# 1NC

## CP: LEO

#### We endorse the affirmative in all instances except for Low Earth Orbit Satellite constellations.

#### Private entities ought to appropriate outer space only for the deployment and maintenance of LEO Sats. Governments ought to regulate the size and number of these commercial satellites to avoid light pollution

#### Solves broadband internet access which is key for Native communities.

**Venkatesan et al 20** (Aparna Venkatesan is a Professor in the Department of Physics and Astronomy at the University of San Francisco. James Lowenthal is a professor of Astronomy at Smith College. Parvathy Prem is a Planetary Scientist specializing in Planetary research at Johns Hopkins University Applied Physics Laboratory. Monica Vidaurri works as a research scientist at NASA Goddard Space Flight Center, specializing in astrobiology, policy, and ethics. “The impact of satellite constellations on space as an ancestral global commons”. November 06, 2020.)

**Satellite constellations could greatly improve** communications and ongoing **monitoring of** Earth **phenomena ranging from** weather and **climate to disaster management. Such large constellations also** have the potential to **offer global connectivity through** low-cost high-speed **broadband** internet. In principle, **this could be the critical leap needed to bridge the very real digital divide**2, **especially for** the world’s most minoritized populations, including **Indigenous communities.** This divide has been exposed as a chasm during this pandemic year, affecting many millions of students and low-income workers. **Broadband internet has become essential for daily life**, especially **during a pandemic** year when remote forms of learning, teaching, work and even health (for example, telemedicine) have become the norm. In 2019, the FCC offered US$20 billion in subsidies over ten years to address the digital divide in rural communities in the United States, which was quickly followed by a number of filings for LEOsats. **LEOsat broadband may benefit rural communities** more than urban areas—these ‘last mile’ connections are still challenging to complete relative to concentrated (urban) populations where ground-based cable/fibre internet infrastructure is cheaper. **Large satellite constellations thus have the potential to bridge the digital chasm**, but time will tell whether the promise of low-cost high-speed internet worldwide is achieved, **and** what the financial costs to customers are. **This potential democratization of space is worth noting, even if it may not lead to fair participation in space.**

## CP: Africa

### 1NC — Africa

#### CP: [insert plan text] with the exception of the private sector from the countries considered to be part of the African continent. Those countries must internationally declare their space mining activities via the principles laid out in the Anih et. al ev, as well as the UN involvement per that evidence

(List of private companies involved: <https://www.unoosa.org/documents/pdf/psa/activities/2017/SouthAfrica/slides/Presentation53.pdf>)

Anih, et. al, 18, “Space Resource Utilization: A View from an Emerging Space Faring Nation”, Springer, Samuel Anih received an MSc from the International Space University (ISU), Illkirch- Graffenstaden, France, and a fellowship at NASA Ames, Moffett Field, California. He has more than 10 years working experience as a scientific officer and a space outreach specialist at the African Regional Centre for Space Science and Technology Education in English (ARCSSTE-E), a United Nations-affiliated center. He is cur- rently enrolled in a PhD program at the University of Cape Town. Adv. Ghandi Badela (MCIArb) is a South African citizen. He holds three master’s degrees in Electromechanical Engineering, Engineering Management, and Packaging Technology. Further, he holds an MBA and LLB degree. Currently, he is registered for an MPhil in Space Studies at the University of Cape Town. He is an admitted advocate of the High Court of South Africa and a member of the Johannesburg Bar, a society of advocates. In November 2016, he was elected to the Bar Council of the Johannesburg Society of Advocates. He is a director of the Arbitration Foundation of Southern Africa “AFSA” and a member of the Chartered Institute of Arbitrators, UK, as well as a member of the Guiding Committee of the China Africa Joint Arbitration Centre, “CAJAC” (email: [ghandi@badela.co.za](mailto:ghandi@badela.co.za)), AND A BUNCH MORE AUTHORS, URL: <https://elib.dlr.de/132313/1/SpaceResourceUtilization_View%20Emerging%20Countries.pdf>, KR

Notwithstanding our minimal involvement in actual extraterrestrial space activi- ties, South Africa must take every opportunity, as a developing country, to remain involved in the discussion leading up to and ultimately the formation of an interna- tional regulatory framework to govern extraterrestrial space activities.

An adequate regulatory framework for mining activities in outer space, enforce- ment mechanisms in all areas relevant to the exploration, sourcing, extracting and utilization of minerals must form part of such regulatory framework, and it will be necessary for member states to adopt such binding and mandatory enforcement mechanisms.

South Africa’s recommendations ought to contain the following elements:

1. The principles established in the outer space treaties, such as the preservation of the common heritage sites.

2. The principles set out in the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, adopted on 14 December 1992 (resolution 47/68), and Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, adopted on 13 December 1996 (resolution 51/122, annex), should be incorporated into such international frame- work to ensure that the involved states do not overstep the line.

3. Whilst the Moon Treaty is generally not ratified, the principles relating to com- mon heritage and “benefit of developing countries” cannot be dismissed as these principles are sufficiently entrenched in international law to be considered – even if not binding.

4. We need to recommend that the UN establish the necessary regulatory bodies to ensure that international principles pertaining to human rights, safety, environ- mental law (including space debris mitigation guidelines) and international trade are not abused by states or private commercial enterprise, although it is necessary

#### Asteroid mining key to help biodiversity – replaces terrestrial mining AND produces materials key for effective solutions

Oni, 19, “Why Africa Should Consider Asteroid Mining”, Space in Africa, David is a space industry and technology analyst at Space in Africa. He’s a graduate of Mining Engineering from the Federal University of Technology Akure.URL: <https://africanews.space/why-africa-should-consider-asteroid-mining/>, KAsteroid mining is a concept that involves the extraction of useful materials from asteroids and near-earth objects, which are useful for propulsion, construction, life support, agriculture, metallurgy, and precious and strategic metals. Volatiles such as hydrogen and methane could be used to produce rocket fuel y manufacture materials as well as solar panels which could be used to power habitats in space. These solar-powered cells could also be used to provide electricity for its inhabitants with satellites specifically designed for this purpose. Iron, nickel and cobalt would serve as fundamental raw materials for building space factories. Precious metals such as platinum, platinum-group metals (PGMs), and gold are also useful. A handful of companies, emerging and existing, will require materials with a high level of purity in large quantities, all of which are readily available in asteroids. There are conjectures that the asteroid mining industry is a whooping trillion-dollar industry.

To establish a mine, a portion of vegetation is cleared. This causes deforestation (and eventually, erosion and flooding) as well as the loss of biodiversity, which adversely affect native inhabitants. Leakages and tailing dumpings have raised serious environmental concerns. Yet most African governments struggle to keep these occurrences in check. There have been several reported cases of cyanide leaks and lead poisoning. Rivers and dams are re-routed to create exposed riverbeds for mining, which has a detrimental effect on fish and wildlife that depend on rivers for survival.

OK Tedi copper and gold mine in Papua, New Guinea has caused environmental harm that is far-reaching to the 50,000 residents spread across the 120 villages close to the mine, due to the discharges produced daily.

Mining also has a remarkable adverse effect on the atmosphere. ydiseases and allergies can be triggered by the inhalation of such airborne particles.

Underground mining causes huge amounts of waste earth to be brought to the surface, waste that often becomes toxic when it comes into contact with air and water. It causes cave-ins and sinkholes which can cause severe damage to buildings and equipment, as well as the loss of life. Coal mining also leads to greenhouse gas emissions.

Acid mine drainage occurs when water comes in contact with coal and other rocks during the mining process. This water, made toxic because of the influence of toxic minerals and other heavy metals, eventually leaks out of abandoned mines and contaminates groundwater, streams, rivers, soil, plants, animals and humans. As a result, an orange colour blankets the river, estuary or sea bed, killing plants and making surface water unfit for drinking.

Asteroid Mining in Africa

Acid mine drainage in South Africa

Common health threats posed by coal mining include pneumoconiosis (aka black lung disease), cardiopulmonary disease, chronic obstructive pulmonary disease, hypertension, lung disease, and kidney disease.

In a report given by Infogalactic, a series of lead poisonings in Zamfara State, Nigeria, led to the deaths of at least 163 people between March and June 2010, including 111 children. Health ministry figures state the discovery of 355 cases, with 46 per cent proving fatal.

According to NASA-compiled data, Kriel, a town in South Africa’s coal mining province in east Johannesburg, has the second-highest volume of sulphur dioxide (SO2) emissions in the world.

Mining activities have taken a toll on our environment, which is why beyond maximizing of mineral resources for space infrastructure and fuelling of propellants, asteroid mining also provides a ready recourse to terrestrial mining activities, with a view to saving the planet.

Thousands of people are forced to work in mines and are also forced to live under sub-human conditions. If attention is shifted from terrestrial mining, of course with robots working the mines in space, these people could not only live elongated lives but also find healthier employment alternatives.

The advantages of asteroid mining are numerous: trip exchanges for cargo to reduce wasteful journeys of transport trucks, development of cheaper batteries to reduce energy and storage costs, beneficiation of plastic waste to sustainable and clean bio-fuel as well as the development and use of solar-powered airships

Some studies indicate that an asteroid that runs 1,000 m (3,280 ft) across could yield about 100,000 tons of platinum, which already has miners in South Africa worried because they only mine a measly 130 tons of the metal on Earth each year.

“Space miners will first target water-rich asteroids for their hydrogen potential, then mineral-rich asteroids for their nickel and iron-ore. Platinum is a small by-product of their yield and has no use in space. But that means it poses a risk to the platinum resources below the earth’s surface”, says Kieck.

This is not the time for African countries to take the back seat, instead, they should take advantage of the momentum that is driving the space industry. Nations like South Africa, Zimbabwe and Nigeria have shown interests in asteroid mining, having recognised its vast potential. It will be noteworthy to see African countries on the frontiers with technology giants like Russia, China and the USA.

In May 2017, Mechanical engineer and PhD graduate, Jonathan Lun’s idea for the innovation challenge was chosen as the winner at the GIC awards ceremony, in Johannesburg. His idea is to use an innovative rocket technology, known as a vacuum arc thruster, which consumes asteroid metal as fuel to achieve industrial-scale transport of mined asteroid material.

Asteroid mining will serve as a stepping stone, bridging the gap between developed countries and developing countries in space technology to a significant level, Africa will be setting the foundation to be key players in the space industry, while at the same time contributing significantly to the battle against environmental degradation.

#### Biodiversity is existential – specifically sustainability in Africa prevents extinction

McKechnie, et. al, 19, University of Pretoria, ‘‘Loss of species is an existential threat to humans’ – UP academics respond to UN extinction report”, Professor Andrew McKechnie is a Professor of Zoology at UP and South African Research Chair in Conservation Physiology at the South African National Biodiversity Institute. Prof McKechnie did his undergraduate studies at the University of Natal and has been doing research at UP since 2008. Next guy (PhD): he studied zoology, botany and wildlife management at the University of Natal (now University of KwaZulu-Natal) and the University of Pretoria (UP) before obtaining his PhD in zoology from Stellenbosch University. Currently an Associate of the Mammal Research Institute at UP and a core team member of the Centre for Invasion Biology in the University’s Department of Zoology and Entomology, Prof Somers’ main research focus is on carnivore ecology, conservation and wildlife management., URL: <https://www.up.ac.za/research-matters/news/post_2990447-loss-of-species-is-an-existential-threat-to-humans-up-academics-respond-to-un-extinction-report>, KR

“What many fail to realise is that the current loss of species and increasingly pervasive damage to the global environment impacts us severely, being nothing short of an existential threat to humans,” says Prof Andrew McKechnie, of the Department of Zoology and Entomology and the South African Research Chair in Conversation Physiology at the National Zoological Gardens.

Published by the UN’s Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, the report was compiled by 145 experts from 50 countries, and is the most comprehensive of its kind yet. It states that one million animal and plant species are threatened with extinction – in fact, many will disappear within decades – and that the current global response to this crisis is insufficient.

This is not just an environmental issue either; it’s a developmental, economic, security, social and moral one: the loss of biodiversity and ecosystems will aggravate poverty, hunger and sickness; water will become increasingly unusable; and temperatures will continue to rise.

While the report states that it is not too late to avert the impending collapse of natural systems, “transformative change” is needed to restore and protect what has already been damaged. Rehabilitating the environment, using nature sustainably and slowing the rate at which the planet is warming require a fundamental shift in priorities.

“The global economy needs to change from encouraging short-term growth and profits to ensuring long-term sustainability and environmental health,” says Prof McKechnie, who also holds the Research Chair in Conservation Physiology at the National Zoological Gardens of South Africa. This shift is not only vital for the environment but is key to the well-being of humans and to meeting many of the UN’s Sustainable Development Goals that relate to poverty, hunger, health, water, cities, climate, oceans and land.

Although eight European countries have recognised the state of danger that we are in – calling for 25 percent of the European Union budget to be allocated to addressing climate change – averting catastrophic damage to the planet in the coming decades requires co-ordinated intervention on a global scale.

Prof McKechnie illustrates how dramatic an effect climate change can within a short period. “In Australia, extreme heatwaves have caused disastrous mortality events in which large numbers of individuals died from lethal heat stroke or dehydration within a matter of hours. In January 2009, thousands of wild budgerigars died at a site about 500 km north of Perth; in November 2018, a severe heatwave in Cairns killed 23 000 spectacled flying foxes ­– about a third of Australia’s entire population of this species – in just two days. These kinds of events underscore the potential for future extreme heat events to drive species extinct within a matter of days.”

The effects are also being felt in our neck of the woods. Current research on southern yellow-billed hornbills in the Kalahari Desert, which Prof McKechnie is involved in, suggests that higher summer temperatures are severely affecting the breeding success of this population. “Our models for hornbills and other Kalahari species concur with the UN report and predict that by the end of this century, the Kalahari will have lost much of its avian biodiversity as a direct consequence of climate change.”

Other direct drivers of extinction include changes in land and sea use, direct exploitation of organisms, pollution, and invasive alien species.

Prof Chris Weldon, Associate Professor of Entomology in the Department of Zoology and Entomology at UP, recognises the impacts of changes in land use. “Many insects that perform important functions such as pollination, seed dispersal and the breakdown of dead and waste matter are on the decline because of their loss of habitat,” he explains. “The increase in human populations and urbanisation as well as the intensification of agricultural practices and pesticides are destroying these little creatures that help to secure a thriving environment.”

In South African game reserves large mammals are becoming increasingly isolated in small fragmented populations found in these protected areas. “Not only are these fragments under increasing pressure from illegal hunting, alien plant invasions, insufficient funding and climate change, but they also need to be artificially managed to overcome the lack of natural dispersal of the plants and animals from them,” says large-mammal expert Prof Michael Somers, who is also the Eugène Marais Chair of Wildlife Management at UP’s Mammal Research Institute in the Faculty of Natural and Agricultural Sciences.

“As a result of land use change, native and/or sensitive species are often not able to persist and are excluded, often by more competitive species, in many cases non-native, invasive species,” adds Dr Mark Keith, also of the Mammal Research Institute. This is altering the natural densities of species in communities; this eventually alters and decays ecosystem functions in that area. “The concern is that we do not fully understand community structures and what certain species do in a system to allow for current system functioning, integrity and resilience.” Loss of function and/or resilience creates an unstable system, which leads to the possibility for a system to change without ever regaining its previous state and ecosystem function. Species extinction is just one result of this change.

## CP: CIL

#### States ought to:

#### --Announce that appropriation of outer space by private actors violates the Outer Space Treaty and that this is a settled matter of customary international law

#### --Announce that this action is taken pursuant to *opinio juris* (the belief that the action is taken pursuant to a legal obligation) and that non-compliant actors are in violation of international law

#### --Fully comply, not appropriating outer space in a manner inconsistent with these proclamations

#### Solves the Aff.

[Fabio](https://kluwerlawonline.com/journalarticle/Air+and+Space+Law/33.3/AILA2008021) **Tronchetti 8**. Dr. Fabio Tronchetti works as a Co-Director of the Institute of Space Law and Strategy and as a Zhuoyue Associate Professor at Beihang University, “The Non–Appropriation Principle as a Structural Norm of International Law: A New Way of Interpreting Article II of the Outer Space Treaty,” Air and Space Law, Volume 33, No 3, 2008, <https://kluwerlawonline.com/journalarticle/Air+and+Space+Law/33.3/AILA2008021>, RJP, **DebateDrills**.

The non–appropriation principle represents the fundamental rule of the space law system. Since the beginning of the space era, it has allowed for the safe and orderly development of space activities. Nowadays, however, the principle is under attack. Some proposals, arguing the need for abolishing it in order to promote commercial use of outer space are undermining its relevance and threatening its role as a guiding principle for present and future space activities. This paper aims at safeguarding the non–appropriative nature of outer space by suggesting a new interpretation of the non–appropriation principle that is based on the view that this principle should be regarded as a customary rule of international law of a special character, namely ‘a structural norm’ of international law.

#### That competes ---

#### 1] Widespread support for OST overhaul means a new treaty is likely---top military leaders are pushing it.

Theresa **Hitchens 21**. Theresa Hitchens is the Space and Air Force reporter at Breaking Defense. The former Defense News editor was a senior research associate at the University of Maryland’s Center for International and Security Studies at Maryland (CISSM). Before that, she spent six years in Geneva, Switzerland as director of the United Nations Institute for Disarmament Research (UNIDIR). “US Should Push New Space Treaty: Atlantic Council,” Breaking Defense, April 12, 2021, <https://breakingdefense.com/2021/04/us-should-push-new-space-treaty-atlantic-council/>, RJP, **DebateDrills**

WASHINGTON: The US should push hard to overhaul the entire international legal framework for outer space — including replacing the foundational [1967 Outer Space Treaty (OST),](https://breakingdefense.com/tag/outer-space-treaty/) a new report from the Atlantic Council says.

As it moves to do so, the US also should more aggressively court allies with an eye to establishing a “collective security alliance for space” among likeminded countries to “deter aggression” and defend “key resources and access.”

“The 1967 Treaty is dated. It was written, literally, in a different era,” said former Air Force Secretary Deborah Lee James in an Atlantic Council briefing today. “At present it is too broad, and in some cases it’s probably overly specific.”

The year-long study, [“The Future of Security In Space: A Thirty-Years US Strategy”](https://www.atlanticcouncil.org/wp-content/uploads/2021/04/TheFutureofSecurityinSpace.pdf)was co-chaired by James and retired Marine Corps Gen. Hoss Cartwright, former vice chair of the Joint Chiefs of Staff. In essence, it argues that the US needs to lead international efforts to craft a new rules-based regime to govern all space activities — from exploration to commercial ventures to military interactions. As the two argued in a recent [op-ed in Breaking D,](https://breakingdefense.com/2021/03/the-space-rush-new-us-strategy-must-bring-order-regulation/) “Great-power competition among the United States, China, and Russia has launched into outer space without rules governing the game.”

“The international law of space, centered on the 1967 Outer Space Treaty, is outdated and insufficient for a future of space in which economic activity is primary. The international community needs a new foundational space treaty, and the United States should precipitate its negotiation,” the study argues.

James elaborated that the idea would be to craft a more expansive treaty that covers emerging issues like debris mitigation and removal and [commercial extraction of resources](https://breakingdefense.com/tag/space-resource-extraction/) from the Moon and/or asteroids. That said, she stressed that the US should not abandon the OST — which has been signed by 193 nations — unless and until something new is there to replace it.

#### 2] Space law is typically treaty-based---Russian and Chinese proposals prove.

Stephanie **Nebehay 8**. Reporter, Reuters, “China, Russia to Offer Treaty to Ban Arms in Space,” Reuters, January 26, 2008, <https://www.reuters.com/article/us-arms-space/china-russia-to-offer-treaty-to-ban-arms-in-space-idUSL2578979020080125>, RJP, **DebateDrills**

GENEVA (Reuters) - China and Russia will submit a joint proposal next month for an international treaty to ban the deployment of weapons in outer space, a senior Russian arms negotiator said on Friday.

Valery Loshchinin, Russia’s ambassador to the United Nations-sponsored Conference on Disarmament, said the draft treaty would be presented to the 65-member forum on February 12.

Russian Foreign Minister Sergei Lavrov is due to address the Geneva forum, which constitutes the world’s main disarmament negotiating body, on that day. Loshchinin gave no details on the proposal which has been circulated to some senior diplomats.

Tensions between Russia and the United States have deepened in recent years over U.S. plans to revive its stalled “Star Wars” program from the 1980s with a new generation of missile defense shields.

Nuclear and other weapons of mass destruction are banned from space under a 1967 international treaty. But Washington’s plans have stirred concerns about non-nuclear arms in space.

#### 3] Treaties are the foundation of space law.

Sophie **Goguichvili et. al 21**. Program Associate, the Wilson Center, “The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?” The Wilson Center, October 1, 2021, <https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>, RJP, **DebateDrills**

As previously mentioned, a series of treaties adopted by the U.N. General Assembly (UNGA) form the foundation of the global space governance system. The first and most significant of these treaties is the “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space including the Moon and Other Celestial Bodies,” more commonly known as the **Outer Space Treaty**or**OST** for short (1967). The Outer Space Treaty is considered the most comprehensive space treaty and provides the basic framework for international space law, namely: the exploration and use of outer space for peaceful purposes by all States for the benefit of mankind (Art. I); the outlaw of national appropriation or claims of sovereignty of outer space or celestial objects (Art. II); a ban on the placement of weapons of mass destruction in orbit or on celestial bodies (Art. IV); that astronauts should be regarded as the envoys of mankind (Art. V); and that States are required to supervise the activities of their national entities (Art. VI).

#### We solve better, since CIL is far superior to treaties for space AND causes follow-on.

Koplow, 9 – Professor of Law, Georgetown University Law Center.

David A. Koplow, “ASAT-isfaction: Customary International Law and the Regulation of Anti-Satellite Weapons,” Michigan Journal of International Law. Volume 30, Summer 2009. <http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=1452&context=facpub>

Finally, the Article concludes with some policy recommendations, suggesting mechanisms for the world community to press forward with autonomous efforts to promote stability and security in outer space, even in the face of recalcitrance from the leading space powers. I would certainly support the negotiation and implementation of a comprehensive new treaty to prevent an arms race in outer space, and a carefully drafted, widely accepted accord could accomplish much, well beyond what customary law alone could create. But the treaty process, too, has costs and disadvantages, and the world need not pursue just one of these alternatives in isolation.

If the absence of global consensus currently inhibits agreements that countries could already sign, perhaps the world community can nevertheless get some "satisfaction" via the operation of CIL, constructing a similar (although not completely equivalent) edifice of international regulation of ASATs based simply on what countries do.

## CP: Cleanup

#### CP: The appropriation of outer space except for Active Debris Removal done explicitly by private entities is unjust. Governments ought to permit the appropriation of outer space for designated safety zones and tech stationing for active debris removal by private entities.

#### Guidelines by COPUOS provide a framework for mitigation

Freeland, Handmer, 21, “DEBRIS REMOVAL: SPACE LAW IS AN IMPORTANT PART IN THE FIGHT AGAINST SPACE JUNK”, Conversation, Steven Freeland, Professorial Fellow, Bond University / Emeritus Professor of International Law, Western Sydney University, Western Sydney University and Annie Handmer, PhD candidate, School of History and Philosophy of Science, University of Sydney, URL:, KR

Experts are working to recognise and determine the appropriate regulatory “rules of the road”. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) deals with space governance, and it has had “legal mechanisms relating to space debris mitigation and remediation measures” on its agenda for years. There are already some widely-accepted and practical guidelines for debris mitigation and long-term sustainability of space activities, but each proposed solution brings with it other questions.

In the end, any debris remediation activity will require a negotiated agreement between each of the relevant parties to ensure these legal and other questions are addressed. Eventually, we might see a standardised process emerge, in coordination with an international system of space traffic management.

#### It’s key to preventing satellite destruction

Kim, 21, 8/25/21, “Can the World’s First Space Sweeper Make a Dent in Orbiting Debris?”, Smithsonian, Shi En Kim is a writer and researcher at the University of Chicago who studies the physics of nano-sized objects. Outside the lab, she freelances for various publications, including National Geographic, Scientific American, Science News, Slate and others. She is Smithsonian's 2021 AAAS Mass Media Fellow, URL: <https://www.smithsonianmag.com/science-nature/can-worlds-first-space-sweeper-make-dent-orbiting-debris-180978515/>, KR

To combat this issue, Astroscale Inc., a private Japan-headquartered company, has devised several commercial spacecrafts tasked with decluttering space. The company is on track to deliver the world’s first garbage truck for removing defunct satellites in 2024, and today announced its prototype completed its first demonstration in space. Although experts say that one active debris remover isn’t enough to solve the problem, it is an important move toward protecting valuable equipment in space, including satellites that aid with everything from weather forecasts to GPS navigation.

“Those services are under threat,” says Lewis. “That threat is the destruction of the satellites, or the disruption to the services because we have to maneuver the satellites to avoid the space debris.”

Astroscale’s efforts are one of the first, tiny steps towards cleaning up debris. Its flagship mission is ELSA, short for “end-of-life services by Astroscale.” ELSA will drag satellites that are no longer operating down from high altitudes to the planet’s natural incinerator: the oxygen-rich atmosphere at lower Earth orbits. Both the space-cleaner and satellite will burn up here before they hit the surface of the Earth. In March this year, Astroscale launched its prototype ELSA-d (d stands for demonstration) to test its proximity capture technology. It contains two satellites: a chaser and a target that will proxy as a hunk of wreckage. Each satellite is equipped with a magnetic docking plate so that the chaser can latch onto its target.

The satellite pair successfully performed the first of four catch-and-release demos for debris disposal today. In this first test, the chaser validated its magnetic capture system by separating with the target then snagging it at close range. All the while, on-the-ground mission control recalibrated ELSA-d's sensors and verified its operational procedures. In the coming months, ELSA-d will undergo challenges of increasing complexity, from the chaser snagging prey that’s drifting away to pursuing a freely tumbling target and plucking it from its flightpath. ELSA-d’s fourth and final test will represent a full-service mission, in which the chaser inspects the target at close range and allows its human operators to make a go-no-go decision on the cleanup. In a fiery finale, both target and catcher will head down to lower Earth orbit to burn up in the atmosphere.

“Once those technologies are demonstrated and the global community sees that [ELSA] is a really big step towards active debris removal and end-of-life services, they're going to embrace this as more of a reality,” says Mike Lindsay, Astroscale’s chief technology officer. “Hopefully they'll incorporate that possibility into their own plans” as they prepare the next generation of satellites, he adds.

#### Debris triggers miscalculated war.

Peter Dockrill 16. Award-winning science & technology journalist. “Space Junk Accidents Could Trigger Armed Conflict, Study Finds.” <https://www.sciencealert.com/space-junk-accidents-could-trigger-armed-conflict-expert-warns>.

The increasingly crowded space in Earth's low orbit could set the stage for an international armed conflict, says a new study. Researchers from the Russian Academy of Sciences warn that accidents stemming from the steady rise in space junk floating around the planet could incite political rows and even warfare, with nations potentially mistaking debris-caused incidents as the results of intentional aggressive acts by others. In a paper published in Acta Astronautica, the team suggests that space debris in the form of spent rocket parts and other fragments of hardware hurtling at high speed pose a "special political danger" that could dangerously escalate tensions between nations. According to the study, destructive impacts caused by random space junk cannot easily be told apart from military attacks. "The owner of the impacted and destroyed satellite can hardly quickly determine the real cause of the accident," the authors write. The risks of such an event occurring are compounded by the sheer volume of debris now orbiting Earth. Recent figures from NASA indicate that there are more than 500,000 pieces of space junk currently being tracked in orbit, travelling at speeds up to 28,160 km/h (17,500 mph). The majority of those objects are small – around the size of a marble – but some 20,000 of them are bigger than a softball. In addition to these 500,000 or so fragments – which are big enough for scientists to know about them – NASA estimates that there are millions of undetectable pieces of debris in orbit that are too small to be monitored. But even extremely small fragments such as these pose a threat – in fact, they're considered a greater risk than trackable debris, as their invisible status means spacecraft and satellites can't do anything to avoid them until it's too late. As NASA observed in 2013: "Even tiny paint flecks can damage a spacecraft when travelling at these velocities. In fact a number of space shuttle windows have been replaced because of damage caused by material that was analysed and shown to be paint flecks… With so much orbital debris, there have been surprisingly few disastrous collisions." While we may have been lucky in the past, we can't rely on that to continue. The study by the Russian team cites the repeated sudden failures of defence satellites in past decades that were never explained. The researchers attribute two possible causes: either unrecorded collisions with space junk, or aggressive actions from adversaries. "This is a politically dangerous dilemma," the authors write.

#### **Goes nuclear.**

Les Johnson 14. Baen science fiction author, popular science writer, and NASA technologist. “Living without satellites”. <https://www.baen.com/living_without_satellites>.

Satellite imagery is used by the military and our political leaders to maintain the peace. When your potential adversaries can’t hide what they’re doing, where their armies are moving and what they are doing with their civilian and military infrastructure, then the danger of surprise attack is diminished. In our nuclear age with instant death only minutes away by missile attack, the doctrine of Mutual Assured Destruction (MAD) only works if both sides know whether or not they are being attacked. The launch of missiles or a bomber fleet can easily be seen from space far in advance of either reaching their potential targets halfway around the globe. The danger of surprise attack is therefore small, making an accidental war far less likely. So what does all this mean? And what do we do about it? First of all, it means that the advocates of space development, exploration and commercialization have succeeded far beyond their initial expectations and dreams. The economies and security of countries in the developed world are now dependent on space satellites. We space advocates should celebrate our success and be terrified of it at the same time. Should we lose these fragile assets in space, our economy would experience a disruption like no other: ship, air and train travel would stop and only restart/operate in a much-reduced capacity for years (GPS loss). Many banking and retail transactions would cease (VSAT loss). Distribution of news and vital national information would be crippled (communications satellite loss). Lives would be put at risk and the productivity of our farming would dramatically decrease (weather satellite loss). The risk of war, including nuclear war, would increase (loss of spy satellites) and our military’s ability to react to crises would be significantly reduced (loss of military logistics and intelligence gathering satellites).

#### Extinction.

Starr 17 (Steven; director of the University of Missouri’s Clinical Laboratory Science Program, senior scientist at the Physicians for Social Responsibility, Associate member of the Nuclear Age Peace Foundation, expert in the environmental consequences of nuclear war; 1/9/17; “Turning a Blind Eye Towards Armageddon — U.S. Leaders Reject Nuclear Winter Studies”; <https://fas.org/2017/01/turning-a-blind-eye-towards-armageddon-u-s-leaders-reject-nuclear-winter-studies/>; Federation of American Scientists; accessed 11/24/18; TV) [AV]

The detonation of an atomic bomb with this explosive power will **instantly ignite fires** over a surface area of three to five square miles. In the recent studies, the scientists calculated that the **blast**, **fire**, and **radiation** from a war fought with 100 atomic bombs could produce **direct fatalities** comparable to all of those worldwide in World War II, or to those once estimated for a “**counterforce**” **nuclear war** between the superpowers. However, the **long-term environmental effects** of the war **could** significantly disrupt the global weather for at least a decade, which would likely **result in** a vast **global famine**. The scientists predicted that **nuclear firestorms** in the burning cities would cause at least five million tons of **black carbon smoke** to quickly rise above cloud level into the stratosphere, where it could not be rained out. The smoke would circle the Earth in **less than two weeks** and would form **a** global **stratospheric smoke layer** that **would remain for** more than **a decade**. The smoke would absorb warming sunlight, which would **heat the smoke** to temperatures near the boiling point of water, producing **ozone losses of** 20 to **50 percent** over populated areas. This would almost double the amount of UV-B reaching the most populated regions of the mid-latitudes, and it would create UV-B indices unprecedented in human history. In North America and Central Europe, the time required to get a painful sunburn at mid-day in June could decrease to as little as six minutes for fair-skinned individuals. As the smoke layer blocked warming sunlight from reaching the Earth’s surface, it would produce the **coldest** average **surface temperatures** in the last 1,000 years. The scientists calculated that global **food production would decrease** by 20 to **40 percent** during a five-year period following such a war. Medical experts have predicted that the shortening of growing seasons and corresponding decreases in agricultural production could cause up to **two billion** people to perish from **famine**. The climatologists also investigated the effects of a nuclear war fought with the vastly more powerful modern **thermonuclear** weapons possessed by the United States, Russia, China, France, and England. Some of the thermonuclear weapons constructed during the 1950s and 1960s were 1,000 times more powerful than an atomic bomb. During the last 30 years, the average size of thermonuclear or “strategic” nuclear weapons has decreased. Yet today, each of the approximately 3,540 strategic weapons deployed by the United States and Russia is seven to **80 times** more powerful than the atomic bombs modeled in the India-Pakistan study. The smallest strategic nuclear weapon has an explosive power of **100,000 tons of TNT**, compared to an atomic bomb with an average explosive power of 15,000 tons of TNT. Strategic nuclear weapons produce much larger nuclear firestorms than do atomic bombs. For example, a standard Russian 800-kiloton warhead, on an average day, will ignite fires covering a surface area of 90 to 152 square miles. A **war** fought with hundreds or thousands of U.S. and Russian strategic nuclear weapons would **ignite immense** **nuclear firestorms** covering land surface areas of many thousands or **tens of thousands** of square miles. The scientists calculated that these fires would produce up to **180 million tons** of black carbon soot and **smoke**, which would form a dense, **global stratospheric smoke layer**. The smoke would remain in the stratosphere for 10 to **20 years**, and it **would block** as much as **70 percent of sunlight** from reaching the surface of the Northern Hemisphere and 35 percent from the Southern Hemisphere. So much sunlight would be blocked by the smoke that the noonday sun would resemble a full moon at midnight. Under such conditions, it would only require a matter of days or weeks for daily minimum **temperatures** to **fall below freezing** in the largest agricultural areas of the Northern Hemisphere, where freezing temperatures would occur every day for a period of between one to more than two years. Average surface temperatures would become colder than those experienced 18,000 years ago at the height of the last Ice Age, and the prolonged cold would cause average rainfall to decrease by up to 90%. Growing seasons would be completely eliminated for more than a decade; it would be **too cold and dark** to grow food crops, **which would doom the** majority of the **human population.** NUCLEAR WINTER IN BRIEF The profound cold and darkness following nuclear war became known as nuclear winter and was first predicted in 1983 by a group of NASA scientists led by Carl Sagan. During the mid-1980s, a large body of research was done by such groups as the Scientific Committee on Problems of the Environment (SCOPE), the World Meteorological Organization, and the U.S. National Research Council of the U.S. National Academy of Sciences; their work essentially supported the initial findings of the 1983 studies. The idea of nuclear winter, published and supported by prominent scientists, generated extensive public alarm and put political pressure on the United States and Soviet Union to reverse a runaway nuclear arms race, which, by 1986, had created a global nuclear arsenal of more than 65,000 nuclear weapons. Unfortunately, this created a backlash among many powerful military and industrial interests, who undertook an extensive media campaign to brand nuclear winter as “bad science” and the scientists who discovered it as “irresponsible.” Critics used various uncertainties in the studies and the first climate models (which are primitive by today’s standards) as a basis to criticize and reject the concept of nuclear winter. In 1986, the Council on Foreign Relations published an article by scientists from the National Center for Atmospheric Research, who predicted drops in global cooling about half as large as those first predicted by the 1983 studies and described this as a “nuclear autumn.”

## DA

#### Private sector innovation in the commercial space industry is high now.

**Smith 18** [Matthew Smith, 6-11-2018, "Commercialized Space and You," Science in the News, https://sitn.hms.harvard.edu/flash/2018/commercialized-space-and-you/]//DDPT

Step aside, NASA. The 20th century model of space exploration is running out of fuel, and private companies are now leading the race for human expansion across the galaxy. Elon Musk, Richard Branson, and Jeff Bezos are three of the billionaires leading this extraterrestrial adventure with their respective companies, SpaceX, Virgin Galactic, and Blue Origin. Bezos, the founder of Amazon and currently the wealthiest person in the world, has a vision of sending autonomous rovers to the Moon and helping to eventually create a Moon Village. He has explained that collaborations with the National Aeronautics and Space Administration (NASA) and other government agencies are encouraged and appreciated, but are no longer essential to achieve his goal. [Musk](https://www.geekwire.com/2018/jeff-bezos-blue-origin-space-venture-go-moon-settlements/), who co-founded Tesla, has already launched nine rockets within the first five months of 2018, one of which was the most powerful private spacecraft [ever sent into orbit](http://sitn.hms.harvard.edu/flash/2018/spacex-launches-falcon-heavy-rocket-successfully/). Looking forward, SpaceX aims to complete its first manned mission to Mars in 2024, almost a decade earlier than NASA’s projections. Even the current US president is encouraging this shift to private companies driving [innovation in space](https://www.washingtonpost.com/news/the-switch/wp/2018/02/11/the-trump-administration-wants-to-turn-the-international-space-station-into-a-commercially-run-venture/?noredirect=on&utm_term=.d2c1eccab4ca). With almost [$1 billion](https://www.forbes.com/sites/alexknapp/2018/04/10/nearly-1-billion-was-invested-in-space-startups-in-1q2018-new-report-says/#5fdd019b285c) invested in space-focused startups in the first quarter of 2018, the commercialized space industry shows no sign of slowing down.

#### Private space appropriation is uniquely key to ensuring ongoing innovation towards space exploration and colonization.

**Cheng 20** [Dean Cheng, 09-16-2020, "Outer Space and Private Property," Heritage Foundation, https://www.heritage.org/space-policy/commentary/outer-space-and-private-property]//DDPT

Fully 53 years after the Outer Space Treaty, however, this has begun to change. The success of SpaceX, Blue Origin, Virgin Galactic, and other private companies has led to what has been termed Space 2.0.

The Obama administration’s decision to rely on commercial space-launch services to resupply the International Space Station opened the door to expanding private enterprise’s role in space.

The innovation exhibited in the various Falcon launches, including the ability to reuse the booster rockets, has seen a significant drop in the cost of placing payloads into orbit. As a result, a real opportunity exists for companies to begin thinking about how to use space not simply to improve terrestrial operations, but to make money from space and its physical resources.

The uncertainty associated with private property rights, however, has had a constraining effect on the ability to exploit space more extensively. Companies are unlikely to be willing to risk capital and assets if they are not sure that they will be able to profit from their investments.

#### The private sector is the key internal link to space exploration and colonization.

**Sharma 9/7** [Maanas Sharma, 9-7-2021, "The Space Review: The privatized frontier: the ethical implications and role of private companies in space exploration," The Space Review, https://www.thespacereview.com/article/4238/1]//DDPT

In recent years, private companies have taken on a larger role in the space exploration system. With lower costs and faster production times, they have displaced some functions of government space agencies. Though many have levied criticism against privatized space exploration, it also allows room for more altruistic actions by government space agencies and the benefits from increased space exploration as a whole. Thus, we should encourage this development, as the process is net ethical in the end. Especially if performed in conjunction with adequate government action on the topic, private space exploration can overcome possible shortcomings in its risky and capitalistic nature and ensure a positive contribution to the general public on Earth.

The implications of commercial space exploration have been thrust into the limelight with the successes and failures of billionaire Elon Musk’s company SpaceX. While private companies are not new to space exploration, their prominence in American space exploration efforts has increased rapidly in recent years, fueled by technological innovations, reductions in cost, and readily available funding from government and private sources.[1] In May 2020, SpaceX brought American astronauts to space from American soil for the first time in almost 10 years.[2] Recognizing the greatly reduced costs of space exploration in private companies, NASA’s budget has shifted to significantly relying on private companies.[3] However, private space companies are unique from government space agencies in the way they experience unique sets of market pressures that influence their decision-making process. Hence, the expansion of private control in the space sector turns into a multifaceted contestation of its ethicality.

The most obvious ethical concern is the loss of human life. Critics contend that companies must answer to their shareholders and justify their profits. This contributes to a larger overall psyche that prioritizes cost and speed above all else, resulting in significantly increased risks.[4] However, the possible increase in mishaps is largely overstated. Companies recognize the need for safety aboard their expeditions themselves.[5] After all, the potential backlash from a mishap could destroy the company’s reputation and significantly harm their prospects. According to Dr. Nayef Al-Rodhan, Head of the Geneva Centre for Security Policy’s Geopolitics and Global Futures Programme, “because there were no alternatives to government space programs, accidents were seen to some degree as par for the course… By comparison, private companies actually have a far more difficult set of issues to face in the case of a mishap. In a worst case scenario, a private company could make an easy scapegoat.” [6]

Another large ethical concern is the prominence capitalism may have in the future of private space exploration and the impacts thereof. The growth of private space companies in recent years has been closely intertwined with capitalism. Companies have largely focused on the most profitable projects, such as space travel and the business of space.[7] Many companies are funded by individual billionaires, such as dearMoon, SpaceX’s upcoming mission to the Moon.[8] Congress has also passed multiple acts for the purpose of reducing regulations on private space companies and securing private access to space. From this, many immediately jump to the conclusion that capitalism in space will recreate the same conditions in outer space that plague Earth today, especially with the increasing push to create a “space-for-space” economy, such as space tourism and new technologies to mine the Moon and asteroids. Critics, such as Jordan Pearson of VICE, believe that promises of “virtually unlimited resources” are only for the rich, and will perpetuate the growing wealth inequality that plagues the world today.[9]

However, others contend that just because private space exploration has some capitalist elements, it is by no means an embodiment of unrestricted capitalism. A healthy balance of restricted capitalism—for example, private space companies working through contracts with government agencies or independently under monitoring and regulation by national and international agreements—will avoid the pitfalls that capitalist colonialism faced down here on Earth. Even those who are generally against excessive government regulation should see the benefits of them in space. Lacking any consensus on definitions and rights in space will create undue competition between corporations as well as governments that will harm everyone rather than helping anyone. To create a conducive environment for new space-for-space exploration, one without confrontation but with protection for corporate astronauts, infrastructure, and other interests, governments must create key policies such as a framework for property rights on asteroids, the Moon, and Mars.[7,10]

Another key matter to note is restricted capitalism in space “could also be our salvation.”[11] Private space exploration could reap increased access to resources and other benefits that can be used to solve the very problems on Earth that critics of capitalism identify. Since governments offset some of their projects to private companies, government agencies can focus on altruistic projects that otherwise would not fit in the budget before and do not have the immediate commercial use that private companies look for. Scott Hubbard, an adjunct professor of aeronautics and astronautics at Stanford University, discusses how “this strategy allows the space agency to continue ‘exploring the fringe where there really is no business case’” but still has important impacts on people down on Earth.[12]

Indeed, this idea is a particularly powerful one when considering the ideal future of private companies in space exploration. Though there is no one set way governments will interact with companies, the consensus is that they must radically reimagine their main purpose as the role of private space exploration continues to grow. As governments utilize services from private space companies, “[i]nstead of being bogged down by the routine application of old research, NASA can prioritize their limited budget to work more on research of other unknowns and development of new long-term space travel technologies.”[13] According to the Council on Foreign Relations, such technologies have far-reaching benefits on Earth as well. Past developments obviously include communications satellites, by themselves a massive benefit to society, but also “refinements in artificial hearts; improved mammograms; and laser eye surgery… thermoelectric coolers for microchips; high-temperature lubricants; and a means for mass-producing carbon nanotubes, a material with significant engineering potential; [and h]ousehold products.”[2] Agencies like NASA are the only actors able to pursue the next game-changing missions, “where the profit motive is not as evident and where the barriers to entry are still too high for the private sector to really make a compelling business case.”[8] These technologies have revolutionized millions, if not billions, of lives, demonstrating the remarkable benefits of space exploration. It follows then that it is net ethical to prioritize these benefits.

This report concludes that the private sector, indeed, has a prominent role to play in the future of space exploration. Further, though private space exploration does bring the potential of increased danger and the colonization of space, these concerns can be effectively mitigated. Namely, strong government frameworks—particularly international ones—will minimize possible sources of ethical violations and ensure an optimal private sector role in space. This also allows government agencies to complete significantly more difficult, innovative projects which have transformative benefits for life on Earth.

#### Space exploration solves extinction and endless resource wars.

Collins 10 [Patrick Collins, professor of economics at Azabu University in Japan, and a Collaborating Researcher with the Institute for Space & Astronautical Science, as well as adviser to a number of companies, Adriano V. Autino is President of the Space Renaissance International; Manager, CEO/CTO, Systems Engineering Consultant / Trainer at Andromeda Systems Engineering LLC; and Supplier of methodological tools and consultancy at Intermarine S.p.A, Acta Astronautica, Volume 66, Issues 11–12, June–July 2010, “What the growth of a space tourism industry could contribute to employment, economic growth, environmental protection, education, culture and world peace”, Pages 1553–1562]

7. World peace and preservation of human civilisation

The major source of social friction, including international friction, has surely always been unequal access to resources. People fight to control the valuable resources on and under the land, and in and under the sea. The natural resources of Earth are limited in quantity, and economically accessible resources even more so. As the population grows, and demand grows for a higher material standard of living, industrial activity grows exponentially. The threat of resources becoming scarce has led to the concept of “Resource Wars”. Having begun long ago with wars to control the gold and diamonds of Africa and South America, and oil in the Middle East, the current phase is at centre stage of world events today [37]. A particular danger of “resource wars” is that, if the general public can be persuaded to support them, they may become impossible to stop as resources become increasingly scarce. Many commentators have noted the similarity of the language of US and UK government advocates of “war on terror” to the language of the novel “1984” which describes a dystopian future of endless, fraudulent war in which citizens are reduced to slaves.

7.1. Expansion into near-Earth space is the only alternative to endless “resource wars”

As an alternative to the “resource wars” already devastating many countries today, opening access to the unlimited resources of near-Earth space could clearly facilitate world peace and security. The US National Security Space Office, at the start of its report on the potential of space-based solar power (SSP) published in early 2007, stated: “Expanding human populations and declining natural resources are potential sources of local and strategic conflict in the 21st Century, and many see energy as the foremost threat to national security” [38]. The report ended by encouraging urgent research on the feasibility of SSP: “Considering the timescales that are involved, and the exponential growth of population and resource pressures within that same strategic period, it is imperative that this work for “drilling up” vs. drilling down for energy security begins immediately” [38].

Although the use of extra-terrestrial resources on a substantial scale may still be some decades away, it is important to recognise that simply acknowledging its feasibility using known technology is the surest way of ending the threat of resource wars. That is, if it is assumed that the resources available for human use are limited to those on Earth, then it can be argued that resource wars are inescapable [22] and [37]. If, by contrast, it is assumed that the resources of space are economically accessible, this not only eliminates the need for resource wars, it can also preserve the benefits of civilisation which are being eroded today by “resource war-mongers”, most notably the governments of the “Anglo-Saxon” countries and their “neo-con” advisers. It is also worth noting that the $1 trillion that these have already committed to wars in the Middle-East in the 21st century is orders of magnitude more than the public investment needed to aid companies sufficiently to start the commercial use of space resources.

Industrial and financial groups which profit from monopolistic control of terrestrial supplies of various natural resources, like those which profit from wars, have an economic interest in protecting their profitable situation. However, these groups’ continuing profits are justified neither by capitalism nor by democracy: they could be preserved only by maintaining the pretence that use of space resources is not feasible, and by preventing the development of low-cost space travel. Once the feasibility of low-cost space travel is understood, “resource wars” are clearly foolish as well as tragic. A visiting extra-terrestrial would be pityingly amused at the foolish antics of homo sapiens using long-range rockets to fight each other over dwindling terrestrial resources—rather than using the same rockets to travel in space and have the use of all the resources they need!

7.2. High return in safety from extra-terrestrial settlement

Investment in low-cost orbital access and other space infrastructure will facilitate the establishment of settlements on the Moon, Mars, asteroids and in man[/woman]-made space structures. In the first phase, development of new regulatory infrastructure in various Earth orbits, including property/usufruct rights, real estate, mortgage financing and insurance, traffic management, pilotage, policing and other services will enable the population living in Earth orbits to grow very large. Such activities aimed at making near-Earth space habitable are the logical extension of humans’ historical spread over the surface of the Earth. As trade spreads through near-Earth space, settlements are likely to follow, of which the inhabitants will add to the wealth of different cultures which humans have created in the many different environments in which they live.

Success of such extra-terrestrial settlements will have the additional benefit of reducing the danger of human extinction due to planet-wide or cosmic accidents [27]. These horrors include both man-made disasters such as nuclear war, plagues or growing pollution, and natural disasters such as super-volcanoes or asteroid impact. It is hard to think of any objective that is more important than preserving peace. Weapons developed in recent decades are so destructive, and have such horrific, long-term side-effects that their use should be discouraged as strongly as possible by the international community. Hence, reducing the incentive to use these weapons by rapidly developing the ability to use space-based resources on a large scale is surely equally important [11] and [16]. The achievement of this depends on low space travel costs which, at the present time, appear to be achievable only through the development of a vigorous space tourism industry.

## Case

### ROB

#### The role of the ballot is to weigh the consequences of the aff vs the consequences of the negative – net benefit is fariness

### T/L

### XT First

#### 1] Extinction is a distinct phenomena which is offense under ANY fw

Burke et al 16 Associate Professor of International and Political Studies @ UNSW, Australia, 2016 (Anthony, Stefanie Fishel is Assistant Professor, Department of Gender and Race Studies at the University of Alabama, Audra Mitchell is CIGI Chair in Global Governance and Ethics at the Balsillie School of International Affairs, Simon Dalby is CIGI Chair in the Political Economy of Climate Change at the Balsillie School of International Affairs, and, Daniel J. Levine is Assistant Professor of Political Science at the University of Alabama, “Planet Politics: Manifesto from the End of IR,” Millennium: Journal of International Studies 1–25)

8. Global ethics must respond to mass extinction. In late 2014, the Worldwide Fund for Nature reported a startling statistic: according to their global study, 52% of species had gone extinct between 1970 and 2010.60 This is not news: for three decades, conservation biologists have been warning of a ‘sixth mass extinction’, which, by definition, could eliminate more than three quarters of currently existing life forms in just a few centuries.61 In other words, it could threaten the practical possibility of the survival of earthly life. Mass extinction is not simply extinction (or death) writ large: **it is a qualitatively different phenomena that demands its own ethical categories.** It cannot be grasped by aggregating species extinctions, let alone the deaths of individual organisms. Not only does it erase diverse, irreplaceable life forms, their **unique histories** and **open-ended possibilities**, but it **threatens the ontological conditions of Earthly life**.

IR is one of few disciplines that is explicitly devoted to the pursuit of survival, yet it has almost nothing to say in the face of a possible mass extinction event.62 It utterly lacks the conceptual and ethical frameworks necessary to foster diverse, meaningful responses to this phenomenon. As mentioned above, Cold-War era concepts such as ‘nuclear winter’ and ‘omnicide’ gesture towards harms massive in their scale and moral horror. However, they are asymptotic: they imagine nightmares of a severely denuded planet, yet they do not contemplate the **comprehensive negation** that a mass extinction event entails. In contemporary IR discourses, where it appears at all, extinction is treated as a problem of scientific management and biopolitical control aimed at securing existing human lifestyles.63 Once again, this approach fails to recognise the reality of extinction, which is a **matter of being and nonbeing**, not one of life and death processes.

Confronting the enormity of a possible mass extinction event requires a total overhaul of human perceptions of what is at stake in the disruption of the conditions of Earthly life. The question of what is ‘lost’ in extinction has, since the inception of the concept of ‘conservation’, been addressed in terms of financial cost and economic liabilities.64 Beyond reducing life to forms to capital, currencies and financial instruments, the dominant neoliberal political economy of conservation imposes a homogenising, Western secular worldview on a planetary phenomenon. Yet the **enormity, complexity, and scale** of mass extinction is so huge that humans need to **draw on every possible resource in order to find ways of responding**. This means that they need to mobilise multiple worldviews and lifeways – including those emerging from indigenous and marginalised cosmologies. Above all, it is crucial and urgent to realise that extinction is a **matter of global ethics**. It is not simply an issue of management or security, or even of particular visions of the good life. Instead, it is about staking a claim as to the goodness of life itself. If it does not fit within the existing parameters of global ethics, then it is these boundaries that need to change.

9. An Earth-worldly politics. Humans are worldly – that is, we are fundamentally worldforming and embedded in multiple worlds that traverse the Earth. However, the Earth is not ‘our’ world, as the grand theories of IR, and some accounts of the Anthropocene have it – an object and possession to be appropriated, circumnavigated, instrumentalised and englobed.65 Rather, it is a complex of worlds that we share, co-constitute, create, destroy and inhabit with countless other life forms and beings.

The formation of the Anthropocene reflects a particular type of worlding, one in which the Earth is treated as raw material for the creation of a world tailored to human needs. Heidegger famously framed ‘earth’ and ‘world’ as two countervailing, conflicting forces that constrain and shape one another. We contend that existing political, economic and social conditions have pushed human worlding so far to one extreme that it has become almost entirely detached from the conditions of the Earth. Planet Politics calls, instead, for a mode of worlding that is responsive to, and grounded in, the Earth. One of these ways of being Earth-worldly is to embrace the condition of being entangled. We can interpret this term in the way that Heidegger66 did, as the condition of being mired in everyday human concerns, worries, and anxiety, to prolong existence. But, in contrast, we can and should reframe it as authors like Karen Barad67 and Donna Haraway68 have done. To them and many others, ‘entanglement’ is a radical, indeed fundamental condition of being-with, or, as Jean-Luc Nancy puts it, ‘being singular plural’.69 This means that no being is truly autonomous or separate, whether at the scale of international politics or of quantum physics. World itself is singular plural: what humans tend to refer to as ‘the’ world is actually a multiplicity of worlds at various scales that intersect, overlap, conflict, emerge as they surge across the Earth. World emerges from the poetics of existence, the collision of energy and matter, the tumult of agencies, the fusion and diffusion of bonds.

Worlds erupt from, and consist in, the intersection of **diverse forms of being** – material and intangible, organic and inorganic, ‘living’ and ‘nonliving’. Because of the tumultuousness of the Earth with which they are entangled, ‘**worlds’ are not static, rigid or permanent. They are permeable and fluid**. They can be **created**, **modified** – and, of course, destroyed. Concepts of violence, harm and (in)security that focus only on humans ignore at their peril the destruction and severance of worlds,70 **which undermines the conditions of plurality that enables life on Earth to thrive.**

#### 2] Magnitude/future generations – turns any of their harm impacts since the impact of global death would also affect any future generations

#### 3] Pre-req – in order to engage in counter-operations or to invest in a structure that hurts cap we need to be alive

#### 4] Moral uncertainty – we can’t be sure that racial cap constrains all forms of violence nor that util does but extinction would kills us all anyways