continuing and dramatic build-up of CO<sub>2</sub> in the global atmosphere. In view of possible catastrophic climate change, it is time to recognize the Earth's Atmosphere *in toto* as a global trust that will attempt to prevent the atmosphere from becoming a historic tragedy of the commons<sup>6</sup> that will gravely impact all human beings on the planet.

Such a global legal framework will enhance diplomatic and public transparency<sup>7</sup> of GHGs emissions by helping developing countries to identify those states most responsible for climate change. In particular, explicit recognition of the Earth Atmosphere within a global legal framework is a critical step in developing a comprehensive Earth Jurisprudence<sup>8</sup> that establishes the subsequent *states' fiduciary responsibility to maintain and restore the atmosphere to sustainable levels for present and future generations*. The assistance of scientists, the public and the nongovernmental organizations (NGO) communities around the globe should be mobilized as well. Hence, the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, usually known as the Aarhus Convention, makes a decisive contribution in this regard.<sup>9</sup>

In turn, if states fail in their fiduciary duty to preserve and restore the Earth's Atmosphere as trustees, then the international legal

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<sup>6</sup> Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE, 1243, 1243-1248 (1968); See also Bryan H. Druzin, *The Patched Earth of Cooperation: How to Solve the Tragedy of the Commons in International Environmental Governance*, 72 DUKE J. COMP. & INT'L L., 73-107 (2016).

<sup>7</sup> Aarti Gupta, *Transparency in global environmental governance: a coming of age?*, 10 GLOBAL ENVTL POL. 1-9 (2010); See also Michael Mason, *Information Disclosure and Environmental Rights: The Aarhus Convention*, 10 GLOBAL ENVTL POL. 10-31 (2010).

<sup>8</sup> Dr. Michelle Maloney and Sister Patricia Siemen, *Responding to the Great Work: The Role of Earth Jurisprudence and Wild Law in the 21st Century*, 5 EJEJ 6-22 (2015); See also Judith E. Koons, *What is Earth Jurisprudence? Key Principles to Transform Law of the Health of the Planet*, 18 PENN ST. ENVTL. L. REV. 1-21 (2009) for the introduction of the idea of a trust as part of the "Principle of Communion: Relational Responsibility," in which she states "Humanity's relationship to the Earth may be best expressed as a trust." She then presciently states that: "the public trust doctrine has the potential to catalyze us into the next phase of our relationship of with Earth, a phase in which human law and governance express our responsibility to safeguard the well-being of Earth as a trust" (!).

<sup>9</sup> See *Id.*

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recognition of the atmosphere provides various legal remedies, such as those traditionally found in trust or international law, which we will explore in greater depth later in this essay. To invoke these remedies, any treaty recognizing the Earth's Atmosphere as a global trust should recognize in international law the emergent judicable principle and test of proportionate responsibility<sup>10</sup> to determine first and foremost, an industrialized state's responsibility to restore the atmosphere. We will examine how restoration can take place in Part III of this essay. As we shall see, only four to five states, including the EU countries, are historically responsible for over 50% of the GHG in the global atmosphere. If these states fail to accept their proportionate state

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<sup>10</sup> See H.L.A. Hart, *Punishment and Responsibility: Essays in the Philosophy of Law* (Oxford Univ. Press, 2008) (Hart's basic premise, which I share here, is that "Any action or practice that has costs—and which does not—needs to pay its way in countervailing benefits or else it cannot be defended."); See also G. Conway, *Breaches of EC Law and the International Responsibility of Member States*, 13 EUR. J. INT'L L. 3 (2002); Robert A. Baruch Bush, *Between Two Worlds: The Shift from Individual to Group Responsibility in the Law of Causation of Injury*, 33 UCLA L. Rev. 1473 (1986); Linda A. Malone, *The Chernobyl Accident: A Case Study in International Law Regulating State Responsibility for Transboundary Nuclear Pollution*, WM. & MARY L. 590 (1987); Nils Jansen, *The Idea of Legal Responsibility* 221-252 (Oxf Leg Stud, 2014). This is an emergent principle in domestic or indigenous jurisdictions as well. See for example, this definition: "Proportionate responsibility" is the Statutory [or Treaty] basis for allocating fault between plaintiffs, defendants, responsible third parties, and settling parties. Further, the laws of 'proportionate responsibility' set forth the method for reducing verdicts as a result of settlements or plaintiffs' contributory negligence [Emphasis added]." As quoted from Andrew Payne, *Proportionate Responsibility & Indemnity*, State Bar of Texas 22<sup>nd</sup> Litigation Update Institute (2006), [http://paynemitchell.com/wp-content/uploads/41-ProportionateResponsibility\\_Indemnity.pdf](http://paynemitchell.com/wp-content/uploads/41-ProportionateResponsibility_Indemnity.pdf); *A Trust Divided Cannot Stand-An Analysis of Native Hawaiian Land Rights BHK*, [http://paynemitchell.com/wp-content/uploads/41-ProportionateResponsibility\\_Indemnity.pdf](http://paynemitchell.com/wp-content/uploads/41-ProportionateResponsibility_Indemnity.pdf); A Matter of Trust: Federal Environmental Responsibilities to Native Americans Under Customary International Law KI Wendelowski, AM. INDIAN L. REV. (1995) - Fulfilling the Executive's Trust Responsibility Toward the Native Nations on Environmental Issues: A Partial Critique of the Clinton Administration's Promises and ...MC Wood - ENVTL. L. (1995); James R. Rasband, *Priority, Probability, and Proximate Cause: Lessons from Tort Law about Imposing ESA Responsibility for Wildlife Harm on Water Users and Other Joint Habitant Modifiers*, 33 Env'tl. L. 595 (2003); Lavanya Rajamani, *Differential Treatment in international Environmental Law* 129-175 (Oxford Univ. Press, 2006) (explaining the doctrinal basis for and boundaries of differential treatment in international environmental law).

responsibility for current climate change, then the recognition of the Earth Atmosphere as a global trust by developing states will facilitate a civil liability regime that enable a domestic court's finding of concurrent or culpable negligence in damaging a global trust.<sup>11</sup> As we shall see below, domestic courts in the Anglo-American tradition often refer to "proportionate liability" as well, though this is changing; other terms used by the courts include "proportionate negligence" or the "allocation of faults."<sup>12</sup> However, this term "proportionate responsibility," or more exactly "proportionate *state* responsibility," shall be used here since it refers to the *positive role in maintaining and restoring* the Earth's Atmosphere, as well as to possible remedial or civil liability remedies.<sup>13</sup>

International law recognizes *state responsibility* as a major tenet and responsibility of sovereignty.<sup>14</sup> Yet, as Professor Philippe Cullet at

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<sup>11</sup> See Negin Heidari & Joshua M. Pearce, *A Review of Greenhouse Gas Emission Liabilities as the Value of Renewable Energy for Mitigating Lawsuits for Climate Change Related Damages*, 55 RENEWABLE AND SUSTAINABLE ENERGY REVIEWS, 899, 899-908 (2016); See also Phillippe Cullet, *Liability and Redress for Human-Induced Global Warming: Towards an International Regime*, 43 A STAN. J. INT'L L., 99 (2007); Michael G. Faure and André Nollkaemper, *International Liability as an Instrument to Prevent and Compensate for Climate Change*, 43 A STAN. J. INT'L L., 123 (2007); M. Grubb, *Seeking Fair Weather: Ethics and the international debate on climate change*, ROYAL INSTITUTE OF INTERNATIONAL AFFAIRS, 463-496 (1995).

<sup>12</sup> Proportionate responsibility (PR) is often referred to as "proportionate liability" or "negligence" in law, though I prefer the more positive responsibility implied by PR. Even so see Ronald A. Dabrowski, *Proportionate Liability in 10b-5 Reckless Fraud Cases*, 44 DUKE L.J. 571 (1994); David A. Jaffe, *Comment: The Allocation of Fault in Auditor Liability Lawsuits Brought by Sophisticated Third Party Users of Financial Statements—A Plea for Proportionate Liability*, 54 U. PITT. L. REV. 1051 (1993); Brinkley Rowe, *See No Fiduciary, Hear No Fiduciary: A Lawyer's knowledge Within Aiding and Abetting Fiduciary Breach Claims*, 85 FORDHAM L. REV. 1389 (2016).

<sup>13</sup> See Phillippe Cullet, *Liability and Redress for Human-Induced Global Warming: Towards an International Regime*, 43 A STAN. J. INT'L L. 99 (2007); Michael G. Faure and André Nollkaemper, *International liability as an instrument to prevent and compensate for climate change*, 43 A STAN. J. INT'L L. 123 (2007); Ramon E. Reyes Jr., *Nauru v. Australia: The International Fiduciary Duty, and the Settlement of Nauru's Claims for Rehabilitation of its Phosphate Lands*, 16 N.Y.L. SCH. J. INT'L & COMP. L. (1996); Lasse Ringius L. Frederiksen et. al, *Burden Sharing in the Context of Global Climate Change*, MINISTRY OF ENVIRONMENT NATIONAL ENVIRONMENTAL RESEARCH INSTITUTE (2002).

<sup>14</sup> Draft Articles on Responsibility of States for Internationally Wrongful Acts art. 1, International Law Commission, G.A. Res. 56/83, Annex, U.N. Doc. A/56/10(SUPP) (Dec. 12, 2001) [hereinafter Articles on Responsibility of States]. Verheyen, R. (2005). *Climate change damage and international law: Prevention duties and state*

the University of London points out, “States are responsible for the consequences of breaches of international law. Yet, even though this principle is largely accepted, there is no binding international legal regime concerning state responsibility.”<sup>15</sup> In view of the grave danger that global climate change poses to all of life on Earth, this lack of state accountability for environmental damage needs to evolve, grow and mature quickly.<sup>16</sup> To do this, the first step is for developing states and other interested countries to explicitly recognize the Earth as a Global Trust in an international treaty. Second, any resolution or subsequent treaty identifying the Earth’s Atmosphere as a Global Trust should explicitly recognize the “Proportionate Responsibility” of states; to restore the *status quo ante* and recognize the formerly implicit atmospheric *res communis* as a categorical fiduciary norm of international trust law. So, if a state is found guilty of subsequent negligence or unjust enrichment of this international trust, then the legal remedy to be sought in international, regional, national or indigenous courts should not be, at first, merely monetary damages; rather the appropriate and necessary remedy is for the offending state is *to help restore the atmosphere*, starting with the “Most Industrialized or Polluting states” or MIOPs, by using some or most of the funds currently devoted to national defense to carbon sequestration efforts *to restore the earth atmosphere for the living and those yet to be born.*

This is an admittedly daunting task, but it still can be done; yet, our collective ability to restore the global atmosphere will rapidly decay as

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*responsibility* (Vol. 54). Martinus Nijhoff Publishers. See also “Trail Smelter Arbitral Tribunal Decision,” American Journal of International Law, xxxhi (January 1939) and October 1941, which states “The [Smelter] tribunal sustained the American contention of national liability for pollution injurious to another state’s interests by holding Canada “responsible in international law for the conduct of the Trail smelter.” Decision, T. (1941). Trail Smelter Arbitral Tribunal, 35 AM. J. INT’L L. 684-716 (1941); D.H. Dinwoodie, *The Politics of International Pollution Control: The Trail Smelter Case*, 27 INT’L. J. 219-235 (1972).

<sup>15</sup> Cullet, *supra* note 13.

<sup>16</sup> Christina Voigt, *State Responsibility for Climate Change Damages*, 77 NORDIC J. INT’L L. 1, 1-22 (2008); Roda Verheyen & Peter Roderick, *Beyond Adaption: The Legal Duty to Pay Compensation for Climate Change* (WWF-UK 2008). See also Coghill, K., Sampford, C. J., & Smith, T. (Eds.) (2012). *Fiduciary Duty and the Atmospheric Trust*. Ashgate Publishing, Ltd. dealing with the doctrine of the public trust and subsequent litigation in various nations states.

climate change begins to affect national economies, destroy harvests or entire ecosystems and human migrations begin. All of these events will then bring further cascading and destabilizing consequences that may threaten the basic social and political order of societies throughout the globe.<sup>17</sup> In order to avoid such dire consequences, we have to establish proportionate state responsibility in international law, beginning with those that bear the greatest onus for climate change. This may be the only way in which can we encourage those few MIOP states to contribute the necessary resources to preserve and restore the global atmosphere.

Historically the MIOPs states are the United States, Russia, China and Germany, now economically part of the EU.<sup>18</sup> These three states and

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<sup>17</sup> Thomas Homer Dixon did pioneering work in this regard concerning the impact of “environmental scarcity” on human societies, though ironically he cites climate change as the least likely factor of environmental scarcity that will cause these consequences cited above; but crystal ball gazing is extremely difficult and he began his critical work in the late 1980s and early 1990s. *See* Thomas F. Homer-Dixon, *Environmental Scarcities and Violent Conflict: Evidence from cases*, 19 INT’L SEC. 5-40 (1994).

<sup>18</sup> *See* Duncan Clark, *Which Nations are the Most Responsible for Climate Change?*, GUARDIAN (Apr. 21, 2011), <https://www.theguardian.com/environment/2011/apr/21/countries-responsible-climate-change> (the key point here is: Which four or five states are historically responsible for (just) over 50% of the GHGs in the Global Atmosphere? This is how these four MIOPs were originally calculated in May, 2013—when CO<sub>2</sub> first went over 400 PPM. This was certainly a benchmark event.... The top three are certainly the US, China and Russia. There is of course, a competition for fourth place since 2013, but Germany’s historic contributions, calculate In 2013. I am quite content to replace Germany now with the “EU” which is accurate that that is casting a large net. Even so, these historic figures are rapidly changing due to accelerating Green technologies being used in Germany and to the continuing gross, current inputs of some countries, such as the U.K. (EU) or India). *See also* Climate Analysis Indicators Tool (CAIT), WORLD RESOURCES INSTITUTE, [cait.wri.org/](http://cait.wri.org/); Edward Cameron, *What is Equity in the Context of Climate Negotiations?*, WORLD RESOURCES INSTITUTE (Dec. 14, 2012), <http://www.wri.org/blog/2012/12/what-equity-context-climate-negotiations>; For current top “historical” contributors, *see* CAIT Equity Explorer, <http://cait.wri.org/equity/> (the 50% of all GHG in the atmosphere is an invaluable benchmark since without the input of a handful of MIOP states, humanity and the globe as a whole would not be facing such a catastrophic climate change in such a short time; for instance, hypothetically speaking, if CO<sub>2</sub> PPM in the global atmosphere were half of the increase past fifty or sixty years, (or even from post-World Word II), of what it is today, then the levels would be approximately at 350 PPM of CO<sub>2</sub> which is exactly where we need to be. So, the history of CO<sub>2</sub> in the atmosphere is critically important. At the same time, most



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the EU, alone, have historically contributed over fifty percent of all greenhouse gases (GHGs) up there, as of May 2013 when the level of CO<sub>2</sub> hit 400 ppm in the global atmosphere for the first time in human history. Now, in an ominous development, it is constantly at or above 400 PPM of CO<sub>2</sub>.<sup>19</sup> Once in the atmosphere, GHGs including CO<sub>2</sub> can stay there for thousands of years....<sup>20</sup>

In particular, China is now the leader in the world in putting CO<sub>2</sub> in the atmosphere<sup>21</sup> and can no longer hide behind the claim that it's a developing country; in fact, China's total annual contribution of CO<sub>2</sub> currently almost doubles that of the United States, which is the next most significant contributor of GHGs to the global atmosphere.<sup>22</sup> So, China is certainly an industrialized country, though it's not necessarily a "developed" one in that its citizens still don't have the material standard of living comparable to the West. Even so, historically speaking, China

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data measures current contributions). See also T.A. Marland et. al, *National CO<sub>2</sub> Emissions from Fossil-Fuel Burning, Cement Manufacturer, and Gas Flaring 1751-2011*(2015); See also Mengpin Ge et. al, *6 Graphs Explain the World's Top 10 Emitters*, WORLD RESOURCE COUNCIL (Nov. 25, 2014), <https://wri.org/blog/2014/11/6-graphs-explain-world>.

<sup>19</sup> See Brian Kahn, *Earth's CO<sub>2</sub> Passes the 400 PPM Threshold—Maybe Permanently*, SCIENTIFIC AMERICAN (Sept. 27, 2016), [www.scientificamerican.com/article/earth-s-co2-passes-the-400-ppm-threshold-maybe-permanently](http://www.scientificamerican.com/article/earth-s-co2-passes-the-400-ppm-threshold-maybe-permanently).

<sup>20</sup> See David Archer et al, *Lifetime of Anthropogenic Climate Change: Millennial Time Scales of Potential CO<sub>2</sub> and Surface Temperature Perturbations*, 22 JOURNAL OF CLIMATE 2501, 2501-2511 (2009); See also David Archer, *Gate of Fossil Fuel Co<sub>2</sub> in Geological Time*, 110 JOURNAL OF GEOPHYSICAL RESEARCH: OCEANS (2005); See also Hubertus Fischer et. al, *Ice Core Records of Atmospheric CO<sub>2</sub> Around the Last Three Glacial Terminations*, 283 SCIENCE 1712, 1712-14 (1999).

<sup>21</sup> See *Each Country's Share of CO<sub>2</sub> Emissions*, UNION OF CONCERNED SCIENTISTS, [http://www.ucsusa.org/global\\_warming/science\\_and\\_impacts/science/each-countrys-share-of-co2.html#.WL3KL00zW70](http://www.ucsusa.org/global_warming/science_and_impacts/science/each-countrys-share-of-co2.html#.WL3KL00zW70) (last visited Mar. 1, 2017) (Identifies China as the No. #1 contributor of GHGs in the world); See also *World carbon dioxide emissions data by country: China speeds ahead of the rest*, GUARDIAN, <https://www.theguardian.com/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2> (last visited Mar. 1, 2017); *Global Greenhouse Gas Emissions Data*, EPA (last visited Mar. 1, 2017).

<sup>22</sup> CAIT Equity Explorer, WORLD RESOURCES INSTITUTE, <http://cait.wri.org/equity/> (last visited Mar. 1, 2017).

is third behind the United States and the entire EU in the cumulative CO<sub>2</sub> emissions.<sup>23</sup>

In view of this, furthermore, Mother Earth simply does not care about the human constructs or characterization concerning the cumulative GHGs placed in the atmosphere; there are immediate and increasingly destructive consequences in the natural world that are adversely effecting everyone on the planet due to the massive input of GHGs by any great state. China's disproportionate collective contribution to climate change places it squarely among the MIOPs. Thus, these MIOP states must be the first to be held accountable for subsequent mitigation and restoration efforts. Under established tort law, the courts in the United States use the test of "actual causation requirement" or "proportionate liability" to determine relative degrees of negligence.<sup>24</sup> These tests can be used to argue by analogy that those who contribute the greatest damage should be held to the highest and — if the facts warrant — primary responsibility.<sup>25</sup> The Paris Agreement (2015) also declares that: "This Agreement will be implemented *to reflect equity and the principle of common but differentiated responsibilities*" where courts could recognize, *as a matter of equity*, the "proportionate responsibility" of states to monitor, maintain and restore the Earth's atmosphere as global trust.<sup>26</sup> Modern equity is applied by

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<sup>23</sup> *Id.* See also *supra* footnotes 18 and 21.

<sup>24</sup> See Daniel L. Rubinfeld, *The Efficiency of Comparative Negligence*, 16 J. LEGAL STUD. 375-394 (1987). See also Nicholas Dopuch et. al, *An Experimental Investigation of Multi-Defendant Bargaining in 'Joint and Several' and Proportionate Liability Regimes*, 23 J. ACCT. & ECON. 189-221 (1997); David Kinley & Junko Tadaki, *From Talk to Walk: The Emergence of Human Rights Responsibilities for Corporations at International Law*, 44 VA. J. INT'L L. 931 (2003); Michael G. Faure & André Nollkaemper, *International Liability as an Instrument to Prevent and Compensate for Climate Change*, 43 A STAN. J. INT'L L. 123 (2007).

<sup>25</sup> See *Supra* note 10, 12, and 17; See also Richard W. Wright & Ingeborg Puppe, *Causation Linguistic, Philosophical, Legal and Economic*, 91 CHI-KENT L. REV. 461 (2016).

<sup>26</sup> See Christina Voigt, *Equity in the 2015 Climate Agreement*, 4 CLIMATE LAW 50-69 (2014) (of course Equity is traditionally found in English common law and is still used in several Commonwealth countries. It is found in US law as well.); See also Lavanya Rajamni, *Differential Treatment in International Environmental Law*, OXFORD MONOGRAPHS INT'L L. 129-175 (2006); George Burton Adams, *Origin of English Equity*, 16 COLUM. L. REV. (1916) (providing a historical overview of equity); Alfred H. Chaytor & William J. Whittaker, *Equity: A Course of Lectures FW Maitland* (Cambridge Univ. Press, 2016).

courts in many jurisdictions in a variety of cases or law relating to express, resulting constructive trusts, and to fiduciary law in general.<sup>27</sup>

This article will argue that a two-tier remediation (or remedy) regime is required to monitor, maintain and restore the Earth's Atmosphere as a global trust preserved for present and pending generations.<sup>28</sup> The first tier consists of the developing nations recognizing via treaties or trials the collective proportionate state responsibility of the few states who have historically placed over fifty percent of the GHGs in the global atmosphere. These industrialized states are now to be collectively grouped, internationally recognized and diplomatically considered together in ensuing environmental negotiations for their disproportionate and aggregate contribution of GHGs to the global atmosphere. Developing states, which constitute the vast majority of the international community, must seek to convince through negotiations—obviously, the preferred route—or seek legal redress through their own courts for these states to accept their disproportionate state responsibility to restore the atmosphere through carbon cuts, carbon sequestration, geo engineering, carbon forestry or farming, and developing appropriate green technologies; we will examine these possibilities in Part III below the section on the “Restoration of the Earth's Atmosphere.” If these contributory states fail to recognize their collective, fiduciary and disproportionate responsibility to restore the atmosphere, then the second tier, which

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<sup>27</sup> Tamar T. Frankel, *Fiduciary Law*, 251-267 (Oxford Univ. Press, 2010); Andrew Burrows, *We Do this at Common Law but that in Equity*, 22 OXFORD J. LEGAL STUD. (2002); Peter Birks, *Equity in the Modern Law: An Exercise in Taxonomy*, 26 UW AUSTL. L. REV. (1996); EJ Weinrib, *The Fiduciary Obligation*, 25 U. TORONTO L.J. (1975); Deborah A. Demott, *Beyond Metaphor: An Analysis of Fiduciary Obligation*, DUKE L.J. 879 (1988).

<sup>28</sup> There are three main influences in establishing such a regime. First is the *Trail Smelter Arbitration decision*.

See *Trail Smelter Arbitral Decision*, 33 AM. J. INT'L L. 182 (1939) [hereinafter “*Trail Smelter* (1939)”]; The second is the analysis of *Trail Smelter* provided in Rebecca M. Brarspes, Russell A. Miller, *Transboundary Harm in International Law: Lessons from the Trail Smelter Decision Arbitration* 167-180 (Cambridge Univ. Press 2006) (especially the chapter by Russell A. Means entitled “Surprising Parallels between *Trail Smelter* and the Global Climate Change Regime.”). The third is, of course, Professor Phillippe Cullet whose article gave me this idea. To access this source, see Phillippe Cullet, *Liability and Redress for Human-Induced Global Warming: Towards an International Regime*, 43 A. STAN. J. INT'L L. 99 (2007).

consists of a civil liability regime, should be employed by states as well as individuals seeking to establish, comparative or culpable negligence, and thus monetary or other damages due to climate change in international, national, domestic and indigenous courts throughout the world.

In this regard, any state adversely affected by climate change, especially in terms of present or future health or the well-being of its' citizens, has standing and jurisdiction to bring suit against a MIOP state concerning its proportionate responsibility for global climate change.<sup>29</sup> *The mere possibility of such suits, however remote at first, may have a significant impact on the complex calculus of cost/benefits concerning decisions to favor green technologies by policy makers in powerful capitals around the globe.*<sup>30</sup>

While monetary damages must be part of any eventual court mandated remedy, (once the danger of increasing climate change is addressed and overcome), the *immediate legal remedies should first seek the mitigation and restoration of the Earth Atmosphere; every possible resource must be devoted to this pressing and perishable opportunity to reverse global climate change.* In doing so, the MIOP states can and will create hundreds of thousands of jobs that will benefit their own well being, as well as the global economy. In view of this, the last section of this essay will examine how the restoration of the Earth's atmosphere can proceed as an immediate and ultimate goal of the courts, governments and peoples from around the world.

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<sup>29</sup> Michael G. Faure & André Nollkaemper, *International Liability as an Instrument to Prevent and Compensate for Climate Change*, 43 A STAN. J. INT'L L. 123 (2007).

<sup>30</sup> The existence of such suits have been recognized under the United States Supreme Court. For instance, in *EPA v. Massachusetts*, 549 U.S. 497 (2007), the Court held that the States had standing to sue the EPA for not enforcing the Clean Air Act because they had a quasi-sovereign interest in preserving their land. Specifically, there was evidence presented by the States of loss of their costal property as a result of water rises from the global warming phenomena.

## II. THE SCIENCE AS “BACKGROUND” SETTING TO LEGAL ACTION: UPSETTING THE BALANCE OF LIFE ON EARTH

There is conclusive and increasing scientific evidence of the growing adverse, damaging, as well as increasing dangers, posed by the accumulating amount of GHGs emissions placed into the atmosphere by human behavior or indirect actions. Specifically, the Intergovernmental Panel on Climate Change (IPCC) has identified human-induced CO<sub>2</sub> into the Earth's atmosphere as a significant cause of global climate change.<sup>31</sup> Furthermore, extreme weather events due to climate change are increasing as well; the fragile ecosystems around the world are degrading as a result.<sup>32</sup>

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<sup>31</sup> IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.; also see: Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., ... & Kriemann, B. (2014). IPCC, 2014: summary for policymakers. *Climate change*. Also see: IPCC, 2013: Annex V: Contributors to the IPCC WGI Fifth Assessment Report. 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 [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. IPCC (2007) Bernstein, L., Bosch, P., Canziani, O., Chen, Z., Christ, R., Davidson, O., & Hare, W. (2007, November). *Climate Change 2007: Synthesis Report*. Rep. no. Fourth. IPCC. Retrieved from: IPCC website: [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_synthesis\\_report.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm)>; also see: N. Oreskes. The scientific consensus on climate change- Science, 2004. For the sake of brevity, I will cite mainly the IPCC findings as evidence. We refer you to the excellent web page by the United Nations Environmental Programme (UNEP), entitled “Climate Change” for more relevant and comprehensive sources. So does the IPCC at: [https://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.shtml](https://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml).

<sup>32</sup> See Intergovernmental Panel on Climate Change. (2014). *Climate Change 2014—Impacts, Adaptation and Vulnerability: Regional Aspects*. Cambridge University Press; This has been going on for some time now; see I—Ching Chen et. al, *Rapid Range Shifts of Species Associated with High levels of Climate Warming*, 333 SCIENCE 1024-1026 (2011); See also Camille Parmesan & Gary Yohe, *A Globally Coherent Fingerprint of Climate Change Impacts Across Natural Systems*, 421 NATURE 37-42 (2003); Ove Hoegh-Guldberg, et. al, *Coral Reefs under Rapid Climate Change and Ocean Acidification*, 318 SCIENCE 1737-1742 (2007); Craig D. Allen et. al, *A Global*

The Earth's atmosphere is to the globe as the peach fuzz is to the peach; the atmosphere is a very thin, fragile global commons that has taken millions, if not billions, of years to evolve to its current or recent chemical composition.<sup>33</sup> As such, the Earth and its atmosphere represents an extremely complex and fragile balance of extremely rare, if not unique, biochemical and orbital conditions that make life possible; this is especially true of the moderate temperature of the Earth as a whole which is made possible, in first instance, by its global atmosphere and its fragile balance of organic gases, including CO<sub>2</sub>.<sup>34</sup> At 2500m (about 8,200 feet above sea level), a person begins to experience altitude sickness induced by a lack of oxygen; above this, pilots, passengers and mountain climbers begin to need or use oxygen which means that the air begins to dramatically thin out less than a mere mile and a half above us; in short, the atmosphere that surrounds us is actually very fragile, manifold and thin. Yet, in recent decades, anthropogenic gases and other similar inputs into the atmosphere are dramatically upsetting this precarious and fragile balance; for instance, in the last 100 years, the CO<sub>2</sub> has gone from about 300 or 320 PPM to 406 PPM.<sup>35</sup> Thus, this

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*Overview of Drought and Heat-Induced Tree Mortality Reveals Emerging Climate Change Risks for Forests*, 259 *FOREST ECOLOGY & 660-684* (2010); Barbara J. Bentz et. al, *Climate change and Bark Beetles of the Western United States and Canada: Direct and Indirect Effects*, 60 *BIOSCIENCE* 602-613 (2010).

<sup>33</sup> For instance, planets in the solar system without any atmosphere suffer from extraordinary extremes of temperatures. See, for example: M.G.A. Lapotre, et. al, *Large Wind Ripples on Mars: A Record of Atmospheric Evolution*, 353 *SCIENCE* 55-58 (2016). An interesting book in this regard is: Paul Clancy et. al, *Looking for Life, Searching the Solar System* (Cambridge Univ. Press, 2005); See also Donald Hunten, *Atmospheric Evolution of the Terrestrial Planets*, 259 *SCIENCE* 915 (1993). My point is that, despite the unearned certitude of certain scientists, the Earth and its fragile atmosphere *that together supports life* may well prove to be unique.

<sup>34</sup> There is an extraordinarily complex configurations of interrelationships that had to be "just right" in order for our Earth and its atmosphere to exist, evolve and thus bring forth life. For the complexity of planet evolution, see, for instance: Emeline Bolmont et. al, *Effect of the Rotation, Tidal Dissipation History and Metallicity of Stars on the Evolution of Close-In Planets* (2006), <https://arxiv.org/pdf/1611.08243.pdf>.

<sup>35</sup> For instance, I read the book *Limits to Growth* when it came out and it discussed the possible danger of the growth of CO<sub>2</sub> in the global atmosphere; in my youth, I simply assumed that political leaders are rational, so they will act on this in time. Now over 40 years later, the CO<sub>2</sub> in the atmosphere is still dramatically increasing. The point is that this information has been publicly available for a long time. See D&D Meadows et al, *Limits to Growth*, Club of Rome, 1972; Kanninen, 2013) (*Scientific American*, 2013; Carbon Watch, 2017).

fragile balance of CO<sub>2</sub> in the atmosphere, which contributes to a temperate zone of life, is rapidly increasing into unmapped and untested ranges whose subsequent and cumulative impact on life is still largely unknown. Apart from large meteorite strikes or volcanic eruptions, the Earth's atmosphere has never experienced –at least from atmospheric records taken from the Antarctica ice cores — for the last 400,000 years or longer — such a dramatic change in less than one hundred years.<sup>36</sup> This observation simply supports the IPCC exhaustive scientific research and conclusion that global climate change is significantly induced by human activities.<sup>37</sup>

By its own admission, the Paris Agreement (2015) on carbon cuts, even if fully implemented, will not be enough by itself to stabilize the GHGS in the atmosphere.<sup>38</sup> With the Arctic icecap melting, the sea levels rising, droughts and extreme weather events setting new records, it is increasingly obvious that further legal capacity building is desperately needed within the field of Earth jurisprudence in order to develop the global legal frameworks required to regulate further CO<sub>2</sub> and other GHGs emissions into the Earth's Atmosphere effectively.

At the same time, many developing countries that have contributed little or almost none of the current disproportionate total of CO<sub>2</sub> in the global atmosphere are the ones *most vulnerable* and likely to suffer if climate change goes on unchallenged.<sup>39</sup> According to the World Resources Institute (WRI), the effects of continuing climate change will be rising sea levels, water shortages and threats to food security, the spread of disease and other health effects, disruption and even destruction of ecosystems, as well as intensified and more frequent

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<sup>36</sup> J.R. Petit et. al, *Climate and Atmospheric History of the Past 420,000 Years from the Vostoke Ice Core, Antarctica*, NATURE (1999); See also Gavin Foster et. al, *Past and Future CO<sub>2</sub>-Reconstructing Atmospheric Carbon Dioxide* (Mar. 23, 2014), <http://descentintotheicehouse.org.uk/past-and-future-co2/> (the often overlooked article with a critical time line graph of millions of years of CO<sub>2</sub> in the atmosphere).

<sup>37</sup> See *supra* notes 31-32.

<sup>38</sup> See Paris Agreement, *supra* note 1. The Paris Agreement states: *Emphasizing with serious concern the urgent need to address the significant gap between the aggregate effect of Parties' mitigation pledges and .... aggregate emission pathways consistent with 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,*” [Emphasizes added].

<sup>39</sup> Intergovernmental Panel on Climate Change, *Climate Change 2014 – Impacts, Adaptation and Vulnerability: Regional Aspects* (Cambridge Univ. Press, 2014).

extreme weather events.<sup>40</sup> We are already seeing many of these impacts on the poorest nations and peoples now.

So, if left unchecked, the world is playing with unimaginable fire by not addressing the growing threats being created by global climate change caused in great part by human induced CO<sub>2</sub> into the global atmosphere. According to NASA scientist Dr. James Hansen, as CO<sub>2</sub> accumulates steadily in the atmosphere, there will be “tipping points” that have catastrophic effects for entire ecosystems on the Earth. Specifically, Dr. Hansen argues that we need to bring the level of carbon in the atmosphere *below 350 PPM* if we are to avoid any long term extreme weather events and irreversible tipping points.<sup>41</sup> If left unaddressed, the use of CO<sub>2</sub> and other heat-retaining gases in the global atmosphere will cause a series of such climatic tipping points, presenting humanity with a possible mass extinction event, beginning with the most vulnerable plant and animal species; indeed, these extinction events have already begun.<sup>42</sup>

In short, decisive legal action is needed to initiate and *then reverse* global climate change, restoring the global count of CO<sub>2</sub> in the atmosphere to the 350 PPM as identified by Dr. Hansen and his colleagues. The Paris Agreement (2015) makes no mention of such a restoration of the global atmosphere. Yet, we are already experiencing extreme weather events around the world while the voluntary carbon cuts registered in the Paris Agreement do not fully begin until 2020. By then, if the current accelerated pace of CO<sub>2</sub> accumulation continues in

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<sup>40</sup> World Resources Council, *What are the Effects of Climate Change?*, WORLD RESOURCE INSTITUTE, wri.org (last visited Mar. 1, 2017).

<sup>41</sup> James Hansen, *Storms of My Grandchildren: The Truth about the Coming Climate Catastrophe and Our Last Chance to Save Humanity* (2009); James Hansen et. al, *Target Atmospheric CO<sub>2</sub>: Where Should Humanity Aim?* 2 OPEN ATMOS. SCI. J. 217-231 (2008); Jim Hansen, *Climate Threat to the Planet: Implications for Energy Policy and Intergenerational Justice* (2008), available at <http://www.columbia.edu/~jeh1/presentations.shtml>, 2008; James Hansen et. al, *Earth's Energy Imbalance: Confirmation and Implications*, SCIENCE 1431-1435 (2005).

<sup>42</sup> Gala Vince, *A Looming Mass Extinction Caused By Humans*, BBC (Nov. 1, 2012), <http://www.bbc.com/future/story/20121101-a-looming-mass-extinction>; S.A. Rogers, *Human Beings Could Go Extinct Within 100 Years, Says Renowned Scientist*, MMN (Jun. 25, 2010, 12:53PM), <http://www.mnn.com/earth-matters/climate-weather/stories/humans-could-go-extinct-within-100-years-says-renowned-scientist>; Clive Gamble et. al, *Climate Change and Evolving Human Diversity in Europe During the Last Glacial*, 359 THE ROYAL SOCIETY (2009) (discussing an evolutionary perspective on human existence).



the atmosphere, the global atmosphere may contain 410 PPM of CO<sub>2</sub> or more by 2020 AD, which represents an increase of nearly 100 PPM of CO<sub>2</sub> in one lifetime, namely my own!<sup>43</sup> While the carbon cuts contemplated by the Paris agreement are absolutely necessary to containing further increases in CO<sub>2</sub> in the atmosphere, they are increasingly and obviously not sufficient to prevent further catastrophic climate change. *The only way to do this is to restore the atmosphere to, at CO<sub>2</sub> first levels below 400 ppm and ultimately to the level of 350 PPM identified by Dr. James Hansen and others to insure sustainable life on the planet in the future. As we shall see, this can still be done though any such restoration effort presents policy makers with pressing critical issues concerning the large-scale development of carbon sequestration.*<sup>44</sup> To begin this restoration, the UNGA or any group of states can simply recognize in a nonbinding resolution what is already implicate in the international legal order—namely that the Earth Atmosphere is a global commons that belongs to all as a trust.<sup>45</sup> *This resolution can then become the basis for a treaty—initiated by the developing states—that recognizes the Earth's atmosphere as a global trust that needs to be restored as a critical component of the Common Heritage of Humanity.*

### III. JUS PUBLICUM: THE ORIGINS OF A PUBLIC TRUST DOCTRINE

Recognizing the Earth's Atmosphere as a global trust is not necessarily a new idea. In ancient times, Justinian's *Corpus Juris*, written near the beginning of his rule and used to rule his empire,

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<sup>43</sup> Carbon Dioxide Projected Emissions and Concentration, IPCC (Apr. 4, 2014), [http://www.ipcc-data.org/observ/ddc\\_co2.html](http://www.ipcc-data.org/observ/ddc_co2.html); See also Ralph Keeling et al, *Global Carbon Budget 2015*, 7 EARTH SYSTEM SCIENCE DATA. 349-396 (2015).

<sup>44</sup> Martin Lukacs, *IPCC Report Proposes Sucking Carbon out of the Air as Climate Fix*, GUARDIAN (Apr. 7, 2014), <https://www.theguardian.com/environment/2014/apr/07/ipcc-report-sucking-carbon-air-climate-report-biomass>.

<sup>45</sup> See Justinian, *The Institutes of Justinian* 2.1.1 (Thomas Cooper trans. & ed., 1841); See also Peter Birks and Grant McLeod, *Justinian's Institutes* (Cornell Univ. Press, 1987); See also Joyner, *supra* note 3 (Chris Joyner briefly describes the Earth Atmosphere as *Res Communis*, a common characteristic of the current legal status of the Earth's atmosphere.).

recognized in the *Institutes* the basic principle of a public trust, stating that: “Things common to mankind by the law of nature, are the air, running water, the sea.”<sup>46</sup> In recognizing this, Justinian codified the Roman principle of *Jus Publicum* or the law of an *enduring public legal capacity* — specifically as what we now call a “public trust”— in subsequent domestic jurisdictions.<sup>47</sup> By doing so, Justinian was undoubtedly influenced by the Roman legal doctrine of *Jus Gentium* concerning “a law common... to all of humanity” that is also defined in the *Justinian Institutes, and Corpus*.<sup>48</sup>

In many ways, by codifying the idea of a public trust, Justinian was recognizing what already existed in earlier Roman law.<sup>49</sup> In particular, the idea of a private trust and even a public trust under various guises has ancient origins in Roman as well as subsequent Byzantine jurisprudence. Such legal recognition of a public trust was found useful, depending upon the jurisdiction, to facilitate trade upon navigate waters, rivers, shorelines and the ocean.<sup>50</sup> Other societies and jurisdictions have found these ideas of the *Jus Publicum* as a public trust very useful in their daily lives and commerce as well.<sup>51</sup> As a result, the theory and practice concerning court recognition of the public trust doctrine has very slowly but steadily grown since ancient times. Due to the

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<sup>46</sup> *Id.* See also Theodor Mommsen et. al, *Corpus Iuris Civilis*, (Cambridge Univ. Press, 2014) His *Corpus Civilis*, is also known as the Code of Justinian.

<sup>47</sup> W. Buckland, *A Text Book of Roman Law from Augustus to Justinian*, 182-185 (Cambridge Univ. Press, 1932); 3 Henry Farnham, *Water and Water Rights*, 167-175 (Rochester: The Lawyers Cooperative Publishing Company, 1903) (There is no doubt that Justinian thought that he was creating law for all times which is a reflection of his cultural and political context as Emperor; certainly with his public trust doctrine, his legal legacy has endured far beyond his Empire); See *supra* notes 45-46, and accompanying text (On the general idea of the law creating a public legal capacity); See also 4 William Blackstone, *Commentaries on the Laws of England* (1765); David Johnson, *The Roman Law of Trusts* (Oxford Univ. Press, 1988) (explaining the creation of police powers as an enduring legal duty of domestic jurisdiction).

<sup>48</sup> See Justinian Institutes, Lib. II, ch. 1, 1-5, at 67-68 (3d ed. T. Cooper). Finally see my own article Thomas E. Boudureau, *The Modern Law of Nations: Jus Gentium and the Role of Roman Jurisprudence in Shaping the Post World War II International Legal Order*, DIGEST (2012).

<sup>49</sup> See *supra* notes 41-43.

<sup>50</sup> See Patrick Deveney, *Title, Jus Publicum, and the Public Trust: An Historical Analysis*, 1 SEA GRANT L. J. 13, 37 (1976); See also Charles Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425 (1988). See also *supra* note 16.

<sup>51</sup> Koons, *supra* note 8.

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admixture of historical developments as well as the intrinsic importance of these legal issues, we find such Roman and Justinian law to be passed down through the ages and often found in European and Arab jurisprudence throughout the Middle Ages.<sup>52</sup> For instance, by the early Middle Ages, Arab or Islamic law had a well-developed concept of a legal trust as a **waqf** (Arabic: وقف) in their domestic jurisdictions.<sup>53</sup> Furthermore, many of the public trust principles of Roman and Justinian's *Jus Publicum* of law appear in the jurisprudence of the early mediaeval Europeans; for instance, the early English jurists and courts developed the idea of trusts and even public trusts.<sup>54</sup> Other or ensuing political powers and principalities at the time, most notably the Holy Roman Empire, used the tenets of Roman, Justinian and English law to govern their own territories as well. Thus, the doctrine of public trust gradually received widespread support and usage, especially in the governance of shorelines, waterways and rivers, though limited in scope, throughout Europe and eventually the United States.<sup>55</sup> The later English and American law developed the idea and practice of private and public trusts further. In contemporary times, the legal concept and application

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<sup>52</sup> G. M. Badr, *Islamic law: Its relation to other legal systems*, AM. J. COMP. L., 26, 187 (1977); See also Khadduri, et. al, *Origin and Development of Islamic Law*, (The Lawbook Exchange, 2010).

<sup>53</sup> Ann Van Thomas Wynen, *Note on the Origin of Uses and Trusts-WAQFS*, 3 SW. LJ, 162 (1949); Timur Kahn, *The Provision of Public Goods under Islamic law: Origins, Impact and Limitations of the Waqf system*, 35 L. SOC. REV. 841-898 (2001).

<sup>54</sup> To see its impact on English law during this time, see R. Hall, *Essay on the Rights of the Crown and the Privileges of the Subject in the Sea Shores of the Realm* (2d ed. 1875); See also Monica M. Gaudiosi, *The Influence of the Islamic law of waqf on the Development of the Trust in England: The Case of Merton College*, 136 U. PA. L. REV. 1231-1261 (1988).

<sup>55</sup> See Charles F. Wilkinson, *The Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425 (1989) (discussing the origins of the public trust doctrine); For how this law came into the United States, first through Louisiana and Spain's California, see Ralph W. Johnson, *Public Trust Protection for Stream Flows and Lake Levels*, 14 UC DAVIS L. REV. 233 (1980) (discussing leading cases and predicting future doctrinal development through additional litigation); Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471-566 (1970); J.W. Henquinet and Tracy Dobson, *The Public Trust Doctrine and Sustainable Ecosystems: A Great Lakes Fisheries Case Study*, 14 N.Y.U. ENVTL. L.J. 322 (2006); David C. Slade et. al, *NOAA Legal Study: Putting The Public Trust Doctrine to Work* (Jun. 1997), <https://shoreline.noaa.gov/docs/8d5885.pdf>.

of a trust is widely accepted in a variety of national courts and jurisprudence traditions.<sup>56</sup>

The term *Jus Publicum* will refer to the public interest or “public legal capacity” of peoples, especially when recognized or construed in a court of law as a legal trust and, secondly, as the “legal rights enjoyed by all citizens; more recently used in reference to the right of the public to access shorelines for fishing, boating, and other related purposes.”<sup>57</sup> As we shall shortly see, this doctrine has slowly, yet steadily, evolved in domestic jurisdictions and even in the international realm to include states since 1648.<sup>58</sup> For instance, a more modern legal meaning or definition of this doctrine concerns the “state’s ownership of tidelands and shore-lands [which] is historically referred to as the *jus publican* or public authority interest.”<sup>59</sup>

In short, the doctrine of *Jus Publicum as the public trust*, initiated by Justinian has an ancient, yet enduring, legal pedigree that governments and courts have found useful to employ up to contemporary times.<sup>60</sup> For instance, the *Corpus Juris Civilis* of Justinian is often cited in current legal text, treaties, commentaries or actual court decisions dealing with public trusts as well as a variety of commons, including information and the internet.<sup>61</sup>

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<sup>56</sup> See *Martin v. Waddell*, 41 U.S. 367, 410 (1842); *Caminiti v. Boyle*, 107 Wash. 2d 662, 668-69 (Wash. 1987); See also Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471-566(1970); See, Henquinet & Dobson

<sup>57</sup> For an excellent history, review and analysis of the Public Trust doctrine see NOAA, *supra* footnote 55.

<sup>58</sup> The Treaty of Westphalia marks the approximate transition from feudalism to the modern state system; see, for instance: William P. Guthrie, *The Later Thirty Years War: From the Battle of Wittstock to the Treaty of Westphalia* (Greenwood Publishing Group, 2003); Emmanuel Brunet-Jailly, *Theorizing Borders: An Interdisciplinary Perspective*, 10 GEOPOLITICS 633-649 (2005).

<sup>59</sup> See *supra* note 56, 61. Finally, see, for example, Michael C. Blumm, *Public Property and Democratization of Western Water Law: A Modern View of the Public Trust Doctrine*, 19 ENVTL. L. 573 (1989).

<sup>60</sup> See *infra* note 70; See also Thomas Franck, *Legitimacy in the International System*, 82 AM. J. INT’L L. 705, 705-59 (1988) (Article analyzing the role of the “pedigree” of a law as a factor in its legitimacy); Thomas Franck, *The Power of Legitimacy Among Nations* (Oxford Univ. Press, 1990).

<sup>61</sup> See Sax, *supra* note 56; Also see what Sax calls the “lodestar” of Public trust law in the US in the case of *Illinois Central Railroad Company v. Illinois*, 146 US.

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In this regard, it is extremely relevant and interesting to note that the Justinian idea of a public trust and the doctrine of *Jus Publicum* is being cited in a pioneering and inevitably contested series of *current cases* in the United States and elsewhere.<sup>62</sup> For instance, in very recent and contemporary times, there is a unique and relevant case in the United States Federal Court *right now—in 2017*—concerning the public trust doctrine. Quoting from the plaintiff's "Our Children's Trust" website (as an advocate in the case):

"On November 10, 2016 Judge Ann Aiken issued an opinion and order denying the U.S. government and fossil fuel industry's motions to dismiss a constitutional climate change lawsuit filed by 21 youth. The decision means that the youth, age 9 to 20 and from all over the U.S., now have standing because their rights are at stake, and now their case is headed to trial. The youth had filed their constitutional climate lawsuit against the federal government in the U.S. District Court for the District of Oregon in 2015. Also acting as a plaintiff is world-renowned climate scientist Dr. James E. Hansen, serving as guardian for future generations and his granddaughter. Their complaint asserts that, through the government's [sic] affirmative actions in causing climate change, it has violated the youngest generation's constitutional rights to life, liberty, and

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387,452 (1982); See also David Boiler, *The Growth of Common Paradigm, UNDERSTANDING KNOWLEDGE AS A COMMONS* 27 (2007). Of course, a "commons" is not necessarily the same as a trust, though the two terms often overlap. See Joseph L. Sax, *Liberating the Public Trust Doctrine from its Historical Shackles*, 19 UC DAVIS L. REV.185 (1980).

<sup>62</sup> See Sax, *supra* note 56; For the contested nature of the Public Trust doctrine in US Courts, see James L. Huffman, *Speaking of Inconvenient Truths—A History of the Public Trust Doctrine*, 18 DUKE ENVTL L. & POL'Y F. 103 (Fall 2007) (\*Huffman is critical of Sax claim concerning a broad and robust claim of *Jus Publicum* as the public trust; I am comfortable with either author's analysis since international law is not bound by Anglo-American precedents. Even so, it should be pointed out that Huffman: a) conflates Roman Republic, Empire and Byzantine jurisprudence into the generic label of "Roman law," thereby ignoring over a thousand years of legal evolution from three different historical periods; b) marginalizes the influence of philosophy and the Stoics on early Roman or Byzantine law *and practice*, as found in the concept of *Jus Gentium* defined as "a Law of nations...common to all mankind." In contrast, Huffman dismisses the obvious influence of the Stoics and related philosophers in "Roman Law" and describes them as "poets;" c) He claims that Justinian mainly defined the doctrine of *Jus Publicum* in his *Institutes*, which he tries to denigrates as "intended only for law students"—yet he fails to acknowledge that all three original parts of Justinian Codex—including the *Institutes*, had the force of law and command in the Byzantine Empire).

property, as well as failed to protect essential public trust resources.”

<sup>63</sup>

This Oregon case, when decided at the District level, will undoubtedly be appealed. Even so, this pioneering case in the Federal Court *right now* indicated that, at the very least, *the public trust doctrine* is alive and well—though still contested—in current Federal United States Courts.<sup>64</sup>

Yet, the key point for our purposes is not necessarily the subsequent or contested nature of the public trusts doctrine in domestic jurisdictions. Rather, the key element in this analysis is that the doctrine exists in legal theory and practice across a variety of jurisdictions and has done so since ancient time.<sup>65</sup> As such, it is an extant legal doctrine with an enduring legal pedigree in domestic jurisdictions from classical to current times that thus deserves inclusion as a key normative principle in Earth Jurisprudence as well.<sup>66</sup>

#### IV. JUS PUBLICAN AND INTERNATIONAL LAW: THE GLOBAL COMMONS

The doctrine of Justinian’s Jus Publican and public trusts is also extremely relevant in international law, especially in terms of already inspiring or regulating—to a greater or lesser extent—three of the four global commons: the oceans, outer space and perhaps even Antarctica.<sup>67</sup> For instance, the Doctrine of a Public Trust has also been used since the time of Grotius in international law to justify in theory and recognized through ensuing state practice the public nature and the ensuing freedom

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<sup>63</sup> *Ruling by Federal Judge Aiken, Juliana v. United States*, 2016 WL 6661146, at \*16 (D. Or. Nov. 10, 2016) (recognizing a right to a climate system capable of sustaining human life. The judge in this case cites to Gerald Tones & Nathan Bellinger, *The Public Trust: The Law’s DNA*, 4 WAKE FOREST J. L. & POL’Y 281, 288-94 (2014)).

<sup>64</sup> *See Juliana v. United States*, 2016 WL 6661146, at \*16 (D. Or. Nov. 10, 2016). (This Nov 2016 decision will undoubtedly be appealed as well).

<sup>65</sup> *See supra* notes 42-56.

<sup>66</sup> Koons, *supra* note 8. (In this article, Judith Koons presciently states that: “the public trust doctrine has the potential to catalyze us into the next phase of our relationship of with Earth, a phase in which human law and governance express our responsibility to safeguard the well-being of Earth as a trust” (!)).

<sup>67</sup> *See supra* note 2.

of the seas.<sup>68</sup> Yet, Grotius did not write in a historical or legal void. In his classic work, *Mare Liberum*,<sup>69</sup> Grotius was profoundly influenced, in turn, by Roman commentators, jurists and even poets in declaring that the seas beyond territorial limits or control belong to everyone.<sup>70</sup> The oceans have had, and continue to have, a contested status in international law; yet, Grotius' compelling arguments concerning the Freedom of the Seas has resonated down through the ages. In fact, the ideas found in Grotius's *Mare Liberum* can be found much later paraphrased in Ambassador's Pardo's articulation of the "Common Heritage of Humanity (Mankind)" concept that led to the initiation of the new Law of Sea negotiations.<sup>71</sup> In turn, the Convention on the Law of the Sea III (UNCLOS III) ratified in 1982 which states in its Preamble that one of its purposes is to:

“develop the principles embodied in resolution 2749 (XXV) of 17 December 1970 in which the General Assembly of the United Nations solemnly declared *inter alia* that the area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national

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<sup>68</sup> De Pauw, F. E. R., ed. Grotius and the Law of the Sea (P.J. Arthern, transl.). BRUSSELS: INSTITUT DE SOCIOLOGIE (1965); See also M. Gorina-Ysern, *World Ocean Public Trust: High Sea Fisheries After Grotius-Towards A New Ocean Ethos*, 34 GOLDEN GATE U. L. REV. 645 (2004).

<sup>69</sup> Roberta Feenstra & Jeroen Vervilet, *Hugo Grotius Mare Liberum 1609-2009: Original Latin Text and English Translation* (Brill, 2009).

<sup>70</sup> Monica V. Vieira, *Mare Liberum vs. Mare Clausum: Grotius, Freitas, and Selden's Debate on Dominion Over the Seas*, 64 JOURNAL OF THE HISTORY OF IDEAS, 361-377 (2003); See also Pitman B. Potter, *The Freedom of the Seas in History Law, and Politics* (NY: Longmans, Green and Co., 1924); C. Sanger, *Ordering the Oceans: The Making of Laws of the Sea* (Zed Books, 1986).

<sup>71</sup> *The Pardo Declaration And The Six Years Of The Sea-Bed Committee A Handbook on the New Law of the Sea* (vol. 1) Publication Editor: Académie de droit international de La Haye Brill | Nijhoff, Leiden | Boston, 1991 available at: <http://referenceworks.brillonline.com/entries/law-books-of-the-academy/the-pardo-declaration-and-the-six-years>; See also Stephen Gorove, *Concept of Concept of Common Heritage of Mankind: A Political Moral or Legal Innovation*, 9 SAN DIEGO L. REV., 390 (1971); Kernal Baslar, *The Concept of the Common Heritage of Mankind in International Law*, 30 (Martinus Nijhoff Publishers, 1988); Mary V. White, *The Common Heritage of Mankind: An Assessment* Case 14 W. RES. J. INT'L L., 509 (1982).

jurisdiction, as well as its resources, are the common heritage of mankind....”<sup>72</sup>

Thus, UNCLOS III furthers, in part, the ancient and enduring doctrine of *Jus Publicum*, and establishes common or public resources and areas owned by all consisting of the areas of the oceans beyond the territorial seas and the areas of the seabed and ocean floor, which are beyond the limits of national jurisdiction; as originally conceived, mining of these areas are to be in parallel with private interests. UNCLOS III also states that the seas’ resources, are the “common heritage of mankind” (Hereafter referred to as “Humanity”). Yet, after fully participating in the UNCLOS III negotiations, the United States under the new Regan administration in the early 1980s refused to sign the treaty UNCLOS. So, the United States continues to be outside of the treaty regime and doesn’t has permanent seat on the International Seabed authority (ISA) where it would have the right of a veto of any pending action.<sup>73</sup> So the legal status UNCLOS III is certainly contested, especially within the United States, though the ratification of the Convention has the full support of the mining interests and all for service branches of the Defense Department.<sup>74</sup> Furthermore, there are some inconsistencies and even contractions as well between UNCLOS III and the doctrine of *Jus Publicum*, especially between its enclosure of more seas under national jurisdiction, as embodied in its concept and

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<sup>72</sup> Convention on the Law of the Sea, opened for signature Dec. 10, 1982, U.N. Doc. A/CONF. 62/122 (1982), art. 3 [hereinafter cited as Convention], reprinted in 21 I.L.M. 1261; For the full text of the Convention, see: [http://www.un.org/depts/los/convention\\_agreements/texts/unclos/closindx.htm](http://www.un.org/depts/los/convention_agreements/texts/unclos/closindx.htm). Also: The third U.N. Law of the Sea Conference: (from the 1967 Pardo resolution through the 6th session of the third UNCLOS) Paperback – January 1, 1978 by Science, and Transportation., . United States. Congress. Senate. Committee on Commerce (Author) See also Christopher C. Joyner & Martell, E. A. (1996). Looking back to see ahead: UNCLOS III and lessons for global commons law. *Ocean Development & International Law*, 27(1-2), 73-95 White, M. V. (1982). The common heritage of mankind: an assessment. *Case W. Res. J. Int’l L.*, 14, 509. Finally, see: Rothwell, D. R., Elferink, A. G. O., Scott, K. N., & Stephens, T. (2015). *The Oxford handbook of the law of the sea*. Oxford University Press, USA.

<sup>73</sup> Isaak Hurst, *The Law of the Sea and Its Effects On Offshore Mining*, ALASKA BUSINESS MONTHLY (Nov. 1, 2013), <http://www.akbizmag.com/Alaska-Business-Monthly/November-2013/The-Law-of-the-Sea-and-Its-Effects-On-Offshore-Mining/>.

<sup>74</sup> *Id.*



application of Exclusive Economic zones (EEZ) and the traditional freedom of the seas which is still recognized.<sup>75</sup>

The idea of the “Common Heritage of Mankind,” is deservedly credited to Ambassador Pardo of Malta when he first spoke before the United Nations in 1967 about the need for a new law of the sea treaty.<sup>76</sup> Before the Ambassador’s speech, there were previous international treaties negotiated since the end of the World War II that dealt with the freedom of the seas and the oceans.<sup>77</sup> Not surprisingly, such has been written in legal circles since Ambassador’s speech about the “common heritage” concept and how it may overlap or differ from the Justinian doctrine, especially in the context of the global commons.<sup>78</sup> This debate is too complex to fully resolve or even address here; so for the purposes of our present discussion, I will consider these two concepts as largely overlapping though different. For instance, the *Jus Publicum* doctrine clearly intended— when created in Justinian *Institutes* –to includes the recognition and inclusion of a *public domain owned by, and available, to all*, i.e. the legal meaning of “public,” as well as to any public property, place or thing.. So, public ownership is clearly not compatible with private ownership of the same place, property or thing, though

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<sup>75</sup> See *supra* note 45. See also Thomas A. Clingan, *Freedom of Navigation in a Post-UNCLOS III Environment*, 46 LAW AND CONTEMPORARY PROBLEMS 107-123 (1983); Christopher C. Joyner, *The Antarctic Treaty System and the Law of the Sea-Competing Regimes in the Southern Ocean*, 10 INT’L J. MARINE & COASTAL L., 301 (1995). Please note that I use the term “the Common Heritage of Humanity” to describe the “CHM” as well.; Finally, see Amb. Pardo own rather mixed reaction to UNCLOS III at: Arvid Pardo, *Convention on the Law of the Sea: A Preliminary Appraisal*, 20 SAN DIEGO L. REV., 489 (1983).

<sup>76</sup> See *supra* note 71.

<sup>77</sup> For previous treaties on the Oceans, see: Convention on the Territorial Sea and the Contiguous Zone, 15 UST 1606, TIAS No. 5639, 516 UNTS 205; Convention on the High Seas, 13 UST 2312, TIAS No. 5200, 450 UNTS 82; Convention on the Continental Shelf, 15 UST 471, TIAS No. 5578, 499 UNTS 311; and Convention on Fishing and Conservation of Living Resources of the High Seas, 17 UST 138, TIAS No. 5969, 559 UNTS 285.

<sup>78</sup> See Sax, *supra* notes 56, 61-62. Please note that I use the term “Common Heritage of Humanity” to describe the “CHM” as well; See also Christopher C. Joyner, *Legal Implications of the Concept of the Common Heritage of Mankind*, 35 INT’L & COMP. L.Q. 190-199 (1986) (discussing the legal implication of the concept of human heritage); Larschan B. and Brennan BC., *The Common Heritage of Mankind Principle in International Law*, 21 COLUM. J.TRANSNAT’L 305-337 (1983).

exceptions have been considered in more recent times.<sup>79</sup> These exceptions have mostly dealt with the possible private right *to use* public spaces or places, while the ownership is kept by the “public.”<sup>80</sup> Furthermore, at the same time, the “Public Trust” doctrine of Justinian has legally evolved to clearly require *active fiduciary duties* in the domestic jurisdictions of states as well to “properties,” land, designated places, parks, duties or rights as well.<sup>81</sup> UNCLOS seems to incorporate both of these factors—the existence of the public domain as well as fiduciary duties to preserve, at least the regime for future generations and thus could be possibly and plausibly construed as a trust in a court of law. However, private mining rights are recognized by the Convention as well so this is certainly not a “pure” public trust, and nor should it be.<sup>82</sup> From the beginning, UNCLOS was conceived as a

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<sup>79</sup> Joseph L. Sax, Takings, Private Property and Public Rights, 81 YALE L.J. 149-186 (1971); Joseph L. Sax, *Liberating the Public Trust Doctrine from its Historical Shackles*, 19 UC DAVIS L. REV. 185 (1980); R. J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631 (1985).

<sup>80</sup> *Id.*

<sup>81</sup> See Sax, *supra* notes 27 and 61. See also Peter Eagan, *Applying Public Trust Tests to Congressional Attempts to Close National Park Areas*, 25 B.C. ENVTL. AFF. L. REV. (2008); Serena M. Williams, *Sustaining Urban Green Spaces: Can Public Parks Be Protected Under the Public Trust Doctrine?*, 10 S.C. ENVTL. L.J. 23 (2002); For a truly- and excellent overview see Gerald Torres and Nathan Ballinger, *The Public Trust: The Law's DNA*, 4 WAKE FOREST J.L. & POL'Y 281 (2014).

<sup>82</sup> Paul B. Miller & Andrew S. Gold, *Fiduciary Governance*, 57 WM & MARY L. REV. 513 (2015); Ramon E. Reyes Jr., *Nauru v. Australia: The International Fiduciary Duty and the Settlement of Nauru's Claims for Rehabilitation of Its Phosphate Lands*, 16 N.Y.L. SCH. J. INT'L & COMP. L. 1 (1996); Michael W. Leslie, *International Fiduciary Duty: Australia's Trusteeship Over Nauru*, 8 B.U. INT'L L.J. 397, 398 (1990); Blaine Rodgers, *Raising the Bar: The Commonwealth of the Northern Mariana Islands, the Public Land Trust, and a Heightened Standard of Fiduciary Duty*, 7 ASIAN-PACIFIC L. & POL'Y J. (2016); Surbhi Sarang, *Combating Climate Change Through a Duty to Divest*, 49 COLUM. J.L. & SOC. PROBS. 295 (2015); Fiducial claims upon the courts are, in my judgement, warranted for all four of the global commons, especially if damages ensue or to protect these public dominions from harm abuse, militarization or private acquisition for present and future generations. Yet, this possibility certainly seems remote at this time; in fact, as the current Chinese claim to almost all for the South China Sea illustrated, state practice seems to be going into the opposite direction. For instance, such fiduciary duties were not an issue raised or decided upon in the arguments made and accepted in the Arbitration Court's 2016 decision concerning the South China Sea. See: The South China Sea Arbitration Award of 12 July 2016; “Native injustice” The International Herald Tribune, February 2, 2008

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potential, and now actual, partnership between public and private interests, as well as developing and developed states.<sup>83</sup>

The Treaty on Outer Space seeks to regulate another global commons, declaring in Article I that: “The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, and shall be the province [territory] of all mankind.”<sup>84</sup> The treaty goes on to outlaw the placement of weapons of mass destruction in space and to encourage international cooperation in the exploration of the moon and other celestial bodies.<sup>85</sup>

Unfortunately, the recognition of the *Jus Publicum* doctrine does not seem to play a significant factor in one of other treaty systems that currently govern a global common. Specifically, the Antarctic Treaty System (ATS) does not explicitly challenge outlier states’ private

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Saturday, opinion; Pg. 4. See also *Cobell v. Salazar*, No. CIV. 96-1285 TFH, 2011 WL 7719672, at \*1-3 (D.D.C. June 17, 2011). Files, settled by, Judgment entered by *Cobell v. Salazar*, No. 1:96CV01285(TFH), 2011 WL 10676927, at \*1-92 (D.D.C. July 27, 2011).

<sup>83</sup> Wolfgang Fikentscher, *Third World Trade Partnership: Supranational Authority vs. National Extraterritorial Antitrust—A Plea for Harmonized Regionalism*, 82 MICH. L. REV. 1489 (1983); See also: Michael Lodge et. al, *Seabed Mining: International Seabed Authority Environmental Management Plan for the Clarion–Clipperton Zone. A partnership approach*, 49 MARINE POL’Y. 66-72 (2014); Alan Beesley, *The Negotiating Strategy of UNCLOS III: Developing and Developed Countries as Partners-A Pattern for Future Multilateral International Conferences*, 46 L. & CONTEMP. PROBS 183(1983).

<sup>84</sup> The Treaty on Principles Governing the Activities of States in the Exploration and use of Outerspace, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 (entered into force Oct. 10, 1967) [hereinafter Outer Space Treaty]. United Nations Office for Disarmament Affairs. See also Jennifer Frakes, *The Common Heritage of Mankind Principle and the Deep Seabed, Outer Space, and Antarctica: Will Developed and Developing Nations Reach a Compromise?*, 21 WIS. INT’L. L.J. 409 (2003). 3 Christopher C. Joyner, *Antarctica and International Law: A Collection of Inter-State and National Documents*, 89 AM. J. INT’L. L. 959-964 (1989); Brian M. Hoffstadt, *Moving the Heavens: Lunar Mining and the “Common Heritage of Mankind” in the Moon Treaty*, 2 UCLA L. Rev. 575 (1994-1995); Ian Hedges, *How the Rest was Won: Creating a Universally Beneficial legal Regime for Space-Based Natural Resource Utilization*, 40 VT. L. REV. 365 (2015). \* The latter statement seems to place the treaty on Outer Space largely within the tradition of Justinian’s *Jus Publicum*, or eventually will through customary law—if we live so long....

<sup>85</sup> See *supra* note 85.

territorial claims to the seventh continent of the world.<sup>86</sup> Rather the ATS seems to freeze the ambiguous legal status quo on the continent concerning the land and an ensuing areas being public or “privately owned” by states; specifically, thirteen states have rather aberrant and outlier claims to territory in Antarctica.<sup>87</sup> Even so, the ATS has some very useful features that certainly benefit all of humanity. Specifically, it requires the demilitarization of the continent, and encourages international cooperation in science, especially the science of climate change, so the current and ambiguous status of the Antarctica as a global “commons” in the public domain continues.<sup>88</sup>

This leaves the Earth’s atmosphere as the sole remaining global commons that has no international treaty or convention recognizing its explicit legal status as part of the *Jus Publican* and common heritage of humanity.<sup>89</sup> The lack of any meaningful international treaty concerning

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<sup>86</sup> The Antarctic Treaty, 402 U.N.T.S. 71, *entered into force* June 23, 1961. The Antarctic Treaty was signed in Washington on 1 December 1959 by the twelve countries whose scientists had been active in and around Antarctica during the International Geophysical Year (IGY) of 1957-58. It entered into force in 1961 and has since been acceded to by many other nations. The total number of Parties to the Treaty is now 53. See: <http://www.ats.aq/e/ats.htm>. (1998). See also Christopher C. Joyner, *Governing the Frozen Commons: The Antarctic Regime and Environmental Protection*, University of South Carolina Press, Columbia, SC(USA). 369, 1998.; Christopher C. Joyner, C. *Antarctica and the Law of the Sea: Rethinking the Current Legal Dilemmas*, 18 SAN DIEGO L. REV., 415 (1980); See the interesting idea: Ellen S. Tenenbaum, *A World Park in Antarctica: The Common Heritage of Mankind*, VA. ENVTL. LJ, 10, 109 (1990). The Antarctic Treaty and related agreements are often collectively known as the Antarctic Treaty System (ATS).

<sup>87</sup> See Gillan Triggs, *The Antarctic Treaty Regime: A Workable Compromise or a Purgatory of Ambiguity Case*, 17 W. RES. J. INT’L L. 195(1985); Benedetto Conforti, *Territorial Claims in Antarctica: A Modern Way to Deal with an Old Problem*, 19 CORNELL INT’L L.J. 249 (1986); M.J. Peterson, *Antarctica: The Last Great Land Rush on Earth*, 34 INT’L. ORG. 377-403 (1980).

<sup>88</sup> See *supra* notes 86-87.

<sup>89</sup> See *supra* note 1. Specifically, the Paris Agreement (2015) deals with state commitments to cut carbon emissions; fortunately, it also calls for, among other things, capacity building, especially among developing states. There are international or regional agreements including COP- UNFCCC series that mainly deal with a *specific issues or the emission of specific elements into the atmosphere*. For instance: In *Convention on Long-range Transboundary Air Pollution*. Also known as *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (known as the Multi-effect Protocol or the Gothenburg Protocol*. Christopher C. Joyner, *Global Commons: The Oceans, Antarctica, the Atmosphere, and Outer Space. Managing Global Issues: Lessons Learned*, 354-91 (2001). Also see: United Nations

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this critical global commons is inexplicable, especially in view of the atmosphere's crucial role in sustaining or stopping catastrophic and sudden climate change. Due to this grave deficiency, the rest of this essay will be devoted to developing a preliminary argument for the United Nations General Assembly or any other interested group of states taking the leadership role in initiating fast track negotiations leading to an international treaty that legally recognizes *the Earth's Atmosphere as a Global Trust*. Such a needed step is fully consistent with, as well as a continuing example of the historic doctrine and evolution of *Jus Publicum*.<sup>90</sup> Most importantly, such a treaty can be a significant element in combatting and overcoming the growing danger of climate change to all of humanity. As such, the resulting treaty will be complimentary and not competitive to the essential need for carbon cuts called for the Paris 2015 Agreement. So, to do this as quickly as possible, any subsequent treaty agreed upon directly by a group of states should contain the following three basic legal principles of fiduciary law to guide subsequent UNGA deliberations and treaty negotiations on climate change. The first principle represents what already exists, though in deeply recessed and implicate form, namely:

A. RECOGNIZE THE EARTH'S ATMOSPHERE AS A GLOBAL  
TRUST

A UNGA nonbinding resolution can be the first step towards an explicit global legal framework, which is needed to establish the subsequent and primary fiduciary responsibilities for the preservation, restoration or restitution of the global atmosphere among states. Such a resolution can build upon and strengthen the Paris Agreement's declared principle of "common yet differentiated responsibilities," as well as already existing legal principles concerning fiduciary duties that are recognized in many members' domestic jurisdictions; in short, *the principles, practices and remedies of fiduciary law can, when a subsequent treaty is enacted, now be employed by a state's courts to*

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Economic Commission for Europe, *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone* (1999), <http://www.iiasa.ac.at/~rains/dutch/pollueng.pdf>.

<sup>90</sup> Joseph L. Sax, *Liberating the Public Trust Doctrine from its Historical Shackles*, 19 UC DAVIS L. REV. 185 (1980); See also Koons, *supra* note 8.

*protect the Earth's atmosphere as a Global Trust.*<sup>91</sup> This is the first critical step in the eventual RESTORATION of the Earth's Atmosphere to sustainable levels that will secure life and development for future generations.

The UNGA initiated similar international treaties and regimes in the past by passing initial nonbinding resolutions including the Non-Proliferation Treaty (NPT), which started with the famous "Irish Resolution" of 1961, or specifically UNGA resolution 1665 (XVI); in fact, the first chapter in this three volume series on the sources, substance and significance of the NPT is entitled "The Irish Resolution" since the Irish delegation to the United Nations lobbied for the treaty for four long years before the UNGA adopted a resolution supporting this innovative and enduring initiative.<sup>92</sup> This resolution set into motion multi-state negotiations that resulted in the Non-Proliferation Treaty being signed and ratified by states in 1968 and going into force in 1970.<sup>93</sup>

During the same decade of the 1960s, the UNGA was inspired into action by the famous speech of Malta's Ambassador Pardo in 1967 who described the oceans as part of the "Common Heritage of Mankind."<sup>94</sup> Inspired by this speech, the United Nations "Seabed" Committee was set up in 1967 and continued, under different names, up to 1973; according

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<sup>91</sup> See Blumm, *supra* note 60. A key innovator of and pioneer in bringing trust suits within the United States is Prof. Mary C. Woods of Oregon Law School; see her new book, Mary C. Woods, *Nature's Trust: Environmental law for a New Ecological Age* (Cambridge Univ. Press, 2013); Also see her earlier article: Mary Woods, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part I): Ecological Realism and the Need for a Paradigm Shift* (2009); Mary Christina Wood, *Nature's Trust: Reclaiming an Environmental Discourse*, 25 VA. ENVTL. L.J. 243, 252 (2007). Finally, interesting enough, there is already an international convention on the general issue of Trusts. See Convention the Law Applicable to Trusts and on their Recognition (*Concluded 1 July 1985*) Yet, it does not deal with public trusts per se, or obviously with this specific proposal.

<sup>92</sup> 3 Mohamed I. Shaker, *The Nuclear Non-Proliferation Treaty: Origin and Implementation 1959-1979* (Oceana publications, 1980); See also William Epstein & Paul C. Szasz, *Extension of the Nuclear Non-Proliferation Treaty: A Means of Strengthening the Treaty*, VA. J. INT'L L. 33, 735 (1992); David A. Kaplow, *Parsing Good Faith: Has the United States Violated Article VI of the Nuclear Non-Proliferation Treaty*, WIS. L. REV. 301 (1993).

<sup>93</sup> Id.

<sup>94</sup> See *supra* note 76.

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to Professor Tullio Treves at the University of Milan, the efforts of this committee were embodied and expressed in a subsequent General Assembly resolution 2749 (XXV) of 17 December 1970 according to which the seabed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (the Area), as well as its resources “are the common heritage of mankind.”<sup>95</sup> Ambassador Pardo’s speech and subsequent UNGA action paved the way to the sustained negotiations on a new legal regime for the oceans, which took place between 1973 and 1982, resulting in the UN Convention on the Law of the Sea, or UNCLOS III.<sup>96</sup> So, the historical role of the UNGA is clear and compelling in initiating such critical treaties and regimes by nonbinding initiatives. In view of this, the following article argues that the UNGA must once again pass a pioneering nonbinding resolution recognizing the Earth Atmosphere as a Global Trust as the first step in multistate negotiations leading to a treaty or a series of treaties dealing with increasingly catastrophic climate change.

Such a UNGA nonbinding resolution must be voted upon and ***thus is an overtly political process***. In contrast, much of climate negotiations such as the most recent Paris Agreement (2015) have been consensus based in an often painful, yet cooperative process and outcomes.<sup>97</sup> Such a cooperative process is valuable up to a point; yet, the supposed need to achieve interstate consensus has also arguably slowed significant possible process in addressing and overcoming the danger of climate change. This is because the great polluter states are simply not yet curbing their ravenous appetites for more carbon-based energy expect in

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<sup>95</sup> Prof. Tullio Treves has been prolific in his keen commentary on the Law of the Sea and, in particular, the problems—and thus opportunities—it may present in terms of multiple courts and overlapping jurisdictions; See for example, his closing remarks in: David D. Caron & Harry N. Sheiber, *Bringing New Law to Oceans Waters* (Brill, 2004); See also Nerina Boschiero & Tullio Scovazzi, *International Courts and the Development of International Law* (2003); Tullio Treves, *Civil Society, International Courts and Compliance Bodies* (Cambridge Univ. Press, 2005).

<sup>96</sup> *United Nations Law of the Sea*, [http://www.un.org/depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf).

<sup>97</sup> 20 Elizabeth Burleson, Paris agreement and Consensus to Address Climate Challenge (ASIL, 2008), available at <https://www.asil.org/print/4243>.

largely symbolic and marginal ways or through yet unfulfilled promissory notes concerning future behavior.<sup>98</sup>

The evidence for this is simply before our eyes and outside in an increasingly warm climate. The U.S., for instance recently approved both the Dakota Access and Keystone XL oil pipelines and gas guzzling SUVs are still widely advertised and hot sellers in North America.<sup>99</sup> In view of this, the great MIOPs seem intent on finding and using every last available drop of oil. We are now setting record heat temperatures with every New Year.<sup>100</sup> Still the great industrialized powers and their publics use more oil and carbon based fuels such as natural gas, though use in coal has apparently declined in the US and China.<sup>101</sup> Yet, as of 2015, both countries have increased their consumption of oil based carbon fuels.<sup>102</sup> Specifically, In 2015, the five largest emitting countries and the European Union, which together account for two thirds of total [current] global emissions, were: China (with a 29% share in the global total), the United States (14%), the European Union (EU-28) (10%), India (7%), the Russian Federation (5%) and Japan (3.5%).<sup>103</sup> As a result, “Each of the first six months of 2016 set a record as the warmest respective month globally in the modern temperature record, which dates to 1880, according to scientists at NASA’s Goddard Institute for Space Studies (GISS) in New York. The six-month period from January

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<sup>98</sup> Peter Christoff, *The Promissory Note: COP 21 and the Paris Climate Agreement*, 25 ENVTL. POL. 765-787 (2016).

<sup>99</sup> For beginners, see Ben LeFebvre, *State Department to Approve Keystone Pipeline*, POLITICO (Mar. 23, 2017), <http://www.politico.com/story/2017/03/state-department-to-approve-keystone-pipeline-permit-236414>.

<sup>100</sup> The Earth’s 2016 surface temperatures were the warmest since modern recordkeeping began in 1880, according to independent analyses by NASA and NOAA. This makes 2016 the third year in a row to set a new record for global average surface temperatures. See NASA, *2016 Warmest Year on Record Globally, NASA and NOAA Data Show-Third Record-Breaking Year in a Row for Average Surface Temperatures*, SCIENCE DAILY (Jan. 18, 2017), <https://www.sciencedaily.com/releases/2017/01/170118112554.htm>.

<sup>101</sup> See CAIT Climate Data Explorer for current use of MIOPs, which has increased dramatically since RIO in 1992, at CAIT Climate data Explorer, <http://cait.wri.org/equity/>.

<sup>102</sup> See the report prepared for the EU by the Netherlands Environmental Assessment Agency, *Global CO2 Emissions: 2016*, [http://edgar.jrc.ec.europa.eu/news\\_docs/jrc-2016-trends-in-global-co2-emissions-2016-report-103425.pdf](http://edgar.jrc.ec.europa.eu/news_docs/jrc-2016-trends-in-global-co2-emissions-2016-report-103425.pdf).

<sup>103</sup> *Id.*



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to June was also the planet's warmest half-year on record, with an average temperature 1.3 degrees Celsius (2.4 degrees Fahrenheit) warmer than the late nineteenth century."<sup>104</sup> In the meantime, the MIOPs seem quite content with their gluttonous and increasing carbon appetite. As such, they certainly won't be the first to approve a resolution or even a treaty that declares the Earth Atmosphere as Global Trust to be preserved for present and future generations.

It must be strongly emphasized that, under traditional international law, it is not legally necessary to have a universal consensus in any initial international convention or declaration that establishes the Earth's Atmosphere as a global trust; this is because the process of international law formation is decidedly NOT a consensual process.<sup>105</sup> This is true because states are sovereign powers and, as such, states are the sovereign masters of their own affairs and each state decides for itself what treaties to approve.<sup>106</sup> So, to require such near or actual universal consensus now for any new international treaty declaring the Earth's atmosphere as a global trust is simply an odd and anomalous

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<sup>104</sup> NASA, *2016 Climate Trends Continue to Break Records*, NASA Climate Reports (Jul. 19, 2016), <https://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records>; Robert Rapier, World Sets Record for Fossil Fuel Consumption, FORBES (Jun. 8, 2016 at 3:16PM), <https://www.forbes.com/forbes/welcome/?toURL=https://www.forbes.com/sites/rpapier/2016/06/08/world-sets-record-for-fossil-fuel-consumption/&refURL=https://www.google.com/&referrer=https://www.google.com/> (**Rapier states:** "While global coal consumption did decline by 1% in 2015, the world set new consumption records for petroleum and natural gas.).

<sup>105</sup> Due to sovereignty, each state is a master of its own fate, within certain legal limits, and usually does not seek or require consensus *from other states* to make a specific policy decision. See *infra* note 107. For the contested role that consent plays in international negotiations see B. Buzan, *Negotiating by Consensus: Developments in Technique at the United Nations Conference on the Law of the Sea*, 75 AM. J. INT'L L. 324-348 (1981); Elizabeth Burleson, *Climate Change Consensus: Emerging International Law*, 34 WM. & MARY ENVTL. L. & POL'Y. REV. 543 (2010). State consent or practice is currently considered to be the key basis of international law concerning treaties, though that is changing; see, for example Matthew Lister, *The Legitimizing Role of Consent in International Law*, 11 CHI. J. INT'L L. 663 (2010).

<sup>106</sup> William Slomanson, *Fundamental Perspectives on International Law* (Wadworth Center Learning 6<sup>th</sup> ed. 2010) (Membership in a regional military or economic alliance or Union obviously presents a different scenario to the executive exercise of sovereign decision making. But we are not discussing such regional arrangements here.).

requirement to impose on any subsequent negotiating process by sovereign states concerning the approval of an eventual treaty on the Earth's atmosphere.

This lack of unanimity reflects, in part, the contested nature of the global commons themselves. For instance, despite near universal agreement to the Antarctica Treaty, there are thirteen outlier states that still rather awkwardly claim territory there.<sup>107</sup> With the Law of the Sea, the United States is currently defending basic principles concerning the freedom of the seas, as embodied in the Law of the Seas or UNCLOS Convention, against China in the South China seas, even though the United States has never ratified the Convention! In short, unanimity or uniform state practice is NOT a legal prerequisite, not should be expected, in establishing a global legal framework that recognizes the Earth atmosphere as a global trust.<sup>108</sup>

Furthermore, there is a fundamental difference between the *Global Atmosphere* consisting of an Earth spanning and dynamic entity and a *national airspace*, which is a limited physical place, region or specific area.<sup>109</sup> Specifically, there is a clear physical distinction based on the different natural characteristics of each, between the global atmosphere as a customary *res communis* which is an earth spanning and largely unitary (in the sense that it can't be possessed or controlled *in toto*) body of gas or consists mostly of gaseous form. (i.e. clouds, rain, snow, etc.,<sup>110</sup> and a "national airspace.") This is a *specific spatial area* above the actual territory of a recognized nation state.<sup>111</sup> As such, no-state can

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<sup>107</sup> These claims have proved contentious and have NOT been supported by the vast majority of other states since the beginning of the Antarctic Treaty and regime. See Daniel P. O'Connell, *Claims to Antarctica: Modern Age* 186 (1958); Benedetto Conforti, *Territorial Claims in Antarctica: A Modern Way to Deal with an Old Problem*, 19 CORNELL INT'L L.J. 249 (1986); Bernard H. Oxman, *Antarctica and the New Land of the Sea*, 19 CORNELL INT'L L.J. 211 (1986).

<sup>108</sup> See *supra* notes 106-7.

<sup>109</sup> See Chrystel Erotokritou, *Sovereignty Over Airspace: International Law, Current Challenges, and Future Developments for Global Aviation*. INQUIRIES JOURNAL (2012), <http://www.inquiriesjournal.com/articles/645/sovereignty-over-airspace-international-law-current-challenges-and-future-developments-for-global-aviation>.

<sup>110</sup> See R.B. Walker, *State Sovereignty and the Articulation of Political Space/Time*, 20 MILLENNIUM 445-461 (1991); Fred Lutgens et. al, *The Atmosphere* (Prentice-Hall, 1995); Roger G. Barry & Richard J. Chorley, *Atmosphere, Weather and Climate* (Routledge, 2009).

<sup>111</sup> See also Henry A. Wassenbergh, *Post-War International Civil Aviation Policy and the Law of the Air* (Springer, 2012); Jan P. Honig,

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control, possess or claim the global atmosphere as a whole while some part of it passes through its territory; yet states can control or reject claims by other nationals or aircrafts to pass through its airspace up to orbital space, and do so all the time.<sup>112</sup> In short, a national airspace is, **a specific or limited region, space or area** above the national territory; states have traditionally exercised or tried to absolute control over their airspace.<sup>113</sup> Even so, the older idea of an “absolute” right to one’s airspace is eroding, even after 9/11 due to increasing economic globalization and the climate.<sup>114</sup>

In contrast, the global atmosphere is a massive, Earth-spanning and constantly fluctuating physical substance with the ability to diffuse readily with the spontaneous tendency to become distributed uniformly throughout the globe.<sup>115</sup> No state airspace, which is a specific place, has such global characteristics, reach, or actual physical substance. In short, the atmosphere is an actual thing, global in scope and substance while a national airspace is simply that, a space above a specific territory. These are decisive and distinctive physical differences; one has been characterized since ancient times as *res communis*,<sup>116</sup> and the other is a specific territorial place,<sup>117</sup> traditional domestic and international law has recognized the prohibition of the “taking” from a public trust for private ownership.<sup>118</sup> For instance, if I park my car in your driveway, and visit your house with my family, this does not mean that my car,

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Sovereignty Over the Air Space. In *The Legal Status of Aircraft*, 6-33 (Spirnger Netherlands, 1956); Alison Williams, *A Crisis in Aerial Sovereignty? Considering the Implications of Recent Military Airspace*, 42 AREA 51-59 (2010).

<sup>112</sup> Id. For an exploration of the idea of a “Unitary Skies” for the EU, see note

110 Chrystel Erotokritou, *Sovereignty Over Airspace: International Law, Current Challenges, and Future Developments for Global Aviation*, INQUIRIES JOURNAL.

<sup>113</sup> *Supra* notes 111-12.

<sup>114</sup> Major Stephen M. Shrewsbury, *September 11th and the Single European Sky: Developing Concepts of Airspace Sovereignty*, 68 J. AIR L. & COM. 115 (2003).

<sup>115</sup> See *supra* note 111.

<sup>116</sup> See Justinian Institutes in his *Corpus Civilias*, or the Code of Justinian, *supra* notes 46-40.

<sup>117</sup> See Thomas J. Biersteker and Cynthia Weber, *State Sovereignty as Social Construct* (Cambridge Univ. Press., 1996).

<sup>118</sup> Anna R. Caspersen, *The Public Trust Doctrine and the Impossibility of Takings by Wildlife*, 23 BC ENVTL. AFF. L. REV. 357 (1995); Edith B. Weiss, *The Planetary Trust: Conservation and Intergenerational Equity*, 11 ECOLOGY L.Q. 495 (1984).

wallet, kids or the rest of my rather modest property is suddenly yours; I am just passing through. (Even so, maybe you can keep the kids....) Furthermore, no state can, from its own territory or even its airspace, exercise exclusive control over this massive gaseous presence *in toto*; yet, such control or often exclusive possession is one of the traditional characteristics of sovereignty.<sup>119</sup> So, when dealing with the global atmosphere, such singular claims of sovereign control or possession are patently absurd.

Furthermore, if a state claims the global atmosphere above its national territory as its sole possession—a rather ludicrous assertion—such a *political claim will automatically disqualify it from asserting any subsequent legal claims concerning possible monetary awards due to the disproportionate damages done to its national territory by the MIOPs' disproportionate contributions of GHGs into the Earth's atmosphere as a whole. The legal responsibility of such damage will revert back to the state that claims the global atmosphere over its national territory as its sole possession, or under its exclusive control. So, a state can't have it both way; either the earth atmosphere is a global trust and thus possesses the explicit legal status of a res communis that should be available, preserved and perpetuated for all;*<sup>120</sup> *or the atmosphere becomes —while temporarily passing over a state's territory—subject to the exclusive control of the state. If the later obtains, there is very little chance of any legal standing by any state for the assertion of legal damages due to the negligence of others; this is because, when a state claims to “control” or exclusive possession of the global atmosphere as it passes over its national territory, then the state becomes the sole party responsible in any subsequent litigation for the damages done by climate change within its “national airspace.” In view of this, it is unlikely that states will pursue any such political claims to the Earth's atmosphere above their national territory.*

Finally, and most importantly, *the Earth's Atmosphere is absolutely necessary and essential, directly or indirectly, to all of life*

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<sup>119</sup> To review the role that possession and effective control have played in traditional claims of sovereignty, see: for example, Ken MacMillan, *Sovereignty and Possession in the English New World: The Legal Foundations of Empire, 1576-1640* (Cambridge Univ. Press., 2012); yet, concepts and applications of sovereignty are increasingly being challenged or changing see Gilad Sharon, *The Temple Mount*, JERUSALEM POST (Sept. 15, 2000), <http://www.jpost.com/Opinion/The-Temple-Mount-468940>.

<sup>120</sup> See Justinian Code, *supra* notes 46-49.

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*on the planet.* A national airspace is not. Hence, the latter is deserving, if not needing, effective legal protection as the *sin qua non* of life on the planet as a whole.<sup>121</sup> If this be doubted, simply try to hold your next breath, and do not rely anymore on the global atmosphere for your lungs to breathe. Yet, your right to your next breath of air is not exclusive; everyone on Earth has this obvious right and shares equally in the well being of the Earth atmosphere as a global commons, or *res communis*.<sup>122</sup> *As such, every living being, especially human beings, have a fundamental interest in, relationship to and need for the global atmosphere, as evidenced by our unfulfilled lungs which will instinctively and inevitably grasp for our very next breath. Thus, the Earth's atmosphere is absolutely necessary and essential to sustaining current as well as all future life on planet. When you are born, the umbilical cord to your natural mother is cut, and you take your first surging breath of air as your lungs are inevitability tied and joined, like an unseen umbilical cord, to the Mother Earth.*

In view of necessity, every human being on the planet has a common interest in, and right to unfretted access to, the Earth's atmosphere as a global trust.

A trust traditionally, though not exclusively, assigns and protects property.<sup>123</sup> In this regard, it is important to point out that the British philosopher John Locke considered the *inalienable rights of individual as part of his or her "property"*— as important as, if not more so, than any material wealth such as land.<sup>124</sup> If traditional trust law concerns "only" property, then there is no greater "property" than the essential **right** to breathe which makes our life –and all past, present and pending

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<sup>121</sup> See James F. Kasting et. al, *Life and the Evolution of Earth's Atmosphere*, 296 SCIENCE 1066-1068 (2002); James F. Kasting, *The Rise of Atmospheric Oxygen*, 293 SCIENCE 819-820 (2001). Finally see Lee R. Kump et al, *Rise of Atmospheric Oxygen and the "Upside-Down" Archean Mantle*, 2 GEOCHEM. GEOPHYS. GEOSYST. (2002).

<sup>122</sup> Joseph L. Sax, *Liberating the Public Trust Doctrine from its Historical Shackles*, 19 UC DAVIS L. REV. 185 (1980); See also Daniel Bodansky, *The Legitimacy of International Governance: A Coming Challenge for International Environmental Law?*, AM. J. INT'L. L. 596-624 (1999).

<sup>123</sup> See *supra* note 27.

<sup>124</sup> John Locke, *Second Treatise of Government* (C.B. Macpherson ed. Hackett Publ'g report 1980); See also A. John Simmons, *On the Edge of Anarchy: Locke's Consent and the Limits of Society* (Princeton Univ. press reprt. 1995); William Ebenstein, *Great Political Thinkers: Plato to the Present* 120 (Holt, Rinehart & Winston 4<sup>th</sup> ed. 1969).

life—possible. *In this sense, our need for and connection to the Earth's atmosphere as a basic right of our being human is absolute and essential.* As we have seen, the atmosphere is also a “thing”—a globe spanning massive gaseous body. In light of this, the Earth's Atmosphere as a critical *res communis*, should now — rather belatedly — be legally recognized as a global trust.<sup>125</sup> So, it is simply a glaring omission of current international law in general and Earth jurisprudence in particular that the explicit legal status of the Earth's atmosphere is not recognized as such a trust that belongs to the Earth, and to be maintained and enjoyed by present and future generation.

So, the UNGA nonbinding resolution, as the first step to a binding treaty, should also recognize that all member-states have a proportionate responsibility to monitor, maintain and **restore** the atmosphere as a global trust for present and future generations. In this sense, governments are trustees, while the peoples of the world are both trustors and beneficiaries of the Earth's atmosphere as a global trust.

Yet, if the UNGA is unwilling to initiate such recognition —via a nonbinding resolution that ideally will quickly lead to a binding treaty— then international law clearly provides globe spanning or regional groups of states, perhaps animated by a compelling interest —like the disappearing islands states in the Caribbean, Pacific or Indian oceans— with the sovereign power to come together to sign a treaty recognizing the same—namely, the Earth's Atmosphere as a global trust. Then, other states less able to act on the obvious can be invited to join the treaty; this has happened with other “global” treaties, such as the Non-Proliferation Treaty or the Law of the Sea, in the past.<sup>126</sup>

In doing so, such a resolution and recognition by the UNGA or other groups of states can build upon and strengthen the principle of the “Common Heritage of Humanity (mankind).”<sup>127</sup> The Earth's atmosphere as a global commons is essential to all life on the planet; yet, its legal status as a global trust still needs to be explicitly recognized and reaffirmed in order to allocate proportionate responsibility among all states concerning its preservation and restoration for present as well as

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<sup>125</sup> To my knowledge, this possibility was first mentioned in passing in 2012 in my article. See Thomas Boudreau, *The Law of Nations and John Locke's Second Treatise: The Emergence of the Fiduciary Order During World War II*, 15 J. Juris 285, 339 (2012) (where I briefly state: “the need to monitor and maintain the earth's atmosphere as a global trust for present and future generations”).

<sup>126</sup> See *supra* note 92.

<sup>127</sup> *Supra* note 64.

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future generations. In this way, the current legal order for this global commons becomes fully operative within the Law of Nations and, ultimately, should be embodied in a binding treaty.

Initiated by the developing countries, this process can begin with a nonbinding UNGA resolution or group of states who then approve a treaty that recognizes the Earth Atmosphere as a Global Trust. This first principle can stand on its own or as a basis for further action; each one of the legal principles (listed here) are an independent yet interrelated element of a global legal framework to confront and overcome climate change. The next step is thus:

*B. CONSISTENT WITH LEGAL CAPACITY BUILDING FOR  
DEVELOPING COUNTRIES, THE UNGA RESOLUTION CAN  
RECOGNIZE THE PRINCIPLE OF A STATE'S  
PROPORTIONATE RESPONSIBILITY*

**TO MONITOR, MAINTAIN AND RESTORE EARTH'S  
ATMOSPHERE AS A GLOBAL TRUST**

Sustainable development and the millennial goals are critical to improving the lives of billions of people on Earth.<sup>128</sup> Such a framework will enhance transparency by helping developing countries identify those states most responsible for climate change.<sup>129</sup> Yet, there will be very little or no further sustainable development anywhere on Earth without a sustainable global atmosphere that makes continuing progress in achievement critical development goals possible. Reversing climate change, collectively as well individually, to insure sustainable development for all is the greatest and most urgent challenge of our time. In short, we have to insure a sustainable global atmosphere first in order to achieve sustainable development for all present and future humans. **Time is rapidly running out so we have to take decisive and effective action NOW, building on the Paris Agreement's call for capacity building, beginning with the developing states who, frankly, have the most to lose.**

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<sup>128</sup> United Nations Millennium Development Goals, <http://www.un.org/millenniumgoals/> (last visited Mar. 1, 2017); See also Jeffrey Sachs, *The End of Poverty: Economic Possibilities of our Time* (Penguin Books, 2006).

<sup>129</sup> See *supra* notes 7-9; See also *infra* note 134.

As the Paris Agreement (2015) clearly states, there is a “significant gap” between what was promised and what is needed, so that the current commitments made during COP 21 to cut carbon emissions are simply not enough to prevent increasing global temperatures and thus catastrophic climate change.<sup>130</sup> Extreme weather events, increasing global temperatures, and eroding shorelines indicate the effects of climate change are already occurring.<sup>131</sup> In view of this, there is an urgent need to accelerate efforts in every forum available that can contribute to concrete and effective action that reverses the heating up of the Earth’s atmosphere as well as restores it to a sustainable level for life and development.

The Paris Agreement, while absolutely necessary, must not be the end but the beginning of enhanced and accelerated collective efforts to cut emissions, restore the atmosphere, and insure a viable global environment for future generations. In short, building on the work embodied in the Paris Agreement (2015), much more still needs be done, beginning with developing the international legal capacity leading to the international recognition, via a binding treaty, of the Earth Atmosphere as a global trust.

Once the Earth’s atmosphere is recognized as a global trust, an entire and powerful practice of well-established trust law in jurisdictions across the world concerning fiduciary obligations and duties becomes internationally available to governments and courts to address increasing climate change caused by human activity usually emanating from a state’s specific territory.<sup>132</sup> In particular, the doctrine of proportionate responsibility as well as the related juridical findings of concurrent or culpable negligence, suddenly become important possible legal consequences in domestic, regional, international or indigenous courts that every government or powerful government will now have to consider in its complex calculus of cost/benefits concerning current and future energy policies.<sup>133</sup> In short, as stated above, the legal recognition

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<sup>130</sup> See *supra* note 1.

<sup>131</sup> See *supra* notes 31-33.

<sup>132</sup> See *supra* note 61.

<sup>133</sup> Obviously, the legal literature on fiduciary duties, obligations relationships is voluminous; See Tamar T. Frankel, *Fiduciary Law* 251-67 (Oxford Univ. Press 2010); Deborah A. Demott, *Beyond Metaphor: An Analysis of Fiduciary Obligation*, DUKE L.J. 879 (1988); John F. Mariani et. al, *Understanding Fiduciary Duty*, 84 FLA. BAR J. 20 (2010); Symposium, *The Role of Fiduciary Law and Trust in the Twenty-First Century: A Conference Inspired by the Work of Tamar Frankel*, 91 B.U. L. REV. 833-35 (2011);



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of the atmosphere as an explicit *res communis* and legal trust via an interstate treaty provides a powerful legal remedy as well as a **judicable** test in establishing the **proportionate responsibility** of states.<sup>134</sup> States will then no longer continue to pollute the atmosphere with GHGs *with impunity*.<sup>135</sup> Specifically, there will be, at the very least, court cases brought by other states, as well as legal and political and even economic consequences. For instance, since the global atmosphere passed through every nation's airspace in the world, the increasing effects of climate change will be felt within the state's territory and so the *state should have standing within its own jurisdiction, as well as even the possibility of selective jurisdictions within certain MIOP states*, to pursue legal action for ensuing damages.<sup>136</sup> Even the increasing possibility of such costs and consequences, however seemingly remote

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Panel I: The Nature of Fiduciary Law and its Relationship to other Legal Doctrines and Categories Symposium, *Fiduciary Law's Holy Grail: Reconciling Theory and Practice in Fiduciary Jurisprudence*, 91 B.U. L. Rev. 921 (2011); Symposium, *The Rise of International Trust*, 32 VAND. J. TRANSNAT'L L. 519 (1999).

<sup>134</sup> Proportionate Responsibility is a much stronger doctrine, though similar in some respects to, the concept of "Common yet Differentiated Responsibilities." See, for example Duncan French, *Developing States and International Environmental Law: The Importance of Differentiated Responsibilities*, 49 INT'L. COMP. L. Q. 35-60 (2002); Lavanya Rajamni, *The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime*, 9 REVIEW OF EUROPEAN COMMUNITY & INT'L. ENVTL. L. 120-131 (2002).

<sup>135</sup> This issue is legally contested within domestic states. For an interesting discussion of such contested legality and "who is responsible" within the US for climate related legislation, see Ann E. Carlson, *Federalism, Preemption, and Greenhouse Gas Emissions*, 37 U.C. DAVIS L. REV. 281 (2003), *simultaneously* published in 27 ENV'TIONS ENVTL. L. & POL'Y J. 281 (2003). For an explanation of the Federal role in this issue, see Michael S. Greves, *Federalism Values and Foreign Relations*, 2 CHI. J. INT'L L. 355 (2001).

<sup>136</sup> There is a growing literature on the legal liability and responsibility of states concerning climate change; for example, see 54 Roda Verheyen, *Climate Change Damage and International Law: Prevention Duties and State Responsibility* (Martinus Nijhoff Publishers, 2005); Michael G. Faure & André Nollkaemper, *International liability as an instrument to prevent and compensate for climate change*, 43 A STAN. J. INT'L L. 123 (2007); D.A. Farber, *Basic Compensation of Victims of Climate Change*, 155 U. PA. L. REV. 1605-1656 (2007).

at first, could have a profound impact on the leaders, policy makers, diplomats and even the apologists of the MIOP states.<sup>137</sup>

In this regard, as mentioned before, it's an established principle of international law that states are responsible for the adverse consequences of actions that originate from their soil.<sup>138</sup> For instance, the United States attacked Afghanistan since the Taliban government in power there at the time harbored Osama Bin Laden and the Al Qaeda that, in turn, attacked America.<sup>139</sup>—If an international trust is violated or damaged it is the primary legal responsibility of the offending states as trustee to restore the damaged “goods” or stolen wealth to the status quo ante.<sup>140</sup> If this fails, then the offending states must seek the damaged party whole through surrogate means, such as monetary or even property awards. Under established negligence or tort law in many jurisdictions, the onus is on the worst offenders first, and a treaty should recognize this legal responsibility – though all states must have a role to play in order to preserve the Earth's Atmosphere as a Global Trust.<sup>141</sup> In

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<sup>137</sup> Several commentators realized that this will occur with the Paris Agreement (2015), even without full compliance; so the same should happen here. *see*, for example Wolfgang Obergassel et. al, *Phoenix from the Ashes—An Analysis of the Paris Agreement to the United Nations Framework Convention on Climate Change*. WUPPERTAL INSTITUTE FOR CLIMATE, ENVIRONMENT AND ENERGY (2016); Lukas Hermville, *Climate Change as a Transformation Challenge. A New Climate Policy Paradigm?*, 25 GAIA-ECOLOGICAL PERSP. SCI. & SOC. 19-22 (2016).

<sup>138</sup> *See supra* note 14 (Doctrine of State Responsibility, and the Trail Smelter case); *See also* N.L.J.T. Horbach, *The Confusion about State Responsibility and International Liability*, 4 LEIDEN J. INT'L. L. 47-74 (1991) (article a bit dated and has been superseded by developments, but it is instructive on the doctrine of state responsibility).

<sup>139</sup> For a contested view of this, *see* Derek Jinks, *State Responsibility for the Acts of Private Armed Groups*, 4 CHI. J. INT'L. L. 1-15 (2003).

<sup>140</sup> Arguing by analogy concerning the duties of *any* Trustee, and civil remedies; Rickett Grantham, *Disgorgement for Unjust Enrichment?*, 62 CAMBRIDGE L.J. 159-180 (2003); Barry L. Zins, *Trustee Liability for Breach of the Duty of Loyalty: Good Faith Inquiry and Appreciation Damages*, 49 FORDHAM L. REV. 1012 (1981); Finally *see* Paola Gallo, *Unjust Enrichment: A Comparative Analysis*, 40 AM. J. COMP. L. 431-465 (1989). As argued in Part I, there is a second tier of possible remediation as well.

<sup>141</sup> As mentioned above, the Rio Summit (1992) affirmed the responsibility of all states to address climate change. As the same time, the principle of Proportionate Responsibility (PR) advocated here is different than the one recognized in the Rio Declaration, which emphasized “common yet differentiated” responsibilities of states. As argued here, Proportionate responsibility argues that the MIOPs have the first and primary duty to take effective action, though all states must make effective good faith

this regard, the Rio Summit (1992) affirmed the responsibility of all states to address climate change.<sup>142</sup> At the same time, the principle of Proportionate Responsibility (PR) advocated here is different than the one recognized in the Rio Declaration, which emphasized the “common yet differentiated” responsibilities of states.<sup>143</sup> As argued here, Proportionate Responsibility argues that a small group of the worst offenders — the MIOPs — have the first, collective and primary duty to take effective action, though all states must make effective good faith efforts to reduce their carbon footprint as well.

Any state that egregiously ignores the compelling and scientific evidence about the anthropogenic origins and massive contribution to current climate change, and continues to pour GHGs into the atmosphere from its own territory, is committing an *Earth Crime*. Specifically, such a crime occurs when a state fails to use prudent care, breaching a common legal duty to protect the Earth or its commons as a trust, and wantonly destroys the health and well-being of present or future generations. In the past, states could perhaps once plea ignorance to the effects of GHGs in the atmosphere; but the scientific evidence has been persistent, growing and is now conclusive.<sup>144</sup> Further, gross negligence and wanton disregard or destruction of a global commons that results in real damages to present or future generations cannot longer be justified or denied by states; such activities that emanate from their own territories constitute an Earth Crime for which individual states can and must be held accountable if humanity is to flourish, or let alone survive, in the future. We do not live in some abstract Cartesian space that can be indefinitely trashed. Rather, we live in a fragile planet

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efforts to reduce their carbon footprint as well; Lavanya Rajamni, *The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime*, 9 REVIEW OF EUROPEAN COMMUNITY & INT’L ENVTL. L. 120-131 (2000).

<sup>142</sup> U.N. Conference on Environmental and Development, *Rio Declaration on Environmental and Development*, U.N. Doc A/CONF.151/26/ Rev. 1 (Vol. I), annex I (June 1992).

<sup>143</sup> See *supra* note 142; See also Tuula Honkonen, *The Principle of Common but Differentiated Responsibility in Post-2012 Climate Negotiations*. 18 REVIEW OF EUROPEAN COMMUNITY & INT’L ENVTL. L. 257-267 (2009).

<sup>144</sup> Donella H. Meadows et. al, *The Limits to Growth: A Report to the Club of Rome* (Universe Books, 1972); See also Donella Meadows et. al, *Limits to Grow: The 30-Year Update*, (Chelsea Green Publishing, 2004). See *supra*, notes 31-32

whose ecosystems necessary for life are in a very precarious balance; the law cannot be silent when the health and fate of the entire Earth and all of its inhabitants—human or other—are endangered. As a first and most immediate step in this regard, is to recognize the Earth's Atmosphere as a global trust.

Furthermore, since ancient Roman times, the status of a trust has been protected by law to insure against “unjust enrichment” — defined broadly as meaning the gaining of any kind of benefit from illegal use of the trust or proprietary resource — by trustees or other outside parties with access to the resources of the trust.<sup>145</sup> In medieval and modern times, a violation of a public trust — whether construed as the “King's Land” or property held in common — legally requires that restoration or restitution occurs so that the damages can be repaired and the integrity of the trust preserved.<sup>146</sup> Courts sometimes retroactively create and impose a “constructive trust” in order to insure that unjust enrichment is punished and future instances of abuse will be prevented.<sup>147</sup>

The scope of this unjust enrichment is now literally off the scales; with the recording of 400 PPM in May of 2013, the amount of CO<sub>2</sub> in the global atmosphere has reached levels that simply have no precedent in all of human history (*Scientific American*, 2013).<sup>148</sup> Over fifty percent

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<sup>145</sup> See *supra* notes 133,136 and 140. See Austin Walker Scott, *The Nature of the Rights of the “Cestui Que Trust”*, 17 COLUM. L. REV. 269, 269-290 (1917); See also Summer Maine, *Ancient law: Its Connection with Early History of Society and its Relation to Modern Ideas* (New York: Henry Holt and Co., 1906); Tamar Helfman, *Land Ownership and the Origins of Fiduciary Duty*, 41 REAL PROBATE AND TRUST J. 651 (2007); Peter Birks, *Unjust Enrichment* (2d ed. Calderon Law Series 2005); M.M. Litman, *The Emergence of Unjust Enrichment as a Cause of Action and the Remedy of Constructive Trust*, 26 ALTA. L. REV. 407 (2000); See also Reinhard Zimmermann, *The Law of Obligations: Roman Foundations of a Civilian Tradition* (Oxford U. Press, 1996) (Courts in multiple national jurisdictions, throughout the ages, have always held since Roman times that promises made in “legal situations” for the origins of legal obligation).

<sup>146</sup> See *supra* note 146. See also Andrew Kull, *James Burr Ames and the Early History of Unjust Enrichment*, 25 OXFORD J. LEGAL STUD. 297-319 (2005); *Keech v. Sandford*, 1 Lead. Cases in Eq. 48. (a key case that explains the duty of absolute loyalty of the trustee to trust).

<sup>147</sup> See *supra* note 147. See also Peter Millet, *Restitution and Constructive Trusts*, 114 LQR 399 (1998); See also A Conference on Restitution and Unjust Enrichment Symposium, *Topic II: The Availability and Justification of Property-Based Remedies in Restitution: Why In Re Omegas Group was Right: An Essay on the Legal Status of Equitable Rights*, 92 B.U.L. REV. 885 (2012).

<sup>148</sup> See *supra* notes 31-33.

of this increase was and is caused by simply four or five states that now have the responsibility to restore the Earth's atmosphere so that the mere existence of future generations is assured. The *collective contribution* of these few states, especially if it continues, is an Earth Crime since these activities from states' territories potentially threaten all of life on this fragile planet we call our home. The time for "finger pointing" among the MIOPs is over; *they must be collectively recognized for their massive contributions to GHGs to the global atmosphere, and held legally responsible as individuals or as a group.*

The possible and even increasingly probable finding by a domestic court of a developing nation concerning proportionate responsibility of a state, especially the MIOPs, suddenly becomes extremely relevant and necessary for every government to calculate and take into active policy formulation and implementation, especially when coupled with the extremely well established international legal principle that a *state is responsible for actions or damages that result from its territories.*<sup>149</sup>

The vast and increasing damages caused by global climate change are increasingly obvious, studied and most importantly, scientifically documented by the best scientists on the planet, such as though in the IPCC.<sup>150</sup> These scientific studies and documents can provide international, regional, national, or indigenous courts with compelling and convincing evidence of a state's proportionate responsibility for damages incurred by other plaintiff states, other entities capable of international legal personality or possibly even individuals. In fact, over 50% of the CO<sub>2</sub> and other greenhouses gases that the resulting and increasingly documented damages of global climate change are have historically emanated from the sovereign territory of only four or five developed or heavily industrialized states.<sup>151</sup>

A global commons as an explicit legal trust belongs to all, and no one state has the right to abuse it for its own purpose or profit. To do so creates, at the very least, a juridical issue concerning unjust enrichment as well as concurrent or culpable negligence in damaging the global atmosphere that should be accepted in international, regional, national or indigenous courts to adjudicate fairly, and then to decide in terms of the

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<sup>149</sup> See *supra* note 138-39.

<sup>150</sup> See *supra* notes 30-33.

<sup>151</sup> Koons, *supra* note 8.

documented damages actually done.<sup>152</sup> In particular, it is a recognized principle in trusts or negligence and tort law in many national jurisdictions that *those who cause the most damage bear the most responsibility to restore the status quo ante*, if possible.<sup>153</sup> In the international context, proportionate responsibility requires no less; as such, those MIOP states most responsible for the concurrent or culpable negligence that has occurred, endangering all, must be the first states to take remedial steps and act individually or collectively to restore the Earth's atmosphere.

The first goal of such mitigation and efforts as the *immediate task*, is to restore the atmosphere to levels below 400 PMM of CO<sub>2</sub>. This should still be achievable if each state develops and maximizes a comprehensive portfolio of mitigation methods and means that includes carbon sequestration and even geo engineering. Each MIOP state's proportionately responsibility can be roughly calculated and then can use its own uniquely tailored portfolio of mitigation methods to restore the atmosphere to accomplish this urgent and historic priority of humanity as a whole.<sup>154</sup> At the same time, it bears repeating that ALL states have a responsibility to lower carbon emissions emanating from their soil.

In light of this, a key set of legal questions then for the Courts to decide when allocating proportionate responsibility and deciding concurrent or comparative negligence become: a) What are the valid and admissible metrics to use in such determination; b) What is an exact or

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<sup>152</sup> See *supra* notes 134, 136, and 145-47.

<sup>153</sup> See *supra* notes 12 and 22; Also, Proportionate responsibility (PR) is often referred to as "proportionate liability" or "negligence" in law, though I prefer the more positive responsibility implied by PR. See Ronald A. Dabrowski, *Proportionate Liability in 10b-5 Reckless Fraud Cases*, 44 DUKE L.J. 571 (1994); David A. Jaffe, *Comment: The Allocation of Fault in Auditor Liability Lawsuits Brought by Sophisticated Third Party Users of Financial Statements—A Plea for Proportionate Liability*, 54 U. PITT. L. REV. 1051 (1993); Brinkley Rowe, *See No Fiduciary, Hear No Fiduciary: A Lawyer's knowledge Within Aiding and Abetting Fiduciary Breach Claims*, 85 FORDHAM L. REV. 1389 (2016).

<sup>154</sup> As remediation, the MIOP state should be able to select and invent in those areas that it has comparable advantage in green technologies, etc.—Courts do this in a variety of circumstances. See, for instance Kelse Moen, *A Choice in Criminal Law: Victims, Defendants, and the Option of Restitution*, 22 CORNELL J.L. & PUB. POL'Y 733 (2012); Also, the "Restorative Justice" movement can offer some insights in this regard, see Heather Strang & Lawrence W. Sherman, *Repairing the Harm: Victims and Restorative Justice*, 15 UTAH L. REV. (2003).

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even approximate point in time to begin measuring a state proportionate responsibility and thus possible or very real culpability for the resulting damages?; and c) What is the nature and character of the damages to be rewarded when and if negligence of a legal duty or the omission of a legal duty is established?

Concerning metrics, the courts can use a variety of well-documented scientific and economic records to determine the relative “contribution” and hence liability of each state.<sup>155</sup> This is especially true for the Greenhouse Gas gluttons, the MIOP states.<sup>156</sup> The consumption of oil per country, for instance, is well publicized and has been for some time. In short, approximate though accurate data is not that hard for the courts to obtain. For instance, even the CIA within the United States government publishes such data all the time.<sup>157</sup> So, do international organizations, global banks institutions as well as private Non-governmental organizations (NGOs).<sup>158</sup> The combined and still increasing use of carbon based fuels by the MIOPs is a matter of public record; of the industrialized states, only Germany has made significant efforts to go green in its economy and public life.<sup>159</sup> Most states still

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<sup>155</sup> The IPCC is probably the source of choice in this regard. Yet, there are a host of sources including: *World CO2 Emissions*, <https://public.tableau.com/s/gallery/world-co2-emissions>; *United Nations Statistics Division*, <https://mdgs.un.org/unsd/mdg/SeriesDetail> (containing UN records on Carbon Dioxide emissions (CO<sub>2</sub>), thousand metric tons of CO<sub>2</sub> (CDIAC) per country); *WRI Climate Analysis Indicators Tool*, World RESOURCES INSTITUTE, <http://cait.wri.org/> (containing records by the World Bank and OECD Stats Extracts).

<sup>156</sup> See *supra* notes 18 and 21-23.

<sup>157</sup> See *The World Factbook for Refined Petroleum Products*, CIA, <http://www.cia.gov/library/PUBLICATIONS/the-world-factbook/rankorder/2246rank.html> (last visited Mar. 21, 2017) (discussing country's total consumption of refined petroleum products by barrels per day (bbl/day)).

<sup>158</sup> For instance, the International Energy Agency (IEA) keeps a variety of records on oil consumption and climate change; see International Energy Agency, <http://www.iea.org/>; See also NGO “Edgar” data of the Joint Research Centre for the EU, [http://edgar.jrc.ec.europa.eu/overview.\\_pc1990-2014](http://edgar.jrc.ec.europa.eu/overview._pc1990-2014); Records kept by the World Bank and *OECD Stats Extracts* - Detailed *OECD* country level environment statistics on carbon consumption have been deleted from the web. If so, these may reflect political factors at work.

<sup>159</sup> To see how the German economy has grown in the area of Green technologies and green R&D, see Ralph Buehler et. al, *How Germany Became Europe's Green Leader: A Look at Four Decades of Sustainable Policymaking*, 2 SOLUTIONS J. (2011). Germany's Green party, once a newstart and political outlier has been part of the



diplomatically “deal” in the currency notes of the Kyoto and Paris Agreement (2015) process—consisting of basically “promissory notes” to cut carbon and GHGs sometime, somewhere, in a nebulous future.<sup>160</sup>

The second and key question is: What time frame or specifically starting point in time, [Here afterwards referred as *time-point*] ***should be used as the starting point to determine the proportionate responsibility*** and the subsequent liability of the MIOPS and other states? There are several possible starting points to use as the actionable time point for filing court cases concerning the damages occurring from current or future catastrophic climate change, including: a) The state’s *historic* Contribution of Carbon and Green House Gases in the Atmosphere (COCGHGs); b) the state’s **current** COCGHGs contribution to global atmosphere; c) the current *per capita* contribution of states to GHGs in the global atmosphere; d) Establishment by date of a high degree of ***scientific certainty and consensus***—above a 90 or 95 degree of certainty—in the international scientific community concerning the human causation of global climate change, such as the IPCC 2014 studies or the newly established the Anthropocentric Equation (Feb. 13, 2017) c) the ***final ratification*** of the actual treaty recognizing the Earth’s atmosphere as a global trust—a yet hypothetical future date and time.

I anticipate that the industrialized states will favor the last time point—*ratification*—which will delay the award and issue of damages even further and will give states—especially the powerful MIOPs—an extreme incentive in postponing or preventing the treaty from taking legal effect in the first place. Given this, I favor and argue here in

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German government. For further information on the group see *The Green Parliament Group in the German Bundestag*, <https://www.gruene-bundestag.de/service-navigation/english.html>.

<sup>160</sup> See Gerald Kutney, *Carbon Politics and the Failure of the Kyoto Protocol*, ROUTLEDGE (2014); A.M. Rosen, *The Wrong Solution at the Right Time: The Failure of the Kyoto Protocol on Climate Change*, 43 POL. & POL’Y, 30-58 (2015); See also Jagdish Bhagwati and Petros Mayroidis, *Is Action Against US Exports for Failure to Sign Kyoto Protocol WTO-legal?*, 6 WORLD TRADE REV. 299-310 (2007) (providing an interesting legal analysis on Kyoto). But the point is moot; hardly any state kept its Kyoto “promissory notes;” they are basically a bankrupt currency, yet the Paris 2015 agreements attempts to use the same notes, now due in 2020 AD. This time, I hope they succeed, despite previous evidence—but what if they don’t? So, this proposal is an alternative to negotiating in such needed but often unrealized climate currency...).



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support of a state's *historic* contribution as the starting point to be used by courts as the first or even main metric as the time point in measuring and adjudicating the proportionate responsibility; this time point which can be fairly well established by exiting scientific data, will then not be impacted unduly by the subsequent delays of ratification; a state's historic contribution of GHGs can then be used in the adjudication of trust law and the finding of proportionate responsibility, for (though not exclusively) concurrent or culpable negligence, especially to the land, livelihoods, property and peoples of developing countries. The "historic contribution" metric is critical and just in ascertaining proportionate responsibility since each state's COCGHGs can stay in the atmosphere for over a thousand years.<sup>161</sup> As already mentioned, powerful states already track, and often publish their own and other countries, historic as well as current use of carbon based fuels. So, this metric can be proportionately calculated with increasing scientific precision and certainty.

Any such finding based on the historic metric –or any other metric that each court will ultimately decide— will in turn have to determine the appropriate levels of unjust enrichment, negligence or damages by each state, beginning with the MIOPs, the most egregious offenders.<sup>162</sup> Until the danger of catastrophic climate change is over, the main focus of such damages should be on a state's proportionate responsibility *to restore the Earth's atmosphere* to a sustainable level, identified in this article below 400PPM as an immediate aim and 350 PPM as the ultimate goal. Monetary damages may also be appropriate and even necessary for the most vulnerable states, such as low lying island states, that must take immediate remedial actions in order to simply survive.<sup>163</sup> States determined to have the greatest proportionate responsibility and liability will then be primarily responsible to restore the Earth's atmosphere by pursuing immediate and ultimate goals. In short,

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<sup>161</sup> See *supra* footnote 18, 20; See also Thomas Frölicher et. al, *Continued Global Warming after CO2 Emissions Stoppage*, 4 NATURE CLIMATE CHANGE, 40-44 (2014).

<sup>162</sup> See *supra* notes 18-23.

<sup>163</sup> See 4 Martin Parry et. al, *Climate change 2007: Impacts, Adaptation and Vulnerability* (Cambridge Univ. Press, 2007) (This volume comprises the Working Group II contribution to the IPCC Fourth Assessment (AR4) and contains a Summary for Policymakers). See also Nobou Mimura, *Vulnerability of Island Countries in the South Pacific to Sea Level Rise and Climate Change*, 12 CLIMATE RESEARCH, 137-143 (1999).

prevention and restoration of the global atmosphere must still be the primary goal of the courts until the danger of climate change is finally overcome through appropriate mitigation methods. At the same time, ALL states share in this responsibility and must take the appropriate steps to restore the atmosphere to sustainable levels for present and future generations. ***It must be strongly emphasized that such atmospheric restoration is a job creating and employment enhancing activity for potentially millions of people throughout the globe.***<sup>164</sup>

Such restoration of the Earth's Atmosphere *is* still possible *if* governments spend a fraction on what they now spend on "defense" to fund such a remedial effort. While such partial defense cuts occur, the most powerful states may want to agree upon an "Earth Armistice" during which they and the MIOPS help to restore the Earth's atmosphere. Such restoration efforts by every state must include a managed portfolio of means and methods to achieve such a restoration including: a) the pledged carbon cuts incorporated in the Paris Agreement; b) in honor of Wangari Maathai, massive reforestation efforts on each inhabited continent of the world; and c) massive energy and resource conservation efforts. The worlds still waste an enormous amount of energy. As episodic evidence, for instance, my own "green" university keeps indoor lights on night and day; I go around turning them off in

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<sup>164</sup> Green technologies, especially in solar power, are a growth industry in developed or industrialized economies around the world. this has been known by astute policy makers and economists for some time. Germany and China currently lead in these areas. See Ulrike Lehr & Christian Lutz, *Green jobs? Economic Impacts of Renewable Energy in Germany*, 47 ENERGY POL'Y 358-364 (2012); Ulrike Lehr et. al, *Renewable Energy and Employment in Germany*, 36 ENERGY POL'Y 108-117 (2008); Keith Bradsher, *China Leading Global Race to Make Clean Energy*, NY TIMES (Jan. 30, 2010), <http://www.nytimes.com/2010/01/31/business/energy-environment/31renew.html>; Also see growth potential in Denmark, Brad v. Mathiesen et. al, *100% Renewable Energy Systems, Climate Mitigation and Economic Growth.*, 88 APPLIED ENERGY 488-501(2011). And even in the United States, see Max Wei et. al, *Putting renewables and energy efficiency to work: How many jobs can the clean energy industry generate in the US?*. 38 ENERGY POL'Y. 919-931 (2010). For a dated overview of global potential growth in this area, which demonstrates that such potential for economic job creation has been known for a while, see Janet L. Sawin, *National Policy Instruments: Policy Lessons for the Advancement & Diffusion of Renewable Energy Technologies Around the World*, Renewable Energy, International Conference for Renewable Energies Bonn (2004), <http://www.ren21.net/Portals/0/documents/irecs/renew2004/National%20Policy%20Instruments.pdf>.

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disbelief that such mindless behavior exists on this or any campus. Every wired institution, building or home can probably decrease its energy use to an absolute minimum, d) massive and increasing energy efficiencies in existing carbon consuming technologies; e) the experimentation, testing then massive deployment of carbon sequestration and geo-engineering technologies, beginning in the southern oceans and largely inhabited areas such as Antarctica—e) the massive mobilization of Research and Development (R&D) in alternative energies, carbon sequestration or geoengineering technologies, energy efficiencies, and sustainable development. All of these steps require the mobilization of peoples throughout the world commensurate with the growing threat of catastrophic climate change for such cuts, conservation and R&D efforts; frankly, such mobilization is needed and such effective massive efforts cannot be delayed much longer, even by those fortunate few who most highly prize or benefit from the increasingly unsustainable climatic *status quo*.

We will examine how such restoration of the Earth Atmosphere can occur as part of every state's proportionate responsibility to repair the damage they've done to this essential and life giving global commons.

C. IN DECIDING PROPORTIONATE RESPONSIBILITY OF  
STATES FOR CLIMATE CHANGE, COURTS SHOULD FIRST  
FOCUS ON "DAMAGES" THAT RECOMMEND OR  
REQUIRE THE RESTORATION OF THE EARTH'S  
ATMOSPHERE AS THE MOST IMMEDIATE AND URGENT  
CHALLENGE FACING HUMANITY UNTIL THIS GROWING  
DANGER IS PAST

The immediate task of all states, especially the MIOPs, must seek to restore the global atmosphere to levels below 400 PPM as an immediate and achievable task. The *ultimate task* by all states must be collective efforts to restore the Earth's atmosphere to 350 PPM, the level that Dr. James Hansen of NAS and other scientists have identified as critical to sustaining life on this planet.<sup>165</sup> Thus, the UNGA resolution

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<sup>165</sup> James E. Hansen et. al, *Target atmospheric CO<sub>2</sub>: Where should humanity aim?*, OPEN ATMOS. SCI. J., 2, 217-231 (2008); See also James E. Hansen and Makiko Sato, *Paleoclimate implications for human-made climate change*, 11 SPRINGER, 21, 21-47 (2012); James Hansen et. al, *Perception of climate change*, 109 PNS, E2415-E2423 (2012); James E. Hansen, *Defusing the global warming time bomb*, 290 SCIENTIFIC

should call for the **RESTORATION** of the Earth Atmosphere as a global trust for present and pending generations; this is now an immediate and historic responsibility of humanity.

It should be pointed out that **restoration** efforts, broadly defined to include the needed research and development of Green Technologies, as well as subsequent implementation, can also create thousands of jobs throughout the world.<sup>166</sup> China and Germany are already well advanced in developing appropriate green technologies but much more needs to be done.<sup>167</sup> Specifically, we must experiment with, and deploy *carbon sequestration methods and technologies, among other possible techniques and conservation strategies*, to lower the Greenhouse Gases (GHGs) in the atmosphere.<sup>168</sup>

The most promising approaches to the **restoration** of the global atmosphere will have to involve carbon sequestration as well as “geoengineering” on a potentially massive scale. In particular, the “Iron Hypothesis”—the placing of iron particles in the oceans to grow massive plankton blooms has not been empirically tested to the necessary degree or scale of potential oceanic application—beyond feeble “one (or two) shot” attempts and then subsequent very tentative studies.<sup>169</sup> The critical

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AMERICAN, 68-77 (2004). (Simply stated, Dr. Hansen of NASA is a Hero of Humanity.).

<sup>166</sup> See *supra* note 164.

<sup>167</sup> *Supra* note 165.

<sup>168</sup> See for instance R. Greene et. al, *Testing the Iron Hypothesis in Ecosystems of the Equatorial Pacific Ocean*, 371 NATURE 123-129 (1994); John J. Cullen, *Status of the Iron Hypothesis after the Open-Ocean Enrichment Experiment*, 40 LIMNOLOGY AND OCEANOGRAPHY 1336-1343 (1995); Caroline Fopyera, *The Iron Hypothesis*, EARTHMAGAZINE (Oct. 1996), <http://www.palomar.edu/oceanography/iron.htm>; *Carbon Sequestration*, LAMONT-DOHERTY EARTH OBSERVATORY, [www.ldeo.columbia.edu/gpg/projects/carbon\\_sequestration/](http://www.ldeo.columbia.edu/gpg/projects/carbon_sequestration/); David Biello, *Controversial Spewed Iron Experiment Succeeds as Carbon Sink: Dumping Iron into the Ocean Stimulates Blooms of Diatoms that pull down Carbon Dioxide in the Atmosphere—but only under the Right Conditions*, SCIENTIFIC AMERICAN (Jul. 18, 2012), <https://www.scientificamerican.com/article/fertilizing-ocean-with-iron-sequesters-co2/>.

<sup>169</sup> In the so-called scientific literature on this topic, I have seen very limited one trial or “single shot” experiments or attempts to fertilize the Ocean with Iron and then describe the results as a failure of the “Iron hypothesis; these “scientific” studies will not be graced with a citation here; of course there are and will be problems with the Iron Hypothesis—it can’t be easy to do. But in view of the magnitude of the crisis we face, scientists and oceanographers must try. The repeated efforts of Thomas Edison to

**restoration** of the global atmosphere can be enhanced by developing, *a portfolio of mitigation methods*; such a portfolio must specifically include concerted efforts to develop an experimental and then ideally, if proven effective, the operational capability to deploy iron filings from ships—the so-called “Iron Hypothesis,”—on a massive scale in the Southern Oceans (NASA, 2015; George, 2007).<sup>170</sup>

In particular, the iron ore mines of Argentina are near railroad lines that lead directly to ports on its southern coast (Puerto Deseado), where the great Antarctica plankton blooms seem to begin. Argentina is ideal since all the key components of carbon sequestration can be brought together with the smallest carbon footprint and maximum potential impact. Thus, the MIOPS should begin to fund pilot projects in Argentina and, when proven though constant experimentation and testing to work, commence large scale implementation of carbon sequestration right on Argentina’s coast where the subsequent Plankton blooms might spread throughout the southern oceans.<sup>171</sup>

Carbon sequestration, which involves land or sea based efforts to capture and sequester CO<sub>2</sub>, removing it from the global atmosphere, is distinguished here from Geo-Engineering efforts that involves the

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make something WORK comes to mind as a productive example of the science needed. Or we can be content—unlike Edison—to live in the dark.

<sup>170</sup> See John H. Martin, *Glacial-interglacial CO<sub>2</sub> Change: The Iron Hypothesis*, 5 PALEOCEANOGRAPHY 1-13 (1990); H.J. De Barr et. al, *Importance of Iron for Plankton Blooms and Carbon Dioxide Drawdown in the Southern Ocean*, 373 NATURE 412-415 (1995). Seeding Plankton blooms has been tried with considerable success in other oceans; see for instance: A. Tsuda et. al, *Mesozooplankton Responses to Iron-Fertilization in the Western Subarctic Pacific*, 64 PROGRESS IN OCEANOGRAPHY 237-251 (2005).

<sup>171</sup> To see NASA photo graphic evidence of this, see Jacques Descloitres et. al, *Phytoplankton Bloom off Argentina*, (Feb. 10, 2003), <https://visibleearth.nasa.gov/view.php?id=65000>. (NASA explains: “Blooms in this area occur regularly due to the existence of what oceanographers call a convergence zone —where two strong ocean currents meet. In this case, the convergence is that of the warmer, lower-nutrient Brazil Current, which flows southward toward the pole along the coast of South America and the northward-flowing Falkland Current. Although the exact meeting point varies, convergence is usually somewhere around 39 degrees south latitude.”) This is the perfect point to begin massive implementation of the Iron Hypothesis. See also Virginia E. Villafañe et. al, *Annual Patterns of Ultraviolet Radiation Effects on Temperate Marine Phytoplankton off Patagonia, Argentina*, 26 JOURNAL OF PLANKTON RESEARCH 167-174 (2004).

airborne efforts to spray or cast out effluents that will then reflect the sun's light back into outer space.<sup>172</sup> While both approaches involve dangers and possible unseen consequences, I favor carbon sequestration over geo-engineering since it can be deployed in large areas in removed places far from population centers. Yet, all methods must be attempted, and implemented until one or more are proven to succeed in cutting the constant increases in CO<sub>2</sub>, GHGs, in the Earth atmosphere, as well as the slow but steady increase in the Earth's average temperature are stopped and reversed; these approaches include: carbon cuts which have been preferred and the focus of most international efforts since the Rio Earth Summit; a) carbon sequestration based on the Iron hypothesis; b) carbon farming<sup>173</sup>; c) olivine oxidation;<sup>174</sup> d) geoengineering such as the purported possibilities of solar reflection.

Other potentially large scale carbon sequestration methods must be implemented, as well. Untried ways to achieve the massive carbon sequestration should be as varied and innovative as the human imagination and following policy initiatives allow. For instance, vastly expanded and added efforts must include, in memory and honor of Wangari Maathai, the continuous planting a billion trees per year on each of the inhabited mainland continents;<sup>175</sup> there should also be

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<sup>172</sup> I have always made this distinction based on the very different methods and technologies involved. See also Janos Pasztor, Simon Nicholson & David Morrow, "Briefing Paper on Climate Engineering" Carnegie Council, NYC Sept 30, 2016.

<sup>173</sup> See Albert Bates, *The Biochar Solution: Carbon Farming and Climate Change* (New Society Publishers 2010); J. Funk and S. Kerr, *Restoring Forest through Carbon Farming on Maroi Land in New Zealand/ Aotearoa*, 27 MOUNTAIN RESEARCH AND DEVELOPMENT 202-205 (2007); What is carbon Farming?, Marin carbon Project, <http://www.marincarbonproject.org/what-is-carbon-farming> (last visited Jan. 1, 2017); K. Becker et. al, *Carbon Farming in Hot, Dry Coastal Areas: An Option for Climate Change Mitigation*, 4 EARTH SYSTEM DYNAMICS 237-251(2013). For carbon trade-offs, see Andrew Macintosh and Lauren Waugh, *An Introduction to the Carbon Farming Initiative: Key Principles and Concepts*, ANU CENTER FOR CLIMATE L. POL'Y (2012).

<sup>174</sup> B. Garcia et. al, *Experiments and Geochemical Modeling of CO<sub>2</sub> Sequestration by Olivine: Potential Quantification*, 25 Applied Geochemistry 1383-1396 (2010); K.S. Lackner, *A Guide to CO<sub>2</sub> Sequestration*, 300 SCIENCE 1677-1678 (2003); Develena Mani et. al, *Assessment of Carbon Dioxide Sequestration Potential of Ultramafic Rocks in the Greenstone*, 94 CURRENT SCIENCE 83-90 (2008).

<sup>175</sup> Wangari Maathai, *Challenge for Africa*, 6 SUSTAINABILITY SCIENCE 1-2 (2011); Wangari Maathai, *Replenishing the Earth: Spiritual Values for Healing Ourselves and the World* (Doubleday religion 2010). Ms. Maathai is, like Dr. James Hansen, a Hero of Humanity! The planning of trees could also be done on islands, not just continental landmasses. See also J. Funk & S. Kerr, *Restoring Forest through*

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massive and accelerated conservation efforts with energy or electricity as well as recycling, especially throughout the developed world where the waste is greatest.

Time is now not on our side as the danger of irreversible climate change is rapidly growing; so, we need to accelerate global climate consultations, continuous negotiations and lasting action. As a global organization, the UNGA can help mobilize the necessary research and development of policies, programs and technologies especially during yearly or bi-yearly special sessions to accomplish greater efficiencies in all possible mitigation methods, including healthy carbon *sequestration as well more remote techniques as “in stratosphere” and space-based solar screening*. In short, every possible mitigation method or every “Experiment with Truth” —in the spirit of Gandhi — must be tried until one or more mitigation method proves effective.<sup>176</sup>

In doing so, the rather obvious ethical and even legal rule of application is that such mitigation or sequestration technologies should not be deployed if the actual damage that they cause is greater than the growing danger and increasing devastating consequences of continuing, unabated global climate change. There is now a cruel yet unavoidable calculus of cost-benefits calculations concerning the benefits and inevitable consequences of simply doing nothing, such as droughts, migrations and increasing extinction events. For instance, critics of carbon sequestration in the oceans often cite the unintended potential consequences of large scale deployment of technologies based on the Iron Hypothesis; yet, there is a massive and growing toxic orange algae bloom growing off the coast of California RIGHT NOW (2017) caused by increased temperatures and unabated climate change.<sup>177</sup> This toxic bloom is causing a massive and growing kill-off of fish, the seabirds or mammals that rely upon them.

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*Carbon Farming on Maroi Land in New Zealand/ Aotearoa*, 27 MOUNTAIN RESEARCH AND DEVELOPMENT 202-205 (2007).

<sup>176</sup> Mohandas Ghandi, *Autobiography: The Story of my Experiments with Truth* (Courier Corporation, 1948); Richard L. Johnson, *Gandhi's experiments with truth: essential writings by and about Mahatma Gandhi* (Lexington Books, 2005).

<sup>177</sup> Tom Di Liberto, *Scientists Link Toxic Algal Blooms Along U.S. West Coast to Warm Waters in the Pacific*, NOAA (Jan.23, 2017), <https://www.climate.gov/news-features/event-tracker/scientists-link-toxic-algal-blooms-along-us-west-coast-warm-waters>.

Elsewhere, species extinction is accelerating due to climate change, and projected to continue in the future.<sup>178</sup> Scholars and policy makers have long speculated about the inevitable increases in human conflict as entire populations migrate or suffer from famine or drought due to climate change.<sup>179</sup> *The increasing costs of not doing anything effective*—and thus allowing such unintended consequences to GROW—has to be calculated against the possible and still hypothetical unintended consequences of carbon sequestration methods. Due to the *rapidly collapsing climate status quo*, the deadly costs of doing “nothing more” are very steeply increasing.

“Policy Purists” who advocate “carbon cuts or nothing!”—which was perhaps an appropriate attitude and approach twenty years ago—are now possibly the greatest hindrance to climate progress and even human survival. There are now rapidly increasing costs of doing nothing can to be measured, calculated and compared, even roughly, against the inevitable cost/benefits of carbon sequestration methods, geo-engineering and the R/D of new technologies; the time has now simply passed when ethically “ideal” or “pure” cost free measures were perhaps feasible. The Earth is rapidly heating up to uninhabitable levels, or will in the next years and decades, the polar ice caps and glaciers are melting at unprecedented levels, sea levels are rising and extreme weather events are spreading as well as intensifying; in view of deeply troubling developments, we need to intensify our efforts through *a collective commitment to climate policy pluralism and have a variety of strategies, methods and approaches to stabilizing the Earth’s climate*; so far, it becoming increasingly obvious—except to rabid climate deniers and ironically environmental purists—that carbon cuts alone simply aren’t working.

The Paris Agreement states that, even if fully implemented, the Agreement will leave significant gaps in the action that is needed. Furthermore, what if “Plan A”—the Paris Agreement and the promised carbon cuts—simply does not work in time, or are too little too late? The

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<sup>178</sup> See Thomas C. D. et. al, *Extinction Risk from Climate Change*, 427 NATURE 145-148 (2004); Christopher A. Scholin et. al, *Mortality of Sea Lions Along the Central California Coast Linked to a Toxic Diatom Bloom*, 403 NATURE 80-84 (2000).

<sup>179</sup> See Thomas F. Homer Dixon, *Environmental Scarcities and Violent Conflict: Evidence from Cases*, 19 INT’L SEC. 5-40 (1994); Solomon S. Hsiang et. al, *Quantifying the Influence of Climate on Human Conflict*, 341 SCIENCE 1235367 (2013); Rafael Reuveny, *Climate change-induced migration and violent conflict*, 26 POL. GEOGRAPHY 656-673 (2007).



specter of the similar yet largely unsuccessfully Kyoto Protocol based largely on the same process of providing “promissory notes” concerning voluntary carbon cuts by states, should caution us not to place all our hopes again in only one approach or plan.<sup>180</sup> In view of this, we need, *a truly experimental approach to try simultaneously other diplomatic approaches and collective methods to prevent further catastrophic climate change*. Only when this immediate and ultimate danger is passed can the courts assign final damages for the increasing damages and catastrophic consequences of global climate change. Until that day, we have legal work to do in creating greater capacity, especially for the developing states, by establishing a global legal framework that recognizes the Earth’s atmosphere as a global trust which will be the first critical step in its restoration.

Governments, especially the large industrialized ones or MIOPs, already have the money to accomplish this goal of restoration. For instance, according to the Stockholm International Peace Research Institute Global military expenditure in 2015 was an estimated \$1676 billion, representing an increase of about 1.0 per cent in real terms from 2014.<sup>181</sup> Given this, states have the funds—and can devote a significant fraction of this enormous expenditure of funds to actually overcoming climate change in the very near future. To do so requires states to define their current and future national security in terms of ending the threat of climate change; this is becoming increasingly obvious to defense ministries around the world.<sup>182</sup> This may require an “Earth Trust

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<sup>180</sup> See Peter Christoff, *The Promissory Note: COP 21 and the Paris Climate Agreement*, 25 ENVTL. POL. 765-787 (2016).

<sup>181</sup> Sam Perlo et. al, *Trends in World Military Expenditures, 2015*, Stockholm International Peace Research Institute (SIPRI) (Apr. 2016), <http://books.sipri.org/files/FS/SIPRIFS1604.pdf> (Stockholm International Peace Research Institute finding that global military expenditure in 2015 was an estimated \$1676 billion, representing an increase of about 1.0 per cent in real terms from 2014.”); See also Bahattin Gonultas, *World Military Spending up Again After 4 Year Fall*, Anadolu Agency (Apr. 5, 2016), <https://www.highbeam.com/doc/1G1-448461275.html>.

<sup>182</sup> See for example; though the US is backtracking under its new administration (2016), see: Secretary of Defense Carter: the “growing strategic impact of climate change, THE CENTER FOR CLIMATE & SECURITY EXPLORING THE SECURITY RISKS OF CLIMATE CHANGE, <https://climateandsecurity.org/2016/06/06/secretary-of-defense-carter-on-the-growing-strategic-impact-of-climate-change/> (last visited Jan. 1, 2017); For an interesting analysis of the Russian government’s recognition of this threat, see Jim Ludes, *Russia Sees Climate Change as Security Threat*, ASP (Mar. 26, 2010),

Armistice” between the MIOPs during which they help to restore the Earth’s atmosphere. Governments of the United States, China, Germany and the EU as well as Russia—the MIOPs—currently have the necessary funds to overcome climate change and restore the atmosphere to a nonthreatening level to all of life—if they define their national security in terms of ending drastic climate change. The MIOPs—who are also major spenders in arms expenditures—must lead in this effort, especially in view of their historic and continuing contributions to the GHGs that are largely responsible for climate change. Yet, vested interests within governmental bureaucracies are powerful forces to preserve the budgetary status quo unless there are countervailing factors and pressing considerations that a country’s leadership must face and thus force changes within their government. If the Earth’s Atmosphere is internationally recognized as a global trust, then one such factor—however marginal—might be the pressing reality and prospect of such governments being held legally accountable for their proportionate responsibility to restore the atmosphere. If the domestic or regional courts of developing countries vigorously pursue this issue within their own jurisdictions, then *the cumulative impact* of several court decisions on the spending priorities of the MIOPs may prove to be very significant, especially if the courts find not only states but individual leaders personally responsible. Fortunately, there is a carrot—unlike carbon cuts which are often viewed as punitive by some governments, restoration of the earth’s atmosphere can be a much greater domestic economic stimulus than military spending and thus help create hundreds of thousands of permanent jobs throughout the world. This stimulus result will make any current leader much more popular at home, and even abroad.

In short, this goal of atmospheric restoration is still within reach; if there are enough or even the same number of entrepreneurial scientists

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<http://www.americansecurityproject.org/russia-sees-climate-change-as-security-threat/>. NATO has made statements on this connection between climate and security as well; see Shiloh Fetzek, *NATO Secretary General: Climate Change is also a Security Threat*, THE CENTER FOR CLIMATE & SECURITY EXPLORING THE SECURITY RISKS OF CLIMATE CHANGE, <https://climateandsecurity.org/2016/06/09/nato-secretary-general-climate-change-is-also-a-security-threat/> (last visited Jan. 1, 2017); See also Jon Barnett, Security and Climate Change, 13 GLOBAL ENV’T’L CHANGE 7-17 (2003) (Albert Scholars arguing for a redefinition of national security to incorporate concerns about climate change).

and engineers that, say, work in defense industries or space agencies among the MIOPS, this goal should be within human possibility to obtain.<sup>183</sup> But time is rapidly running out. Our collective capacity to restore the global atmosphere will inevitably degrade due to the increasing damage caused by climate change to the ecologies and economies of the world. Also, there are always the specters fueled by increasing national debts of economic decline or even catastrophic international war. States and peoples—must undertake—in the spirit of Gandhi— massive “Experiments with the Truth” and begin sustained diplomatic efforts immediately to restore the atmosphere before we soon simply run out of time.<sup>184</sup>

#### V. STRENGTHENING GLOBAL GOVERNANCE: ACCELERATED AND SIMULTANEOUS GLOBAL CLIMATE NEGOTIATIONS

In his remarkable book, *Crisis of Global Sustainability* (2013), Dr. Tapio Kanninen argues that the world must rapidly develop new ways of global governance if it is going, in fact, to survive; the old ways simply are not working on the scale or at the speed necessary now to insure global sustainability.<sup>185</sup> In particular, he argues quite persuasively that we need to develop new strategies and ways of thinking to address the

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<sup>183</sup> See Jason Koebler, Military Engineer Shortage Could Threaten Security, US NEWS AND WORLD REPORT (Mar. 6, 2012 at 5:30PM), <https://www.usnes.com/news/articles/2012/03/06report-military-engineer-shortage-could-threaten-security> (According to a recent report, the US Defense spending and Department employs around a 100,000 scientists.); See also Peter, *supra* note 181.

<sup>184</sup> Gandhi, *supra* note 176.

<sup>185</sup> Tapio Kanninen, *Crisis of Global Sustainability* (New York: Routledge, 2013) (Dr. Kanninen is the latest in a long line of distinguished diplomats, scholars and scientists who have also evaluated or called for global governance of the commons.); See also Elinor Ostrom et. al, *Revisiting the Commons: Local Lessons, Global Challenges*, 284 SCIENCE 278-282 (1999); See Ed. O. Young, *Science Plan for Institutional Dimensions of Global Environmental Change* (International Human Dimensions Programme on Global Environmental Change, Bonn, Germany, 1999); Oran R. Young, *Global Governance: Drawing Insights from the Environmental Experience* (MIT Press, Cambridge, MA, 1997); Peter M. Haas et. al, *Institutions for the Earth: Sources of Effective Environmental Protection* (MIT Press, Cambridge, 1993).; Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge Univ. Press, 1990).

unfolding global crisis of climate change. An experienced and accomplished diplomat, Dr. Kanninen's advice concerning global governance needs to be taken seriously and actually implemented as soon as humanly possible, and not sometime in a hypothetical, and increasing "at risk," future.

Building upon Dr. Kanninen's ideas, this article argues that the United Nations take immediate evolutionary steps to establish the Earth's atmosphere as a global trust based on the Charter and fully consistent with its fiduciary foundations in the fiery agony of World War II (Boudreau, 2012)<sup>186</sup>; in particular, the UNGA may be *the only global membership body* with explicit trusteeship responsibilities in its Charter that can create the necessary international legal framework for monitoring and maintaining the Earth's atmosphere as a global trust. As such, it has a critical role to play in addressing and reversing the consequences of human-induced climate change.

Consistent with the powers and responsibilities of the UNGA provided by Article 13 of the UN Charter for the "progressive development of international law," the UNGA specifically can initiate the drafting of the appropriate treaties necessary to allocate the legal proprietary and proportionate responsibility for cleaning up the global atmosphere among all its members.<sup>187</sup> This—proportionate state responsibility will then apply to those that have significantly contributed to this problem and can afford to undertake restoration restitution as well as develop the necessary research and technology to accomplish greater efficiencies in carbon sequestration. For instance, specific treaties could address international agreements concerning commitments to accelerated research and development of mass carbon sequestration techniques, or to these technologies' deployment. Such legal codification must continue until the danger is fully averted.

## VI. REDOUBLE THE EFFORT: THE NEED FOR DUAL TRACKS – UNFCCC AND UNETS

Since the Rio Earth Summit in 1992, UNFCCC has been the main vehicle for all the world's aspirations and efforts to curtail greenhouse

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<sup>186</sup> See Boudreau, *supra* note 125; See also Thomas Boudreau and Juan Carlos, *Advances in International Law and Jurisprudence: Enhancing the Role of the Judiciary in Upholding the Rule of Law* (Elias Press, 2017).

<sup>187</sup> U.N. Charter art. 13.

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gases; yet, in all those years, there have been dozens of international conferences, many promises, but precious little real progress.<sup>188</sup> In the meantime, policy makers, diplomats, scientists, NGO representatives and the media have jetted from one conference to another, leaving an enormous carbon footprint and thus contributing to the very problem that they protest; yet, at the same time, as the news from Hawaii in 2013 indicates, the CO<sub>2</sub> PPM has reached the 400 PPM level and is now (2017) at 407 PPM.<sup>189</sup> Something else must be tried and implemented immediately as well if we are to avoid catastrophic climate change. Extreme weather events, including record rains, floods, and record hot temperatures as a result of the changing climate is already ferociously engulfing the world.<sup>190</sup>

In light of this, efforts to reduce the world use of carbon-based fuels are essential and must continue, even if the “promissory notes” of the Paris Agreement are only to be fully implemented until 2020 AD; but we cannot wait to see how or whether states comply, or not.<sup>191</sup> *At the same time, due to the stakes involved, other international negotiating options or tracks concerning climate change must be opened*

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<sup>188</sup> The proof is in the pudding; CO<sub>2</sub> in the atmosphere continues to climb, as do record breaking annual temperatures and extreme weather events. As of March, 2017, the amount of CO<sub>2</sub> in the global atmosphere is 407.46ppm and climbing. Last year, at this time, CO<sub>2</sub> levels were at 403.79. See CO<sub>2</sub>. Earth, <https://www.co2.earth/> (last visited Mar. 1, 2017). Yet, despite these alarming increases, The Conference of the Parties (COP), set up to monitor progress, has continued to jet-set around the world since 1995, meeting every year, to determine if parties are keeping their commitments to voluntary cut carbon emissions. Yet, during most of the UNFCCC time frame, worldwide net emissions of greenhouse gases from human activities have increased dramatically by estimates ranging from 35 to 48 percent (from 1990 to 2010.) Yet, still they fly, thus contributing to the very problem that they protest. This highlights the need and advantage of utilizing the largest diplomatic community already in place at the United Nations to conduct further climate change negotiations. For a variety of estimates on the dramatic increase in CO<sub>2</sub> in the global atmosphere since Rio in 1992, see *supra* note 5.

<sup>189</sup> See *supra* note 5.

<sup>190</sup> *Supra* notes 26-27.

<sup>191</sup> If the Kyoto Protocols are any indication, the world will significantly fail in cutting carbon by 2020 AD as well; with no other plan in place besides cutting carbon, such as the one outlined in this essay, we are then *in very serious trouble*..... See David G. Victor, *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming* (Princeton Univ. Press, 2004); See also Gwyn Prins and Steve, *Time to Ditch Kyoto*, 449 NATURE 973-975 (2007).

*immediately and diligently pursued as well. We need to try all options until one or more are proven to work.* One such possibility is to employ the United Nations General Assembly—the largest diplomatic community in the world—in continuous climate change negotiations in New York; so there is no need for further jet travel to yet another conference. Specifically, the UNGA can meet, under Article 20 of the UN Charter in special meetings or sessions in the spring of every year in NYC to address the critical crisis of global climate change under the danger is overcome.<sup>192</sup>

At the very least, there should be a combination of “DUAL TRACK” climate negotiating efforts designed to: a) cut carbon emissions; the Paris Agreement is the latest effort in this regard.<sup>193</sup> (COP—UNFCCC) as well as: b) Restore the atmosphere as a global trust for present and future generations; such diplomatic efforts can occur within the context of the UN Environmental Trusteeship System or UNETS, centered in the UNGA, that encourages the development of international law through initiating specific treaties that seek to promote the restoration of the Earth’s Atmosphere (UNGA-UNETS).<sup>194</sup> Legal trusteeship is fully consistent with its origins and purposes of the United Nations; specifically, the United Nations as a whole, and the UNGA in particular, had its origins in the fiduciary promises that the Allied Powers made to their own and others peoples—including the conquered, colonial and neutral peoples of the world, in order to mobilize them and help win World War II.<sup>195</sup> The point is that the concept and application of international trusteeship can be found in the fiery fiduciary foundations of the UN Charter itself, whose drafting began even as fighting in Europe and the Pacific continued. In fact, I argue elsewhere that the UN charter is a combination of treaty and trust law.<sup>196</sup> As such, the UNGA with all its current political fault-lines and past failures is a beckoning resource of international diplomacy whose role can be greatly expanded by initiating a second track of international diplomacy aimed at creating UNETS and thus accelerating dual track climate negotiations aimed at restoring the Earth Atmosphere as a Global Trust.

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<sup>192</sup> U.N. Charter art. 20.

<sup>193</sup> United Nations, *supra* note 1.

<sup>194</sup> See Thomas Boudreau, *UNETS: United Nations Environmental Trusteeship System* (2012) (Unpublished paper, Institute for Resource and Security Studies Institute).

<sup>195</sup> Boudreau, *supra* note 126.

<sup>196</sup> See *supra* notes 48, 125.

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There are still a variety of ways that UNETS could be developed and employed in the desperate struggle against climate change. First, the UNGA could, based upon Articles 16 and 85 of the UN Charter, approve a single trusteeship agreement that recognizes the “area” (Article 85) of the Earth’s atmosphere as a global trust.<sup>197</sup> This could be one beginning of the “United Nations Ecological Trusts” or UNETs. This could be done immediately through a vote in the UNGA. At the same time, it must be pointed out that it is patently not true that the Trusteeship System in the Charter refers only to land, peoples or “territories” – but that is a subject of another essay.<sup>198</sup> In this way, all states of the United Nations become trustees of the Earth’s atmosphere and establish their proportionate responsible for its immediate restoration. Second, the large defunct Trusteeship Council could be reconstituted as the Environmental Trusteeship Council; since this possibility has already been explored elsewhere, it won’t be elaborated upon here except to say that Article 85, para. D of the Charter can be construed to provide the Council with the authority to examine a

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<sup>197</sup> See U.N. Charter. (Contrary to popular misconception, UN trust agreements do not refer only to a person or territory. For instance, Article 73, subparagraph e, refers to and distinguishes between territories other than those territories to which chapters XII and XIII apply. Article 77 establishes at least three different categories of territories. It is significant for the future UN Trusteeship System that 77(c) permits states to place territories voluntarily into the trusteeship (we shall come back to this point shortly).\* Article 78 refers to still another category of territories that have become, in their entirety, members of the United Nations. Article 79 gives a permissive and potentially expansive scope to “the terms of trusteeship” for each territory to be placed under the trusteeship system. Article 81 enlarges upon this expansive interpretation by stating that the “trusteeship agreement shall in each case include the terms under which the trust territory will be administered.” *Perhaps the most important statement in the UN Charter concerning future trusts is found in Article 85 which states that the “functions of the United Nations with regard to trusteeship agreements for all areas not designated as strategic, including the approval of the terms of the trusteeship agreements and of their alternation or amendment, shall be exercised by the General Assembly.”* It is important to note that this article does not refer at all to land-based “territory” or “territories” which, as we have already seen, have multiple meanings in the Charter. It simply refers to “areas.” In short, the wording of Article 85 is *legally permissive and inclusive, as intended by the drafters of the Charter who did not want European colonial powers identified by name in the document.*\* So, Article 85 simply states “all areas” which could logically include spaces, such as the Earth commons, other than land-based territories. See also Boudreau, *supra* note 191.

<sup>198</sup> Boudreau, *supra* note 195.

“trusteeship agreement” that singularly and specifically recognizes the Earth’s Atmosphere as a Global Trust.<sup>199</sup>

Finally, the UNGA meeting as a whole in the spring of every year can initiate the necessary studies and initiate specific treaties, especially in cooperative science, to promote the restoration of the Earth Atmosphere as a Global Trust; for instance, despite the lateness of the hour, the world is not yet fully mobilized its peoples or scientists to conserve energy, research and develop (R&D) the appropriate large scale green and renewable technologies needed to be deployed to overcome climate change; instead, in many developed countries, and now especially in the United States, life seems to simply go on as though everything is normal!

Yet, despite these mass delusions, there is desperate need to implement a robust *policy pluralism* based on Gandhian Experiments with Truth—that employs all the necessary science and R&D to successfully develop and deploy alternative approaches to overcoming climate change, including comprehensive testing and deploying the Iron Hypothesis in the Southern Oceans.<sup>200</sup> In short, there is A LOT OF WORK that simply isn’t being done within the context of COP negotiations that desperately needs to be addressed and completed if the world is to overcome successfully the catastrophic challenge of global climate change. In view of this great and growing danger, the guiding rule should now be to create or use every available international forum to address climate change until one or more methods prove to actually be effective and help to reverse the steady, inexorable climb of CO<sub>2</sub> and other GHGs in the global atmosphere. UNETS could be a major step in achieving this still possible, yet increasingly perishable, goal.

Recognizing the Earth’s Atmosphere as a Global Trust and strengthening mechanisms of effective global governance of the commons by specifically developing UNETS, should be a top priority and a critical area for further research and development. In view of temperature records being broken around the world, we need to do this NOW since we are simply running out of time.

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<sup>199</sup> See U.N. Charter art. 52-54.

<sup>200</sup> See *supra* notes 170-71.



## VII. CONCLUSION: THERE IS LITTLE TIME LEFT

This article has argued that by expanding upon the important work already accomplished by the Paris Agreement (2015), the UNGA or another group of interested states can help create the international legal framework needed for recognizing the Earth's atmosphere as a global trust thus helping to create the necessary legal capacity-building among nation-states to monitor, maintain and restore the Earth's atmosphere for future generations.

Alone of all the Global commons, the Earth's Atmosphere has no international convention or treaty that provides the global legal framework necessary to preserve and perpetuate it for present and future generations. The UNGA or a group can do this, or at least initiate fast track negotiations leading to a binding treaty. By establishing the Earth's atmosphere as a global trust, developing states would be able to utilize well-established fiduciary doctrines and remedies to help protect the atmosphere from further abuse and consequent increases in the global temperature. These doctrines, often found within various domestic jurisdictions, include comparative or culpable negligence, unjust enrichment and proportionate responsibility. This article envisions a role for the courts of the world—international, regional, national, and indigenous—in enforcing these remedies to preserve the Earth's atmosphere as a global trust.

The cruelest irony is that, however proportionate responsibility or other remedies are calculated, *most nations and peoples* are not responsible for the unprecedented increase of CO<sub>2</sub> in the atmosphere. The great majority of people or states simply did not and cannot afford, the burning of such large amounts of carbon-based fuels. This is true from a historical perspective; as we have seen, only a small number of industrialized states are historically or even currently responsible for this disproportionate and profligate use of carbon-based fuels that has resulted in this extremely dangerous development in the Earth's atmosphere. In view of this, the great majority of peoples and states are entitled to restoration efforts (or restitution) commensurate with the unjust enrichment by a relative handful of states for their massive abuse of a propriety interest that belongs to all. In view of this, recognizing the Earth's Atmosphere as a Global Trust in an international treaty can

be a decisive step in addressing and restoring this critical global commons for present and future generations.<sup>201</sup>

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<sup>201</sup> Professor Thomas Boudreau, Salisbury University, Salisbury, MD, USA at [teboudreau@salisbury.edu](mailto:teboudreau@salisbury.edu). Former Private Advisor, Executive Office of the UN Secretary General (1982-1987). Author: *Sheathing the Sword: The UN Secretary General and the Prevention of International Conflict* (1991).