# Aff

**I affirm**

**Resolved: The appropriation of outer space by private entities is unjust**

[The advocacy is to regulate private entities in space, allowing private entities to help assist the govt. in situations in which the govt. want the help, but private sector in space is banned outside of those situations]

**I value justice**

**The criterion is maximizing well-being. Prefer this framework because public policy makers act on behalf of a collective body they must look at util first.**

**Woller 97’** [Gary, Brigham Young University, “A Forum On The Role of Environmental Ethics in Restructuring Environmental Policy and Law for the Next Century”, Policy Currents, 1997 HSLA//SC]

Moreover, virtually all public policies entail some redistribution of economic or political resources, such that one group's gains must come at another group's ex- pense. Consequently, public policies in a democracy must be justified to the public, and especially to those who pay the costs of those policies. Such justification cannot simply be assumed a priori by invoking some higher-order moral principle. Appeals to a priori moral principles, such as environmental preservation, also often fail to acknowledge that public policies inevitably entail trade-offs among competing values. Thus since policymakers cannot justify inherent value conflicts to the public in any philosophical sense, and since public policies inherently imply winners and losers, the policymakers' duty to the public interest requires them to demonstrate that the redistributive effects and value trade-offs implied by their polices aresomehow to the overall advantage of society. At the same time, deontologically based ethical systems have severe practical limitations as a basis for public policy. At best, apriorimoral principles provide only general guidance to ethical dilemmas in public affairs and do not themselves suggest appropriate public policies, and at worst, they create a regimen of regulatory unreasonableness while failing to adequately address the problem or actually making it worse. For example, a moral obligation to preserve the environment by no means implies the best way, or any way for that matter, to do so, just as there is no a priori reason to believe that any policy that claims to preserve the environment will actually do so. Any number of policies might work, and others, although seemingly consistent with the moral principle, will fail utterly. That deontological principles are an inadequate basis for environmental policy is evident in the rather significant irony that most forms of deontologically based environmental laws and regulations tend to be implemented in a very utilitarian manner by street-level enforcement officials. Moreover, ignoring the relevant costs and benefits of environmental policy and their attendant incentive structures can, as alluded to above, actually work at cross purposes to environmental preservation. (There exists an extensive literature on this aspect of regulatory enforcement and the often perverse outcomes of regulatory policy. See, for example, Ackerman, 1981; Bartrip and Fenn, 1983; Hawkins, 1983, 1984; Hawkins and Thomas, 1984.) Even the most die-hard preservationist/deontologist would, I believe, be troubled by this outcome. The above points are perhaps best expressed by Richard Flathman, The number of values typically involved in public policy decisions, the broad categories which must be employed and above all, the scope and complexity of the consequences to be anticipated militate against reasoning so conclusively that they generate an imperative to institute a specific policy. It is seldom the case that only one policy will meet the criteria of the public interest (1958, p. 12). It therefore follows that in a democracy, policymakers have an ethical duty to establish a plausible link between policy alternatives and the problems they address, and the public must be reasonably assured that a policy will actually do something about an existing problem; this requires the means-end language and methodology of utilitarian ethics. Good intentions, lofty rhetoric, and moral piety are an insufficient though perhaps at times a necessary, basis for public policy in a democracy.

## Environmental harms

#### Global warming difficult to solve for in a world of privatization due to varying factors

**Jocelyn Timperley**, 12-8-20**21**, "Billionaire space race: What does it mean for climate change and the environment?," BBC Science Focus Magazine, <https://www.sciencefocus.com/news/billionaire-space-race-what-does-it-mean-for-climate-change-and-the-environment/>

After landing from his sub-orbital flight to the edge of space, Bezos said the experience had reinforced his commitment to fighting climate change. But **one crucial question** about this fast-moving sector **is what impact it could have on the environment itself? Rockets burn through huge amounts of propellants to take off.** But **there are a variety of ways to launch rockets into space, so understanding the exact impacts of each craft is not always straightforward**. “With all space travel, **including space tourism, the environmental impacts depend on a variety of factors** that are **specific to the mission,” said Dr Simit Raval**, a senior lecturer at the University of New South Wales and **co-author of a recent analysis on space launch emissions. More research is needed to ensure a “robust understanding” of these impacts, he says. Arguably, the two most important environmental impacts of space travel are its contribution to global warming and stratospheric ozone loss**, says Raval.

#### Things like the Space Race are extremely harmful for Earth as a whole

Sam **Hetherington**, 7-14-20**21**, "Billionaire Space Race is Actually Horrible for the Planet," Monster Children, <https://www.monsterchildren.com/billionaire-space-race-is-actually-horrible-for-the-planet/>

**Travelling to space**—like most forms of high-speed transport—**results in a release of carbon emissions into the atmosphere**. Last year there were 114 attempted orbital launches, which is significantly lower than the total emissions created from everyday commuters worldwide. However**, the big**ger **problem with space exploration is the trace gases and soot that are released by the rocket engines as they enter the upper atmosphere of the Earth. A report** into the environmental impact of space launches **found that holes in the ozone layers are the most concerning for our atmosphere and planet. Every time a rocket goes into space, it makes another hole**. It’s like putting a hole in cling wrap and trying to reuse that same piece of cling wrap again for your sandwiches—it just doesn’t work. Except the cling wrap is our atmosphere, and we can’t get another piece. **The modern-day space race between Amazon’s Jeff Bezos and Virgin’s Richard Branson doesn’t represent pushing the boundaries of human achievement**. It **represents stupidly rich people profiting once again from exploiting the Earth. Virgin Galactic took clear advantage following the flight when they announced they would be selling $500 million worth of stock** after their share prices jumped nearly 100 percent. Plans (alongside Elon Musk’s Space X) to make space tourism like booking a flight to Bali, only slightly more expensive, is time and money that could be spent reversing issues like world hunger and environmental catastrophe. Instead, we have Branson capitalizing on a mission to space for the sake of entertainment and saying shit like, ‘If we can do this, imagine what else we can do.’ I don’t want to imagine, because it’s not the stuff of dreams.

**There are no benefits to space tourism, and without restrictions, pollution will get worse, space debris will increase, and we will see other continuous environmental harms.**

**Heilweil 21** [Rebecca Heilweil, How bad is space tourism for the environment? And other space travel questions, answered, July 25, 2021 https://www.vox.com/recode/22589197/space-travel-tourism-bezos-branson-rockets-blue-origin-virgin-galactic-spacex]

The emissions of a flight to space can be worse than those of a typical airplane flight because just a few people hop aboard one of these flights, so the emissions per passenger are much higher. **That pollution could become much worse if space tourism becomes more popular. Virgin Galactic alone eventually aims to launch**[**400 of these flights**](https://www.cnbc.com/2020/11/06/virgin-galactic-each-spaceport-is-1-billion-annual-revenue-opportunity.html)**annually.**

**“The carbon footprint of launching yourself into space in one of these rockets is incredibly high, close to about 100 times higher than if you took a long-haul flight,”**[**Eloise Marais**](https://theconversation.com/space-tourism-rockets-emit-100-times-more-co-per-passenger-than-flights-imagine-a-whole-industry-164601)**, a physical geography professor at the University College London, told Recode. “It’s incredibly problematic if we want to be environmentally conscious and consider our carbon footprint.”**

**These flights’ effects on the environment will differ depending on factors like the fuel they use, the energy required to manufacture that fuel, and where they’re headed — and all these factors make it difficult to model their environmental impact.** For instance, **Jeff Bezos has argued that the liquid hydrogen and oxygen fuel Blue Origin uses is less damaging to the environment than the other space competitors** (technically, his flight didn’t [release carbon dioxide](https://www.politifact.com/factchecks/2021/jul/20/tweets/how-much-co2-did-bezos-rocket-ride-release-close-z/)), **but experts told Recode it** could **still [has]** have [**significant environmental effects**](https://gizmodo.com/space-tourism-is-a-waste-1847285820)**.**

**There are also other risks we need to**[**keep studying**](https://www.theverge.com/2018/5/31/17287062/rocket-emissions-black-carbon-alumina-particles-ozone-layer-stratosphere)**, including the release of**[**soot**](https://www.livescience.com/new-shepard-emissions.html)**that could hurt the stratosphere and the ozone.** **A**[**study**](https://www.nbcnews.com/id/wbna39806493)**from 2010 found that the soot released by 1,000 space tourism flights could warm Antarctica by nearly 1 degree Celsius.** **“There are some risks that are unknown,” Paul Peeters, a**[**tourism sustainability professor**](https://www.buas.nl/en/research/professorships/sustainable-transport-and-tourism)**at the Breda University of Applied Sciences, told Recode. “We should do much more work to assess those risks and make sure that they do not occur or to alleviate them somehow — before you start this space tourism business.” Overall, he thinks the environmental costs are reason enough not to take such a trip.**

#### Biodiversity loss risks extinction and turns all impacts.

Torres 16 (Phil Torres, ounding director of the X-Risks Institute, an affiliate scholar at the Institute for Ethics and Emerging Technologies, 4-11-2016, “Biodiversity loss: An existential risk comparable to climate change“, Bulletin of the Atomic Scientists, https://thebulletin.org/2016/04/biodiversity-loss-an-existential-risk-comparable-to-climate-change/, accessed 7-22-2019)

The sixth extinction. The repercussions of biodiversity loss are potentially as severe as those anticipated from climate change, or even a nuclear conflict. For example, according to a 2015 study published in Science Advances, the best available evidence reveals “an exceptionally rapid loss of biodiversity over the last few centuries, indicating that a sixth mass extinction is already under way.” This conclusion holds, even on the most optimistic assumptions about the background rate of species losses and the current rate of vertebrate extinctions. The group classified as “vertebrates” includes mammals, birds, reptiles, fish, and all other creatures with a backbone.The article argues that, using its conservative figures, the average loss of vertebrate species was 100 times higher in the past century relative to the background rate of extinction. (Other scientists have suggested that the current extinction rate could be as much as 10,000 times higher than normal.) As the authors write, “The evidence is incontrovertible that recent extinction rates are unprecedented in human history and highly unusual in Earth’s history.” Perhaps the term “Big Six” should enter the popular lexicon—to add the current extinction to the previous “Big Five,” the last of which wiped out the dinosaurs 66 million years ago. But the concept of biodiversity encompasses more than just the total number of species on the planet. It also refers to the size of different populations of species. With respect to this phenomenon, multiple studies have confirmed that wild populations around the world are dwindling and disappearing at an alarming rate. For example, the 2010 Global Biodiversity Outlook report found that the population of wild vertebrates living in the tropics dropped by 59 percent between 1970 and 2006. The report also found that the population of farmland birds in Europe has dropped by 50 percent since 1980; bird populations in the grasslands of North America declined by almost 40 percent between 1968 and 2003; and the population of birds in North American arid lands has fallen by almost 30 percent since the 1960s. Similarly, 42 percent of all amphibian species (a type of vertebrate that is sometimes called an “ecological indicator”) are undergoing population declines, and 23 percent of all plant species “are estimated to be threatened with extinction.” Other studies have found that some 20 percent of all reptile species, 48 percent of the world’s primates, and 50 percent of freshwater turtles are threatened. Underwater, about 10 percent of all coral reefs are now dead, and another 60 percent are in danger of dying. Consistent with these data, the 2014 Living Planet Report shows that the global population of wild vertebrates dropped by 52 percent in only four decades—from 1970 to 2010. While biologists often avoid projecting historical trends into the future because of the complexity of ecological systems, it’s tempting to extrapolate this figure to, say, the year 2050, which is four decades from 2010. As it happens, a 2006 study published in Science does precisely this: It projects past trends of marine biodiversity loss into the 21st century, concluding that, unless significant changes are made to patterns of human activity, there will be virtually no more wild-caught seafood by 2048. Catastrophic consequences for civilization. The consequences of this rapid pruning of the evolutionary tree of life extend beyond the obvious. There could be surprising effects of biodiversity loss that scientists are unable to fully anticipate in advance. For example, prior research has shown that localized ecosystems can undergo abrupt **and irreversible shifts** when they reach a tipping point. According to a 2012 paper published in Nature, there are reasons for thinking that we may be approaching a tipping point of this sort in the global ecosystem, beyond which the consequences could be catastrophic for civilization. As the authors write, a planetary-scale transition could precipitate “substantial losses of ecosystem services required to sustain the human population.” An ecosystem service is any ecological process that benefits humanity, such as food production and crop pollination. If the global ecosystem were to cross a tipping point and substantial ecosystem services were lost, the results could be “widespread social unrest, economic instability, and loss of human life.” According to Missouri Botanical Garden ecologist Adam Smith, one of the paper’s co-authors, this could occur in a matter of decades—far more quickly than most of the expected consequences of climate change, yet equally destructive.

## Monopolies

#### Monopolies are owned by private companies so we will likely end up with the government having to turn to the private sector for resources

**Ward 19** [Peter Ward, The unintended consequences of privatizing space, November 6, 2019, https://www.sciencefocus.com/space/the-unintended-consequences-of-privatising-space/]

But **space tourism companies need to make money, and it’s never going to be cheap to send anyone to space. In the worst-case scenario, the practice becomes another symptom of the world’s massive inequality problem, where the rich pay hundreds of thousands to go into space for a matter of minutes, while the millions on the surface struggle to feed themselves.**

In the 1990s, **the Russians attempted to privatize the Mir space station, but before business took off, they brought the craft crashing down to Earth as the nation cooperated with America on the ISS.**

There are several companies now looking to establish the world’s first private space station. This would bring obvious benefits – it would open up space as a laboratory to anyone who could pay, and would theoretically bring down the costs of manufacturing in space.

But **space isn’t the bastion of free-floating freedom some think it is, and it’s ripe for exploitation by monopolies. A space station operator, for example, could decide which fibre optics manufacturer could use its facility and which could not. The fibre optics produced in a zero-gravity environment are much cleaner and more valuable than that produced on Earth, meaning that one company would have a massive advantage, and the space station would decide who had access to the best manufacturing conditions.**

**That’s just one example of a potential monopoly, but if you go further into the future of space exploration, things only get more frightening.**

**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.**

#### OST doesn’t address the private sector

**Ishola, Fadipe, and Taiwo 21** [Feyisola Ruth Ishola, Oluwabusola Fadipe, and Olaoluwa Colin Taiwo, Legal Enforceability of International Space Laws: An Appraisal of 1967 Outer Space Treaty 19 March 2021, <https://www.liebertpub.com/doi/full/10.1089/space.2020.0038>]

The Outer Space Treaty can be said to have achieved significant success as 109 countries are signatories to the treaty at present since it came into effect in 1967**. A major problem of the treaty, however, is its lack of an enforcement mechanism and no defined threshold for what constitutes as violation that sometimes give way to infringements**. Ratifying **the 1967 Outer Space Treaty has not prevented advanced industrialized countries such as China, Russia, France, and the United States during the arms race from embarking on atmospheric nuclear tests. For instance, the United States and Russia have both carried out atmospheric nuclear tests and tested weapons such as R-36 missile developed by Russia** in 1967.

**The drafters of the 1967 Outer Space Treaty had a particular focus on controlling the activities of states in the outer space. As such, states were considered primary actors in the exploration of the outer space. However, private entities have increasingly become involved in carrying out activities in outer space**. Despite the increasing activities of private actors in the outer space, “the public interest in regulating security, safety, liability issues, and the use of outer space for peaceful purposes remain valid also in the context of privately conducted activities.”[**2**](https://www.liebertpub.com/doi/full/10.1089/space.2020.0038#B2) However, **international space law has not sufficiently made provisions on how to deal with the peculiarities of private participation, thus the privatization of space presents challenges to space governance.** **The reason for this is not far-fetched; according to Von der Dunk, (2005),**[**2**](https://www.liebertpub.com/doi/full/10.1089/space.2020.0038#B2)**the current international rules governing space activities are essentially directed at states, and will continue to be developed primarily at the public level for some time to come that has not entirely come to apply to private actors.**

#### Outer Space Treaty out of date

**Ward 19** [Peter Ward, The unintended consequences of privatizing space, November 6, 2019, https://www.sciencefocus.com/space/the-unintended-consequences-of-privatising-space/]

**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.**

**We can and likely will run into issues with the private sector being entirely in control of everyone in space colonies for example they act as a sort of government since there are no restrictions or laws on the private sector in space.**

## Space debris

Dr. Max **Polyakov**, 16/5/**21**, ["Not just Earth, humans are polluting space too. Here’s how we can stop," ThePrint, <https://theprint.in/science/not-just-earth-humans-are-polluting-space-too-heres-how-we-can-stop/659009/>]

**As long as humans launch objects into orbit, space debris is inevitable. Rocket launches leave boosters, fairings, interstages, and other debris in LEO. So do rocket explosions, which currently account for seven of the top 10 debris-creating events. Human presence also creates orbital flotsam** – such as cameras, pliers, an astronaut’s glove, a wrench, a spatula, even a tool bag lost during space walks. Some debris is created naturally from the impacts of micrometeoroids – dust-sized fragments of asteroids and comets. With limited lifetimes, operational satellites can become space debris. **Satellites run out of maneuvering fuel, batteries wear out, solar panels degrade – causing an orbital debris feedback loop, in which the problem is exacerbated when solar panels are sandblasted by micrometeoroids and tiny debris.** As with rocket debris, spent satellites eventually re-enter Earth’s atmosphere and burn up, but the process can take years – and the higher they orbit above Earth, the longer those orbits take to decay. **Space junk can impact operational spacecraft, yielding even more debris of all sizes, further increasing the impact risk. This is known as “the Kessler syndrome,”** named for NASA **scientist Donald J. Kessler**, who **hypothesized spacecraft and orbital debris could reach a density such that each impact generates more debris and a greater likelihood of colliding with other objects – rendering the use of LEO impossible for decades.** (This was depicted in the 2013 film Gravity, in which astronauts portrayed by George Clooney and Sandra Bullock are stranded in space after debris hits their shuttle.) **Even the tiniest space debris is a hazard: particles the size of dust grains, even paint chips, can scour hard-to-protect components like optics and solar panels, shortening operational lifetimes and creating even more tiny flecks of debris**. An impact by a 1 kg object travelling at 7.0 km/s releases the same amount of energy as the detonation of 6 kg of TNT.