

Ardrey Kell RG - Laird Lewis 1NC

Framework:

Because unjust in the resolution is defined as - not based on or behaving according to what is morally right and fair. [Oxford Lang](#) My value is Morality

The standard is maximizing expected wellbeing

[1] Pleasure and pain are the starting point for moral reasoning—they're our most baseline desires and the only things that explain intrinsic value

Moen 16, Ole Martin (PhD, Research Fellow in Philosophy at University of Oslo). "An Argument for Hedonism." Journal of Value Inquiry 50.2 (2016): 267.

Let us start by observing, empirically, that **a widely shared judgment about intrinsic value and disvalue is that pleasure is intrinsically valuable and pain is intrinsically disvaluable**. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for **there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels**, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. "Pleasure" and "pain" **are** here **understood inclusively**, as encompassing anything hedonically positive and anything hedonically negative. 2 The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values. If you tell me that you are heading for the convenience store, **I might ask: "What for?"** This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: "To buy soda." This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: "What is buying the soda good for?" This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: "Well, I want it for the pleasure of drinking it." If I then proceed by asking "But what is the pleasure of drinking the soda good for?" the discussion is likely to reach an awkward end. **The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good**. 3 As Aristotle observes: "**We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.**" 4 Presumably, a similar story can be told in the case of pains, for if someone says "This is painful!" we never respond by asking: "And why is that a problem?" We take for granted that **if something is painful, we have a sufficient explanation of why it is bad**. If we are onto something in our everyday reasoning about values, it seems that **pleasure and pain are both places where we reach the end of the line in matters of value**. Although **pleasure and pain thus seem to be good candidates for intrinsic value and disvalue**, several objections have been raised against this suggestion: (1) that pleasure and pain have instrumental but not intrinsic value/disvalue; (2) that pleasure and pain gain their value/disvalue derivatively, in virtue of satisfying/frustrating our desires; (3) that there is a subset of pleasures that are not intrinsically valuable (so-called "evil pleasures") and a subset of pains that are not intrinsically disvaluable (so-called "noble pains"), and (4) that pain asymbolia, masochism, and practices such as wiggling a loose tooth render it implausible that pain is intrinsically disvaluable. I shall argue that these objections fail. Though it is, of course, an open question whether other objections to P1 might be more successful, I shall assume that if (1)–(4) fail, we are justified in believing that P1 is true itself a paragon of freedom—there will always be some agents able to interfere substantially with one's choices. The effective level of protection one enjoys, and hence one's actual degree of freedom, will vary according to multiple factors: how powerful one is, how powerful individuals in one's vicinity are, how frequent police patrols are, and so on. Now, we saw above that what makes a slave unfree on Pettit's view is the fact that his master has the power to interfere arbitrarily with his choices; in other words, what makes the slave unfree is the power relation that obtains between his master and him. The difficulty is that, in light of the facts I just mentioned, there is no reason to think that this power relation will be unique. A similar relation could obtain between the master and someone other than the slave: absent perfect state control, the master may very well have enough power to interfere in the lives of countless individuals. Yet it would be wrong to infer that these individuals lack freedom in the way the slave does; if they lack anything, it seems to be security. A problematic power relation can also obtain between the slave and someone other than the master, since there may be citizens who are more powerful than the master and who can therefore interfere with the slave's choices at their discretion. Once again, it would be wrong to infer that these individuals make the slave unfree in the same way that the master does. Something appears to be missing from Pettit's view. If I live in a particularly nasty part of town, then it may turn out that, when all the relevant factors are taken into account, I am

just as vulnerable to outside interference as are the slaves in the royal palace, yet it does not follow that our conditions are equivalent from the point of view of freedom. As a matter of fact, we may be equally vulnerable to outside interference, but as a matter of right, our standings could not be more different. I have legal recourse against anyone who interferes with my freedom; the recourse may not be very effective—presumably it is not, if my overall vulnerability to outside interference is comparable to that of a slave— but I still have full legal standing.⁶⁸ By contrast, the slave lacks legal recourse against the interventions of one specific individual: his master. It is that fact, on a Kantian view—a fact about the legal relation in which a slave stands to his master—that sets slaves apart from freemen. The point may appear trivial, but it does get something right: whereas one cannot identify a power relation that obtains uniquely between a slave and his master, the legal relation between them is undeniably unique. A master's right to interfere with respect to his slave does not extend to freemen, regardless of how vulnerable they might be as a matter of fact, and citizens other than the master do not have the right to order the slave around, regardless of how powerful they might be. This suggests that Kant is correct in thinking that the ideal of freedom is essentially linked to a person's having full legal standing. More specifically, he is correct in holding that the importance of rights is not exhausted by their contribution to the level of protection that an individual enjoys, as it must be on an instrumental view like Pettit's. Although it does matter that rights be enforced with reasonable effectiveness, the sheer fact that one has adequate legal rights is essential to one's standing as a free citizen. In this respect, Kant stays faithful to the idea that freedom is primarily a matter of standing—a standing that the freeman has and that the slave lacks. Pettit himself frequently insists on the idea, but he fails to do it justice when he claims that freedom is simply a matter of being adequately (and reliably) shielded against the strength of others. As Kant recognizes, the standing of a free citizen is a more complex matter than that. One could perhaps worry that the idea of legal standing is something of a red herring here—that it must ultimately be reducible to a complex network of power relations and, hence, that the position I attribute to Kant differs only nominally from Pettit's. That seems to me doubtful. Viewing legal standing as essential to freedom makes sense only if our conception of the former includes conceptions of what constitutes a fully adequate scheme of legal rights, appropriate legal recourse, justified punishment, and so on. Only if one believes that these notions all boil down to power relations will Kant's position appear similar to Pettit's. On any other view—and certainly that includes most views recently defended by philosophers—the notion of legal standing will outstrip the power relations that ground Pettit's theory.

[2] Extinction is the most important impact to prioritize - without a human race nothing else matters

(MacAskill 14) [William, Oxford Philosopher and youngest tenured philosopher in the world, Normative Uncertainty, 2014]

The human race might go extinct from a number of causes: asteroids, supervolcanoes, runaway climate change, pandemics, nuclear war, and the development and use of dangerous new technologies such as synthetic biology, all pose risks (even if very small) to the continued survival of the human race.¹⁸⁴ And different moral views give opposing answers to question of whether this would be a good or a bad thing. It might seem obvious that human extinction would be a very bad thing, both because of the loss of potential future lives, and because of the loss of the scientific and artistic progress that we would make in the future. But the issue is at least unclear. The continuation of the human race would be a mixed bag: inevitably, it would involve both upsides and downsides. And if one regards it as much more important to avoid bad things happening than to promote good things happening then one could plausibly regard human extinction as a good thing. For example, one might regard the prevention of bads as being in general more important than the promotion of goods, as defended historically by G. E. Moore,¹⁸⁵ and more recently by Thomas Hurka.¹⁸⁶ One could weight the prevention of suffering as being much more important than the promotion of happiness. Or one could weight the prevention of objective bads, such as war and genocide, as being much more important than the promotion of objective goods, such as scientific and artistic progress. If the human race continues its future will inevitably involve suffering as well as happiness, and objective bads as well as objective goods. So, if one weights the bads sufficiently heavily against the goods, or if one is sufficiently pessimistic about humanity's ability to achieve good outcomes, then one will regard human extinction as a good thing.¹⁸⁷ However, even if we believe in a moral view according to which human extinction would be a good thing, we still have strong reason to prevent near-term human extinction. To see this, we must note three points. First, we should note that the extinction of the human race is an extremely high stakes moral issue. Humanity could be around for a very long time: if humans survive as long as the median mammal species, we will last another two million years. On this estimate, the number of humans in existence in the future, given that we don't go extinct any time soon, would be 2×10^{14} . So if it is good to bring new people into existence, then it's very good to prevent human extinction. Second, human extinction is by its nature an irreversible scenario. If we continue to exist, then we always have the option of letting ourselves go extinct in the future (or, perhaps more realistically, of considerably reducing population size). But if we go extinct, then we can't magically bring ourselves back into existence at a later date. Third, we should expect ourselves to progress, morally, over the next few centuries, as we have progressed in the past. So we should expect that in a few centuries' time we will have better evidence about how to evaluate human extinction than we currently have. Given these three factors, it would be better to prevent the near-term extinction of the human race, even if we thought that the extinction of the human race would actually be a very good thing. To make this concrete, I'll give the following simple but illustrative model. Suppose that we have 0.8 credence that it is a bad thing to produce new people, and 0.2 certain that it's a good thing to produce new people; and the degree to which it is good to produce new people, if it is good, is the same as the degree to which it is bad to produce new people, if it is bad. That is, I'm supposing, for simplicity, that we know that one new life has one unit of value; we just don't know whether that unit is positive or negative. And let's use our estimate of 2×10^{14} people who would exist in the future, if we avoid near-term human extinction. Given our stipulated credences, the expected benefit of letting the human race go extinct now would be $(.8-.2) \times (2 \times 10^{14}) = 1.2 \times (10^{14})$. Suppose that, if we let the human race continue and did research for 300 years, we would know for certain whether or not additional people are of positive or negative value. If so, then with the credences above we should think it 80% likely that we will find out that it is a bad thing to produce new people, and 20% likely that we will find out that it's a good thing to produce new people. So there's an 80% chance of a loss of $3 \times (10^{10})$ (because of the delay of letting the human race go extinct), the expected value of which is $2.4 \times (10^{10})$. But there's also a 20% chance of a gain of $2 \times (10^{14})$,

the expected value of which is $4 \times (10^{13})$. That is, in expected value terms, **the cost of waiting** for a few hundred years **is vanishingly small compared with** the benefit of **keeping one's options open** while one gains new information.

OST adds by defining appropriation as **occupation, use, or any other means**
<https://www.space.com/33440-space-law.html#:~:text=Space%20is%20free%20for%20all,in%20other%20outer%2Dspace%20locations.>

“Appropriation” includes claims to natural resources, not just real property.

Amanda M. **Leon**, Associate*, Caplin & Drysdale, Chtd., '18, Virginia Law Review [“MINING FOR MEANING: AN EXAMINATION OF THE LEGALITY OF PROPERTY RIGHTS IN SPACE RESOURCES” Vol. 104:497 2018] TDI

Appropriation. The term “appropriation” also remains ambiguous. Webster’s defines the verb “appropriate” as “to take to oneself in exclusion of others; to claim or use as by an exclusive or pre-eminent right; as, let no man appropriate a common benefit.”¹⁶⁵ Similarly, **Black’s Law Dictionary describes “appropriate” as an act “[t]o make a thing one’s own; to make a thing the subject of property; to exercise dominion over an object to the extent, and for the purpose, of making it subserve one’s own proper use or pleasure.”**¹⁶⁶ Oftentimes, appropriation refers to the setting aside of government funds, the taking of land for public purposes, or a tort of wrongfully taking another’s property as one’s own. The term **appropriation is often used not only with respect to real property but also with water. According to U.S. case law, a person completes an appropriation of water by diversion of the water and an application of the water to beneficial use.**¹⁶⁷ **This common use of the term “appropriation” with respect to water illustrates two key points: (1) the term applies to natural resources—e.g., water or minerals—not just real property, and (2) mining space resources and putting them to beneficial use—e.g., selling or manufacturing the mined resources—could reasonably be interpreted as an “appropriation” of outer space.** While the ordinary meaning of “appropriation” reasonably includes the taking of natural resources as well as land, whether the drafters and parties to the OST envisioned such a broad meaning of the term remains difficult to determine with any certainty. **The prohibition against appropriation “by any other means” supports such a reading,** though, by expanding the prohibition to other types not explicitly described.¹⁶⁸ As illustrated by this analysis, **considerable ambiguity remains after this ordinary-meaning analysis and thus, the question of Treaty obligations and property rights remains unresolved.** In order to resolve these ambiguities, an analysis of preparatory materials, historical context, and state practice follows.

I negate the resolution: The appropriation of outer space by private entities is unjust

Contention 1:

Digital divides are growing, especially because of the pandemic.

Li, C. (20**21**, October 11). *Worsening global digital divide as the US and China continue zero-sum competitions*. Brookings. Retrieved December 14, 2021, from <https://www.brookings.edu/blog/order-from-chaos/2021/10/11/worsening-global-digital-divide-as-the-us-and-china-continue-zero-sum-competitions/> Cheng Li is the director of the John L. Thornton China Center and a senior fellow in the Foreign Policy program at Brookings. He is also a director of the National Committee on U.S.-China Relations. Li focuses on the transformation of political leaders, generational change, the Chinese middle class, and technological development in China. Li is also the author or the editor of numerous books. //ech

The COVID-19 crisis has interrupted daily life and business routines across the world, caused a massive loss of millions of lives, and exacerbated economic disparities within and between countries. **COVID-19 has also revealed fundamental challenges in the international order.** As Kissinger has asserted, “the world will never be the same after the coronavirus.” One can reasonably expect that cynicism regarding regional and global integration, as well as radical populism, racism, ultranationalism and xenophobia, will likely continue to rise around the world. At this critical juncture, it has become even more essential to examine the urgent challenges that the world confronts and to engage in global cooperation instead of devolving into constant contention and confrontation. **One of the most urgent tasks for the international community is to overcome growing digital divides. Digital divides in least developed countries (LDCs) have been particularly salient, as digitally disconnected populations have been left further behind during the pandemic. The U.S. and China, two superpowers in the digital era, should work in tandem with the international community to jointly combat digital divides and COVID-19. Despite the global growth of digital technologies, a 2021 United Nations report noted that nearly half of the world’s population, 3.7 billion people, lack internet access. Deficiency of digital connectivity is especially prevalent within LDCs, where more than 80% of the population are still offline.** In comparison, the unconnected population in developed countries and developing countries stands at 13% and 53%, respectively. LDCs account for about 14% of the world’s population, and they comprise more than half of the world’s extremely poor. **Digital divides both reflect and reinforce socioeconomic disparities. The pandemic has aggravated existing inequalities, often resulting in a widening gap of digital skills. As a result of COVID-19-induced economic difficulties, the population of extreme poor in LDCs expanded by 32 million, and the number of people in poverty in LDCs grew to 36% in 2020, 3% more than in prior years. More specifically, LDCs lag further behind in the following three areas.**

Starklink and other private entity developments could bridge existing digital divides, but regulations are inhibiting them.

Estes, A. C. (20**20**, September 26). *The pandemic is speeding up the space internet race*. Vox Recode. Retrieved December 14, 2021, from <https://www.vox.com/recode/2020/9/26/21457530/elon-musk-spacex-starlink-satellite-broadband-amazon-project-kuiper-viasat>. Adam Clark Estes is the deputy editor of Recode. He was previously a senior editor at Gizmodo, an associate editor at Motherboard, and a staff writer at The Atlantic Wire. //ech

In vast swaths of the United States and the world, there are millions of people who don't have reliable internet access. These unconnected people aren't just in far-flung places like rural America or New Zealand or sub-Saharan Africa, either. There are plenty of people living in dense city centers with limited access to affordable broadband.

The Covid-19 pandemic has brought new urgency to the challenge of getting everyone connected, and while companies like Google and Facebook have floated far-out ideas for solving the problem, the internet technology that's most promising is also one that's already proven: satellite broadband. In early March, just days before cities across the US shut down due to the pandemic, **Elon Musk shared the latest details about his plan to build a satellite broadband service called Starlink. Speaking at a satellite conference in Washington, DC, Musk described how a constellation of Starlink satellites will "blink" when they enter low-Earth orbit.** As described, they almost sound like streaks of glitter in the night sky, or magic bands of flying gadgets that can beam internet down to anyone on the planet. Combined with improvements to existing technology like DSL, cable, and fiber — not to mention 4G and 5G cellular networks — **futuristic satellite broadband stands to bridge the digital divide in the US and elsewhere.** And because the pandemic has prompted explosive demand for better, more widely available internet connectivity, fast progress seems more inevitable than ever. Musk's new satellites went online in early September, giving beta testers download speeds that rival those of terrestrial broadband. **SpaceX has now put 700 Starlink satellites into orbit in the past 16 months and has plans to deliver as many as 30,000 more in the next few years. More satellites mean more bandwidth and faster speeds, and eventually, SpaceX says, its low-Earth orbit satellite constellations could deliver high-speed internet to the entire**

US. Amazon, Facebook, and several startups have made similar promises in recent years. The concept of satellite-based internet service is actually decades old. However, **the innovative low-Earth orbit satellite technology being developed by SpaceX and others could be essential, if not transformative, for everything from telemedicine to remote learning in places that aren't already connected.** Satellite broadband could also be very profitable for whichever company figures it out first. One could imagine Amazon using satellite broadband to boost its Amazon Web Services (AWS) business, or Facebook using it to ensure that more people get on its platform. And if Musk gets his way, his Starlink constellations will generate billions of dollars in profits to fund his mission to colonize Mars. This all sounds futuristic, but satellite broadband is already a very real thing. In fact, if you've ever connected to wifi on a plane or cruise ship, you've probably used it. The basic idea is that ground stations connected to the internet, known as gateways, can send data up to a satellite which then relays that data to antennas somewhere else on the ground — or

on a ship or an airplane. **The problem with this technological feat is that it's all very expensive. It can cost** hundreds of millions of dollars to launch satellites into space, and that's not even taking into account what it takes **to get over regulatory hurdles**. Plenty of companies have tried and failed to crack the business model in the past 20 years. But rather suddenly, the space internet game has changed. **"The Covid-19 crisis has significantly accelerated attention to and investment in satellite technology,"** Babak Beheshti, dean of the College of Engineering and Computing Sciences at the New York Institute of Technology, told Recode. Beheshti added that the number of launches had gone up tenfold from last year to this year. "Why? Because schools, local governments, and others suddenly needed to have broadband internet access in areas where there was really no infrastructure in place."

The digital divide amplifies gender inequality and leads to decreased women in STEM.

Gromova, K., Anderson, R., & Gupta, G. (2021, November 4). *Opening a global conversation about the gender digital divide*. World Bank Blogs. Retrieved December 16, 2021, from <https://blogs.worldbank.org/digital-development/opening-global-conversation-about-gender-digital-divide>. Kate Gromova worked for more than 15 years at the intersection of economics, law, technology, and entrepreneurship development. Reyn is a born lawyer, digital development specialist, and excellent project manager. Garima is a corporate lawyer turned digital development enthusiast. //ech

The COVID-19 pandemic showed how critical digital technologies are in today's world — they kept businesses, education, government services, healthcare, and economies running despite the health crisis and global economic downturn. But it also shed light on another issue — many people and communities have been left out of their country's digital transformation. Why is this a problem? Because economic development has become more dependent on digital technologies. **Those with limited or no access to technology are falling further and further behind. In many developing countries, women and girls fall into this category.** Barriers and constraints in accessing the internet impede their full participation in the social and economic life of their communities and countries. **Today, we are seeing long-standing development gaps between men and women moving online. It is called the gender digital divide. Digital transformation can't achieve its potential when half of the world's population is excluded or limited from the process, making it an important and relevant topic in development. Closing this divide is imperative for ensuring women and girls have better and more access to healthcare, education, jobs, and civic participation.** However, bridging the gender digital divide is complex — its causes are **multifactorial, and the mix of factors changes across a woman's lifetime.** These include the legal and regulatory environment, the availability and accessibility of affordable internet, digital skills development, relevant content, online safety and security, and opportunities for education and employment in the CT sector. **Cutting across all these factors are social and cultural norms and expectations concerning girls' and women's roles and their relationship to technology.** For instance, cost concerns may limit the number and sophistication of smartphones used in a household. When the supply of phones or computers is limited, women's and girls' access is not prioritized. Affordability concerns can also impact internet availability for girls and women; lower-cost internet access plans are usually more restrictive in terms of service and are of lower quality. The poor user experience may decrease women's interest—or appetite — in using the internet

or seeing it as a valuable resource. Security and privacy concerns also creep in, like online harassment and cyberstalking. These threats further discourage women from becoming active internet users. The ability to use digital technologies productively and safely requires digital literacy, skills, and confidence that may not be provided or encouraged for women and girls. Pursuing STEM education may be actively discouraged, narrowing the pipeline of potential female leaders, role models in technology fields, and gender-based innovation.

Lessening the Digital divide helps solve poverty, especially in Africa, by creating jobs.

The World Bank. (2021, September 24). *Narrowing the Digital Divide Can Foster Inclusion and Increase Jobs*. IBRD - IDA. Retrieved December 16, 2021, from

<https://www.worldbank.org/en/news/feature/2021/09/24/narrowing-the-digital-divide-can-foster-inclusion-and-increase-jobs//ech>

A growing body of evidence demonstrates that digital technologies can enable economic transformation in Africa and help create more jobs for its people. Digital technologies do so by helping all people, and especially lower-income and lower-skilled entrepreneurs and employees, work better and learn better, catalyzing adoption and productivity of complementary technologies. World Bank country-level studies, on Nigeria, Senegal, and Tanzania, have analyzed the impact on jobs of mobile internet availability (3G or 4G coverage), including the poor and most vulnerable. Studies show that both internet availability and use of more sophisticated digital technologies lead to more and better jobs for lower-income, lower-skilled people, and hence reduce poverty. Labor force participation and wage employment increased significantly in areas with internet availability after three years, relative to those with no coverage. For example, digital technologies such as the use of local language videos on tablet computers and use of a decision support tool app on a smartphone can provide personalized advice resulting in better jobs, and an increase in crop yields of lower-income farmers. Although mobile internet availability has increased, Africa's internet coverage still lags behind other regions—with digital divides in availability still an issue in remote and poorer areas in all countries. Yet uptake is a bigger problem today than coverage. Africa's uptake gap has widened, both relative to other regions and relative to availability: while 70 percent of Africa's regional population have availability of mobile internet, less than 25 percent are using it—resulting in an average uptake gap of almost 50 percent. This uptake gap is highest in rural areas and informal enterprises; it is also high for older and poorer women and rural households. There are growing digital divides in use between richer, urban, literate, and better educated households with electricity and poorer households without electricity. Three World Bank country-level studies, on Nigeria, Senegal, and Tanzania, have analyzed the impact on jobs of mobile internet availability (3G or 4G coverage). Better jobs and earnings for some people are also associated with large effects on total household consumption and poverty reduction. One key takeaway is that the more digital access Africans have, the more likely they are to reduce poverty over time.

Contention 2:

Private companies are set to mine in space – new tech and profit motives make space lucrative

Gilbert 21, (Alex Gilbert is a complex systems researcher and PhD student in Space Resources at the Colorado School of Mines. “Mining in Space is Coming”), 4-26-21, Milken Institute Review, [// MNHS NL](https://www.milkenreview.org/articles/mining-in-space-is-coming)

Space exploration is back. after decades of disappointment, a combination of better technology, falling costs and a rush of competitive energy from the private sector has put space travel front and center. indeed, many analysts (even some with their feet on the ground) **believe that commercial developments in the space industry may be on the cusp of starting the largest resource rush in history: mining on the Moon, Mars and asteroids.** While this may sound fantastical, some

baby steps toward the goal have already been taken. Last year, NASA awarded contracts to four companies to extract small amounts of lunar regolith by 2024, effectively beginning the era of commercial space mining. Whether this proves to be the dawn of a gigantic adjunct to mining on earth — and more immediately, a key to unlocking cost-effective space travel — will turn on the answers to a host of questions ranging from what resources can be efficiently. As every fan of science fiction knows, the resources of the solar system appear virtually unlimited compared to those on Earth. There are whole other planets, dozens of moons, thousands of massive asteroids and millions of small ones that doubtless contain humungous quantities of materials that are scarce and very valuable (back on Earth).

Visionaries including Jeff Bezos imagine heavy industry moving to space and Earth becoming a residential area. However, as entrepreneurs look to harness the riches beyond the atmosphere, access to space resources remains tangled in the realities of economics and governance. Start with the fact that space belongs to no country, complicating traditional methods of resource allocation, property rights and trade. With limited demand for materials in space itself and the need for huge amounts of energy to return materials to Earth, creating a viable industry will turn on major advances in technology, finance and business models. That said, there’s no grass growing under potential pioneers’ feet. **Potential economic, scientific and even security benefits underlie an emerging geopolitical competition to pursue space mining.**

The United States is rapidly emerging as a front-runner, in part due to its ambitious Artemis Program to lead a multinational consortium back to the Moon. But it is also a leader in creating a legal infrastructure for mineral exploitation. The United States has adopted the world’s first spaceresources law, recognizing the property rights of private companies and individuals to materials gathered in space. However, the United States is hardly alone. Luxembourg and the United Arab Emirates (you read those right) are racing to codify space-resources laws of their own, hoping to attract investment to their entrepot nations with business-friendly legal frameworks. China reportedly views space-resource development as a national priority, part of a strategy to challenge U.S. economic and security primacy in space. Meanwhile, Russia, Japan, India and the European Space Agency all harbor space-mining ambitions of their own. Governing these emerging interests is an outdated treaty framework from the Cold War. Sooner rather than later, we’ll need new agreements to facilitate private investment and ensure international cooperation.

Back up for a moment. For the record, space is already being heavily exploited, because space resources include non-material assets such as orbital locations and abundant sunlight that enable satellites to provide services to Earth. Indeed, satellite-based telecommunications and global positioning systems have become indispensable infrastructure underpinning the modern economy. Mining space for materials, of course, is another matter. In the past several decades, planetary science has confirmed what has long been suspected:

celestial bodies are potential sources for dozens of natural materials that, in the right time and place, are incredibly valuable. Of these, water may be the most attractive in the near-term, because — with assistance from solar energy or nuclear fission — H₂O can be split into hydrogen and oxygen to make rocket propellant, facilitating in-space refueling. So-called “rare earth” metals are also potential targets of asteroid miners intending to

service Earth markets. Consisting of 17 elements, including lanthanum, neodymium, and yttrium, these critical materials (most of which are today mined in China at great environmental cost) are required for electronics. And they loom as bottlenecks in making the transition from fossil fuels to renewables backed up by battery storage. **The Moon is a prime space mining target.**

Boosted by NASA's mining solicitation, it is likely the first location for commercial mining. The Moon has several advantages. It is relatively close, requiring a journey of only several days by rocket and creating communication lags of only a couple seconds — a delay small enough to allow remote operation of robots from Earth. Its low gravity implies that relatively little energy expenditure will be needed to deliver mined resources to Earth orbit. The Moon may look parched — and by comparison to Earth, it is. But **recent probes have confirmed substantial amounts of water ice lurking in permanently shadowed craters at the lunar poles.** Further, it seems that solar winds have implanted significant deposits of helium-3 (a light stable isotope of helium) across the equatorial regions of the Moon. Helium-3 is a potential fuel source for second and third-generation fusion reactors that one hopes will be in service later in the century. The isotope is packed with energy (admittedly hard to unleash in a controlled manner) that might augment sunlight as a source of clean, safe energy on Earth or to power fast spaceships in this century. **Between its water and helium-3 deposits, the Moon could be the resource stepping-stone for further solar system exploration. Asteroids are another near-term mining target.** There are all sorts of space rocks hurtling through the solar system, with varying amounts of water, rare earth metals and other materials on board. The asteroid belt between the orbits of Mars and Jupiter contains most of them, many of which are greater than a kilometer in diameter. Although the potential water and mineral wealth of the asteroid belt is vast, the long distance from Earth and requisite travel times and energy consumption rule them out as targets in the near term. **The prospects for space mining are being driven by technological advances across the space industry. The rise of reusable rocket components and the now-widespread use of off-the-shelf parts are lowering both launch and operations costs. Once limited to government contract missions and the delivery of telecom satellites to orbit, private firms are now emerging as leaders in developing "NewSpace" activities** — a catch-all term for endeavors including orbital tourism, orbital manufacturing and mini-satellites providing **specialized services. The space sector, with a market capitalization of \$400 billion, could grow to as much as \$1 trillion by 2040 as private investment soars.**

Squo private companies are willing to invest, but without the ability to generate returns, investments will fall out

Shaw 13 - Lauren E, J.D. from Chapman University School of Law, "Asteroids, the New Western Frontier: Applying Principles of the General Mining Law of 1872 to Incentive Asteroid Mining", JOURNAL OF AIR LAW AND COMMERCE, Volume 78, Issue 1, Article 2, <https://scholar.smu.edu/cgi/viewcontent.cgi?article=1307&context=jalc> // recut MNHS NL

To some, **the mining of asteroids** might sound like the premise of a science fiction novel¹ or the solution to the heartwrenching, fictional scenario depicted in the film Armageddon.² To others, it **evokes a fantastical idea that may come to fruition** in a distant reality. **However impressively funded companies have plans to send spacecraft to begin prospecting on asteroids** within the next two years. **The issues associated with the mining of asteroids should be addressed before these plans are set in motion.** Much has been written about the issues that might arise from allowing nations to own these space bodies and the minerals they contain; one such issue is the impact on international treaties.⁴ However, little has been written about the applicability of preexisting mining laws—which provide a basic property right scheme for the private sector—such as the General Mining Law of 1872 (Mining Law) to the management of asteroid mining.⁵ The literature to date on how to legally address asteroid mining is minimal.⁶ The **articles** that do address it **propose** the creation of different systems, such as a "property rights-based system that relies on the doctrine of first possession"⁷ or **an international authority that would regulate mining operations. Implementing a scheme that offers ownership of extracted resources** without bestowing complete sovereignty **is necessary to avoid an impending legal limbo—that is, an outer space "Wild West" equivalent where there is neither certainty nor security in who owns what.**⁹ **If private sector miners of asteroids know this right already exists, they will have more incentive to extract**

resources. This, in turn, would increase the chances of successful missions, resulting in numerous scientific and explorative **benefits**, along with the potential replenishment of key elements that are becoming increasingly depleted on Earth yet are still needed for modern industry. Scientists speculate that **key elements** needed for modern industry, including platinum, zinc, copper, phosphorus, lead, gold, and indium, could become depleted on Earth within the next fifty to sixty years. **Many of these** metals, such as platinum, are chemical elements that, unlike oil or diamonds, **have no synthetic alternative**.¹² Once the reserves on Earth are mined to complete depletion, **industries will be forced to recycle the existing supply of minerals, which will result in increased costs due to increased scarcity**.³ However, evidence is accumulating that **asteroids only a few hundred thousand miles away from Earth may be composed of an abundance of natural resources-including many of the minerals being mined to depletion on Earth-that could lead to vast profits**.¹ Most of the minerals being mined on Earth, including gold, iron, platinum, and palladium, originally came from the many asteroids that hit the Earth after the crust cooled during the planet's formation.¹

Space mining is the only way to solve climate change

Duran 21, (Paloma Duran is a journalist and industry analyst at Mexico Business News. "Is Space Mining the Best Option to Face Climate Change?"). 11-03-21. Mexico Business News. [//https://mexicobusiness.news/mining/news/space-mining-best-option-face-climate-change //](https://mexicobusiness.news/mining/news/space-mining-best-option-face-climate-change) MNHS NL

Going to net zero means that more mining is needed. Experts have said that **the current supply cannot support the necessary metals demand for the green transition**. As a result, **new mining alternatives have gained greater relevance, among them is space mining**. Several countries, including Mexico, have shown their interest in this alternative, creating a new space race. **"The solar system can support a billion times greater industry than we have on Earth. When you go to vastly larger scales of civilization, beyond the scale that a planet can support, then the types of things that civilization can do are incomprehensible to us ... We would be able to promote healthy societies all over the world at the same time that we would be reducing the environmental burden on the Earth,"** said Dr. Phil Metzger, Planetary Scientist at the University of Central Florida. **Currently, there are several attempts to address global warming and transition to a net zero carbon economy. There has been an increasing interest in renewable energy and infrastructure, which has increased demand for various** minerals, especially lithium, cobalt, nickel, copper and **rare earth elements**. However, according to experts, **the world is close to entering a metals supercycle, where demand will exceed available supply, causing prices to skyrocket**. Consequently, **the mining industry has sought alternatives to achieve the required supply**. Options include recycling and improved mine waste management, sea mining and **space mining**. The latter **is considered** one of **the alternatives with the greatest potential**. However, a regulatory framework is still lacking and there is almost no experience in this regard. Despite the lack of knowledge regarding **space mining, it has become a very attractive option since the planet is running out of resources**. While some people believe that land-based mining is cheaper than space mining, experts believe this may change in the long term. Furthermore, **within the solar system there are countless bodies rich in minerals, ores and elements that will accelerate the fight against climate change**. **"There will come a point when there is nothing left to mine on the surface, prompting mines to reach even further below. But even those resources are destined to run out and so we will aim toward ocean mining, which already has specific technologies that are being developed**. Nevertheless, even those mines are limited as well.

The mine of the future, which today may seem unlikely, will no longer be on our planet. **There will be a time when space mining will be as common as an open leach mine.** Eder Lugo, Minerals Head at Siemens, told MBN. More than 150 million asteroids measuring approximately 100m are believed to be in the inner solar system alone. **In addition, astronomers have also identified abundant minerals near the Earth's space and the Main Asteroid Belt.** There are three main groups into which asteroids are divided: C- type, S- type, and M- type. **The last two groups are the most abundant in minerals such as gold, platinum, cobalt, zinc, tin, lead, indium, silver, copper and rare earth metals.** **"Energy is limited here.** Within just a few hundred years, you will have to cover all of the landmass of Earth in solar cells. So, what are you going to do? Well, what I think you are going to do is you are going to move out in space ... all of our heavy industry will be moved off-planet and Earth will be zoned residential and light-industrial," said Jeff Bezos, Founder of Amazon and the Space Launch Provider Blue Origin.

Warming causes extinction

Krososky '21 [Andrew, Green Matters Journalist, "How Global Warming May Eventually Lead to Global Extinction", Green Matters, 03-11-2021, <https://www.greenmatters.com/p/will-global-warming-cause-extinction>]/pranav

Eventually, yes. **Global warming will invariably result in the mass extinction of millions of different species,** humankind included. In fact, **the Center for Biological Diversity says that global warming is currently the greatest threat to life on this planet.** **Global warming causes a number of detrimental effects on the environment that many species won't be able to handle long-term.** Extreme weather patterns are shifting climates across the globe, eliminating habitats and altering the landscape. **As a result, food and fresh water sources are being drastically reduced.** Then, of course, **there are the rising global temperatures themselves, which many species are physically unable to contend with.** Formerly frozen arctic and antarctic regions are melting, increasing sea levels and temperatures. Eventually, **these effects will create a perfect storm of extinction conditions.** The melting glaciers of the arctic and the searing, **unmanageable heat indexes being seen along the Equator are just the tip of the iceberg, so to speak.** **The species that live in these climate zones have already been affected by the changes caused by global warming.** Take polar bears for example, whose habitats and food sources have been so greatly diminished that they have been forced to range further and further south. **Increased carbon dioxide levels in the atmosphere and oceans have already led to ocean acidification.** **This has caused many species of crustaceans to either adapt or perish and has led to the mass bleaching of more than 50 percent of Australia's Great Barrier Reef,** according to National Geographic. According to the Center for Biological Diversity, the current trajectory of global warming predicts that more than 30 percent of Earth's plant and animal species will face extinction by 2050. By the end of the century, that number could be as high as 70 percent. We won't try and sugarcoat things, humanity's own prospects aren't looking that great either. According to The Conversation, **our species has just under a decade left to get our CO₂ emissions under control. If we don't cut those emissions by half before 2030, temperatures will rise to potentially catastrophic levels. It may only seem like a degree or so, but the worldwide ramifications are immense.** The human species is resilient. We will survive for a while longer, even if these grim global warming predictions come to pass, **but it will mean less food, less water, and increased hardship across the world — especially in low-income areas and developing countries.** **This increase will also mean more pandemics, devastating storms, and uncontrollable wildfires.**

Case:

Clean Space Travel is possible, but only private entities are leading the innovative charge.

<https://astronomy.com/news/2019/10/nasa-paying-four-companies-to-learn-how-to-make-fuel-on-the-moon>

NASA is paying companies to get clean liquid Oxygen fuel from Lunar Regolith, but it relies on mining

<https://www.space.com/biofuel-powered-rockets-reduce-spaceflight-carbon-footprint>

British Startups Skyrora and Orbex are working on making biofuels to make spaceflight green. Their prototype reduced emissions by 86%

<https://hothardware.com/news/australian-space--junk-recycling-start-up-aims-to-make-rocket-fuel-cleaning-up-earths-orbit>

Australian startup Newmann is working on renewable, electric propulsion systems, while simultaneously cleaning the orbit of space junk and dead sats.

<https://www.forbes.com/sites/afdelaziz/2020/10/27/from-vodka-to-space-flight-air-co-launches-sustainable-rocket-fuel-to-help-us-get-to-mars-and-beyond/?sh=335d20232e4c>

American company AirCompany has won multiple awards from NASA for their renewable rocket fuel conversions

Link Turn: Only Private Companies are interested in making their fuel green, Russia and China prove they still burn.

Aziz 20

However, **in the fight to protect the environment while furthering space exploration, organizations like SpaceX and Blue Origin have begun to look for new propellants for their rocket engines for commercial spaceflight** and Mars exploration.

Contention 2:

The OST is falling apart, nations will be able to go do what they want in space soon enough

Ward 19

<https://www.sciencefocus.com/space/the-unintended-consequences-of-privatising-space/>

Imagine a colony on the Moon or Mars run by a corporation. That one company would control everything the colonists need to survive, from the water to the oxygen to the food. That's a dangerous amount of power for any company, but it's a very real scenario. So what stops a major corporation landing on the Moon and setting up a colony? One very old document. **The Outer Space Treaty was signed**

in 1967 by all of the major space-faring nations, and explicitly states nobody can go to another planet or the Moon and claim that territory for their own. It's a very important document, but it's flawed. For one thing, the private space sector wasn't around when the treaty was written so **it's not**

clear how some of the rules would be applied to private companies. And secondly, given the ambitions of many countries and corporations, there's no way it's going to last much longer. Anyone with a plan to land on the Moon or Mars and stay there is going to run into the Outer Space Treaty, and the smart money is on the wealthy and powerful winning out against an old loophole-ridden document.

Politicians such as Ted Cruz in the United States have already called for changes to be made to the treaty, and given the increasing amounts of money private space companies spend on lobbying in the United States, more such attempts will follow. It's imperative that the space community as a whole takes this issue on to ensure the needs of all, and not just the private sector, are taken into account should any alterations be made. The further we look into the future of humans in space, the more reality resembles science fiction. That's why it's difficult to make people take the issues which could potentially arise seriously. But **now is the time to consider the problems that could arise from a**

commercially-led space race, and take the necessary small steps now to avoid potentially disastrous consequences in the future.