# Framework

#### I value morality. My value criterion is preventing structural violence.

#### You should oppose everyday violence for two reasons- A) social bias underrepresents its effects B) its effects are exponential, not linear which means even if there is only a small amount of structural violence, its terminal impacts are huge

**Nixon ’11** (Rob, Rachel Carson Professor of English, University of Wisconsin-Madison, Slow Violence and the Environmentalism of the Poor, pgs. 2-3)

Three primary concerns animate this book, chief among them my conviction that we urgently need to rethink-politically, imaginatively, and theoretically-what I call "slow violence." By slow violence I mean a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all. Violence is customarily conceived as an event or action that is immediate in time, explosive and spectacular in space, and as erupting into instant sensational visibility. We need, I believe, to engage a different kind of violence, a violence that is neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scales. In so doing, we also need to engage the representational, narrative, and strategic challenges posed by the relative invisibility of slow violence. Climate change, the thawing cryosphere, toxic drift, biomagnification, deforestation, the radioactive aftermaths of wars, acidifying oceans, and a host of other slowly unfolding environmental catastrophes present formidable representational obstacles that can hinder our efforts to mobilize and act decisively. The long dyings-the staggered and staggeringly discounted casualties, both human and ecological that result from war's toxic aftermaths or climate change-are underrepresented in strategic planning as well as in human memory. Had Summers advocated invading Africa with weapons of mass destruction, his proposal would have fallen under conventional definitions of violence and been perceived as a military or even an imperial invasion. Advocating invading countries with mass forms of slow-motion toxicity, however, requires rethinking our accepted assumptions of violence to include slow violence. Such a rethinking requires that we complicate conventional assumptions about violence as a highly visible act that is newsworthy because it is event focused, time bound, and body bound. We need to account for how the temporal dispersion of slow violence affects the way we perceive and respond to a variety of social afflictions-from domestic abuse to posttraumatic stress and, in particular, environmental calamities. A major challenge is representational: how to devise arresting stories, images, and symbols adequate to the pervasive but elusive violence of delayed effects. Crucially, slow violence is often not just attritional but also exponential, operating as a major threat multiplier; it can fuel long-term, proliferating conflicts in situations where the conditions for sustaining life become increasingly but gradually degraded.

#### Additionally prefer:

#### It’s a prerequisite. Morality must be applied equally to everyone, or else it wouldn’t be moral. Oppression excludes minorities from moral consideration.

#### You should use probability weighing – any other model of risk calculation doesn’t work since it collapses in on itself.

# Contention 1: Global Warming

#### Mining Industry destroying itself.

David Oni, Space analyst at Space in Africa, writes in 2019:

David Oni 19 (David Oni, Space industry and technology analyst at Space in Africa, Graduate of Mining Engineering from the Federal University of Technology Akure.) The Effect of Asteroid Mining On Mining Activities in Africa 9-24-2019 Space in Africa https://africanews.space/the-effect-of-asteroid-mining-on-mining-activities-in-africa/ //DebateDrills TJ

The earth, as we have come to know, is enriched with a vast array of mineral resources. But these resources are nonrenewable and hence, constant growing consumption in developing and developed countries, with the rising need for more resources to keep driving the fourth industrial revolution, will ultimately lead to a depletion in a couple of years to come. Experts say that elements needed for modern industry and food production could be exhausted on Earth within 50–60 years.

In terms of mineral resources, Africa has the most abundant of reserves. Currently, Africa hosts 30% of the world’s mineral reserve, 55% of the world’s diamond comes from Botswana and Congo, 60% of the mining in Africa is gold mining but to mention a few.

Given that the mining industry is consistently rising across sub-Saharan Africa, it is good news for the African mining sector as mining companies are beginning to expand operations, countries are already looking into improving regulatory frameworks that will enhance activities and also attract more investors.

But recent breakthroughs in space technology have led to many space scientists and engineers looking to explore alternatives to sustaining the earth while generating massive revenue and improving life generally. Currently, there are various comprehensive research documents on the Space Mining market, with detailed insights on growth factors and strategies. With the current advances and cutting edge technologies developed in preparation for the first stages of asteroid mining, one might want to ask if it is indeed good news for the African continent.

Apart from the environmental impacts, major mining activities are largely hindered in Africa by a handful of other factors such as access to energy, health and safety volatility of commodity prices, etc. Other issues such as political uncertainty, economic instability, religious and tribal wars, industrial unrest, and the fickle nature of regulatory bodies have also rendered foreign direct investment increasingly unattractive to global investors. Furthermore, most African countries have a relatively undeveloped infrastructure for exploiting resources effectively.

At the moment, Asteroid mining poses no threat to terrestrial mining; however, this will not hold for long. The space industry is progressing at such a rapid pace, and the prospects are unequivocally mouth-watering. The big question is, will asteroid mining lure away investors in Africa? The planetary resources company estimates that a single 30-m asteroid may contain 30 billion dollars in platinum alone and a 500m rock could contain half the entire world resources of PGM. Considering the abundance of minerals in asteroids, once asteroid mining materialises, it will severely affect the precious metals market, usurp the prices of rare earth minerals, and a whole lot more because minerals that are usually somewhat scarce on earth will be easily accessible on asteroids.

While foreign investors run the majority of the large-scale mining activities in the region, reports say that many African countries are dangerously dependent on mining activities. For some African countries, despite massive mineral wealth, their mining sectors are underdeveloped, and this is as a result of much focus on oil resources and a couple of other challenges. The million-dollar question is, what will become of the mining activities in Africa?

#### Asteroid mining provides the necessary precious metals

Matthew Williams, Journalist for Universe Today, writes in 2020:

Matthew S. Williams 20 (Matthew S. Williams, writer for Universe Today, and the curator of their Guide to Space section, Articles have been featured in Phys.org, HeroX, Popular Mechanics, Business Insider, Gizmodo, and IO9, ScienceAlert, Knowridge Science Report, and Real Clear Science,) Asteroid Mining to Shape the Future of Our Wealth 11-6-2020 No Publication https://interestingengineering.com/asteroid-mining-to-shape-the-future-of-our-wealth //DebateDrills TJ

The argument in favor of asteroid mining is simple: within the Solar System, there are countless bodies that could contain a wealth of minerals, ores, and volatile elements that are essential to Earth's economy.

Asteroids, as we saw above, are believed to be the material left over from the formation of the Solar System. As such, many asteroids are thought to have compositions that are similar to that of Earth and the other rocky planets (Mercury, Venus, and Mars).

All told, there are thought to be more than 150 million asteroids in the inner Solar System alone, and that's only the ones that measure 100 meters (330 ft) or more in diameter.

These can be divided into three main groups: C-type, S-type, and M-type, which correspond to asteroids composed, respectively, largely of clay and silicates, silicates and nickel-iron, and metals. About 75% fall into the category of C-type; S-types account for 17%; while M-type and other types make up the remainder.

These latter two groups are thought to contain abundant minerals, including gold, platinum, cobalt, zinc, tin, lead, indium, silver, copper, iron, and various rare-Earth metals. For millennia, these metals have been mined from the Earth's crust and have been essential to economic and technological progress.

In addition, there are thought to be many asteroids and comets that contain water ice and other volatiles (ammonia, methane, etc.). Water ice could be harvested to satisfy a growing demand for freshwater on Earth, for everything from drinking to irrigation and sanitation.

Volatile materials could also be used as a source of chemical propellant like hydrazine, thus facilitating further exploration and mining ventures. In fact, Planetary Resources indicates that there are roughly 2.2 trillion US tons (2 trillion metric tons) of water ice in the Solar System.

Of course, this raises the obvious question: wouldn't it be really expensive to do all this mining? Why not simply continue to rely on Earth for sources of precious metals and resources and simply learn to use them better?

To put it simply, we are running out of resources. To be clear, learning to use our resources better and more sustainably is always the most important idea. And while it is certainly true that Earth-based mining is far cheaper than going to space would be, that may not be the case indefinitely.

#### Private sector mining is coming now – new tech and precious resources create concrete incentives.

Christian Davenport from the Washington Post writes in 2020

Davenport 20 Davenport, Christian. [Reporter covering NASA and the space industry, Education: Colby College, B.A., American Studies]“A Dollar Can't Buy You a Cup of Coffee but That's What NASA Intends to Pay for Some Moon Rocks.” *The Washington Post*, WP Company, 3 Dec. 2020, https://www.washingtonpost.com/technology/2020/12/03/moon-mining-contracts-named/. //Debatedrills AS

NASA announced Thursday that several companies had won contracts to mine the moon and turn over small samples to the space agency for a small fee. In one case, a company called Lunar Outpost bid $1 for the work, a price NASA jumped at after deciding the Colorado-based robotics firm had the technical ability to deliver.

“You’d be surprised at what a dollar can buy you in space,” Mike Gold, NASA’s acting associate administrator for international and interagency relations, said in a call with reporters.

But the modest financial incentives are not the [driver of the program](https://www.washingtonpost.com/technology/2020/09/10/moon-mining-nasa-search/?itid=lk_inline_manual_6). Nor to a large extent is the actual lunar soil. NASA is asking for only small amounts — between 50 and 500 grams (or 1.8 ounces to about 18 ounces). While there would be scientific benefits to the mission, it’s really a technology development program, allowing companies to practice extracting resources from the lunar surface and then selling them.

It would also establish a legal precedent that would pave the way for companies to mine celestial bodies in an effort blessed by the U.S. government to help build a sustainable presence on the moon and elsewhere.

To do that, NASA says it needs its astronauts, like the western pioneers, to “live off the land,” using the resources in space instead of hauling them from Earth. The moon, for example, has plenty of water in the form of ice. That’s not only key to sustaining human life, but the hydrogen and oxygen in water could also be used as rocket fuel, making the moon a potential gas station in space that could help explorers reach farther into the solar system.

Asteroids also have significant resources, particularly precious metals that could be used for in-space manufacturing. While the prospect of large mining and manufacturing facilities in orbit is still many years away, NASA wants to use the mining program as a small step toward that goal.

NASA is now trying to return astronauts to the moon under its Artemis program for the first time since 1972. Unlike its predecessor, Apollo, where the astronauts visited the lunar surface for a short while before coming home, the Artemis program would create a permanent presence on and around the moon.

“The ability to extract and utilize space resources is the key to achieving this objective of sustainability,” Gold said. “We must learn to generate our own water, air and even fuel. Living off the land will enable ambitious exploration activities that will result in awe-inspiring science and unprecedented discoveries.”

In 2015, then-President Barack Obama signed a law that allowed private companies the right to own the resources they mined in space. Under the program announced Thursday, NASA said the materials would be transferred from the private companies to NASA.

The effort would not violate the 1967 Outer Space Treaty, NASA officials have said, which prohibits nations from claiming sovereignty over a celestial body. NASA Administrator Jim Bridenstine previously likened the policy to the rules governing the seas.

**“We do believe we can extract and utilize the resources of the moon, just as we can extract and utilize tuna from the ocean,” he said earlier this year.**

As part of its lunar exploration mission, NASA has been working to get countries around the world to adopt what it calls the Artemis Accords, a legal framework that would govern behavior in space and on celestial bodies such as the moon.

The rules would allow private companies to extract lunar resources and create safety zones to prevent conflict and ensure that countries act transparently about their plans in space, while sharing their scientific discoveries.

The mining announcement came during the same week that China landed a spacecraft on the moon, extracted resources and then lifted off from the lunar surface in an effort to return the sample to Earth.

Instead of developing and sustaining a big government sample-return mission, NASA is taking another approach by partnering with the private sector. “If you step back and think about how really amazing it is that NASA can essentially piggyback on the private-sector space capabilities to perform this mission, it would not have been possible 10 years ago,” said Phil McAlister, the director of NASA’s commercial spaceflight division.

In addition to Lunar Outpost, the other companies chosen for NASA’s program are: ispace Japan and Europe, which would each charge $5,000 for the material; and Masten Space Systems of California, would charge $15,000.

All of the companies would already be on the moon, according to NASA, conducting other missions. McAlister said Lunar Outpost would be ferried to the moon by the lunar lander known as Blue Moon being developed by Jeff Bezos’s Blue Origin. (Bezos owns The Washington Post.) The company later clarified that it was looking at a number of landers to get it to the lunar surface, and not just Blue Origin’s. The ispace companies would fly on a Japanese lander, McAlister said, and Masten, already part of another NASA lunar contract, would use its own Masten XL-1 lander.

#### Dwindling precious metals are key to innovation.

Jeremy Hsu, Author for Popular Science, writes in 2012:

Jeremy Hsu 12 (Jeremy Hsu, Masters in Science Journalism from NYU, written in publications such as Popular Science, Scientific American Mind and Reader's Digest Asia.) Shortage of Rare Metals Could Threaten High-Tech Innovation 1-30-2012 livescience https://www.livescience.com/18167-shortage-rare-metals-threaten-high-tech-innovation-hitchhiker-metals-clean-technologies.html //DebateDrills TJ

A world in need of faster computers, smarter phones and more energy-efficient light bulbs threatens to strain the small supply of rare metals used by the global electronics industry. But limits on the production of such rare metals mean the supply can't easily expand to meet the demand for innovation in both consumer electronics and clean technologies.

Scarce metals such as gallium, indium and selenium — known as "hitchhiker" metals — come only as byproducts of mining major industrial metals such as aluminum, copper and zinc. That makes it hard to simply boost production of hitchhiker metals whenever industries face a shortage, even if the metals have become critical components of everything from high-performance computers to solar panels.

"With respect to metals that are hitchhikers, a higher price isn't going to lead to much more production," said Robert Ayres, a physicist and economist based at the international business school INSEAD in France. "And therefore it's much more important to think in terms of conservation, recycling and substitution."

That sobering message was delivered by Ayres at a Royal Society discussion meeting held in London Jan. 30. He wants both governments and industries to come up with a standard recycling process that could reuse rare metals.

"You produce something, you use it, but you don't just toss it in a landfill; it goes to another stage and another, and eventually the rare materials are recovered," Ayres told InnovationNewsDaily. "At present, hardly any are recovered."

Take gallium as an example. Gallium is a small byproduct of mining bauxite and zinc, but it has become a critical component for technologies such as lasers, energy-efficient LED lighting and solar panels. The metal has also become a replacement for silicon in faster microchips powering the latest generation of smartphones.

U.S. demand for gallium relied upon $66 million of overseas imports in 2011, according to the U.S. Geological Survey. And just one company, in Utah, recovered and refined gallium from scrap metal and impure gallium metal.

Indium has become a crucial ingredient in the liquid crystal displays for smartphones and in some types of solar panels. A third hitchhiker metal, selenium, also forms part of the solar panels containing both gallium and indium.

Ayres worries in particular about rare metal shortages crippling innovation in clean energy technologies such as solar power.

"Tellurium, part of the lowest-cost photovoltaic material, is only available from copper refineries," Ayres pointed out. "And so the quantity available in the world isn't anywhere near enough to satisfy the potential demand for thin-film photovoltaic surfaces (solar panels)."

#### Besides metals, Space Research is key to solving climate change.

Greg Autry, Professor of Space Leadership at Thunderbird School of Global Management, writes in 2019:

Greg Autry 19 (Greg Autry, Clinical Professor of Space Leadership, Policy and Business at Thunderbird School of Global Management, Tech startup founder, Researcher on entrepreneurship, commercial space and economics. Former NASA Presidential Appointee. Writer & regular Forbes contributor, 2021 Space Advocate of the Year.) Space Research Can Save the Planet—Again 7-20-2019 Foreign Policy https://foreignpolicy.com/2019/07/20/space-research-can-save-the-planet-again-climate-change-environment/ //DebateDrills TJ

Indeed, understanding the evolution of other planets’ climates is essential for modeling possible outcomes on Earth. NASA probes revealed how, roughly 4 billion years ago, a runaway greenhouse gas syndrome turned Venus into a hot, hellish, and uninhabitable planet of acid rain. Orbiters, landers, and rovers continue to unravel the processes that transformed a once warm and wet Mars into a frigid, dry dust ball—and scientists even to conceive of future scenarios that might terraform it back into a livable planet. Discovering other worlds’ history and imagining their future offers important visions for climate change mitigation strategies on Earth, such as mining helium from the moon itself for future clean energy.

Spinoff technologies from space research, from GPS to semiconductor solar cells, are already helping to reduce emissions; the efficiency gains of GPS-guided navigation shrink fuel expenditures on sea, land, and air by between 15 and 21 percent—a greater reduction than better engines or fuel changes have so far provided. Modern solar photovoltaic power also owes its existence to space. The first real customer for solar energy was the U.S. space program; applications such as the giant solar wings that power the International Space Station have continually driven improvements in solar cell performance, and NASA first demonstrated the value of the sun for powering communities on Earth by using solar in its own facilities.

Promisingly, space-based solar power stations could overcome the inconvenient truth that wind and solar will never get us anywhere near zero emissions because their output is inherently intermittent and there is, so far, no environmentally acceptable way to store their power at a global scale, even for one night. Orbital solar power stations, on the other hand, would continually face the sun, beaming clean power back through targeted radiation to Earth day or night, regardless of weather. They would also be free from clouds and atmospheric interference and therefore operate with many times the efficiency of current solar technology. Moving solar power generation away from Earth—already possible but held back by the current steep costs of lifting the materials into space—would preserve land and cultural resources from the blight of huge panel farms and save landfills from the growing problem of discarded old solar panels.

Sustainable energy advocates in the U.S. military and the Chinese government are actively pursuing space-based solar power, but just making solar cells damages the environment due to the caustic chemicals employed. Space technology offers the possibility of freeing the Earth’s fragile biosphere and culturally important sites from the otherwise unavoidable damage caused by manufacturing and mining.

The U.S. start-up Made in Space is currently taking the first steps toward manufacturing in orbit. The company’s fiber-optic cable, produced by machinery on the International Space Station, is orders of magnitude more efficient than anything made on Earth, where the heavy gravity creates tiny flaws in the material. Made in Space and others are eventually planning to build large structures, such as solar power stations, in space. As these technologies develop, they will augment each other, bringing costs down dramatically; space manufacturing, for instance, slashes the cost of solar installations in space.

#### Solving for climate change is imperative because the lower classes suffer disproportionately, global issue

Leonardo Yip, author at Earth.Org, writes in 2021

Yip 21 (Leonardo Yip is an author at Earth.Org) “Why Marginalised Groups are Disproportionately Affected by Climate Change.” July 15, 2021 https://earth.org/marginalised-groups-are-disproportionately-affected-by-climate-change/

Economic Disparity In the face of climate change**, the poor** possess a relatively limited adaptive capacity; most **lack the financial capacity to adapt to the changes** in lifestyle and living conditions **spurred by climate changes**. A striking example of this can be observed in Hong Kong, where its infamous subdivided flats, known colloquially as ‘cage homes’, are becoming increasingly greater health risk factors as the city faces higher temperatures in the warm seasons. Most occupants of Hong Kong’s subdivided flats cannot afford ventilation or air conditioning, thus posing a high risk to public health as the city gets warmer over the years. In fact, just in 2019, the city recorded its [warmest year in history](https://www.news.gov.hk/eng/2020/01/20200108/20200108_155046_992.html). With the most expensive housing market in the world, most of the lower economic class in Hong Kong are forced into [unethical living conditions](https://www.goldthread2.com/videos/coronavirus-hong-kong-cage-home/article/3081439); subdivided flats are incredibly cramped, housing up to six times the number of people they were designed for. Occupants of these small flats have a very limited storage space, making it very difficult to house air conditioning units. What’s more, even in the flats where air conditioning is available, most residents choose not to use it to save on electricity costs. Consequently, many poor Hong Kong residents end up suffering through the warm temperatures in uncomfortable conditions with poor ventilation, for months at a time. A study found that 50% of flats surveyed in a local neighbourhood had an [indoor temperature over 30](https://doi.org/10.1111/area.12341) degree Celsius, a temperature that can easily lead to dehydration and overheating. Moreover, the University of Hong Kong found that consecutive hot nights bring a 6% higher risk of death in elderly, and residents of subdivided housing [suffer disproportionately during hot spells](https://www.scmp.com/news/hong-kong/health-environment/article/3098611/hong-kongs-hot-nights-and-even-hotter-days-bring). It has also found that **due to financial scarcity**, residents of subdivided flats often under-consume energy, yet **they are hit disproportionately by the consequences of warming** in Hong Kong. As global warming accelerates, the plight of subdivided flat dwellers will only worsen. **Racial Disparity** Environmental racism refers to the injustices suffered by marginalised communities in terms of unequal distribution of environmental resources and hazards, and discrimination in environmental support and policy-making. In essence, **the burdens of pollution, natural disasters, and poisoned resources are distributed unequally in society, with marginalised communities being hit disproportionately harde**r. When it comes to severing climate change, this means that **racial minorities will be bearing the brunt of the environmental impacts**. One such case of environmental racism can be observed in the United States, where people of colour suffer from a multitude of environmental injustices. In the US, air pollution is distributed unevenly among the different racial groups, with people of colour being hit the hardest. An important ratio to consider when assessing the distribution of adverse impacts of pollution is the ratio of how much pollution one is responsible for relative to how much pollution one is exposed to. Scientists have found that Hispanics and African-Americans breathe in [63% and 56%](https://apnews.com/article/f6bf2f47c81c4958811dc4e99d526197) more pollution than they make respectively. On the other hand, Caucasians are exposed to 17% less air pollution than they make. This means that relative to their contribution to pollution, people of color in the US are disproportionately exposed to pollutants. Across the country, people of colour on average are also exposed to [far higher levels of air pollutants](https://www.scientificamerican.com/article/people-of-color-breathe-more-unhealthy-air-from-nearly-all-polluting-sources/) (PM2.5), regardless of region or household income. In short, people of colour in the United States are disproportionately impacted by an increasingly polluted climate, both in relative and absolute terms. **Global Disparity** Inequality also exists on the global scale, where there exist large disparities in emissions and climate impacts from country to country. There is a large asymmetry when it comes to the proportion of CO2 emissions from region to region. For example, North America is home to only 5% of the world’s population, but it emits 18% of the world’s total CO2. Conversely, Africa is home to 16% of the world’s population, but emits only 4% of total CO2. In other words, different continents hold different amounts of responsibility when it comes to climate change, and some regions should bear more of the blame. Moreover, in terms of aggregate income, 86% of global CO2 emissions are emitted by the richest half of countries in the world, whilst the bottom half only emits 14%. This inequality in global emissions renders the issue of international climate change responsibility very delicate and contentious. In light of this, **the countries hit hardest by climate change are coincidentally the countries with less relative responsibility for climate change**. For example, the Philippines consists of 1.41% of the total world population, but it only produces [0.35% of total world’s emissions of CO2](https://www.worldometers.info/co2-emissions/philippines-co2-emissions/). Yet, it has been hit disproportionately hard from climate change; every year it suffers numerous casualties and damage from typhoons, floods, and landslides of increasing frequency and intensity. Just last year, the Philippines [suffered 67 casualties](https://www.reuters.com/article/asia-storm-philippines-idUSKBN27V03C) in the year’s deadliest cyclone, and in 2013 the country was hit by one of the [most powerful cyclones ever recorded](https://www.worldvision.org/disaster-relief-news-stories/2013-typhoon-haiyan-facts), displacing over 4.1 million people and causing over 6,300 casualties. Due to the region’s high exposure to natural hazards and its location in the world’s most cyclone-prone area, the [Philippines is highly vulnerable](https://www.climatelinks.org/resources/climate-risk-profile-philippines) to the impacts of climate change, especially rising sea levels, extreme rainfall, and extreme weather events. This increased vulnerability, combined with a weaker adaptive capacity, means that the Philippines will likely experience the consequences of climate change to a far higher degree compared to other countries, and will therefore suffer increasingly disproportionate damage as our climate becomes more and more erratic.

# Frontlines

#### NASA is establishing a legal framework to regulate private companies’ behaviors

Davenport 20 Davenport, Christian. [Reporter covering NASA and the space industry, Education: Colby College, B.A., American Studies] “NASA unveils new rules to guide behavior in space and on the lunar surface.” May 15, 2020 https://www.washingtonpost.com/technology/2020/05/15/moon-rules-nasa-artemis/

**NASA** on Friday **unveiled a legal framework that would govern the behavior of countries and companies in space and on the moon**, including the creation of “safety zones” around sites where mining and exploration would take place on the lunar surface. The United States has long held that nations and companies should be allowed to extract and use resources on the moon. The new legal framework, known as the Artemis Accords, comes as the U.S. space agency works to return people to the lunar surface by 2024. NASA would make signing the accords a requirement for allied countries to participate in its lunar exploration program. The proposal, some aspects of which were first reported by Reuters, would “in no way change the 1967 Outer Space Treaty,” which prohibits nations from laying claim to the moon and other celestial bodies, said NASA administrator Jim Bridenstine. Rather, the **series of principles** would follow the tenets of the treaty and “**promote peaceful purposes” that would allow nations “to participate safely in outer space**,” Bridenstine said in an interview. The accords already have run into resistance from the head of Russia’s space agency, Dmitry Rogozin, [who called them an invasion](https://twitter.com/Rogozin/status/1258088165732167681?s=20) that would lead to another “Iraq or Afghanistan.” NASA said it would be “premature to release” the accords ahead of sharing them with allied nations. But a copy obtained by The Washington Post said parties would be required to publicly release “the extent and general nature of operations taking place within” the safety zones “while taking into account appropriate protection of business confidential, national security, and export controlled information.” **Parties would also agree to use** the **zones “in a manner that encourages scientific discovery, technology demonstration, as well as the safe and efficient extraction and utilization of space resources.”** They would also be required to publicly reveal “the extent and general nature of operations taking place within” the zones.

### AT: Private Mining Bad

#### Aff doesn’t solve – public entity mining and private-public partnerships will still exist.

Helmore 20 (Helmore, Edward. “NASA Is Looking for Private Companies to Help Mine the Moon.” The Guardian, Guardian News and Media, 11 Sept. 2020, www.theguardian.com/science/2020/sep/11/nasa-moon-mining-private-companies.) //DebateDrills AY

Nasa has announced it is looking for private companies to go to the moon and collect dust and rocks from the surface and bring them back to Earth. The American space agency would then buy the moon samples in amounts between 50 to 500 grams for between $15,000 to $25,000. The Nasa administrator, Jim Bridenstine, announced on Thursday that the moon material collection would become part of a technology development program that would help astronauts “live off the land” for crewed missions in the future to the moon or elsewhere. Bridenstine wrote that the agency “is buying lunar soil from a commercial provider. It’s time to establish the regulatory certainty to extract and trade space resources.” The collection is part of Nasa’s Artemis lunar exploration program established last year to land US astronauts, including the first woman and the next man, on the moon by 2024. The agency has indicated that missions further afield, to Mars for instance, will require the use of locally mined resources. “We will use what we learn on and around the moon to take the next giant leap – sending astronauts to Mars,” Bridenstine wrote. In a blogpost, Bridenstine said the effort would comply with the Outer Space Treaty of 1967, which says that no country may lay sovereign claim to the moon or other celestial bodies in much the same way that the Antarctic continent is off-limits for territorial conquest. In May, Nasa unveiled a legal framework that would govern the behavior of countries and companies in space and on the moon. The legal framework, known as the Artemis Accords, include the creation of “safety zones” around sites where mining and exploration would take place on the lunar surface. Nasa’s top administrator also told a forum held by the Secure World Foundation that the policies that will govern mining from celestial bodies would be much the same as those that currently exist for the world’s oceans. “We do believe we can extract and utilize the resources of the moon, just as we can extract and utilize tuna from the ocean,” he said, without referring to overfishing and pollution that is rapidly destroying fish stocks in many regions. Unlike fisheries, however, participating celestial mining companies would be required to provide imagery of the material and the location from which it was recovered. Nasa already has a separate program to contract companies to fly science experiments and cargo to the moon ahead of a human landing. Those include Astrobotic, SpaceX, Blue Origin, Sierra Nevada Corp and Lockheed Martin. Bridenstine said he anticipated some of those might also be interested in lunar mining. Casey Dreier, chief advocate & senior space policy adviser at the Planetary Society, wrote on Twitter that the importance of Nasa’s announcement is “not so much the financial incentive (which is tiny) but in establishing the legal precedent that private companies can collect and sell celestial materials (with the explicit blessing of NASA/U.S. gov)”.

#### Space mining just won’t happen – multiple reasons why.

Steffen 12/2/21 [Olaf Steffen, Explore to Exploit: A Data-Centred Approach to Space Mining Regulation, Space Policy, 2021, 101459, ISSN 0265-9646, https://doi.org/10.1016/j.spacepol.2021.101459. (https://www.sciencedirect.com/science/article/pii/S0265964621000515)]

However, no company has been able to achieve a dedicated exploration or mining demonstration mission yet. The reason for this is not only the complexity of design and building of the associated spacecraft but also due to funding. This is a result of the uncertain legal status of space mining and the persisting debate on whether private property of space resources based on the Outer Space Treaty [12], the governing international law on outer space, is at all possible. At the core of this lies the Outer Space Treaty's principle of the non-appropriation of celestial bodies by any nation. This includes the question of whether mining resources implies a form of ownership of a celestial body, which would be in opposition to the Outer Space Treaty. In addition, the treaty does not address private mining efforts. This absence of an international regulatory system for space resource utilisation is a consistent impediment to significant private investment in space mining, as ‘legal uncertainty is not good for business’ [13].

#### Asteroid mining won’t happen – we don’t have the ability to. No impact to something that will never happen.

Fickling 20 (Fickling , David. “We’Re Never Going to Mine the Asteroid Belt.” Bloomberg Opinion, Bloomberg , 21 Dec. 2020, www.bloomberg.com/opinion/articles/2020-12-21/space-mining-on-asteroids-is-never-going-to-happen.) //DebateDrills AY

It’s wonderful that people are shooting for the stars — but those who declined to fund the expansive plans of the nascent space mining industry were right about the fundamentals. Space mining won’t get off the ground in any foreseeable future — and you only have to look at the history of civilization to see why. One factor rules out most space mining at the outset: gravity. On one hand, it guarantees that most of the solar system’s best mineral resources are to be found under our feet. Earth is the largest rocky planet orbiting the sun. As a result, the cornucopia of minerals the globe attracted as it coalesced is as rich as will be found this side of Alpha Centauri. Gravity poses a more technical problem, too. Escaping Earth’s gravitational field makes transporting the volumes of material needed in a mining operation hugely expensive. On Falcon Heavy, the large rocket being developed by Elon Musk’s SpaceX, transporting a payload to the orbit of Mars comes to as little as $5,357 per kilogram — a drastic reduction in normal launch costs. Still, at those prices just lofting a single half-ton drilling rig to the asteroid belt would use up the annual exploration budget of a small mining company. Power is another issue. The international space station, with 35,000 square feet of solar arrays, generates up to 120 kilowatts of electricity. That drill would need a similar-sized power plant — and most mining companies operate multiple rigs at a time. Power demands rise drastically once you move from exploration drilling to mining and processing. Bringing material back to Earth would raise the costs even more. Japan’s Hayabusa2 satellite spent six years and 16.4 billion yen ($157 million) recovering a single gram of material from the asteroid Ryugu and returning it to Earth earlier this month. What might you want to mine from space? Water is an essential component of most earth-bound mining operations and a potential raw material for hydrogen-oxygen fuel that could be used in space. The discovery in October of ice molecules in craters on the Moon was taken as a major breakthrough. Still, the concentrations of 100 to 412 parts per million are extraordinarily low by terrestrial standards. Copper, which typically costs about $4,500 per metric ton to refine, has an average ore grade of about 6,000 ppm. The more promising commodities are platinum, palladium, gold and a handful of rare related metals. Because of their affinity for iron, these so-called siderophile elements mostly sunk toward the metallic core of our planet early in its formation, and are relatively scarce in the Earth’s crust. Estimates of their abundance on some asteroids, such as the enigmatic Psyche 16 beyond the orbit of Mars, suggest concentrations several times higher than can be found in terrestrial mines. Still, human ingenuity is all about cutting our coat according to our cloth. If such platinum-group metals are going to justify the literally astronomical costs of space mining, they’ll need to count on sustained high prices for the decade or so that would be needed to get such an operation up and running — and that sort of situation is all but unheard-of in the materials industry.

#### Public entity mining thumps – China has already made plans to progress with space mining, plan won’t solve.

Cohen 21 (https://www.forbes.com/sites/arielcohen/2021/10/26/chinas-space-mining-industry-is-prepping-for-launch--but-what-about-the-us/?sh=58a0b3d52ae0) //DebateDrills AY

A slew of activities amongst China’s private and state-owned aerospace companies this year are a testament to China’s growing ambitions for economic and [military domination](https://www.defensenews.com/congress/2021/04/14/china-aims-to-weaponize-space-says-intel-community-report/) of space. On October 19, the Academy of Aerospace Solid Propulsion Technology (AASPT) – which belongs to the China Aerospace Science and Technology Corporation (CASC) – test fired “the [most powerful solid rocket motor](https://www.space.com/china-tests-giant-solid-fueled-rocket) with the largest thrust in the world so far.” The 500 tons of thrust is designed to propel the next iteration of China’s heavy-lift rockets, which would meet various demands for space missions like crewed Moon landings, deep space exploration, and off-world resource extraction. Exploration of space-based natural resources are on the Chinese policy makers’ mind. The question is, what Joe Biden thinks? In April of this year, China’s Shenzen [Origin Space](https://www.washingtontimes.com/news/2020/oct/1/china-determined-to-dominate-future-mining-with-or/) Technology Co. Ltd. [launched the NEO-1](https://origin.space/#/detail?id=27), the first commercial spacecraft dedicated to the mining of space resources – from asteroids to the lunar surface. Falling costs of space launches and spacecraft technology alongside existing infrastructure provides a unique opportunity to explore extraterrestrial resource extraction. Current technologies are equipped to analyze and categorize asteroids within our solar system with a limited degree of certainty. One of the accompanying payloads to the NEO-1 was the Yuanwang-1, or “little hubble” satellite, which searches the stars for possible asteroid mining targets. The NEO-1 launch marks another milestone in private satellite development, adding a new player to space based companies which include Japan’s [Astroscale](https://astroscale.com/space-debris_/" \t "_blank" \o "https://astroscale.com/space-debris_/). Private asteroid identification via the Sentinel Space Telescope was [supported by NASA until 2015](https://b612foundation.org/b612-official-statement-nasa-following-canceled-space-agreement-act/). As private investment in space grows, the end goal is to be capable of harvesting resources to bring to Earth.

#### Asteroid mining will never happen – companies that have tried to have failed.

Foust 19 (Foust, Jeff. “The Asteroid Mining Bubble Has Burst.” The Space Review: The Asteroid Mining Bubble Has Burst, 7 Jan. 2019, www.thespacereview.com/article/3633/1.) //DebateDrills AY

Yet those obstacles didn’t stop two companies several years ago from starting up with goals of harvesting resources from asteroids. First came Planetary Resources, which announced plans in 2012 to develop asteroid mining systems , with the backing of prominent business people (see [“Planetary Resources believes asteroid mining has come of age”](https://www.thespacereview.com/article/2074/1), The Space Review, April 30, 2012.) Nine months later, Deep Space Industries (DSI) announces its own, similar asteroid mining plans (see [“Asteroid mining boom or bubble?”](https://www.thespacereview.com/article/2227/1), The Space Review, January 28, 2013.) Six years later, the answer to the question posed in that headline is clearly “bubble.” In just two months, both DSI and Planetary Resources, which struggled to raise money and even shifted focus away from asteroid mining, have been acquired by other companies. Their plans to harvest the riches of the solar system are on hold, perhaps indefinitely. On New Year’s Day, Bradford Space announced its acquisition of DSI. Bradford, owned by a US investment group, the American Industrial Acquisition Corporation, but with facilities in Europe, manufactures spacecraft components, including a non-toxic propulsion system called ECAPS. DSI had been working on its own non-toxic satellite thruster, called Comet, that uses water as propellant. That was billed by the company as a way to stimulate demand for space resources (most existing spacecraft use propellants, like hydrazine, not readily available from asteroids) but also as a shift in focus in the company, at least in the near-term, from asteroid mining to smallsats, a field with clear and growing demand. Bradford saw Comet as complementary to its own ECAPS system. On last month’s SpaceX Falcon 9 launch of 64 smallsats, four of the spacecraft were equipped with Comet thrusters while three had ECAPS thrusters.

### AT: Cycle

* + - 1. Musk can say all he wants about how earthly governments would not regulate behavior on Mars, but it is ultimately NASA that has control over the situation since it is a partnership between both the private and public sector
      2. DL: There is nothing the aff has that states that a cycle would continue and indigenous people would be harmed with space colonization. Logically speaking, the mining industry would shift their focus away from Earthly resources once asteroid mining is established because there is no point in destroying the Earth at huge expenses when asteroids are abundant with the rare elements they are searching for

### AT: Potential Life

1. Ask the aff to name any sort of organism/bacteria/life form that is existing in our solar system. There is none that they can provide

2. Weigh this upon probability. There is 100% probability that there are life forms on Earth, this is shown with everyone in this room debating, making conscious decisions, and etc. There is no tangible probability that life forms beyond Earth exist. We know right now that indigenous people are having their rights stripped away when it comes to property and that earth mining devastates their livelihood. It’s clear, you vote for the side that is helping tangible life forms with the most net benefit, that is the negation

* + - * 1. When coming to a choice between saving an ant or a human, you are always going to choose the human. That is because in comparison to the ant, the human will have consciousness, livelihood, emotions, etc. Even if there were potential life forms in space, it is imperative that humans are put first due to these reasons.

### AT: appropriation exists

#### No agreed upon piece of ilaw ever explicitly bans private appropriation of space

**Simberg 12**, Rand Simberg, “Property Rights in space” Fall 2012, New Atlantis,<https://www.thenewatlantis.com/publications/property-rights-in-space> Livingston RB

Some parties to the treaty, particularly the Soviet Union, wanted space activities to be the sole preserve of governments. But negotiators **from the United States managed to achieve a compromise in Article VI of the treaty that**, as Kopal writes, “**paved the way for the private sector to conduct space activities** side by side with States and international intergovernmental organizations.” Under Article VI, signatory governments bear international responsibility for national activities in outer space … whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. **By permitting non-governmental activities in space**, albeit under government supervision, **this section of the treaty allowed for the creation of the commercial telecommunications, remote-sensing, and spacecraft launching industries**, which were then in their infancy and today are thriving. However, as Kopal notes, **the treaty “does not contain any principles that would regulate economic activities for the purpose of exploring and exploiting the natural resources of outer space, the Moon and other celestial bodies**.” At the time the treaty was negotiated, the issues of economic development in space seemed remote, and so diplomats set them aside as potential obstacles to finding agreement on what they saw as more pressing issues.

#### Space mining doesn’t violate Article II

Wrench 19 (John G., JD candidate at Case Western) "Non-Appropriation, No Problem: The Outer Space Treaty Is Ready for Asteroid Mining." Case Western Reserve Journal of International Law, 51, 2019, p. 437-[xxii]. HeinOnline. EE

An interpretation of Article II supporting a blanket ban on resource ownership is unwarranted by the text of the OST and illfounded on account of the international community's common practices. Scholars have noted that the international community has never questioned whether scientific samples harvested from celestial bodies belong to the extracting nation. 0 Furthermore, space-faring members of the international community rejected the Moon Treaty precisely because it prohibited all forms of ownership in resources extracted from celestial bodies.' The space-faring nations' support for the OST, coupled with their rejection of an alternative set of rules governing extracted resources, is at the very least an indication of what those nations believe the non-appropriation principle to stand for.

It is equally improbable that the international community drafted the non-appropriation principle to be merely idealistic rhetoric. The OST leaves no room for interpretations to squirm out from under its ban on sovereign claims of land. 2 The following section illustrates, however, that the distinction between sovereign ownership of land, and the vestment of property rights in resources extracted from that land, is nothing new.