TW: As a quick content warning, the negative constructive contains brief and non-graphics mentions of sexual assault and rights abuses against women. Please private chat me on zoom or text my phone number if you’d rather me not read the argument

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

Appropriate is defined by the Oxford Dictionary as to

**the action of taking something for one's own use**, typically without the owner's permission

Outer space is the defined by the Oxford Dictionary as

**the physical universe beyond the earth's atmosphere.**

This means that satellites are not considered appropriation, because they are not taking anything physical.

Because the resolution questions what is unjust, the value is **Justice**, defined by Hossain Askari as the

As a theory of justice, utilitarianism holds **that** all human **actions** (as well as those of a state) **are** virtuous, **moral**, and just **when they contribute to achieving general happiness.** Hence, actions are judged based on their consequences. Actions detrimental to general happiness are considered unjust.

Because people cannot be happy when they are suffering, the value criterion ought to be **minimizing societal suffering**.

Prefer this value criterion for the following reason:

**Minimizing suffering is a pre-requisite for all other human values**.

In a society with high amounts of suffering, all other human values will cease to develop. This is because humans would lose the desire to deliberate or uphold any values other than those directly concerning their immediate survival and wellbeing. For instance, someone suffering of starvation might justify theft in order to reduce their suffering.

I offer the following observation. In the real world, justice is comparative. It would not make sense to call an action unjust, when not doing that actions would cause more harm than benefit. Therefore, the affirmative in this debate must prove that a society in which private companies did not appropriate outer space would be more just then a society in which there is private appropriation.

**My sole contention is Space Mining**

Private appropriation of outer space would stop harmful practices on earth. A chief example is asteroid mining.

Activities like asteroid mining are highly valuable. Carter 21 of Forbes states that some asteroids

Though to be an intact exposed iron-nickel core of an early planet with some suggesting that it [**could be worth a staggering $10,000 quadrillion**](https://www.forbes.com/sites/bridaineparnell/2017/05/26/nasa-psyche-mission-fast-tracked/#49cf598b4ae8), new research [published](https://iopscience.iop.org/article/10.3847/PSJ/abf63b/meta) in The Planetary Science Journal suggests that 16 Psyche is vastly less metallic than thought.

https://www.forbes.com/sites/jamiecartereurope/2021/06/14/quadrillion-dollar-psyche-asteroid-might-be-a-lot-more-interesting-than-we-thought-say-scientists/#:~:text=OSIRIS%2DREx%20spacecraft.-,Though%20to%20be%20an%20intact%20exposed%20iron%2Dnickel%20core%20of,vastly%20less%20metallic%20than%20thought.

https://bigthink.com/technology-innovation/the-first-trillionaires-will-make-their-fortunes-in-space/

However, private appropriation of outer space is absolutely critical to accessing this wealth. Weichert 21 states that

**The competition between the private space** **start-ups** **is fierce** — just as the [competition](https://www.energy.gov/articles/beyond-tesla-and-edison-other-luminaries-age-electricity) between Edison and Westinghouse was — but the upshot is **ultimately causing greater innovation and lower costs**  for you and me. In fact, Elon Musk insists that if NASA [gives SpaceX the contract](https://www.cbsnews.com/news/blue-origin-challenges-nasa-contract-spacex-artemis-lunar-lander/) for building the Human Landing System for the Artemis mission, NASA would return astronauts to the lunar surface [by 2024](https://www.space.com/spacex-starship-astronauts-moon-2024-elon-musk) — four years [before](https://www.space.com/house-bill-nasa-moon-landing-2028.html) NASA believes it will do so. (Incidentally, 2024 is also when China anticipates having a functional base on the moon’s southern pole.)

<https://www.nationalreview.com/2021/07/the-future-of-space-exploration-depends-on-the-private-sector/#slide-1>

Because of this, Gilbert 21 states that

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 start**ing 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](https://payneinstitute.mines.edu/wp-content/uploads/sites/149/2020/09/Payne-Institute-Commentary-The-Era-of-Commercial-Space-Mining-Begins.pdf). 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](https://www.fastcompany.com/90347364/jeff-bezos-wants-to-save-earth-by-moving-industry-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.

https://www.milkenreview.org/articles/mining-in-space-is-coming

There are 2 specific impacts.

**The first impact is restricting mining emissions**

Shifting mining into space would be massively beneficial in preventing climate change.

According to Azadi 20

The climate change impacts of mining are often not fully accounted for, although the environmental impact of mineral extraction more generally is widely studied. Copper mining can serve as a case study to analyse the measurable pathways by which mining contributes to climate change through direct and indirect greenhouse gas emissions. For example, **mining**, processing and transportation require fuel and electricity, and the decomposition of carbonate **minerals [on Earth was]**, employed to reduce environmental impacts, also releases carbon dioxide. Overall, we estimate that greenhouse gas emissions **associated with** primary mineral and metal production was equivalent to approximately **10% of the total global** energy-related **greenhouse gas emissions in 2018.** For copper mining, fuel consumption increased by 130% and electricity consumption increased by 32% per unit of mined copper in Chile from 2001 to 2017, largely due to decreasing ore grade. This trend of increasing energy demand to produce the same quantity of some metals compounds the problems of increased metal demand due to the pressures of new technologies and increasing population. For green technologies to be implemented effectively, it is necessary that the mining industry and regulators accurately and transparently account for greenhouse gas emissions to implement mitigation strategies.

<https://www.nature.com/articles/s41561-020-0531-3>

Negating can solve this, by moving mining industries off of Earth. According to a study conducted by Hein 18, even when considering the emissions released from rockets leaving and reentering Earth’s orbit,

Hein and co use these numbers to calculate that **a kilogram of platinum mined from an asteroid would release some 150 kilograms of CO2** into Earth’s atmosphere. However, economies of scale from large asteroid-mining operations could lower this **to about 60 kilograms of CO2** per kilogram of platinum. That needs to be compared with the emission from Earth-based mining. Here, platinum mining generates significant greenhouse gases, mostly from the energy it takes to remove this stuff from the ground. Indeed, the numbers are huge. The mining industry estimates that producing **one kilogram of platinum on Earth releases around 40,000 kilograms of carbon dioxide.** “**The global warming effect of Earth-based mining is several orders of magnitude larger then space-based mining**,” say Hein and co.

https://www.technologyreview.com/2018/10/19/139664/asteroid-mining-might-actually-be-better-for-the-environment/

As a result, Hein 18 states that by moving mining to space,

This article provides a first-order analysis of the potential environmental implications of asteroid mining, with a focus on greenhouse gas emissions. We introduce a bootstrapping factor, the ratio of resources delivered to the target destination and the payload mass launched into space that allows for a comparison of various asteroid mining missions. The results for the case of in-space water supply and platinum mining indicate that for typical values of the bootstrapping factor, **asteroid mining generates substantial environmental benefits** compared to its alternatives.

https://arxiv.org/ftp/arxiv/papers/1810/1810.04749.pdf

Therefore, asteroid mining would greatly reduce the harms of climate change by reducing the amount of emissions caused by earth-based mining, which thus minimizes suffering.

**The second impact is preventing horrendous rights abuses in the mining industry.**

Currently, demand over minerals causes horrendous wars and rights abuses of miners.

A chief example is the mining of the mineral, Coltan, which is a mineral found in all electronics.

According to Benitez 2012

“The DRC’s greatest curse is its wealth. The West and all the others who manufacture weapons have their noses stuck in there,” laments Jean-Bertin, who arrived eight years ago to the southern Spanish city of Málaga from Kinshasa, where his parents and two brothers still live. **The extraction of coltan contributes to** maintaining **one of the bloodiest armed conflicts in Africa**, **which has led to more than five million deaths,** massive displacements of the population, and the rape of 300,000 women in the last 15 years according to human rights organisations. **This fact was acknowledged by the United Nations Security Council in 2001, which confirmed the “links between the exploitation of natural resources and the continuation of the conflict** in the Democratic Republic of the Congo.”

http://www.ipsnews.net/2012/09/two-children-may-have-died-for-you-to-have-your-mobile-phone/#:~:text=The%20extraction%20of%20coltan%20contributes,according%20to%20human%20rights%20organisations.

Luckily, asteroid mining can solve for this atrocity, as Wolfe 2020 explains, stating that

In spite of the concerns about the ever-expanding reaches of capitalism into space, **the privatisation of asteroid mining may** offer a terrestrial benefit; that is, it may help **put an end to the human rights abuses involved in mining on Earth. Many asteroids contain coltan**, a metallic mineral used for the production of tantalum capacitors, which are found in pretty much every single electronic device – laptops, cameras, video game consoles, smartphones; you name it. Coltan, unfortunately, is a conflict mineral. It’s a mineral that is mined in areas of armed conflict, most notably in the Democratic Republic of Congo (DRC). Other conflict minerals include cassiterite, wolframite, and gold. The mining of coltan in the Congo has resulted in a number of human rights violations, including child labour, forced labour, sexual violence, physical abuse, human trafficking, [and] slavery,and unsafe working conditions.In the name of putting profits over people’s rights, corporations continue to benefit from the exploitation of people in the DRC, with capitalists amassing large amounts of profit and miners receiving measly inadequate wages, working in “slave conditions”, as there are little to no labour regulations. This is surely one of the ugliest faces of capitalism. **If we are able to extract all the coltan we need from asteroids, then this may eradicate any incentive for such horrible human rights abuses** in the Congo.Of course, we should not wait and hope for asteroid mining to be the silver bullet that solves the problem of conflict minerals, but if we are to take a cynical and pessimistic stance, then it may be the case that we see the advent of asteroid mining before the end of conflict minerals. Will conflict minerals still exist in a decade from now? On the other hand, who’s to say that profiting from asteroid mining won’t also result in more human exploitation? Might we not see space capitalists exploiting space miners, forcing them to overwork and stay away from Earth for longer than can be considered psychologically healthy?

Another example is the mining of diamonds. According to Lor 2020, the diamond mining industry has killed nearly 3.5 million people, and injured many millions more.

Luckily, Taylor 19 states that

For the woke folks who care about the bloody history of diamond production, there’s the likelihood that **space mining would wipe out Earth’s entire diamond industry.** “They will be found in quantities unattainable on Earth,” claims Suarez, with good reason. We are starting to discover that **there is more [diamonds]** crystalized carbon **in the cosmos than we ever suspected.** Astronomers have identified one [distant planet made entirely of diamond](https://www.nationalgeographic.com/science/phenomena/2014/06/24/diamond-the-size-of-earth/); there may be more, but they are, ironically, hard to see.

https://mashable.com/feature/asteroid-mining-space-economy

<https://storymaps.arcgis.com/stories/c99df884022c40f3985bf4dc904c345d>

Overall, because the private appropriation of outerspace would prevent millions of deaths and rights abuses caused by the mining industry, limits climate change, and ultimately minimizes suffering, I strongly negate.

**The third impact is renewable energy**

Asteroid mining is critical to securing the needed resources to become completely sustainable with renewable energy

According to Ahmed 18,

A new scientific study supported by the Dutch Ministry of Infrastructure warns that **the renewable energy industry** could be about to **face** a fundamental obstacle: **shortages in the supply of rare metals.** To meet greenhouse gas emission reduction targets under the Paris Agreement, renewable energy production has to scale up fast. **This means that global production of several rare earth** minerals used in solar panels and wind turbines—especially neodymium, terbium, indium, dysprosium, and praseodymium—**must grow twelvefold by 2050.**

<https://www.vice.com/en/article/a3mavb/we-dont-mine-enough-rare-earth-metals-to-replace-fossil-fuels-with-renewable-energy>

Luckily, asteroid mining can solve for this shortage. According to Mallick 19

Speaking to China’s Ministry of Science and Technology-run newspaper, Science and Technology Daily, Ye said that these **asteroids have a high concentration of precious metals worth**, which could rationalise the huge cost and risks involved in these activities as their economic value could run into the **trillions of US dollars.** Therefore, extraction, mining and transporting them back to Earth through robotic equipment will be a significant activity.

https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/

As a result, Modi 16 states that

EARLIER, **renewable energy could not compete with non-renewable sources because it relied on metals in short supply. Resources found on asteroids would solve this problem** **completely.**

<https://www.iafastro.org/assets/files/news/2016/iac-16e7ip23x32357.show-1.pdf>

Overall, because the appropriation of outer space by private entities would help stop climate change through preventing mining emissions and creating green tech, as well as prevent horrible rights abuses in the mining industry, it ultimately minimizes suffering, and is just.