

“Will History Repeat Itself?”: An American’s Perspective on How to Avoid Another Tragedy of the Commons and Create a More Equitable Future.

By Isaac York¹

The phrase “Tragedy of the Commons” describes how self-interest, particularly capitalist ventures and for-profit environmental exploitation, may not cause only localized detriments but also exhaust shared resources and inflict undue, unintentional harm. The “Tragedy of the Commons” occurs because every person in a society that believes in freedom of the commons wants to maximize their return without regard to the reciprocal impacts.² The phrase was first used to describe the collateral effects of permitting cattle to overgraze pastures.³ And to me, the phrase “Tragedy of the Commons” is shorthand for how today’s several threats to biodiversity arose.⁴ Thus, today, because various vulnerable environments face emerging threats from environmentally destructive capitalist ventures and net-polluting processes, despite feasible alternatives, this Blog calls for renewed and reinforced governance of shared resources.

One of the main tools for protecting the commons on an international level, without voluntary incentives, is international treaties and agreements. Through several such agreements, the international community has succeeded in mitigating some of the worst possible outcomes.⁵ However, whether because of a legal inability to enforce or intentional non-enforcement, or because of present and persistent scoping problems due to the absence of regulatory frameworks that can respond to emerging issues, significant landmark agreements may be falling short.⁶ Limited scoping in international agreements poses challenges to sustainable development and, if

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² See Joanna Burger and Michael Gochfeld, *The Tragedy of the Commons 30 Years Later*, Environment: Science and Policy for Sustainable Development, 40:10, 4-13, 7 (1998) (“The Commons is a broad concept that includes the context in which common-pool resources exist”).

³ Economist William Forster Lloyd introduced the Commons in 1832 and ecologist Garrett Hardin in 1968 later coined the term Tragedy of the Commons in 1968. As a concept the idea can be further traced to the writings of Aristotle. Aristotle, Politics, Book 2, Ch. 3, *Internet Classic Archive*, MIT <https://classics.mit.edu/Aristotle/politics.2.two.html>.

⁴ Frischmann, et al., also feel this way. See *Tragedy of the Commons after 50 years*, Journal of Economic Perspectives 33(4): 211-28, 211 (2019) (“‘Tragedy of the commons’ has been transmuted into little more than a useful catchphrase, as if it were synonymous with free rider”).

⁵ See e.g. the Montreal Protocol on Substances that Deplete the Ozone Layer (1987); and the Treaty on Non-Proliferation of Nuclear Weapons (1968).

⁶ See e.g. the Paris Climate Accords of 2015; the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972; the UN Convention on the Law of the Sea of 1994; the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal of 1989; the Antarctic Treaty of 1959 and its Protocol on Environmental Protection (the “Madrid Protocol”); the UN Convention on Combatting Desertification of 1992; and the Outer Space Treaty of 1967.

left unchecked, may herald a second Tragedy of the Commons by undoing decadal-long environmental protection and rehabilitation efforts.⁷ Lax or no enforcement of these agreements actively impairs the public's confidence in international justice and undermines the strict liability schemes of domestic legislation designed to protect the Public Trust.⁸ Both conspicuous exploitation and permissive environmental degradation due to non-enforcement can also produce these results. This blog will highlight a few international agreements that govern the fringes of the human environment and discuss their potential for abuse. The agreements covered below pertain to the resources and environments that lie outside the jurisdiction of any one nation or are otherwise held in common ownership.

Because international law grants each internationally recognized country its own sovereignty, international law is governed by a collective consent to be bound.⁹ It may not be a surprise, then, that the Montreal Protocol on Ozone-Depleting Substances is the only treaty ever universally adopted. The Montreal Protocol was ratified in response to an urgent, global, and scientifically recognizable threat. There, the global emission of compounds called chlorofluorocarbons (CFCs), prevalent in propellants from deodorant and bug spray to fire extinguishers, and in refrigerants like freezers and air conditioners, eventually increased enough that the molecules collected in the Earth's atmosphere quite literally burned a hole through the protective ozone (O₃) layer. Under fear of death, the international community banded together to phase out CFCs and would eventually do the same to hydrofluorocarbons (HFCs), a similar class of molecules, that were initially used as industrial substitutes because of their structural similarities but were later determined to also interact with the atmosphere – this time having a high global warming potential.¹⁰ In many ways, the Montreal Protocol is a model of what the international community can do and what it could do to respond to emergent issues such as climate change, biodiversity loss, and sea level rise. However, in the absence of a sudden world-ending catastrophe such as the destruction of the ozone layer (should the impact on the Earth's oceans and species subject to bioaccumulation and acidification not suffice), the Earth's nations should not wait for unanimity to resolve plastic use and waste.

⁷ See e.g. Stewart Patrick, *The Death of the World America Made*, Emissary (Feb. 19, 2025) <https://carnegieendowment.org/emissary/2025/02/trump-executive-order-treaties-organizations?lang=en> (highlighting the Trump Administration's isolationist stance toward international cooperation).

⁸ See Douglas Quirke, *The Public Trust Doctrine: A Primer*, University of Oregon School of Law Environmental and Natural Resources Law Center (2016); see also Michael Blumm & Mary C. Wood, "No Ordinary Lawsuit": *Climate Change, Due Process, and the Public Trust Doctrine*, 67 AM. U. L. REV. 1 (2017) https://lawcommons.lclark.edu/faculty_articles/71.

⁹ See Vienna Convention on the Law of Treaties Art 2(b) ("‘ratification’, ‘acceptance’, ‘approval’ and ‘accession’ in each case [signal that] a State establishes on the international plane its consent to be bound by a treaty”).

¹⁰ Kigali amendment to the Montreal Protocol (2016).

Adopting a wait-and-see attitude toward environmental protection wastes significant time and resources.¹¹ International consensus regarding the regulation of plastics exemplifies this phenomenon. For instance, under the second Trump Administration, the United States reversed its support for the pending Plastics Treaty.¹² Because of its international influence, the United States' withdrawal from a promise of international cooperation functionally undid years of international collaboration, defeated the efforts of countless public interest groups and youth advocates, and could reinforce the business-as-usual plastic lifecycle until an environmental tipping point is imminent.¹³ The move was also shocking because, despite its recent retreat, the United States continues to parade domestic tools to regulate plastics. First, additions of pollutants, plastics, or otherwise, into the navigable waters of the United States are still generally illegal under Clean Water Act jurisprudence.¹⁴ Second, even following an "America First" ideology, the United States' aversion to international plastic regulation conflicts with both iterations of its Save Our Seas Act, passed in the first Trump Administration.¹⁵ The continued size of the United States' national contribution of plastic, however, suggests that plastic pollution will not be solved by domestic regulatory tools alone, and further that the "Tragedy of the Commons" is facilitated at the highest level by existing global patchworks of environmental law.¹⁶ Third, the absence of a Plastics Treaty will not absolve the United States of liability because local deposition of plastic can still result in a violation of the Basel Convention on account of plastic's migratory characteristics. On top of these issues, the current plastics gap is concerning because the long-lasting nature of the issue highlights collective non-enforcement of customs against transboundary harm.¹⁷

Another agreement that has not proven effective in regulating plastics is the UN Convention on the Law of the Sea (UNCLOS). UNCLOS was amended in 1994 to extend the territories of member-states out to 200 nautical miles, but the treaty has not been without its own scoping and enforcement issues. UNCLOS requires states to "take measures, individually or jointly, to prevent, reduce, and control pollution of the marine environment." Yet, plastic fishing

¹¹See e.g. Ferris et al., *The Impacts of Environmental Regulation on the U.S. Economy*, National Center for Environmental Economics (July 2017) <https://www.epa.gov/sites/default/files/2017-08/documents/2017-01.pdf>.

¹² Joseph Winters, *Once Again, Oil States Thwart Agreement On Plastics*, Grist (Aug 14, 2025) <https://e360.yale.edu/digest/global-plastics-treaty>.

¹³ A 2016 study by the Ellen MacArthur Foundation estimated that there would be more plastic in the world's Oceans than fish by tonnage by 2050 with business-as-usual waste generation.

¹⁴ See 33 U.S.C. § 1251 *et seq.*

¹⁵ See Clare Cho et al., *Plastic Pollution and Policy Considerations: Frequently Asked Questions*, CRS Products (Mar. 7, 2025) <https://www.congress.gov/crs-product/R48293#fn138>; see also 33 U.S.C. §4261 (providing a "statement of policy on international cooperation to combat marine debris").

¹⁶ See U.S. Environmental Protection Agency, *FACT SHEET: Trash Free Waters Program* (2022) https://www.epa.gov/system/files/documents/2022-05/TFW%20Factsheet%20Final_2.22.22.pdf.

¹⁷ As of October 2025, the U.S. is one of five non-Parties to the Basel Convention.

gear and other refuse are constantly discarded on the High Seas.¹⁸ While UNCLOS was ratified with hindsight of the Pacific Theater, the treaty has not meaningfully prevented expansionist activities such as island-building and floating-base construction.¹⁹

Another example is the lack of oversight over mining for critical minerals, a large and emerging area of resource exploitation. The Antarctic Treaty System (ATS) sets aside all territorial disputes, creates a managerial body with oversight authority, and prohibits military activity except for scientific support.²⁰ However, the ATS may not provide adequate protection against using the Antarctic region for the exploration and development of critical minerals. The ATS provides that “any activity relating to mineral resources, other than scientific research, shall be prohibited.”²¹ However, as evidenced by Japan’s exercise of the 1946 International Convention for the Regulation of Whaling’s scientific research exception, the inclusion of such language can be problematic.²² It seems equally plausible that the United States could rely on a scientific research exception to begin exploratory mining operations in response to President Trump’s declared energy emergency.²³ After all, solving the energy crisis through shoring up the critical minerals shortage and providing those materials to scientific research and development would be a fine use of a “natural reserve, devoted to peace and science.”

The Antarctic Treaty System invokes the same commonality of resources as the other agreements in this blog.²⁴ The agreement is reinforced by the Madrid Protocol, also known as the Protocol on Environmental Protection, which designates Antarctica as a “natural reserve, devoted to peace and science.”²⁵ The Madrid Protocol does not, however, require that operators prevent environmental degradation.²⁶ The Madrid Protocol only requires that operators undertake *reasonable* preventative measures and establish contingency plans for cleanup and environmental remediation lest they be liable for that cost. This is a low incentive to prevent

¹⁸ See UNCLOS Part XII, Article 194; See also the UN High Seas Treaty of 2023 (establishing new protections for “international waters”).

¹⁹ See Ronald, O’Rourke, *U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress*, CRS Products (May 1, 2025).

²⁰ Article I §§ (1) and (2) of the Antarctic Treaty.

²¹ Article VII of the Antarctic Treaty.

²² See ICJ, Whaling in the Antarctic (*Australia v. Japan*) <https://www.icj-cij.org/case/148>.

²³ See E.O. 14285, *Unleashing America’s Offshore Critical Minerals and Resources*, 90 FR 17735 (Apr. 2025); See also E.O. 14241, *Immediate measures to Increase American Mineral Production*, 90 FR 13673 (Mar 20, 2025); *Trump to Conquer Antarctica*, CE Noticias Financieras English, Lexis News. (Jun 3, 2025); and Haley Brizky and Jennifer Hansler, *Trump strikes deal for icebreaker ships as competition grows in the Arctic*, CNN Politics (Oct. 9, 2025).

²⁴ The purpose of the Antarctic Treaty is “to ensure, in the interests of all mankind, that Antarctica shall continue forever to be used exclusively for peaceful purposes...”).

²⁵ Protocol on Environmental Protection to the Antarctic Treaty, Art II.

²⁶ See also *The Convention on the Prevention and Punishment of Genocide* (imposing a duty on members to use reasonably available means of prevention but not necessarily requiring success).

equipment loss and other costs of doing business or conducting research.²⁷ Nevertheless, Kevin Hughes and company remark that lessons learned from the ATS are readily transferable to “other remote Earth environments and [] extraterrestrial bodies.”

The Final Frontier also has Common ownership.²⁸ The Outer Space Treaty states that “the exploration and use of outer space [shall] be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development.”²⁹ Yet, like the other treaties included in this Blog, the OST possesses enforcement and scoping issues because our understanding of the subject matter continues to advance.³⁰ Modern resolutions like the Artemis Accords, which grant exclusive rights to the signatories or participants, may also threaten to defeat the original purposes of their treaties.³¹ The Artemis Accords functionally facilitate a first-come, first-served scheme based on a country’s current stage of space-faring technology and financial affluence.³² The Artemis Accords attempt to affirm their compliance with the Outer Space Treaty, yet in doing so, highlight the instrument’s scoping and enforcement issues. For instance, the drafters of the 1967 OST could not have possibly anticipated how many low-orbit satellites would be deployed by 2025, the complex procedures and practices used to prevent collisions, or the law that should control when such incidents occur.³³ Nor could the drafters have, in 1967, had the requisite knowledge to make legally cognizable and enforceable a prohibition against hypersonic missiles or other non-nuclear threats that were non-existent at the time and which may struggle to fit the definition of a traditional “weapon of mass destruction.”³⁴ The OST also sought to prevent the colonization of celestial bodies. However, the United States

²⁷ See Hughes et. al, *Loss of research and operational equipment in Antarctica: Balancing scientific advances with environmental impact*, Journal of Environmental Management, 348:119200 (2023) <https://www.sciencedirect.com/science/article/pii/S0301479723019886>. (finding the environmental impacts of equipment loss in Antarctic environments to be low as compared to those “associated with research station infrastructure establishment and operation”).

²⁸ The OST Preamble provides that space shall be kept “in the common interest” of mankind.

²⁹ Art I of the Outer Space Treaty.

³⁰ UN Resolution 2222 (XXI) (1996) (“*Reaffirming* the importance of international cooperation in... the peaceful exploration of outer space...and the importance of developing the rule of law in this new area of human endeavor”) (*emphasis in the original*).

³¹ See the Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes. (October 2020); see also Priyanka Runwal, *Deep-sea mining company eyes U.S. approval to extract critical minerals*, Chemical and Engineering News (Apr 11, 2025). <https://cen.acs.org/environment/water/Deep-sea-mining-company-eyes/103/web/2025/04>

³² See Rossana Deplano, *First in, first served as Moon-mining gains legality* (Apr. 12, 2022) <https://360info.org/first-in-first-served-as-moon-mining-gains-legality>.

³³ See the Convention on International Liability for Damage Caused by Space Objects of 1972

³⁴ See Brian D. Green, *Countering Space-Based Weapons of Mass Destruction*, West Point Lieber Institute (Jan. 31, 2025) <https://lieber.westpoint.edu/countering-space-based-weapons-mass-destruction-2/>; see also U.S. Space Development Agency, *Fact Sheet: Proliferated Warfighter Space Architecture* https://www.sda.mil/wp-content/uploads/2024/08/Tracking-Layer-Fact-Sheet_Approved_08.19.2024.pdf.

and its allies are planning to create a Lunar outpost by the end of this decade.³⁵ U.S. policy seems to openly conflict with the treaty text; however, the language may be permissive enough to allow countries to build infrastructure so long as they do not stake a territorial claim.³⁶

Many of the treaties spotlighted in this Blog also relate to nuclear energy, either through deployment or deposition. First, the ATS prohibits States from conducting nuclear tests or otherwise exploding a nuclear device and prevents depositing nuclear waste on the continent.³⁷ Second, the London Protocol of 1996 prohibited the dumping of all but approved substances in the High Seas. Third, the Basel Convention established a notification procedure for the transport and transshipment of nuclear wastes and other hazardous materials across international borders. And fourth, as mentioned, the OST prevents placing nuclear weapons on the Moon or upon orbital satellites. The OST does not, however, prohibit the construction of nuclear facilities or the disposal of nuclear waste.³⁸ With a global nuclear revolution in sight, it will be imperative to create new agreements and strengthen existing ones to prevent nuclear tragedy.

The agreements discussed in this blog represent examples of treaties ratified to ameliorate respective global issues, but are not tuned to today's environmental challenges; they are either outdated or not effectively enforced. But at a time when governments are looking either to the ends of the Earth or extraterrestrially to solve their exigent issues, it is import to remember that environmental protection begins at home, often playing second fiddle to more immediate humanitarian concerns; thus, as climate effects worsen and humanitarian crises compound, less-developed countries and already vulnerable territories may be more dependent upon the goodwill of more affluent countries. This phenomenon, combined with a history of colonialism and political animus, largely resulted in the "North-South divide."³⁹ Without contemporaneous efforts to combat sea-level rise, ocean current changes, fishery collapse, and climate change, these climate refugees and resource-rich regions may be left increasingly vulnerable to political oppression from more developed nations. Open space⁴⁰ exploitation may also continue this cycle

³⁵ See 51 U.S.C. § 70505 (Dec 18, 2010); See also Chandelis Duster and Geoff Brumfiel, *NASA Plans to Put a Nuclear Reactor on the Moon. Here's what that means*, NPR OPB (Aug 8, 2025).

³⁶ See e.g. Michelle L.D. Hanlon, *Analysis: Why NASA is planning to build a nuclear reactor on the Moon and what the laws says*, PBS Science News (Aug 9, 2025) ("A nuclear reactor [on the Moon] may sound dramatic, but it is neither illegal nor unprecedented").

³⁷ Art V of the Antarctic Treaty System.

³⁸ Art IV of the Outer Space Treaty; but cf. UN Resolution 47/68. *Principles Relevant to the Use of Nuclear Power Sources in Outer Space* (1992) ("Recognizing that for some missions... nuclear power sources are particularly suited or essential...") (*emphasis in the original*).

³⁹ The North-South Divide describes the socioeconomic, technological, and human health disparities between countries mostly in the Northern Hemisphere and those below the equator.

⁴⁰ The term "Open space" in this context refers to exploratory and extractive processes such as deep-sea mining, oil and gas development in the Polar regions, and harvesting resources in Outer Space, which are already taking place or are proposed to be developed within newly accessible areas of the marine, terrestrial, and extraterrestrial environments.

and highlight its need for more effective governance.⁴¹ Solving any of the issues presented in this Blog will require careful consideration so that socioeconomic, environmental, and political divides are not perpetuated at the same time that more affluent nations get to develop and improve their quality of life.⁴² Solutions may also require a resolution as to what constitutes a peaceful purpose for environmental exploitation, and an assurance that necessary safeguards are installed to avoid militaristic might becoming the controlling factor on the international and interplanetary stage.

⁴¹ See Caitlin Keating-Bitoni, *Seabed Mining in Areas Beyond National Jurisdiction: Issues for Congress*, CRS Products (July 15, 2025) <https://www.congress.gov/crs-product/R47324>.

⁴² See e.g., Solene Guggisberg, *Finding Equitable Solutions to the land-based sources of marine plastic pollution: Sovereignty as a Double-edged Sword*, Marine Policy 159, 105960 (January 2024) <https://www.sciencedirect.com/science/article/pii/S0308597X23004931>.