# **1AC Plan**

### Plan – States ought to expand the Public Trust Doctrine to reduce private actor appropriation of Outer Space.

**Babcock 19**

(, H., 2019. THE PUBLIC TRUST DOCTRINE, OUTER SPACE, AND THE GLOBAL COMMONS: TIME TO CALL HOME ET. [online] Lawreview.syr.edu. Available at: <https://lawreview.syr.edu/wp-content/uploads/2019/09/H-Babcock-Article-Final-Document-v2.pdf#page=67> [Accessed 15 December 2021] Professor Babcock served as general counsel to the National Audubon Society from 1987-91 and as deputy general counsel and Director of Audubon’s Public Lands and Water Program from 1981-87. Previously, she was a partner with Blum, Nash & Railsback, where she focused on energy and environmental issues, and an associate at LeBoeuf, Lamb, Leiby & MacRae where she represented utilities in the nuclear licensing process. From 1977-79, she served as a Deputy Assistant Secretary of Energy and Minerals in the U.S. Department of the Interior. Professor Babcock has taught environmental and natural resources law as a visiting professor at Pace University Law School and as an adjunct at the University of Pennsylvania, Yale, Catholic University, and Antioch law schools. Professor Babcock was a member of the Standing Committee on Environmental Law of the American Bar Association, and served on the Clinton-Gore Transition Team.)-rahulpenu

INTRODUCTION **Space** exploration is **heating up**. Governments and **private interests** are on a **fast track to develop tech**nologies to send people and equipment to celestial bodies, like the moon and asteroids, to extract their untapped resources.1 Near-space is rapidly filling up with public and private satellites, causing electromagnetic interference problems and dangerous space debris from collisions and earlier launches.2 The **absence of** a global **management** system for the private commercial development of outer space resources will allow these near space problems to be exported further into the galaxy.3 Moreover, **without** a governing authority or **rules** **controlling** entry **or limiting** despoliation, **outer space could turn into the “Wild West**” of the twenty-first century.4 Space treaties executed in the last century espoused the principle that space should be developed for the benefit of all mankind and banned both private ownership and militarization of space resources.5 But, they left development of a system for managing non-military activities in outer space to another day.6 Private commercial interests, which would be absorbing the risks and paying the high costs of space development, oppose any management scenario premised on that principle, as it would enable less developed countries to free ride on their investments.7 These interests, unsurprisingly, support privatizing outer space.8 But acceding to their wishes by establishing a system of property-based rules would transport Earth’s current division between haves and have-nots into outer space, and could lead to destabilizing hostilities—the exact consequences that the early treaty drafters hoped to avoid.9 To date, most scholars in this area have focused on developing management systems premised on private ownership or possession of the surface of some celestial body.10 This Article explores **an alternative concept, the commons**, in **which no individual owns the property** in question or can exclude others from it. Viewing property as a commons is closer to the principles set out in the various space treaties than implementation of a private property regime, and also **offers a workable property regime**. This Article demonstrates these conclusions by showing similarities between a large, Earth-bound commons, like the ocean and outer space, and how various **commons management** scenarios **allow equitable use of resources**, **while preventing** their **despoliation** **and devolution** into hostile disputes over entitlements to them. However, each of these commons management scenarios is flawed in some way and runs a similar risk to management approaches for private property of allowing the resource to be over-used or inequitably distributed. The public trust doctrine (**PTD**), an ancient doctrine that governments and individuals have **used effectively for centuries** to **protect the public’s interests** in terrestrial common pool resources (**CPR**) **and** to **fill** regulatory **gaps**, can be helpful in both respects.11 An examination of the doctrine identifies **commonalities** **between** outer **space** **and** **terrestrial** public trust **resources**.12 The **ease** and **low** **cost** of its implementation and enforcement, as well as its **infinite malleability**, are additional reasons to select it as a stopgap measure with some modification.13 This Article’s structure is straight forward. Part I acquaints the reader with the problem. It explains why the need to develop a management regime for space is becoming increasingly critical as advancing technology is allowing more and more private commercial interests to play at the edge of outer space with attendant negative externalities. 14 Soon these technological advances will allow **private** commercial **interests** to **invade** outer **space** with the potential for similar **adverse impacts**.15 Part II examines the international legal framework governing those activities and finds it lacks any capacity to regulate activities in outer space, in part because it is riddled with ambiguities and contradictions when it comes to ownership of outer space and its resources. Part III turns to that problem by discussing two types of property: private property and property owned in common with others. It examines the key features of each as well as their positive and negative attributes, how each might function in outer space, and what the consequences might be if one or the other prevailed. Because any property arrangement that results in its appropriation by the owner and the exclusion of others violates international space law, Part III also identifies various less-thanfull fee property arrangement, like leases and easements, to see if these problems can be avoided and concludes they cannot.16 It then examines property held in common to determine its viability under international space law and finds it consistent. Part IV investigates various approaches to managing property in outer space, be it held in private ownership or in common. Different approaches for managing private property in space are explored, including the right of first possession, tradable property claims, and establishing an exclusive economic zone, as well for managing an open access commons, such as the application of stewardship principles, norms, and the PTD. Each approach is evaluated in terms of its consistency with international law; its ability to promote and protect a sustainable, equitable, non-monopolistic, non-hostile environment in outer space; its efficiency; and its cost effectiveness. **Only** the **PTD**, which has been used for centuries to protect the public’s interests in CPRs and has **demonstrated** its **ability to adapt** to new circumstances, may be able to **meet** these **goals**.17 This Article finds commonalities between outer space and Earth-bound public trust resources, like the oceans. Additionally, the doctrine’s **open access** purpose **resonates with** language found in international **treaties** governing activities in outer space.18 This Article concludes that **using** the **PTD** will **lead to** a **durable, equitable management** regime in a commons where the wealthy are neither able to accumulate and control the resources that outer space has to offer nor over-exploit and deplete them. However, neither the doctrine nor ownership in common supplies any incentives for development, which may lead private enterprises to question whether development of outer space resources is worth the risks and costs.19 But, limited use of private property management approaches, like lotteries and tradable development claims—a form of overlapping hybridity between one type of property, a commons, and a management regime from another, private property—may fill this gap.20 This Article’s contribution to the literature on managing outer space resources and commons theory is using the PTD to bridge the gap between them and to suggest a hybrid management approach that melds commons theory with private property incentives.

## **Advantage: Sustainability**

### Implementing the PTD for Private Appropriation results in a legally binding regime that curbs unsustainable development – ensures closing of legal loopholes.

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F. The Public Trust Doctrine (PTD) as a Gap Filling, Place-Holding Management Approach506 The **PTD** **offers** both an **approach for managing** **an open access commons** and a gap-filling tool until a regulatory regime is adopted.507 The doctrine is **based on** the idea that the “**sovereign holds certain common properties in trust** in perpetuity **for the free and unimpeded use of the general public**.”508 The public’s **r**ight **t**o **a**ccess and use trust resources is **never lost**, and **neither** the **government nor private individuals can alienate** or otherwise adversely affect **those resources** **unless for a comparable public purpose**.509 The **resources** the doctrine protects “have long been **part of** a ‘**taxonomy of property’** [that recognizes] the division of natural wealth into private and public property.”510 “The **doctrine places** on governments ‘an **affirmative**, ongoing **duty to safeguard** the **long-term preservation of** those **resources for the benefit of the general public**,’”511 thus limiting the sovereign’s power on behalf of both present and future individuals.512 It **directs** the **government to manage trust resources for public benefit, not private gain**.513 It applies to private as well as public resources and is used to preserve the public’s access to CPRs.514 Government agencies have the non-rescindable power to revoke uses of trust resources that are inconsistent with the doctrine.515 This effectively places a permanent easement over trust resources that burdens their ownership with an overriding public interest in the preservation of those resources.516 However, trust resources can be alienated in favor of private ownership, if the alienation will still serve the public’s interest in those resources and not interfere with trust uses of the remaining land.517 The **PTD**, therefore, **protects** the “**people’s common heritage**,”518 just as Article 11 of the Moon Treaty protects outer space as part of the common heritage of mankind.519 The doctrine also appears to be infinitely malleable. Original uses of the doctrine were restricted to only that “aspect of the public domain below the low-water mark on the margin of the sea and the great lakes, the waters over those lands, and the waters within rivers and streams of any consequence,”520 and covered only traditional uses of those lands, like fishing and navigation.521 Over time, the **scope** and **application of** the **doctrine broadened** to protect more public resources and different uses.522 Thus, the **doctrine** expanded **to protect new** trust **resources**, such as dry sand beaches, inland lakes, groundwater, dry riverbeds, and wildlife,523 **and passive uses** of those resources, like scientific study.524 The original link to navigable water and tidelands disappeared.525 Supporters of the doctrine successfully advocated that it be applied to “wildlife, parks, cemeteries, and even works of fine art,”526 while arguing more recently its application to the atmosphere.527 A doctrine that imposes a perpetual duty on the sovereign to preserve trust resources, prevents their alienation for private benefit, **assures public access** to them, **and can be invoked by anyone** seems particularly **useful as a management tool in outer space**.528 The fact that **public** **access** to trust resources is so **central** to the doctrine **makes** it **reflective**, not contradictory, **of** international space **law’s** **bar** **against** **appropriation** of outer space and of the principle of space being the “province of all mankind.”529 It **avoids** the problems of alienation and **exclusion** associated with any of the management approaches associated with some form of private property and requires neither the creation of a new administrative authority nor the presence of a close-knit group of like-minded people.530 Members of the public, both rich and poor, can invoke and enforce the doctrine as easily as the sovereign.531 It is cost effective to the extent that **no separate apparatus is required to implement** it, and the doctrine has shown itself to be **highly adaptable** and **innovative as different needs arise**.532 It could also fill the gap in international law with respect to managing celestial property. Therefore, of all the management approaches studied here, the **PTD** seems the **most suited to keep order in space** until a regulatory regime is imposed. However, the doctrine provides no incentives for development of trust resources; rather, it might be used to limit or curtail that development, making it an imperfect, perhaps even counter-productive solution by itself to the extent that such development might be beneficial.533 Modifying the doctrine to allow limited use of private property management approaches, like tradable development claims, might buffer that effect—a form of overlapping hybridity between one type of property, a commons, and a management regime from another, private property, enabled by application of the PTD. CONCLUSION “Only a legal system that accommodates both the human need for resources and the necessary preservation of mankind’s common heritage can fulfill these criteria.”534 The future is now with regard to the development of outer space and its resources—it is no longer a question of whether humans will engage in these activities, but how soon they will. Technically advanced countries and private commercial enterprises are probing outer space and preparing for landing on an asteroid or the moon to extract their resources.535 Speculators are selling deeds to the moon’s surface and preparing to exploit the tourism potential that space offers.536 But, the legal framework for managing these initiatives is almost nonexistent.537 International treaties came into being before all this activity began in earnest and national laws that might apply are stunted by jurisdictional quandaries like the absence of national boundaries in outer space.538 Thus, there is an urgency to figure out how to control what happens in outer space before its resources are irreparably damaged or permanently monopolized by powerful countries and individuals. In the absence of regulation, much of the current debate centers on what property regime should be applied in outer space.539 The assumption is that by only allowing private property rights in space, countries and commercial enterprises will undertake the risks and costs of space development.540 However, unless international space law changes, it may prevent this from happening. If it changes, strong management controls will be necessary to prevent destruction or over-consumption of celestial resources, as well as monopolization and competitive behavior by participants, which could lead to hostilities and inequities. This Article examines various private property regimes, including those of less than full fee ownership, to see if any would avoid the conflict with the international prohibition on appropriation of outer space and its resources. It concludes that none will because each retains the right to exclude and each is insensitive to the treaties’ equity concerns. In contrast, considering outer space to be common is consistent with international space law in both respects. Hypothesizing that private property in outer space may yet prevail, this Article investigates different private property management approaches, such as the right of first possession, lotteries, and tradable development rights, to see if any would be cost effective, easy to implement and equitable, and would also prevent over-consumption, monopolization or the slide into rivalrous behavior. The Article concludes that each comes up short in some respect. **Social norms as a management tool for property held in common,** although compliant with international law, are also not up to the task. Instead, although ancient, the PTD, with its malleability, easy and cost-effective implementation and enforcement, non-consumption principle, and consistency with the goals that animate international space treaties, seems best suited to the task of protecting the public’s interests in the global commons that is outer space as it has done for centuries in Earth-bound commons. But, as its principal terrestrial use has been to protect trust resources from development, the doctrine needs some modification to encourage development of celestial resources. Hence, this Article suggests that modifying **the PTD** to allow the application of private property management tools, like tradable development rights, **will** not only **allow development**, but also will **assure** that when it happens, **it will not be** just **profitable for a few**, **but will also be sustainable and equitable**.

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**States can pursue mutual benefits by viewing space as a commons**

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BUILDING ON PRIOR MODELS FOR MANAGING COMMONS¶ The histories of other great commons provide lessons on how to manage shared space resources meaningfully and effectively. Efforts to minimize damage to other great commons—like the Convention on Long-Range Transboundary Air Pollution and subsequent protocols—offer guidance on how to resolve compliance issues. Notably**, the negotiations on the original convention on air pollution in**volved, among others, the United States and the Soviet Union. Thi**s suggests that states can pursue mutual benefits in areas considered great commons even under competitive conditions.** More recent negotiations on the convention’s accompanying protocols show that these competing states can even agree on financing a monitoring regime to support progress.¶ Existing conventions and implementing agreements indicate that **states** can **reach valuable commitments to manage the Earth’s** grea**t commons. T**hese governance models protect state interests and preserve the commons themselves**. These principles apply to space, but progress on establishing more encompassing space governance principles, enforcement mechanisms, and dispute resolution procedures hinges on states sharing the fundamental view that space is a great commons. R**eaching such a consensus is an important first step.¶ New leadership in prominent spacefaring states can revitalize efforts to recognize space as a commons and can build on established legal standards to pursue commons-related principles for governing Earth orbits. Space actors do not have to resolve all their competing interests based on the debris problem. But negligence, mismanagement, or poorly designed rules may spell disaster for Earth orbits. As a more diverse range of actors with space-based interests emerges, no single actor will be able to unilaterally impose universal rules. States can, however, negotiate agreements to manage commons areas to better pursue national objectives. The only way to effectively govern state and commercial space activities is to settle on and abide by common norms or rules.¶ New conventions or regulatory mechanisms for governing Earth orbits will not appear overnight, but **states can build toward these goals by clarifying their commitments to treat space as a commons and pursuing governance arrangements that reflect this commitment.** New policies in the United States should reflect that Earth orbits are a great commons.

**Space exploration can be done with a commons model. This is shown through treaties and agreements that already exist in order to preserve space.**

**Sterling-Rossiter 18** [Sterling Saletta, Morgan; Orrman-Rossiter, Kevin (2018). Can space mining benefit all of humanity?: The resource fund and citizen's dividend model of Alaska, the ‘last frontier’. Space Policy, (), S0265964616300704–. doi:10.1016/j.spacepol.2018.02.002]

On the other hand, it has also been suggested that modifications and additions to the OST based on terrestrial models will provide sufficient guarantee of the right to make profits from the exploitation of outer space resources. Henry Hertzfeld and Frans von der Dunk argue the current regime does not pose a problem for exploitation rights and that terrestrial models would allow private ventures the right to reasonable returns on investment from resource exploitation in space [41]. Furthermore, in addition to important, and possibly irreconcilable, differences between a California gold rush style approach and the OST [42], **arguments suggesting** fee-simple or similar **ownership is necessary** for profitable private outer space resource exploitation simply **do not stand in the face of** contrary **evidence from numerous terrestrial examples. These include offshore oil drilling, mining, timber and grazing operations** in the United States and internationally **which are regularly and profitably undertaken without ownership** [43]. Thus P. M. Sterns and L. I. Tennen argue that the current international regime does provide an adequate framework for commercial development in space, that fee-simple ownership is unnecessary and: “**those who advocate the** renunciation and **abandonment of the nonappropriation principle are** either **seeking to increase their own bottom line by** disingenuous and **deceptive constructs**, or lack an appropriate appreciation and respect for international processes [[44], p. 2439]”. Thus, claims that a lack of private property rights in outer space will be a deterrent to commercial resource exploitation ventures in space do not reflect an adequate reflection and analysis of the manner in which current terrestrial practices might be extended into outer space without abrogating the current treaty regime**. Nor would a system based on** fee simple **ownership be likely to tangibly benefit more than a small proportion of the world's population.** Instead, **the eventual wealth** from exploiting celestial **bodies would be concentrated in the hands of a few, exacerbating** rather than alleviating **existing problems for humanity and** global **sustainable development. The Outer Space Treaty has provided an effective legal framework for the exploration of outer space for over 50 years.** Based on the history of treaty regimes governing other international spaces, UNCLOS and the ATS, it seems likely that, in future, additional protocols and agreements will be layered onto the OST and that calls to abrogate and to negotiate a wholly new treaty system are unlikely to succeed. While low participation in the Moon Agreement, also known as the Moon Treaty of 1979, which has not been ratified by either the United States, Russia, or China, has raised questions of legitimacy, it has recently been argued that the Moon Treaty may receive renewed interest in the international community. René Lefeber argues that, far from stifling commercial ventures, the Moon Agreement “provides the best available option for mankind, states and industry to develop space mineral resources in a harmonious way [[5], p. 47]”, and that, as resource exploitation in outer space now seems likely, the need to elaborate an international regime to prevent conflict over resources may bring other parties to ratify, accede to, or sign the treaty. Ultimately, **some form of international governance of outer space as a global commons** [45] **building on the OST** and the current corpus juris spatialis **seems** both more likely and **more desirable** than an abrogation of the OST and its replacement with an entirely new treaty regime. Thus, **an international regime built upon this existing regime will need to be** constructed which **takes a balanced approach** to space exploration, development and exploitation and which encourages entrepreneurial development but also moves beyond vague utopian platitudes to real and concrete benefits for all of humanity.

### Its not too late to solve warming but PTD response is linear — delaying exponentially increases the likelihood of anthropogenic warming causing extinction.

**Wood & Woodward ’16** — Mary Christina Wood, Philip H. Knight Professor at the University of Oregon School of Law and Faculty Director of the school’s Environmental and Natural Resources Law Program; Charles W. Woodward IV, J.D. University of Oregon School of Law; (2016; “ATMOSPHERIC TRUST LITIGATION AND THE CONSTITUTIONAL RIGHT TO A HEALTHY CLIMATE SYSTEM: JUDICIAL RECOGNITION AT LAST”; University of Michigan Libraries, Hein Online; *Washington Journal of Environmental Law & Policy*, Vol. 6, Issue 2, Article 14; //LFS—JCM)

Because humans today are both increasing **carbon emissions** into the atmosphere and also **destroying** the planet’s natural **carbon sinks**, the forests and oceans, the Earth’s climate system has lurched into a **perilous imbalance**.22 The dual, worsening crises of climate disruption and dying oceans cannot find relief without **slashing greenhouse gas emissions** across the globe. Though considerable climate harm is irrevocably underway, many leading scientists say **it is still possible** to restore climate equilibrium over the long term. Such an effort requires reducing atmospheric carbon dioxide levels to 350 parts per million (ppm), the uppermost level to limit total average **planetary heating** to a safe zone of one degree Celsius.23 In 2010, recognizing the need to quantify—for policymakers, judges, and citizens—the emissions reduction necessary to stay within the **safe zone**, NASA’s chief climate scientist, Dr. James Hansen, convened an international team of scientists to create a climate prescription for the planet.24

The resulting prescription addresses both carbon emissions and the planet’s natural carbon absorption mechanisms, as they are inextricably linked. The first part of the climate prescription calls for a dramatic slash of carbon emissions well beyond those targeted at COP21. The prescription presents a trajectory, or “glidepath,” of annual emissions reduction towards an ultimate goal of near-zero emissions.25 The team stated that global emissions reduction of six percent annually, beginning in year 2013, was required to reach 350 ppm by the end of the century.26 **Delaying** reduction in carbon emissions sharply **increases** the level of necessary yearly **reductions**—to a point at which the reductions ultimately become **too steep to plausibly salvage** a habitable planet.27 For example, the Hansen team estimated that, had concerted action started in 2005, emissions reduction of just 3.5% a year could have restored equilibrium by the end of the century, yet in just eight years of inaction, that figure climbed to six percent a year.28 The scientists project that, if emissions reduction is delayed until 2020, society would need to reduce emissions by fifteen percent a year.29 At some point, the necessary cuts become **too drastic** for global society **to accomplish**. As the Hansen team emphasized: “[I]t is **urgent** that large, long-term emissions **reductions begin soon**.” 30

Moreover, it is important to understand that **reducing emissions** alone is not adequate to restore **climate equilibrium**. Because approximately forty percent of emissions persist in the atmosphere for over a thousand years at present removal rates, any planetary atmospheric rescue effort must also focus on removing much of the carbon dioxide that has already accumulated in the atmosphere.31 Accordingly, the second part of the scientific climate prescription addresses the “drawdown” of carbon dioxide through massive **reforestation** (because trees naturally absorb carbon dioxide) and improved **agricultural measures** (because soil also absorbs carbon dioxide). The Hansen team calculated that a full-scale massive restoration program consisting of reforestation and soil measures can draw down about **100 gigatons of carbon dioxide** from the atmosphere, an amount key to restoring atmospheric carbon levels to 350 ppm.32

**<<<BEGIN FOOTNOTE 31>>>**

31. See William Moomaw, From Failure to Success: Reframing the Climate Treaty, THE FLETCHER FORUM OF WORLD AFFAIRS (Feb. 10, 2014), http://www.fletcherforum. org/2014/02/10/moomaw/. Only by restoring the Earth’s natural ability to remove carbon can overall atmospheric levels drop. As Professor William Moomaw explained, “We must not only **turn off the faucet** that is filling the atmosphere with heat trapping gases, but we must also **unclog the drain** that is removing them.” Id.

**<<<END FOOTNOTE 31>>>**

The global challenge of CO2 emissions reduction finds unprecedented urgency due to nature’s own “tipping points”— thresholds beyond which dangerous feedback processes are triggered. Such feedbacks can unleash uncontrollable, irreversible, “runaway” heating capable of destroying the balance of the planet’s climate system.33 Such tipping points form the crux of the scientific community’s call for urgent action. Recognizing this danger, the Ninth Circuit Court of Appeals stated in one climate case: “Several studies also show that climate change may be non-linear, meaning that there are positive feedback mechanisms that may push global warming past a dangerous threshold (the ‘tipping point’).” 34 Once fully triggered, these feedback loops continue despite any subsequent carbon reductions achieved by humanity.35

Though the precise threshold of atmospheric CO2 that represents the point-of-no-return is unknown,36 the global concentration of CO2 in the atmosphere has surpassed 400 ppm.37 Already, some dangerous feedback loops are manifestly in motion. Vast areas of melting permafrost now release huge amounts of CO2 and methane (both of which are greenhouse gasses) into the atmosphere,38 and melting polar ice caps intensify the heating, because less ice remains to reflect heat away from Earth—a dynamic known as the albedo effect.39 Gus Speth, the former Dean of the Yale School of Forestry, warns that if we maintain our largely inadequate course of action, the world “won’t be fit to live in” by mid-century.40

B. Atmospheric Trust Litigation: The Planet on the Docket

With such feedback loops looming, a rapid and decisive response to the planet’s atmospheric crisis is paramount to overcoming an **existential threat to global civilization**. As an indicator of the growing international recognition of climate danger, the recent COP21 **talks in Paris** produced an accord aiming to limit planetary heating to 1.5ºC.41 Despite this aspirational goal, the actual plans submitted by the participating countries would result in **only half** of the required greenhouse gas reductions necessary to limit the increase to just two degrees Celsius.42 Thus, while the remedy for the climate change crisis increasingly **becomes more difficult** and more expensive, not only in terms of monetary cost but in societal and cultural upheaval as well, the Paris accord continued the pattern of inadequate international action.43 Indeed, the failure of the Paris talks demonstrates that **domestic processes** must provide the **imperative for carbon reduction**. As Johannes Urpelainen of Columbia University summarized, “[i]n the end, the future of climate mitigation remains in the hands of **national governments**, **political parties**, **interest groups**, [and] **sub-national jurisdictions**.” 44

On the domestic level, the judiciary represents the third branch of government, and a **latecomer** to the crisis that has worsened in the hands of the **legislative and executive** branches. Only recently have citizens asserted through lawsuits their fundamental rights as a basis for climate action. Most notably, the global campaign known as Atmospheric Trust Litigation (ATL) was launched in 2011 to provide a legal structure geared toward forcing urgent emissions reduction around the world.45 ATL’s approach recognizes that, while there is no panacea to a climate negotiation stalemate, domestic courts have the power to order the **political branches** to take swift and **decisive action** responsive to the climate crisis.

In the first week of May 2011, young people organized by the non-profit Our Children’s Trust initiated legal processes in every state in the U.S. and began plans for suits in other countries as well.46 The original legal “hatch” consisted of lawsuits and administrative petitions filed against all fifty states and the federal government.47 The campaign represented an unprecedented effort at forcing a coherent approach to a global problem using the judicial system.

All of the legal processes invoked the public trust doctrine and declared a uniform sovereign trust duty to protect the atmosphere needed by the youth and future generations for their long-term survival. The petitions and lawsuits all demanded enforceable Climate Recovery Plans from government trustees to reduce carbon emissions at the rate called for by the scientific prescription formulated by the Hansen team of scientists (or best available science).48 These plans would be backed up by annual carbon accountings to show compliance with the prescription. More than a dozen renowned scientists and experts submitted declarations in support of the litigation, and a nationwide group of law professors submitted amicus briefs supporting the youth plaintiffs in key ATL cases.

Unlike prior climate litigation brought under statutory law or nuisance law suits geared towards isolated parts of the climate problem, ATL presented for the first time a macro approach to **climate crisis** by focusing on the **atmosphere** as a single public trust asset in its entirety. The approach characterizes all nations on Earth as sovereign **co-trustees of the atmosphere**, bound together in a property-based framework of corollary and mutual responsibilities. As trustees**, all nations owe** a primary **fiduciary obligation** toward their citizen beneficiaries to restore the **atmospheric energy** balance and climate system.

ATL seeks to accomplish through **decentralized domestic litigation**, in countries across the globe, what has thus far eluded the international diplomatic treaty-making process: concrete requirements for emissions reduction. Rising out of this failure of international law, ATL’s unconventional effort recognizes the need for a legal lever to force agencies and legislatures to respond to the **climate emergency**.49 ATL litigation teams hope that orchestrated lawsuits worldwide will yield atmospheric trust decrees that will **spur the political branches** to protect common atmospheric property before **tipping points** send the world into **unmitigated disaster**.50 As one commentator put it, “[w]ith both the **executive** and **legislative** branches having been **stymied** on any major climate-change progress for more than two decades, the [litigation] represents a kind of **Hail Mary pass**, trusting that courts might bring about a **speedier solution**.” 51

### Warming causes extinction --- oxygen, disease, ice melt, and cognitive failure

**McKibben 19** [Bill McKibben, Schumann Distinguished Scholar at Middlebury College, Fellow of the American Academy of Arts and Sciences, “This Is How Human Extinction Could Play Out,” Rolling Stone, April 9, 2019, https://www.rollingstone.com/politics/politics-features/bill-mckibben-falter-climate-change-817310]

Oh, it could get very bad.

In 2015, a study in the Journal of Mathematical Biology pointed out that if the world’s oceans kept **warm**ing, by 2100 they might become hot enough to “**stop oxygen production by phyto-plankton** by **disrupting the process of photosynthesis**.” Given that **two-thirds of the Earth’s oxygen** comes from phytoplankton, that would “likely **result in the mass mortality of animals and humans**.”

A year later, above the Arctic Circle, in Siberia, a heat wave thawed a reindeer carcass that had been trapped in the permafrost. The exposed body released anthrax into nearby water and soil, infecting two thousand reindeer grazing nearby, and they in turn infected some humans; a twelve-year-old boy died. As it turns out, permafrost is a “very good preserver of **microbes** and **viruses**, because it is cold, there is no oxygen, and it is dark” — scientists have managed to revive an eight-million-year-old bacterium they found beneath the surface of a glacier. Researchers believe there are fragments of the **Spanish flu** virus, **smallpox**, and **bubonic plague** buried in Siberia and Alaska.

Or consider this: as **ice sheets melt**, they take weight off land, and that can trigger **earthquakes** — seismic activity is already increasing in Greenland and Alaska. Meanwhile, the added weight of the new seawater starts to bend the Earth’s crust. “That will give you a massive increase in volcanic activity. It’ll activate faults to create earthquakes, submarine landslides, tsunamis, the whole lot,” explained the director of University College London’s Hazard Centre. Such a landslide happened in Scandinavia about eight thousand years ago, as the last Ice Age retreated and a Kentucky-size section of Norway’s continental shelf gave way, “plummeting down to the abyssal plain and creating a series of titanic waves that roared forth with a vengeance,” **wiping all** signs of **life** from coastal Norway to Greenland and “drowning the Wales-sized landmass that once connected Britain to the Netherlands, Denmark, and Germany.” When the waves hit the Shetlands, they were sixty-five feet high.

There’s even this: if we keep **rais**ing carbon dioxide levels, we **may not be able to think straight** anymore. At a thousand parts per million (which is within the realm of possibility for 2100), human **cognitive ability** falls 21 percent. “The largest effects were seen for Crisis Response, Information Usage, and Strategy,” a Harvard study reported, which is too bad, as those skills are what we seem to **need most**.

## **1AC Collisions and Ozone**

### Starlink is responsible for HALF of all dangerous space near-collisions – full mega constellation can make collisions ten times more likely and debris avoidance software doesn’t check.

**Pultarova 21,** Tereza is a London-based science and technology journalist, aspiring fiction writer and amateur gymnast. Originally from Prague, the Czech Republic, she spent the first seven years of her career working as a reporter, script-writer and presenter for various TV programmes of the Czech Public Service Television. She later took a career break to pursue further education and added a Master's in Science from the International Space University, France, to her Bachelor's in Journalism and Master's in Cultural Anthropology from Prague's Charles University. She worked as a reporter at the Engineering and Technology magazine, freelanced for a range of publications including Live Science, Space.com, Professional Engineering, Via Satellite and Space News and served as a maternity cover science editor at the European Space Agency. “SpaceX Starlink satellites responsible for over half of close encounters in orbit, scientist says”, August 18, 2021,<https://www.space.com/spacex-starlink-satellite-collision-alerts-on-the-rise>, accessed 12/1/21,

Operators of satellite constellations are constantly forced to move their satellites because of encounters with other spacecraft and pieces of space junk. And, thanks to SpaceX's Starlink satellites, the number of such dangerous approaches will continue to grow, according to estimates based on available data. SpaceX's Starlink satellites alone are involved in about 1,600 close encounters between two spacecraft every week, that's about 50 % of all such incidents, according to Hugh Lewis, the head of the Astronautics Research Group at the University of Southampton, U.K. These encounters include situations when two spacecraft pass within a distance of 0.6 miles (1 kilometer) from each other. Lewis, Europe's leading expert on space debris, makes regular estimates of the situation in orbit based on data from the Socrates (Satellite Orbital Conjunction Reports Assessing Threatening Encounters in Space ) database. This tool, managed by Celestrack, provides information about satellite orbits and models their trajectories into the future to assess collision risk. Lewis publishes regular updates on Twitter and has seen a worrying trend in the data that reflects the fast deployment of the Starlink constellation. "I have looked at the data going back to May 2019 when Starlink was first launched to understand the burden of these megaconstellations," Lewis told Space.com. "Since then, the number of encounters picked up by the Socrates database has more than doubled and now we are in a situation where Starlink accounts for half of all encounters." The current 1,600 close passes include those between two Starlink satellites. Excluding these encounters, Starlink satellites approach other operators’ spacecraft 500 times every week. In comparison, Starlink's competitor OneWeb, currently flying over 250 satellites, is involved in 80 close passes with other operators' satellites every week, according to Lewis' data. And the situation is bound to get worse. Only 1,700 satellites of an expected constellation of tens of thousands have been placed into orbit so far**. Once SpaceX launches all 12,000 satellites** of its first generation constellation, **Starlink** satellites will be **involved in 90% of all close approaches**, Lewis’ calculations suggest. The risk of collision Siemak Hesar, CEO and co-founder of Boulder, Colorado, based Kayhan Space, confirms the trend. His company, which develops a commercial autonomous space traffic management system, estimates that on average, an operator managing about 50 satellites will receive up to 300 official conjunction alerts a week. These alerts include encounters with other satellites as well as pieces of debris. Out of these 300 alerts, up to ten might require operators to perform avoidance maneuvers, Hesar told Space.com. Kayhan Space bases their estimates on data provided by the U.S. Space Surveillance Network. This network of radars and telescopes, managed by the U.S. Space Force, closely monitors about 30,000 live and defunct satellites and pieces of debris down to the size of 4 inches (10 centimeters) and provides the most accurate location data of the orbiting objects. **The size of this catalog is expected to increase ten times in the near future,** Hesar added, partly due to the growth of megaconstellations, such as Starlink, and partly as sensors improve and enable detection of even smaller objects. The more objects in the catalog mean more dangerously close encounters. "This problem is really getting out of control," Hesar said. "The processes that are currently in place are very manual, not scalable, and there is not enough information sharing between parties that might be affected if a collision happens." Hesar compared the problem to driving on a highway and not knowing that there has been an accident a few miles ahead of you. If two spacecraft collide in orbit, the cloud of debris the crash generates would threaten other satellites travelling through the same area. "You want to have that situational awareness for the other actors that are flying in the neighbourhood," Hesar said. Bad decisions

Despite the concerns, only three confirmed orbital collisions have happened so far. Earlier this week, astrophysicist and satellite tracker Jonathan McDowell, who's based at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts, found evidence in Space-Track data that the Chinese meteorological satellite Yunhai 1-02, which disintegrated in March this year, was actually hit by a piece of space debris. The worst known space collision in history took place in February 2009 when the U.S. telecommunication satellite Iridium 33 and Russia's defunct military satellite Kosmos-2251 crashed at the altitude of 490 miles (789 kilometres). The incident spawned over 1,000 pieces of debris larger than 4 inches (10 cm). Many of these fragments were then involved in further orbital incidents. Lewis is concerned that with the number of close passes growing, the risk of operators at some point making a wrong decision will grow as well. Avoidance maneuvers cost fuel, time and effort. Operators, therefore, always carefully evaluate such risks. A decision not to make an avoidance maneuver following an alert, such as that made by Iridium in 2009, **could**, however, **clutter the orbital environment for y**ears and **decades**. "In a situation when you are receiving alerts on a daily basis, you can't maneuver for everything," Lewis said. "The maneuvers use propellant, the satellite cannot provide service. So there must be some threshold. But that means you are accepting a certain amount of risk. The problem is that at some point, you are likely to make a wrong decision." Hesar said that uncertainties in the positions of satellites and pieces of debris are still considerable. In case of operational satellites, the error could be up to 330 feet (100 meters) large. When it comes to a piece of debris, the uncertainty about its exact position might be in the order of a mile or more. "This object can be anywhere in this bubble of multiple kilometres," Hesar said. "At this point, and for the foreseeable future, avoidance is our best recourse. People that say 'I'm going to take the risk', in my humble opinion, that's an irresponsible thing to do." Starlink monopoly Lewis is concerned about the growing influence of a single actor — Starlink — on the safety of orbital operations. Especially, he says, as the spaceflight company has entered the satellite operations world only recently. "We place trust in a single company, to do the right thing," Lewis said. "We are in a situation where most of the maneuvers we see will involve Starlink. They were a launch provider before, now they are the world's biggest satellite operator, but they have only been doing that for two years so there is a certain amount of inexperience." **SpaceX relies on an autonomous collision avoidance system** to keep its fleet away from other spacecraft. That, however, could sometimes introduce further problems. The automatic orbital adjustments change the forecasted trajectory and therefore make collision predictions more complicated, according to Lewis. "Starlink doesn't publicize all the maneuvers that they're making, but it is believed that they are making a lot of small corrections and adjustments all the time," Lewis said. "But that causes problems for everybody else because no one knows where the satellite is going to be and what it is going to do in the next few days."

### Starlink generates aluminum oxide upon entry and reentry – that causes a new hole in the ozone

**Delbert 21,** Caroline Delbert is a writer, book editor, researcher, and avid reader. “All the Satellites in Space Could Crack Open the Ozone Layer”, https://www.popularmechanics.com/space/satellites/a36651845/satellite-pollution-starlink-ozone/, JUN 17, 2021, accessed 12/1/21,

The hole in the ozone layer, Earth’s protective chemical shield that absorbs most of the sun’s ultraviolet rays, has slowly healed over the last few decades since the global ban of chlorofluorocarbons (CFCs). But scientists are now raising the alarm about puncturing a new hole in the ozone layer—this time without any noticeable CGCs in sight. Instead, the surprising cause is deterioration of the aluminum in megaconstellation satellites like SpaceX’s Starlink network. For our purposes, a satellite is a human-made object put into low-Earth orbit (LEO) for a planned lifespan. There are about 5,000 active and defunct satellite sin LEO, with over 40,000 Starlink sats planned in the future, plus satellite projects from national space agencies and private companies around the world, researchers from the University of British Columbia say in their new Scientific Reports study. The human-made distinction may seem obvious, but it hasn’t always been. That’s because, as Space.com reports, scientists spent decades favorably comparing satellite “junk” to the amount of material deposited and burned up in our atmosphere by meteorites. As long as meteorites were so much more of the material by volume while doing almost no harm to the planet, how bad could human-made satellites be? Well, as it turns out, it’s a matter of quality rather than quantity. That’s because meteorites are made of a different constellation of minerals and elements than our custom-manufactured sky robots. “We have 54 tonnes (60 tons) of meteoroid material coming in every day,” lead study author Aaron Boley told Space.com. “With the first generation of Starlink, we can expect about 2 tonnes (2.2 tons) of dead satellites reentering Earth’s atmosphere daily. But meteoroids are mostly rock, which is made of oxygen, magnesium and silicon. These satellites are mostly aluminum, which the meteoroids contain only in a very small amount, about 1 [percent].” Aluminum is key to everything at stake here. First, it burns into reflective aluminum oxide, or alumina, which could turn into an unwitting geoengineering experiment that could alter Earth’s climate. And second, aluminum oxide could damage and even rip a new hole in the ozone layer. Let’s look at each threat separately and try to figure it out. Misadventures in Geoengineering Geoengineering is the umbrella term for technologies that seek to alter the climate or other physical realities about the planet. The major meaning that most people associate with the word is solar geoengineering, an experimental idea to fight climate change. Yes, this includes launching reflective aerosols that will “block the sun” back into space and ostensibly cool the planet, which is what Bill Gates eventually wants to try. But we just don’t know how large-scale geoengineering could affect the planet’s climate. (In the sci-fi flick Snowpiercer, geoengineering has turned Earth into a lifeless iceball whose only survivors must crowd aboard an unceasing train. That’s probably our worst-case scenario.) Aluminum oxide scatters more light than glass, with a refractive index of about 1.76 compared with just 1.52 for glass and about 1.37 for plain aluminum. The researchers write: “Anthropogenic deposition of aluminum in the atmosphere has long been proposed in the context of geoengineering as a way to alter Earth’s albedo. These proposals have been scientifically controversial and controlled experiments encountered substantial opposition. Mega-constellations [of satellites] will begin this process as an uncontrolled experiment.” Another Hole in the Ozone? What, then, of the ozone layer? Once again, aluminum oxide comes to the forefront. As aluminum burns, it can chemically react with ozone in the air to form aluminum oxide, thereby depleting the naturally protective supply of ozone in the atmosphere. The atmosphere can absorb a small amount of these chemicals without ill effect, but with tens of thousands of satellites in play, the quantities will naturally go up. That’s in addition to the ozone damage done by each rocket launch to put satellites into LEO. “Rockets threaten the ozone layer by depositing radicals directly into the stratosphere, with solid-fueled rockets causing the most damage because of the hydrogen chloride and alumina they contain,” the researchers write. While satellites typically dissolve above the stratosphere where most ozone is contained, the particulate can drift down into the stratosphere in order to react there with ozone, scientist Gerhard Drolshagen, an expert on meteoroid material, told Space.com. Aluminum oxide will sink to that level and subsequently cause losses.

### Ozone depletion causes extinction

#### **Gareau,** B. J. (20**13,** February 8). *Whatever happened to ozone layer politics?* E. Retrieved December 2, 2021, from https://www.e-ir.info/2013/01/29/whatever-happened-to-ozone-layer-politics/.

The [Montreal Protocol on Substances that Depletes the Ozone Layer](http://ozone.unep.org/pdfs/Montreal-Protocol2000.pdf) (1997) is arguably the most successful global environmental agreement ever created. **The ozone layer is the Earth’s sunscreen, absorbing** up to **99 per cent of the sun’s** ultraviolet (**UV) radiation.** **Without it, life on earth would not exist.** The Montreal Protocol was created to eliminate human-made chemicals that destroy the ozone layer, what we call “ozone-depleting substances” (ODSs). ODSs destroy the ozone layer, thus allowing more UV radiation to hit the surface and increasing skin cancer and skin disease rates, eye cataracts, damage to the immune system, and sunburn in humans and other animals. The Protocol sought to put a halt to such harmful effects, chiefly to rid the world of chlorofluorocarbons, or CFCs.

The most famous ozone holes occur over the Antarctic. In 2006, an Antarctic ozone hole reached a record 11.4 million square miles wide, larger than all of North America. While it mostly covers uninhabited land, the Antarctic ozone hole does reach some populated areas in South America as it is quite mobile. The Arctic hole, a newer phenomenon, has a potentially larger impact on humans. The 2011 Arctic ozone hole moved from the North Pole into Scandinavia and Greenland. The World Meteorological Organization cautioned habitants to protect themselves from the strong UV rays. Parts of Canada and Russia have also been affected lately. It is possible that “ozone depleted air” will move south with the Arctic polar vortex, potentially reaching northern Italy, New York, and San Francisco.

## **1AC Cap**

**Capitalist development of outer space is integral to the expansionary logic of capital, which depends upon “spatial fixes,” and sustains systems of never-ending capitalism, Shammas and Holen 19**

Shammas, Victor L. “One Giant Leap For Capitalistkind: Private Enterprise In Outer Space.”

Palgrave Communications 5:10. 2019. Web. December 11, 2021. <<https://www.nature.com/articles/s41599-019-0218-9>>.//AB

The spatial fix of outer space No longer terra nullius, space is now the new terra firma of

capitalistkind: its naturalized terroir, its next necessary terrain. The logic of capitalism dictates

that capital should seek to expand outwards into the vastness of space, a point recognized by a

recent ethnography of NewSpace actors (Valentine, 2016, p. 1050). The operations of capitalistkind serve to resolve a series of (potential) crises of capitalism, revolving around the slow, steady decline of spatial fixes (see e.g., Harvey, 1985, p. 51–66) as they come crashing up against the quickly vanishing blank spaces remaining on earthly maps and declining (terrestrial)

opportunities for profitable investment of surplus capital (Dickens and Ormrod, 2007a, p. 49–78). **A ‘spatial fix' involves** the **geographic modulation of capital accumulation, consisting in the outward expansion of capital onto new geographic terrains,** or into new spaces, with the aim of filling a gap in the home terrains of capital. Jessop (2006, p. 149) notes that **spatial fixes** may **involve** a number of strategies, including **the creation of new markets within the capitalist world, engaging in trade with non-capitalist economies, and exporting surplus capital to undeveloped or underdeveloped regions.** The first two address the problem of insufficient demand and the latter option creates a productive (or valorizing) outlet for excess capital.

Capitalism must regularly discover, develop, and appropriate such new spaces because of its

inherent tendency to generate surplus capital, i.e., capital bereft of profitable purpose. In

Harvey’s (2006, p. xviii) terms, **a spatial fix revolves around ‘geographical expansions and restructuring**..**.as a temporary solution to crises understood...in terms of the overaccumulation of capital'**. It is a temporary solution because these newly appropriated spaces will in turn become exhausted of profitable potential and are likely to produce their own stocks of surplus capital; while ‘capital surpluses that otherwise stood to be devalued, could be absorbed through geographical expansions and spatio-temporal displacements' (Harvey, 2006, p. xviii), this **outwards drive of capitalism is inherently limitless: there is no end point or final destination for capitalism.** Instead, capitalism must continuously propel itself onwards in search of pristine sites of renewed capital accumulation. In this way, Harvey writes, **society constantly ‘creates fresh productive powers elsewhere to absorb its overaccumulated capital**' (Harvey, 1981, p. 8). Historically, **spatial fixes have played an important role in conserving the capitalist system.** As Jessop (2006, p. 149) points out, ‘The export of surplus money capital, surplus commodities, and/or surplus labour-power outside the space(s) where they originate enabled capital to avoid, at least for a period, the threat of devaluation'. But these new spaces for capital are not necessarily limited to physical terrains, as with colonial expansion in the nineteenth century; as Greene and Joseph (2015) note, various digital spaces, such as the Internet, can also be considered as spatial fixes: the Web absorbs overaccumulated capital, heightens consumption of virtual and physical goods, and makes inexpensive, flexible sources of labor available to employers. Greene and Joseph offer the example of online high-speed frequency trading as a

digital spatial fix that furthers the ‘annihilation of space by time' first noted by Marx in his Grundrisse (see Marx, 1973, p. 524). Outer space serves at least two purposes in this regard. In the short-to medium-term, it allows for the export of surplus capital into emerging industries, such as satellite imaging and communication. These are significant sites of capital

accumulation: global revenues in the worldwide satellite market in 2016 amounted to $260 billion (SIA, 2017, p. 4). Clearly, much of this activity is taking place ‘on the ground'; it is occurring in the ‘terrestrial economy'. But all that capital would have to find some other meaningful or productive outlet were it not for the expansion of capital into space. Second,

outer space serves as an arena of technological innovation, which feeds back into the terrestrial

economy, helping to avert crisis by pushing capital out of technological stagnation and

innovation shortfalls. In short, **outer space serves as a spatial fix.** **It swallows up surplus capital, promising to deliver valuable resources, technological innovations, and communication services to capitalists back on Earth. This places outer space on the same level as traditional colonization**, analyzed in Hegel’s Philosophy of Right, which Hegel thought of as a product of the ‘inner dialectic of civil society'**, which drives the market to ‘push beyond its own limits** and seek markets, and so its necessary means of subsistence, **in other lands which are** either deficient in the goods it has overproduced, or else **generally backward in creative industry**, etc.' (Hegel, 2008, p. 222). In this regard, **SpaceX and related ventures are not** so very **different from** maritime colonialists and **the** trader-**exploiters of the British East India Company.** But there is something new at stake. As the Silicon Valley entrepreneur Peter Diamandis has gleefully noted: ‘There are twenty-trillion-dollar checks up there, waiting to be cashed!' (Seaney and Glendenning, 2016).

**Metabolic rift and overaccumulation– our problem isn’t the amount of resources, it’s how we use them.**

**Ray & Parson 20** [Emily Ray and Sean Parson, \* Assistant Professor in the Political Science department at Sonoma State University, \*\* Associate Professor in the departments of Politics and International Affairs and Sustainable Communities at Northern Arizona University, “Limits to Terrestrial Extraction | Star power: Outer space mining and the metabolic rift,” 2020, Routledge, pp. 58-60, EA]

The work that best explores the dialectical metabolic relationship is Foster, York, and Clark’s work on the metabolic rift, which is useful for thinking through this attempt to loop outer space into the metabolic relationship between production and the environment.

For Marx, the metabolic rift—the alienated mediation between humanity and nature—was a product of the **‘robbing’** or expropriation of the soil, and thus of **nature**, thereby hindering the operation of the eternal natural condition for the lasting fertility of the soil.10

Here, Marx argues that ecological **crisis is**, in part, **due to** the **geographic separation of production and consumption. Capitalism takes** massive amounts of **resources** and nutrients from the land **and concentrates them** in dumps and urban areas. The metabolic rift is also a product of **urbanization** and increase in **population density.** The ecological rift shatters the relationship within a local environment by **creating an imbalance.** Either there are too many nutrients being taken from the land or too much material being added to it. That fissure is the ecological crisis. The ecological crisis is not simply about inputs or outputs, about extraction or production, but is instead an issue of relationality.

Marx also argued that **humans are innately driven to produce**; that there is a need to creatively use that capacity for labor, and this accounts for a distinction between humanity and other animals. Non-use of the environment is therefore **not an alternative** to the ruptured metabolic rift. Rather**, non-alienated use** of the environment, **governed by** a **different set of values** than those of neoliberal capitalism, **can provide** the foundation for a **sustainable**, just, and responsible relation between **human productive energy** and the **foundation of production** in the form of the environment. Steven Vogel has similarly argued that the problem is not that humans engage the environment for resource use, but **how they do so** that is problematic.11 Is it possible to see the cold, hard rocks floating in a freezing vacuum as part of the environment that requires a new, non-capitalist approach to managing the conditions for human life? These same rocks are already considered part of the available environmental resources for Earth-based needs, and including them in the movement of the metabolism on Earth, or even off-Earth but in conjunction with on-Earth resources, such as space exploration missions, only answers the question of their place in the environment **from the perspective of capital**. As the private sector gains more control over the governing of these NEAs, the task of social theory is to determine if, and how, outer space should be ideological and practically linked into the metabolic relationship between production and the sustenance of life.

The process of taking resources from the extra-planetary environments of asteroids would only **further exacerbate this crisis**. One of the primary narratives of contemporary capitalism is around resource scarcity, which claims that the limits of human advancement are linked to the amount of resources on this planet. Defenders of such practices argue that adding resources from an outside system would address the crisis of environmental degradation from terrestrial resource extraction. Looking to the stars to address the issue of resources and growth is simply a means to **circumvent political discussions** around resource allocations and radical **shifts to** human, economic, and social **systems** that are conducive **to human survival.** In order **to avoid** **addressing** the **contradictions of capitalism**, or the **ecological limits** that bind the human species, these arguments require **magical** **thinking** and **grandiose** **technological** **innovation**. This sleight of hand distracts from an analysis of the root problem of the crisis by **focusing on scarcity** – which Marcuse decades ago had already shown **is illusory**.12 As Marcuse shows, the problem is not one of scarcity but one of **over-abundance**. Adding additional resources into the closed system that is the ecosystem would **exacerbate the metabolic rift**, not solve it. Looping NEOs into the industrial metabolism not only adds additional materials to an already overburdened planetary metabolism but a so **overlooks** **the** troubling **relationship between neoliberalism and outer space,** reconceived **as a frontier for capital expansion**, and fraught with difficult questions about national sovereignty. What is at stake in extending the planet beyond Earth itself?

#### **Capitalism is the root cause of every impact – climate change, war, structural inequality, and psychological violence**

**Robinson ’18** (William, American professor of sociology at the University of California, Santa Barbara, “Accumulation Crisis and Global Police State”) Robinson, W. I. (2018, March 21). *Accumulation crisis and global police state - William I. Robinson, 2019*. SAGE Journals. Retrieved December 30, 2021, from https://journals.sagepub.com/doi/abs/10.1177/0896920518757054

Each major episode of crisis in the world capitalist system has presented the potential for systemic change. Each has involved the breakdown of state legitimacy, escalating class and social struggles, and military conflicts, leading to a restructuring of the system, including new institutional arrangements, class relations, and accumulation activities that eventually result in a restabilization of the system and renewed capitalist expansion. The current crisis shares aspects of earlier system-wide structural crises, such as of the 1880s, the 1930s or the 1970s. But there are six interrelated dimensions to the current crisis that I believe sets it apart from these earlier ones and suggests that a simple restructuring of the system will not lead to its restabilization – that is, our very survival now requires a **revolution against global capitalism** (Robinson, 2014). These six dimensions, in broad strokes, present a “big picture” context in which a global police state is emerging. First, the system is fast **reaching the ecological limits** of its reproduction. We have already passed tipping points in climate change, the nitrogen cycle, and diversity loss. For the first time ever, human conduct is intersecting with and fundamentally altering the earth system in such a way that threatens to bring about a **sixth mass extinction** (see, e.g., Foster et al., 2011; Moore, 2015). These ecological dimensions of global crisis have been brought to the forefront of the global agenda by the worldwide environmental justice movement. Communities around the world have come under escalating repression as they face off against transnational corporate plunder of their environment. While capitalism cannot be held solely responsible for the ecological crisis, it is **difficult to** imagine that the environmental catastrophe can be **resolved** within the capitalist system given capital’s implacable **impulse to accumulate** and its accelerated **commodification of nature**. Second, the level of global social polarization and **inequality** is **unprecedented.** The richest one percent of humanity in 2016 controlled over half of the world’s wealth and 20 percent controlled 95 percent of that wealth, while the remaining 80 percent had to make do with just five percent (Oxfam, 2017). These escalating inequalities fuel capitalism’s chronic problem of overaccumulation: the TCC cannot find productive outlets to unload the enormous amounts of surplus it has accumulated, leading to chronic stagnation in the world economy (see next section). Such extreme levels of social polarization present a challenge of social control to dominant groups. As Trumpism in the United States as well as the rise of far-right and neo-fascist movements in Europe so well illustrate, cooptation also involves the manipulation of fear and insecurity among the downwardly mobile so that **social anxiety** is channeled towards **scapegoated communities**. This **psychosocial mechanism** of displacing mass anxieties is not new, but it appears to be increasing around the world in the face of the structural destabilization of capitalist globalization. Extreme inequality requires extreme violence and repression that lend themselves to projects of 21st century fascism. Third, the sheer magnitude of the means of violence and social control is unprecedented, as well as the magnitude and concentrated control over the means of global communication and the production and circulation of symbols, images, and knowledge. Computerized wars, drone warfare, robot soldiers, bunker-buster bombs, a new generation of nuclear weapons, satellite surveillance, cyberwar, spatial control technology, and so forth, have **changed the face of warfare**, and more generally, of systems of social control and repression. We have arrived at the panoptical surveillance society, a point brought home by Edward Snowden’s revelations in 2013, and the age of thought control by those who control global flows of communication and symbolic production. If global capitalist crisis leads to a new world war the destruction would simply be unprecedented. Fourth, we are reaching limits to the extensive expansion of capitalism, in the sense that there are no longer any new territories of significance to integrate into world capitalism and new spaces to commodify are drying up. The capitalist system is by its nature **expansionary.** In each earlier structural crisis, the system went through a new round of extensive expansion – from waves of colonial conquest in earlier centuries, to the integration in the late 20th and early 21st centuries of the former socialist countries, China, India and other areas that had been marginally outside the system. There are no longer any new territories to integrate into world capitalism. At the same time, the privatization of education, health, utilities, basic services, and public lands is turning those spaces in global society that were outside of capital’s control into “spaces of capital,” so that intensive expansion is reaching depths never before seen. What is there left to commodify? Where can the system now expand? New spaces have to be violently cracked open and the peoples in these spaces must be repressed by the global police state. Fifth, there is the rise of a vast surplus population inhabiting a “planet of slums” (Davis, 2007) pushed out of the productive economy, thrown into the margins, and subject to sophisticated systems of social control and to destruction, into a mortal cycle of dispossession-exploitation exclusion. Crises provide capital with the opportunity to accelerate the process of forcing greater productivity out of fewer workers. The processes by which surplus labor is generated have accelerated under globalization. Spatial reorganization has helped transnational capital to break the territorial-bound power of organized labor and impose new capital–labor relations based on fragmentation, flexibilization, and the cheapening of labor. These developments, combined with a massive new round of primitive accumulation and displacement of hundreds of millions, have given rise to a new global army of superfluous labor that goes well beyond the traditional reserve army of labor that Marx discussed. Global capitalism has no direct use for surplus humanity. But indirectly, it holds wages down everywhere and makes new systems of 21st century slavery possible.1 Dominant groups face the challenge of how to contain both the real and potential rebellion of surplus humanity. In addition, surplus humanity cannot consume and so as their ranks expand the problem of overaccumulation becomes exacerbated. Sixth, there is an acute political contradiction in global capitalism: economic globalization takes places within a nation-state system of political authority. Transnational state apparatuses are incipient and have not been able to substitute for a leading nation-state with enough power and authority to organize and stabilize the system, much less to impose regulations on transnational capital. In the age of capitalist globalization governments must attract to the national territory transnational corporate investment, which requires providing capital with all the incentives associated with neoliberalism – downward pressure on wages, deregulation, austerity, and so on – that aggravate inequality, impoverishment, and insecurity for working classes. Nation-states face a contradiction between the need to promote transnational capital accumulation in their territories and their need to achieve political legitimacy. As a result, states around the world have been experiencing spiraling crises of legitimacy. This situation generates bewildering and seemingly contradictory politics and also helps explain the resurgence of far-right and neo-fascist forces that espouse rhetoric of nationalism and protectionism even as they promote neo-liberalism.