# Debris tourism

## util

#### [Standard] The standard is maximizing expected wellbeing. Prefer:

#### 1] Theory first –

#### A] Ground – both debaters have ground underneath util because every action has a consequence that can be weighed fairly using different metrics under the framing – other frameworks flow exclusively to one side.

#### 2] Actor specificity:

#### A] Aggregation – governments only have access to averages and aggregates which are the basis of justification for their policies

#### B] No intent-foresight distinction – If we foresee a consequence, then it becomes part of our deliberation which makes it intrinsic to our action since we intend it to happen

#### Util is intrinsic to us we can’t avoid that maximizing well being is the most moral action.

**Nagel 86:**Thomas Nagel, The View From Nowhere, HUP, 1986: 156-168.

I shall defend the unsurprising claim that sensory pleasure is good and pain bad, no matter whose they are. The point of the exercise is to see how the pressures of objectification operate in a simple case. Physical pleasure and pain do not usually depend on activities or desires which themselves raise questions of justification and value. They are just sensory experiences in relation to which we are fairly passive, but toward which we feel involuntary desire or aversion. Almost [E]veryone takes the avoidance of his {their} own pain and the promotion of his own pleasure as subjective reasons for action in a fairly simple way; they are not back[ed] up by any further reasons.

#### 3] Reducing existential risks is the top priority in any coherent moral theory

**Pummer 15**

(Theron, Philosophy @St. Andrews <http://blog.practicalethics.ox.ac.uk/2015/05/moral-agreement-on-saving-the-world/>)

There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now, **whatever** general **moral view we adopt**: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous **catastrophe**, such as a nuclear war. How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try **to save the world.** According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here. If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. There are so many possible future people that reducing existential risk is arguably the most important thing in the world, even if the well-being of these possible people were given only 0.001% as much weight as that of existing people. Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), **it is irrelevant to non-consequentialists**. **But that is a huge mistake**. Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; **it is not the view that the latter don’t matter**. Even John **Rawls wrote, “All ethical doctrines worth our attention take consequences into account** in judging rightness. One which did not would simply be irrational, crazy.” **Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good, from an impartial point of view**. They’d thus imply **very strong reasons** to reduce existential risk, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk. It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being. To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk. Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that **most of what makes our lives go well would be undermined if there were no future generations** of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. **We should also take into account moral uncertainty.** What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts? I’ve just argued that there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree. But even those (hedonistic egoists) **who disagree should have a significant level of confidence that they are mistaken,** and that one of the above views is correct. Even if they were 90% sure that their view is the correct one (and 10% sure that one of these other ones is correct), **they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk**. Perhaps most disturbingly still, even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, **reducing existential risk is the most important thing in the world**. Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. It is enough for my claim that there is moral agreement in the relevant sense if, at least given certain empirical claims about what future lives would most likely be like, all minimally plausible moral views would converge on the conclusion that we should try to save the world. While there are some non-crazy views that place significantly greater moral weight on avoiding suffering than on promoting happiness, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless seem to be fairly implausible views. And even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve. Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast. We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period. Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.” (From chapter 36 of On What Matters)

#### 4] Util is a lexical pre-requisite to any other framework: Threats to bodily security and  life preclude the ability for moral actors to effectively utilize and act upon other moral  theories since they are in a constant state of crisis – that inhibits the ideal moral  conditions which other theories presuppose.

## africa da

#### Russia is challenging US dominance in Africa

**Smith 9-13**-2021 [Elliot Smith, September 13, 2021, CNBC, “Russia is building its military influence in Africa, challenging U.S. and French dominance” <https://www.cnbc.com/2021/09/13/russia-is-building-military-influence-in-africa-challenging-us-france.html>] //neth

In the past two months alone, Russia has signed military cooperation agreements with Nigeria and Ethiopia, Africa’s two most populous nations. The Stockholm International Peace Research Institute estimates that Africa accounted for 18% of Russian arms exports between 2016 and 2020. Russian mercenaries have also provided direct assistance to governments in Libya and the Central African Republic, according to the U.N. However, the Kremlin has denied links to the Wagner Group, a paramilitary organization alleged by the U.N. to be aiding human rights abuses in the region. “A group of Russian instructors was sent to the CAR at the request of its leaders and with the knowledge of the UN Security Council Sanctions Committee on the CAR established by Resolution 2127,” a Russian foreign ministry statement said in July. “Indicatively, none of them has taken part in combat operations.” Reuters reported in July that U.S. lawmakers had stalled a planned $1 billion weapons sale to Nigeria over allegations of human rights abuses by the government. Less than a month later, Russia signed a deal with President Muhammadu Buhari’s administration to supply military equipment, training and technology to Nigerian forces. Although historically a key diplomatic and trade partner of the U.S., Buhari’s government found itself at odds with Washington amid the #EndSARS protests in 2020, and again after a recent fallout with Twitter. Meanwhile, Islamist militant groups such as Boko Haram and the Islamic State’s West Africa Province have cotinued to wreak havoc in the northeast of the country. This confluence of factors paving the way for Russian influence-building was also at play in Ethiopia. Russia has provided support for Prime Minister Abiy Ahmed’s government after Western governments balked at his forces’ military response to an insurgency in northern Tigray. Ethiopia felt the U.S. in particular was aligning with Egypt in the ongoing dispute over the Grand Ethiopian Renaissance Dam. U.S. Secretary of State Antony Blinken further evoked the ire of Addis Ababa in March by accusing forces in Tigray of “ethnic cleansing.” Russian Foreign Minister Sergey Lavrov then met with Ethiopian counterpart Demeke Mekonnen in June. Moscow proceeded with the deployment of election observers to Ethiopia, whereas the EU withdrew its observers, citing “ongoing violence across the country, human rights violations and political tensions, harassment of media workers and detained opposition members.” Russia has supplied strategic weapons both as a potential defense against any Egyptian strike on the GERD and to aid government forces in Tigray. “Gains by the Tigray Defence Force (TDF), which has captured parts of the Afar and Amhara regions in recent weeks, make the provision of desperately needed weapons all the more important for Addis Ababa, and Moscow is likely to oblige to such a request, possibly on a buy-now-pay-later basis,” said Louw Nel, senior political analyst at NKC African Economics. In what Nel flagged as a “sign of things to come,” Ethiopia and Russia signed a military cooperation agreement in July, focused specifically on knowledge and technology transfers. However, Nel noted that Ethiopia will be “wary of allowing Russian personnel to be deployed there in anything other than a training capacity.” Russia’s foreign ministry was not immediately available for comment when contacted by CNBC.

#### US private economic involvement in the African space race results in hard power advantages against Russia – the aff gets rid of this possibility

**Devermont & Oniosun 2020** [Judd Devermont and Temidayo Oniosun, June 23, 2020, War On The Rocks, “IS THE UNITED STATES LOSING THE AFRICAN SPACE RACE?,” <https://warontherocks.com/2020/06/is-the-united-states-losing-the-african-space-race/>] //neth

Advancing American economic and development goals in Africa will translate into influence in harder national security spheres. Africa’s space industry is projected to grow to over $10 billion in the next five years, according to Space in Africa’s African Space Industry Annual Report. This is a significant opportunity for the United States to expand bilateral trade with African countries, which rested at a mere $40 billion in 2018. U.S. companies are well-positioned to sell space equipment and services to African governments. Specifically, the U.S. private sector could build new satellites, sell ground station equipment, provide capacity training, and offer launch services. These investments in the region’s space sector could support America’s goal of substantially increasing two-way trade. The nascent space industry in several African countries also furthers USAID’s efforts to foster self-reliance, boosting growth and employment in sectors such as telecommunications, navigation, and Earth observation. These systems and services help to address major societal challenges including imperfect markets, climate change, scarce resources, health systems, and an aging population. For example, about 61 percent of Africans do not have access to the internet, a problem communications satellites could address. The entire satellite value chain has important implications for U.S. political influence in Africa. The technology transfer process, access to technologies and data, and support for development have the potential to increase U.S. political influence and to deepen national security ties between the United States and African partners. The United States has historically used space diplomacy in Africa to display U.S. commitment. These ties have the potential to translate into African support for U.S. positions on data-sharing, safety coordination, and other international space norms. Currently, Burkina Faso is a vice-chair of the U.N. General Assembly’s First Committee, which oversees disarmament issues in space; Cameroon is vice-chair on the Fourth Committee, which moderates international cooperation in space; and South Africa is chair of the Scientific and Technical Subcommittee of the ad hoc U.N. Committee on the Peaceful Uses of Outer Space. African support, for example, could add momentum to the U.S. government’s new legal framework, known as the Artemis Accords, to govern the behavior of countries and companies in space and on the moon. NASA administrator Jim Bridenstine recently underscored the importance of these norms, pointing out that debris from a spent Chinese rocket stage landed in Cote d’Ivoire. It also may blunt Chinese and Russian efforts, via state-owned companies, to strengthen their geopolitical influence and surveillance capacity in the region. According to the Defense Intelligence Agency, China uses its commercial sales “to bolster relationships with countries around the world” and “lead the space community.” China established an 18-meter diameter dish in Swakopmund, Namibia in 2001, which some analysts worry could be used to advance the People Liberation Army’s (PLA) cyber, space, and networking objectives. China’s Great Wall Industry Corporation notched its first foreign sale to Nigeria in 2007, delivering the total package: satellite manufacture, launch service, ground station construction, project implementation, financing, insurance, and training. The Russians launched Angola’s first satellite and will do the same for its replacement later this year. Russia claims it is currently negotiating with unnamed African countries to deploy Global Navigation Satellite System (GLONASS) ground stations across the region. China funded Ethiopia’s first satellite and trained its engineers. It also launched Sudan’s first-ever satellite, which will conduct Earth observation research for military and civilian purposes. If the United States is not engaged, it has a limited ability to counter and mitigate the risks posed by adversaries in this sector. The Big Picture The United States has an opportunity to join the African space race, establishing itself as a major partner in the region’s rapidly expanding space programs. Doing so would advance American economic, diplomatic, and national security interests by increasing U.S. trade and investment, deepening ties with influential African governments, and staking a U.S. claim in a sector where China and Russia are increasingly dominant. Washington should build on some of NASA’s recent engagements, including an agreement last year with South African National Space Agency (SANSA) to conduct technical and environmental research on the potential to establish a ground station in South Africa. The U.S. government ought to promote the space sector as a key focus area for the Trump Administration’s Prosper Africa initiative, showcasing SpaceX’s role in launching satellites in Ghana, Kenya, Nigeria, and South Africa. Specifically, Washington should consider providing financial incentives and credits to enable its private sector to compete with state-backed Chinese and Russian firms. Finally, the United States should work with African officials to develop common understandings and positions in international forums to develop norms for outer space, ensuring an even playing field for foreign companies and addressing potential threats to sovereignty. It is in the U.S. interest to be part of this success story — it just has to make the leap.

#### Russia & China will use weaknesses in US hard power as opportunities to strike

**Michta 12-14**-2021 [Andrew A. Michta, December 14 2021, “Russia and China’s Dangerous Decline,” Wall Street Journal, <https://www.wsj.com/articles/russia-and-china-dangerous-population-decline-indo-pacific-pivot-research-development-taiwan-ukraine-11639497466>]  //neth

The risk of confrontation between the U.S. and China is greater than it has been in decades, and a broader war, triggered by a Chinese action against Taiwan, is a possibility. In “Destined for War: Can America and China Escape Thucydides’s Trap?” (2017), Graham Allison likened the situation to the Peloponnesian War, which the Athenian historian thought inevitable because Sparta feared the rising power of Athens. Yet the real reason for the current tensions has less to do with the decline and rise of great powers than with threat perceptions, balance-of-power estimates, autonomous assessments and internal decisions that have been driving China—and Russia—for several years now. (They have increasingly aligned in their opposition to the U.S. and the post-Cold War international order.) The rising threat of high-intensity state-on-state war is driven by the growing elite conviction in Beijing and Moscow that their power disadvantage relative to the U.S. and its allies will worsen unless they move soon, making victory increasingly unattainable. There are three principal reasons why China and Russia may want to confront the U.S. and its allies sooner rather than later, possibly within five years. First, the U.S. military will require time to restructure and refit away from counterterrorism and toward high-intensity state-on-state great-power conflict. The Army Modernization Strategy published in 2019 sets 2035 as the deadline for transforming the Army into a multidomain-capable force. From a Russian or Chinese perspective, that means each additional year will shift imbalances, which currently favor them in some areas, in America’s favor. The second factor is domestic conditions in the U.S. and Europe. Western democracies are buffeted by the trifecta of Covid-19; increasingly brazen mass in-migration, to which their governments seem unable to respond effectively; and the cresting cultural revolution, especially in the U.S., which is likely to peak within the next two years. All have strained national cohesion across the West, fed distrust in government, and sowed seeds of doubt that legacy democratic institutions and processes are able to meet the basic requirements of governance and satisfy the citizenry. Once America has moved beyond its current internal 1970s-style turbulence, a reconsolidated U.S., with its key manufacturing supply chains re-shored back from China, will present Beijing and Moscow with a far more formidable foe than today. A good indicator is the recent reports that the U.S. has made a qualitative leap in hypersonic missile technology, likely to nullify the edge Russia and China had hoped to maintain through the investment in their own programs. Notwithstanding their blustery propaganda, Beijing and Moscow are keenly aware that America’s research-and-development base can be mobilized to improve U.S. capabilities. Time is on America’s side when it comes to the quality and sophistication of its weapon systems. The third factor: internal pressures building within Chinese and Russian societies. For both countries, population trends and current projections paint a devastating picture. In 2021 China reported its first projected population decline since the famine that accompanied Mao Zedong’s “Great Leap Forward” in the late 1950s. With the official birthrate of 1.3 children per woman—far below the replacement rate of 2.1, and in part a result of the now-relaxed one-child policy—there are credible projections that China’s population will peak in 2022, and that births will continue to decline and deaths will surpass births by six million in 2025. Russia’s population is projected to decline from 146 million today to 121 million in 2050. Historically, wars have often started because of miscalculations based on unsound intelligence estimates and underestimating the enemy. In the case of U.S. strategic competition with China and Russia, the risk of war has grown not because of their rise but because of how China and Russia assess the real near-term implications of Washington’s decision to refocus its defense strategy on the fundamentals of great-power competition and conflict instead of counterterrorism and nation building. Whether war breaks out will depend on how badly Beijing and Moscow fear the global power shift in the next decade and how eager they will be to exploit their perceived current relative advantages to remake the world.

#### US-Russia nuclear war causes nuclear winter, blocks out sunlight, kills life on earth

**Monzon 2019** [Inigo Monzon, August 20, 2019, “US, Russia Nuclear War Would Cause 'Nuclear Winter' And 'Human Extinction,' Study Reveals,” International Business Times, <https://www.ibtimes.com/us-russia-nuclear-war-would-cause-nuclear-winter-human-extinction-study-reveals-2815921>]  //neth

A new study has confirmed that the world will be plunged into a nuclear winter following a nuclear war between the U.S. and Russia. According to the study, the war between these two superpowers would trigger a global environmental event that can last for several years. The new study was conducted by a team of researchers from the University of Colorado, Rutgers University and the National Center for Atmospheric Research. It was published in the Journal of Geophysical Research: Atmospheres. For the study, the researchers created a model depicting what would happen to Earth if the U.S. and Russia engaged in an all-out nuclear war. As part of the simulation, the researchers observed what would happen if a large number of nuclear bombs were detonated in urban areas near the U.S. and Russia. In the simulation, the two countries used all of their nuclear weapons. According to the findings of their model, dubbed as the Community Earth System Model – Whole Atmosphere Community Climate Model version 4, the explosions from the nuclear bomb detonations would create a massive amount of smoke that would cover up the Earth’s atmosphere. The smoke, which scientists predict would linger for years, will block out sunlight, leading to a significant drop in Earth’s temperature. According to the scientists, the winter-like season that will be caused by the nuclear war will last for a long time. It will also trigger other environmental events such as changes to the monsoon and El Niño seasons. The scientists noted that the results of their study agree with the findings of a previous research published in 2007. The similarity between these two studies clearly indicates the inevitability of a nuclear winter following a massive nuclear war. “Despite having different features and capabilities, both models produce similar results,” the scientists stated in the study’s abstract. “Nuclear winter, with below-freezing temperatures over much of the Northern Hemisphere during summer, occurs because of a reduction of surface solar radiation due to smoke lofted into the stratosphere.

#### Space growth that excludes Africa widens wealth and achievement gaps

**Asiyanbola et al 2019** [Oyedamola A. Asiyanbola, Morayo A. Ogunsina, Abraham T. Akinwale, and John B. Odey, Asiyanbola is a Graduate Research Assistant at Skolkovo Institute of Science and Technology, “Toward African Space Autonomy: Developmental Framework and Incorporated Synergies,” March 12, 2021, <https://www.liebertpub.com/doi/10.1089/space.2020.0039> & <https://doi.org/10.1089/space.2020.0039>] //neth

Toward Space Exploration and Space Driving Initiative As spacefaring nations continue to develop their space industries, with combined efforts of the public and private entities, their level of competitive advantage improves by leaving the African countries far behind with regards to economic growth and technology capacity driven by innovation.6,15,16 Spacefaring nations have pushed their prowess (Competitive Advantage) through continued space research.15,17 It can be said that proceeds from space R&D fostered innovation in every other aspect of science and technological fields, especially in the security, satellites, and telecommunication sectors. African nations need to rethink what truly defines their aim in the growing globally competitive economic market. Based on Michael Porter's stages of competitive advantage, many African countries can be categorized into the factor-driven and investment-driven stages, for example, they are mainly providers of raw materials to other growing economies.15,17 To this end, we have proposed a sequence of developmental phases seen in Figure 4, which will serve as the action plan toward this agenda. Phase 1, the first foundational step, would be a political synergy among African state actors. What we propose is a political synergy within African countries, which are potential African space actors that have ratified some or all the Outer space treaties.1,6,15,18 Phase 2 would require an introspective approach to gather statistics on resources available and support for the division of research focus and personnel training of ASA. Such research methodology currently proposed is like the infamous concept of “the division of labor” in the macroeconomics term. It would be the prelude to Phase 3, where each country accepts the challenge of specialization to gain competence in some space capability, not limited to launching, satellite manufacturing, and remote sensing. Phase 4 gives an outlook on what the long-term objective of the ASA would be—a culmination of cooperative and strategic efforts taken to build competency in space autonomy in Africa. The ASA is expected to lead the implementation phase of the 2063 strategy for African Countries to climb the Space Technology Ladder with a view of responsible innovation and sheer political will. The acquired technological know-how (space technological capability) in the African space actor and their agencies of specialized mastery in one or more space industry segments will aid the effectuating our developmental framework objectives. The ASA will truly be a Global Space Actor if the required of strategy implementation is the sole focus in the plan for the African Space Agenda 2063: “Africa we want.”7

## collaboration cp

#### CP text: we advocate for public-private partnerships in space in line with the ISS model or a sponsored program model

**ISS National Lab** [International Space Station National Laboratory – Center for the Advancement of Science in Space, “Research on the ISS, No Date, <https://www.issnationallab.org/research-on-the-iss/public-private-partnerships-in-space/>] //neth

Public-private partnerships are a key component to driving innovation and national leadership. With the potential to address a wide array of modern challenges from technology development to infrastructure modernization, and from education to the economic development of space, public-private partnerships unlock new possibilities unavailable when we rely solely on public or private investment. The International Space Station (ISS) National laboratory is a great example of a public-private partnership model that is working in space. The ISS National Lab opens up the incredible possibilities of the space station research environment to a diverse range of researchers, entrepreneurs, and innovators that could create entirely new markets in space. The ISS National Laboratory – Accelerating Utilization of the ISS The ISS offers a unique research and development platform, unlike any on Earth, enabling research that benefits both exploration and life on Earth. In an effort to expand the research opportunities this unparalleled platform provides to the nation, the ISS United States Orbital Segment, through bipartisan legislation, was designated as a U.S. National Laboratory in 2005, enabling research and development access to a broad range of commercial, academic, and government users. After final assembly of the ISS in 2011, the Center for the Advancement of Science in Space, a (501)(c)(3) organization, was selected by NASA to manage the ISS U.S. National Laboratory. The ISS National Lab fulfills its mission to accelerate space-based research by engaging a variety of nontraditional space users, operating in the fields of life science, physical science, technology development, and remote sensing. The ISS National Lab engages primarily with organizations that pay toward the value obtained on the ISS, as well as with other organizations addressing national science and research priorities. This research serves commercial and entrepreneurial needs and other important goals such as the pursuit of new knowledge and education. Since 2011, the ISS National Lab has stewarded more than 200 ISS research projects, ranging from developing new drug therapies, to monitoring tropical cyclones, to improving equipment for first-responders, to producing unique fiber-optics materials in space. Working together with NASA, the ISS National Lab aims to advance the nation’s leadership in commercial space, pursue groundbreaking science not possible on Earth, and leverage the space station to inspire the next generation. Prior to the ISS National Lab model, NASA traditionally funded all aspects of ISS research, whether it was research needed to further exploration, or discovery-based space research that expanded upon its scientific agenda. As the ISS evolved into a National Laboratory, the ISS National Lab has increased the diversity of users by accelerating utilization of the ISS as an innovation platform for a wide variety of partners. These include Fortune 500 organizations, small businesses, educational institutions, philanthropic and research foundations, federal and state government agencies, and other thought leaders in pursuit of groundbreaking technology and innovation who are interested in leveraging microgravity to solve complex research problems on Earth. The ISS National Lab plays a role in not only attracting a diverse set of users, including private companies, to utilize the ISS, but also in engaging the private sector through various research and cost-sharing arrangements. Sponsored Programs – Accelerating Third-Party Funding for Space Research The ISS National Lab has developed a successful Sponsored Program model that attracts third-party funding from private industry and other government agencies to solve big problems or address target challenges. These programs translate into projects on the ISS National Lab. The Sponsored Program model enables an organization to ask new questions and explore key variables, using the ISS National Lab environment as a tool in their innovation portfolio. In return, the organization creates opportunities for targeted research and development projects and STEM education projects or fosters novel ideas of startup companies. Fortune 500 companies, government agencies, and regional incubators have successfully used the ISS National Lab Sponsored Program model. This unique research and development model is flexible to meet the needs and budget of a partnering organization. Successful Sponsored Programs include Boeing Mass Challenge, Massachusetts Life Sciences Center, National Science Foundation (NSF) fluid dynamics and combustion Sponsored Program, and the National Institutes of Health (NIH) National Center for Advancing Translational Sciences (NCATS) organ-on-chip technologies Sponsored Program, totaling more than $20 million in third-party funding over the last two years. Additional Sponsored Programs totaling close to $5 million in 2017 with Fortune 500 organizations are imminent and will target major challenges to humankind as well as STEM education initiatives.

#### Private organizations already have debris tracking technology – partnership would be the safest and most efficient

**Moore & van Burken 2021** [Adrian Moore, Vice President of Policy, and Rebecca van Burken, Policy Analyst, “As Commercial Space Travel Becomes Reality, Debris and Space Traffic Management Becomes More Important,” Reason Foundation, August 5, 2021, <https://reason.org/commentary/as-commerical-space-travel-becomes-reality-debris-and-space-traffic-management-becomes-more-important/>] //neth

With Richard Branson and Jeff Bezos soaring into suborbital space, three U.S. flights to the International Space Station (ISS) in July, and SpaceX delivering 88 satellites to orbit in the last six weeks, space traffic is surging. And this is just the beginning of increased commercial and governmental activity in space. August will see several more trips to the ISS and more launches of satellites. Additionally, the Biden administration signed an agreement with the European Space Agency to use more satellites to address climate change through earth science research. This increased space traffic serves a wide array of purposes and represents vast investments by the private space industry and government. But these investments are going to increasingly be jeopardized by the massive amount of space junk already circling Earth. There’s plenty of room to fly up there, but, believe it or not, NASA estimates there are already 23,000 pieces of debris larger than 10 centimeters and over 500,000 pieces of smaller junk in orbit. This space junk, or orbital debris, travels at high speeds and even a small piece can cause serious damage or destruction if it hits a spacecraft or satellite. The space debris includes thousands of dead and retired satellites, parts of spacecraft from decades of missions, items exploded in warfare testing, and more. Dodging space junk is a regular requirement for spacecraft in orbit. The International Space Station had to maneuver 25 times between 1999 and 2018 to avoid collisions, and it had to dodge debris three times in 2020. Monitoring this debris is going to be a major issue as private space travel and the space economy grow. In 2019, the global space economy amounted to about $366 billion. Of this, $271 billion was in the satellite industry and $123 billion was directly in satellite services. As the world increasingly becoming reliant on satellites U.S. and global satellite businesses bear the brunt of the failure to track and remove orbital debris. As Sen. John Hickenlooper (D-Colo.), chair of the Senate Commerce Committee’s Subcommittee on Science and Space, said recently, we need to be proactive on space debris “rather than learning by a terrible accident … but we don’t quite have the sense of urgency we need.” Urgency means committing to better space traffic management, and tracking and removing orbital debris. Orbital debris management is not well organized within the government. Right now, the Department of Defense (DOD) does most tracking of space debris for the U.S. out of the need to protect military satellites and national security interests. NASA has its own less advanced systems for tracking debris. However, orbital debris management is not just about tracking debris anymore. It is also about forming collision warning systems and safely managing traffic in space. To do this efficiently, we need a civil repository for all orbital debris components, something that many commercial space companies have already created on their own to stay aware of orbital debris and help protect their satellites in space. Tracking debris may be a national security priority, but providing space traffic control is not really in the Defense Department’s mission. We should be utilizing the private sector’s expertise and advancements in this area. For example, Astroscale has contracts with both the Japanese and European space agencies to develop orbital debris removal capability. And responsibility for developing collision warnings and space traffic management would be best suited for the Office of Space Commerce, an office with existing connections to the commercial space industry, NASA and DOD. Partnering with the debris tracking and removal systems private companies are developing while freeing up DOD to focus on military awareness and NASA to focus on research and development would be the most efficient way forward. If the government works with private industry through strategic public-private partnerships, the U.S. can best address the threats posed by orbital debris and create sustainable policies for safe space exploration.

#### Regulated capitalism in outer space solves the Aff's offense without ending private appropriation.

Sharma 21 (Sharma, Maanas. “The Privatized Frontier: The Ethical Implications And Role Of Private Companies In Space Exploration.” The Space Review. September 07, 2021. Web. December 11, 2021. <https://www.thespacereview.com/article/4238/1>.) SJ

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.

#### No perms

#### 1—the cp is about expanding private appropriation of outer space—so any perm is severance from the aff

#### 2—perms increase neg burden by reducing the neg’s possible offense—results in unnegatability

## Case

#### Turns suffering – mass death causes suffering because people can’t get access to resources and basic necessities

#### [1] Magnitude of the impact over structural violence, even if there’s a smaller chance that our impact occurs, we need to prioritize it in order to save the most amount of lives

#### [2] Large impacts turn structural violence – impacts like global warming disproportionately affects minorities and people in poverty.

#### [3] use our framework to solve existential threats and then work on fixing structural inequalities, net benefit is preventing existential threats that would hurt marginalized groups more

#### Cleanup satellites are in progress

**Weiner 2021** (Chloe Weiner, March 21, 2021, “New Effort To Clean Up Space Junk Reaches Orbit,” NPR – National Public Radio, <https://www.npr.org/2021/03/21/979815691/new-effort-to-clean-up-space-junk-prepares-to-launch>) //neth

A demonstration mission to test an idea to clean up space debris launched Monday morning local time from the Baikonur Cosmodrome in Kazakhstan. Known as ELSA-d, the mission will exhibit technology that could help capture space junk, the millions of pieces of orbital debris that float above Earth. The more than 8,000 metric tons of debris threaten the loss of services we rely on for Earth-bound life, including weather forecasting, telecommunications and GPS systems. The spacecraft works by attempting to attach itself to dead satellites and pushing them toward Earth to burn up in the atmosphere. ELSA-d, which stands for End-of-Life Services by Astroscale, will be carried out by a "servicer satellite" and a "client satellite" that launched together, according to Astroscale, the Japan-based company behind the mission. Using a magnetic docking technology, the servicer will release and try to "rendezvous" with the client, which will act as a mock piece of space junk. The mission, which will be run from the U.K., will carry out this catch and release process repeatedly over the course of six months. The goal is to prove the servicer satellite's ability to track down and dock with its target in varying levels of complexity. The spacecraft is not designed to capture dead satellites already in orbit, but rather future satellites that would be launched with compatible docking plates on them.

#### Drag sail tech solves and private investment is key to development & launch

**Hill 2020** (Rebecca Hill, February 24, 2020, “Passive space debris removal using drag sail deorbiting technology,” The Space Review, <https://www.thespacereview.com/article/3887/1>) //neth

There are currently about 22,000 tracked objects in LEO, some of which are smaller than one centimeter. The focus of many current plans has been on the active removal of current debris. But with a projected 57,000 new satellites expected to launch by 2029, the question becomes: how to prevent new debris? Currently, at Purdue University’s School of Aeronautics and Astronautics, David Spencer and his team are working on a passive debris removal system using drag sail deorbiting technology where these passive deorbiting systems are embedded within a spacecraft for deorbiting at the end of the spacecraft’s lifetime. Licensed by Vestigo Aerospace and funded through a Purdue University Research Foundation grant, Spencer and his team hope to launch a drag sail prototype with Texas-based Firefly Aerospace, no earlier than this April. Right now, Spencer is the project and mission of LightSail 2, a solar sail currently in orbit. According to Spencer, the drag sail would launch within a satellite or attached to launch vehicle upper stage. Once the vehicle reaches the end of its operational lifetime, the sail would deploy, using aerodynamic drag as a deorbiting force. While traditional deorbiting requires burn maneuvers, a passive deorbiting system works independently of spacecraft propulsion. Spencer believes the “sweet spot” for passive debris removal is for small satellites and launch vehicle upper stages in orbits between 500 and 900 kilometers. They can be used up to an altitude of 1,000 kilometers, but above that altitude the size of the drag sail size increases dramatically, creating a risk of collision with other debris. I”t’s a big target, so to speak,” said Spencer. Thus, his team is concentrating right now on that sweet spot for drag sails with 1U and 3U cubesats. In many ways, drag sails are like solar sails. The sail material is thin. It is packed within a satellite, and carbon fiber booms stabilize the sail. However, while solar sails use the Sun’s photons for propulsion, photons destabilize a drag sail. To work, sail orientation must be face-on to the aerodynamic flow to achieve maximum drag. In development are two types of sails. One is Spinnaker 1, a cubesat-class sail 1.8-meters square that, when looking face-on, forms a square pyramid with an open funnel. “It’s a fairly small sail and effective for deorbiting cubesat spacecraft like the 10x10x10 centimeter satellite,” said Spencer. Up to 27U cubesats can be deorbited with a sail this size, says Spencer. The sail material is a transparent, Saran Wrap-like material called CP-1, tested and rated for a ten-year life span in geosynchronous earth orbit. The translucent material allows solar photons to pass through the material rather than being deflected, like it does with a solar sail. Spencer’s team is also developing an 18-square-meter flat sail with booms three meters long, called Spinnaker 3. With this large area, Spencer says it can deorbit 400-kilogram satellites or launch vehicle upper stages from orbits as high as 600 kilometers. This sail is scheduled to launch with Firefly Aerospace no earlier than April. With the transparent sail material came several challenges. Static cling made tightly folding the sail difficult, says Spencer. That same static cling could also create a buildup of static electricity on the deployed sail, he said, resulting “in an electrical arcing that could damage sensitive electronics in drag sail avionics.” Another concern involved ensuring that the sail resisted the pull of the three-meter carbon fiber booms to avoid tearing the sail on deployment. One critical aspect with the drag sail was the structural stiffness of the carbon fiber booms. “We wanted to make sure that the booms deployed in a repeatable fashion in their rigid configuration on deployment to achieve drag sail structural stability,” said Spencer. “It’s taken us a few iterations to get there, but we’ve done enough testing to look like everything is going well.” Rip stops built within the sail will also help decrease the probability of damage in the event of a collision with space debris. “Micrometeoroids can pass through the sail material without minimal consequences and most likely would result in pinholes that wouldn’t have much impact,” said Spencer. However, larger debris could result in debris fragmentation, which is why, says Spencer, they needed to meet the 25-year deorbit guidelines and collision probability requirements. Aerodynamically, Spencer’s goal was stabilizing the drag sail design so it would trim to a maximum drag orientation. In multiple design simulations, Spencer’s team found that the sail achieved aerodynamic stability at low altitudes, below 400 kilometers. But above that, “the vehicle was basically tumbling,” he said, “which was okay because it will still provide more area and more rapid deorbit than it would without a sail.” Right now, Spencer is looking to attract developers and launch vehicle companies. But the biggest user, in Spencer’s opinion, is the megaconstellations of communications satellites for global Internet services, where each satellite in the constellation would require a drag sail unit. “Vestigo Aerospace is designing our drag sails to have standard mechanical and electrical interfaces, resulting in straightforward integration with the host vehicle,” said Spencer. “For new spacecraft that are being launched today and in the future,” said Spencer, “having the capability to deorbit at the end of the mission makes sense.” As for reentry, drag sail technology uses a one-time deployment system, initiating at the end of the vehicle’s lifetime or before. One benefit of drag sails is that the host spacecraft need not be functional. A timer stored within the avionics unit will initiate deployment and can be updated as needed by the host spacecraft operator. Though Spencer’s team will not pursue targeted reentry objectives for these first two prototypes, his team is working on the option of deploying the drag sail when the host satellite is close to reentry, at an altitude of less than 200 kilometers. “The goal is to constrain the atmospheric entry corridor so that reentry occurs over unpopulated areas, away from highly trafficked air corridors,” said Spencer. NASA developed the Exo-Brake Parachute technology on the same principle. While the utility for drag sail is clearly apparent, Spencer believes sooner or later that regulations will catch up to future space applications, requiring deorbiting systems. “For new spacecraft that are being launched today and in the future,” said Spencer, “having the capability to deorbit at the end of the mission makes sense.”

#### No guarantee space tourism ever becomes affordable enough for average people, until then it will be reserved for the rich and famous making the effects limited.

Roulette 21 (Roulette, Joey. “The Space Tourism Industry Is Stuck In Its Billionaire Phase.” The Verge. July 17, 2021. Web. December 13, 2021. <https://www.theverge.com/2021/7/17/22573791/space-tourism-industry-bezos-branson-musk-billionaire-phase>.) SJ

“There’s going to be a fairly large learning curve as companies go from the process of developing a capability and testing it, to operating it routinely,” Christensen said. It’s possible that space tourism will follow the same path as computers or airplanes, but there’s no guarantee that it will succeed. In part, that’s because there’s no single solution to driving down the cost of launching people to space. Virgin Galactic earlier this year unveiled a new version of SpaceShipTwo that’s tailored for quick production rates, signaling it’s gearing up to accommodate its hefty customer backlog and reopen ticket sales, which have been closed since a fatal 2014 accident during a test flight. (Branson’s presence on Sunday’s flight also served as a visual reassurance to customers that the ship is safe.) Musk is focusing on better rocket fuel efficiency with SpaceX’s Starship, a fully reusable launch system being developed to slash the cost of sending humans to space. But again, what exactly those next-generation prices will be remain a mystery. Musk hasn’t said how much it’ll cost prospective passengers to fly on Starship. And Virgin Galactic hasn’t said how much it plans to charge for tickets for its newer spaceplane, SpaceShipThree, just like Blue Origin, which hasn’t revealed its New Shepard prices. Currently, you either have to be talented (hand-picked by a billionaire) or lucky to book a ride on one of these rockets without paying the steep price tag. Raffling off tickets, like Virgin Galactic plans to do, and donating seats to space enthusiasts who can’t afford them keeps the public dream of normalized, low-cost space travel alive while the industry races to find the right recipe for bringing prices down. “I think that in any competitive market you’re going to see products improve and/or prices drop,” Christensen added.

#### Other policy actions solve climate – space isn’t key

**CSS 2021** (Center for Sustainable Systems, University of Michigan. 2021. "Climate Change: Policy and Mitigation Factsheet." CSS05-20. <https://css.umich.edu/factsheets/climate-change-policy-and-mitigation-factsheet>) //neth

Climate change is a global problem that requires global cooperation to address. The objective of the United Nations Framework Convention on Climate Change (UNFCCC), which virtually all nations, including the U.S., have ratified, is to stabilize greenhouse gas (GHG) concentrations at a level that will not cause “dangerous anthropogenic (human-induced) interference with the climate system.”1 Due to the persistence of some GHGs in the atmosphere, significant emissions reductions must be achieved in coming decades to meet the UNFCCC objective. In 2018, the Intergovernmental Panel on Climate Change (IPCC) published the Special Report on Global Warming of 1.5oC. The report details the impacts of a 1.5oC temperature rise and proposes mitigation strategies to remain below the 1.5oC target. It will require lowering global carbon dioxide (CO2) emissions in 2030 by 45% compared to 2010 and will require net zero emissions around 2050. Current national targets under the Paris Agreement would lead to 52–58 gigatons (Gt) CO2-equivalents (CO2e) per year by 2030 -- not enough to meet the 1.5oC target. 2018 GHG emissions were approximately 42 GtCO2 and would need to drop to between 25-30 GtCO2 per year by 2030 to remain on target.2 In 2019, U.S. GHG emissions were 6.6 GtCO2e.3 CARBON EMISSION PATHWAYS TO ACHIEVE 1.5OC TARGET2 Carbon Emission Pathways To Achieve 1.5C Target GENERAL POLICIES MARKET-BASED INSTRUMENTS Market-based approaches include carbon taxes, subsidies, and cap-and-trade programs.4 In a tradable carbon permit system, permits equal to an allowed level of emissions are distributed or auctioned. Parties with emissions below their allowance are able to sell their excess permits to other parties that have exceeded their emissions allowance.4 Market-based instruments are recognized for their potential to reduce emissions by allowing for flexibility and ingenuity in the private sector.4 REGULATORY INSTRUMENTS Regulatory approaches include non-tradable permits, technology and emissions standards, product bans, and government investment. In 2007, the U.S. Supreme Court ruled that CO2 and other GHG emissions meet the Clean Air Act’s defition of air pollutants, which are regulated by the U.S. Environmental Protection Agency (EPA).5 After several appeals, the U.S. Court of Appeals upheld the ruling in 2012.6 In the U.S., the Safer Affordable Fuel-Efficient (SAFE) vehicles rule, administered by NHTSA, was implemented in 2020.7 In comparison to the 2012 Corporate Average Fuel Economy (CAFE) standards, the SAFE rule is less demanding than CAFE and will result in 867-923 million metric tons more CO2 emissions compared to CAFE standards.7,8 In 2021, NHTSA assessed the Safe I Rule and has proposed repealing the rule in favor of establishing regulations that align with the Energy Policy and Conservation Act (EPCA).9 VOLUNTARY AGREEMENTS Voluntary agreements are generally made between a government agency and one or more private parties to “achieve environmental objectives or to improve environmental performance beyond compliance.”10 EPA partners with the public and private sectors to oversee a variety of voluntary programs aimed at reducing GHG emissions, increasing clean energy adoption, and adapting to climate change.11 THE KYOTO PROTOCOL The Kyoto Protocol came into force on February 16, 2005, and established mandatory, enforceable targets for GHG emissions. Initial emissions reductions for participating countries ranged from –8% to +10% of 1990 levels, while the overall reduction goal was 5% below the 1990 level by 2012. When the first commitment period ended in 2012, the Protocol was amended for a second commitment period; the new overall reduction goal is 18% below 1990 levels by 2020.12 THE PARIS AGREEMENT In December of 2015, all Parties of the UNFCCC reached a climate change mitigation and adaptation agreement, called The Paris Agreement, in order to keep the global temperature increase (from pre-industrial levels) below a 2oC.13 The Paris Agreement entered into force on November 4, 2016. As of July 2021, The Paris Agreement had 197 signatories, of which 191 parties (accounting for at least 55% of total global emissions) have ratified the agreement.14 GOVERNMENT ACTION IN THE U.S. FEDERAL POLICY According to the U.S. Senate, “…Congress should enact a comprehensive and effective national program of mandatory, market-based limits and incentives on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions at a rate and in a manner that will not significantly harm the United States economy and will encourage comparable action by other nations…”15 Due to the Consolidated Appropriations Act of 2008, large emitters of GHGs in the U.S. must report emissions to the EPA.16 In 2015, the proposed Clean Power Plan set a national limit for CO2 emissions from power plants. In early 2016, the plan was stayed by the Supreme Court.17 In 2019, the EPA repealed the Clean Power Plan and replaced it with the Affordable Clean Energy (ACE) Rule.17 By January 2021, the U.S. Court of Appeals vacated the ACE Rule and remanded back to the EPA.18 In 2019, a Green New Deal resolution was introduced in the U.S. House. It proposes at 10-year mobilization effort to focus on goals such as net-zero GHG emissions, economic security, infrastructure investment, clean air and water, and promoting justice and equality.19 In April 2021, President Biden held the Leaders Summit on Climate with 40 world leaders and announced the U.S. will “target reducing emissions by 50-52 percent by 2030 compared to 2005 levels.”20 STATE POLICY Climate change action plans have been enacted by 33 states and D.C.21 Twenty four states and D.C. have GHG emission reduction targets. California is targeting GHG emissions 40% below 1990 levels by 2030 and net zero CO2 emissions by 2045.22 Thirty states, D.C., and 3 U.S. territories have Renewable Portfolio Standards, which specify the percentage of electricity to be generated from renewable sources by a certain date. Five states have Clean Energy Standards, which specify the percentage of electricity to be generated from low-to-no carbon sources and can include renewables, nuclear, and advanced fossil fuel plants with carbon capture and sequestration.23 A group of governors formed the U.S. Climate Alliance, to uphold the GHG reductions outlined in the Paris Agreement. The alliance represents 57% of the U.S. population and 61% of the U.S. economy.24 STATES WITH RENEWABLE AND/OR CLEAN ENERGY STANDARDS23 States with Renewable and/or Clean Energy Standards MITIGATION STRATEGIES Stabilizing atmospheric CO2 concentrations requires changes in energy production and use. Effective mitigation cannot be achieved without individual agencies working collectively towards reduction goals.10 Stabilization wedges are one display of GHG reduction strategies; each wedge represents 1 billion tons of carbon avoided in 2054.25 Energy Savings: Many energy efficiency efforts require an initial capital investment, but the payback period is often only a few years. In 2016, the Minneapolis Clean Energy Partnership planned to retrofit 75% of Minneapolis residences for efficiency and allocated resources to buy down the cost of energy audits and provide no-interest financing for energy efficiency upgrades.26 Fuel Switching: Switching power plants and vehicles to less carbon-intensive fuels can achieve emission reductions quickly. For instance, switching from an average coal plant to a natural gas combined cycle plant can reduce CO2 emissions by approximately 50%.10 Capturing and Storing Emissions: CO2 can be captured from large point sources both pre- and post-combustion of fossil fuels. Once CO2 is separated, it can be stored underground depending on the geology of a site. Currently, CO2 is used in enhanced oil recovery (EOR), but long-term storage technologies remain expensive.27 Alternatively, existing CO2 can be removed from the atmosphere through Negative Emissions Technologies and approaches such as direct air capture and sequestration, bioenergy with carbon capture and sequestration, and land management strategies.28