**Framework**

**[Value]** I negate and value **Justice** meaning fair treatment for all in society

**[Criterion]** Since Justice entails ensuring everyone is treated fairly in a society, my criterion is **maximizing access to needs.** Maximizing access to needs entails Increasing peoples ability to reach the needs necessary to survive

**Resource DA**

**A. Link**

**[Liss]** Earth won't be resource sufficient for the growing population. Aff supported subdivision philosophy will be for the worse

**Liss:** Liss, Jeffery. Vice chair of ISDCs Toronto. “Why We DO -- And Must -- Go Into Space” *NSS* 2022.

**We can’t keep subdividing Earth’s resource pie**; we need to make the pie bigger. It is **the promise of resources from the Moon, Mars, asteroids and the Sun** that **make**s **space** such a hope for **our future. World population is likely to double within 40 years and re-double shortly after that; world resources will not.** In space, solar power is infinite (reducing the need to use forests and oil and coal merely for fuel, and eliminating the pollution they cause), as are asteroid metals. **These unlimited resources would enable us to reduce the plundering of our planet.** But **to obtain these resources will require large structures in space and the rockets to get there**. Learning how to build those things to obtain such space resources is a long step-by-step process. **If we want** to have those **resources before it is too late, we have to start now.**--------The ultimate purpose of going into space is to live and work there — just as the ultimate purpose of exploring the New World was colonization — **and not merely to sit back on Earth and cogitate about what automated spacecraft report back.** We do not send our cameras to the Grand Canyon; **we go ourselves**. We sent Lewis and Clark not just to describe the American West, but to learn where and how people could live there. **America grew by sending out seeds in different places and then filling the spaces with trade and industry** and new ideas. **People have always found ways to prosper from their environments, however harsh, and we will do so in space as well**. We cannot begin to live and work in space without first going there. And, **it is human destiny to escape the cradle of our planet of birth.**

**B. Internal Links**

**[Guillebaud]** The Aff decimates what we have left on the planet

**Guillebaud:** Guillebaud, John. Professor at University College London. “There are not enough resources to support the world’s population” *ABC* 2014

None of us in those days was worried specifically about climate change. As we’ve just been reminded by the Intergovernmental Panel on Climate Change, that environmental problem is terrifying enough, especially given the risk of runaway positive feedbacks, caused, for example, by methane release from permafrost. Even so, that is far from being the only life-threatening global problem. The UK government’s chief scientist and the last president of the Royal Society have highlighted the imminence of a ‘perfect storm’: water, food and fossil fuel scarcity. Reliable reports on the planet's health such as **The United Nations'** Global Environment Outlook**have found water, land, plants, animals and fish stocks are all 'in inexorable decline'.** Already by 2002 it was calculated that 97 per cent of all vertebrate flesh on land was human flesh plus that of our food animals (cows, pigs, sheep etc), leaving just three per cent for all wild vertebrate species on land. **Not to mention the obliteration of wild life in the oceans through acidification, pollution and massive over-fishing.** Regarding human numbers there is some good news: the total fertility rate or average family size of the world has halved since 1950, when it was over five, to about 2.5 (where 2.1 would be replacement level). The bad news is that despite this, the 58 highest fertility countries are projected to triple their numbers by 2100. In a majority of all countries there is also persistent population momentumcreated by 'bulges' of young people born in high fertility years. Therefore, **the UN warns bluntly that world population, now well over seven billion 'has reached a stage where the amount of resources needed to sustain it exceeds what is available'.** The annual population increase of over 80 million equates to a city for 1.5 million people having to be built, somewhere, every week—with, inevitably, **ever more greenhouse gas emissions and the continuing destruction of forests and wetlands**, with their multiple habitats for the web of life on which all species depend.

**[Barnatt 1]** Affirming leaves us with no options to fix resource scarcity

**Barnatt:** Barnatt, Christopher. Nottingham University Business School. “Resources From Space” *ExplainingTheFuture* 2021

**The resource requirements of the human race continue to escalate, with the United Nations anticipating a three-fold increase in resource usage between 2010 and 2050.** In response, over the past few decades **there has been an increasing focus on 'sustainability' initiatives like recycling and transitioning to alternative energy sources. However, all such measures to consume less can at best only constitute a short-term solution to the resource requirements of future generations**. In the long-term, **we will therefore need to move Beyond** Sustainability to both consume less and find more. **As the resource supplies of the Earth continue to dwindle, the only place we can find fresh supplies of both energy and raw materials is out in space. This could involve the mining of the asteroids and the Moon.** But, before that occurs, our most likely option for obtaining exterrestrial resources is space-based solar power.

**[Barnatt 2]** Affirming sentences us to earth, we need to go into space, it's our destiny

**Barnatt:** Barnatt, Christopher. Nottingham University Business School. “Resources From Space” *ExplainingTheFuture* 2021

All of our endeavours to harvest off-world resources are going to be complex, risky and expensive. And yet, **if we don't** at least **try to obtain resources from space, we face an inevitable future of increasing scarcity, mass depopulation, and relentless decline.** As we pursue the new industrial frontiers of space-based solar power, asteroid mining, and mining the moon, we may perhaps additionally bolster the human spirit by creating a thriving space tourism industry, and just possibly by landing the first human being on Mars. Unless we become extinct first, **the destiny of human civilization has to be to evolve into space.** The ideas outlined on this page, and in my accompanying "Resources from Space" videos, may therefore be just the beginning . . .

**C. Impact**

**[Maxwell]** Resource scarcity leads to conflicts and collapse of underdeveloped nations

**Maxwell:** Maxwell, John. Indiana University. “Resource Scarcity and Conflict in Underdeveloped countries” *Sage Journals* 2000

**As** time passes, **renewable resource scarcities are becoming more common**. There is increasing evidence that **these scarcities are a causal factor in political conflict, especially in developing countries.** We present a simple dynamic model of renewable resource and population interaction featuring the possibility of conflict triggered by per capita resource scarcity. In the model, **conflict diverts resources away from resource harvesting, increases the death rate, and damages the resource.** The two former effects may speed the return to a peaceful steady state. **If conflict results in resource destruction, however, it may destabilize the system, leading it towards collapse. Conflict due to renewable resource scarcity could be cyclical,** implying **recurring phases of conflict.** However, such conflict cannot last for ever. We use the model to examine various policy scenarios concerning population control and technical innovations in harvesting and natural resource growth. A key insight of the model is the importance of the bidirectional interplay between conflict and resource scarcity, as opposed to the unidirectional notion that resource scarcity leads to conflict. As such, the model points to the need for the use of simultaneous equation econometric models in empirical investigations of resource scarcity and conflict.

**Satellite DA**

**A. Uniqueness**

**[Williams]** Satellites are essential for earth in the status quo, and private entities supply them. We need private entities to increase the production of these important satellites

**Williams:** Williams, Matthew, Space writer HeroX “Is it worth it? The cost and benefits of space exploration” *Interesting Engineering* 2019

**The** most obvious **benefit of** the **Space** Age **was the way it advanced humanity**'s knowledge of space. **By putting satellites and** crewed **spacecraft into orbit, scientists learned a great deal about Earth**'s atmosphere, Earth's ecosystems, **and led to the development of** Global Position Satellite (**GPS)** **navigation**. The deployment of satellites also **led to a revolution in communications technology**. Ever since *Sputnik 1* was launched to orbit in 1957, about **8,100 satellites have been deployed** byforty countries **for** the purposes of **telecommunications, television, radio broadcasting, navigation, and military operations.** As of 2019, the United Nations Office for Outer Space Affairs (UNOOSA) estimated that were [5,074 satellites](http://www.unoosa.org/oosa/osoindex/search-ng.jspx?lf_id=#?c=%7B%22filters%22:%5B%7B%22fieldName%22:%22en%23object.status.inOrbit_s1%22,%22value%22:%22Yes%22%7D%5D,%22sortings%22:%5B%7B%22fieldName%22:%22object.launch.dateOfLaunch_s1%22,%22dir%22:%22desc%22%7D%5D%7D) in orbit of Earth. And **in the coming years, thousands more are expected as part of the growing telecom and satellite internet markets.** In the latter case, these **satellites will be essential to meeting** the growing **demands** for wireless services **in the developing world.** Between [2005 and 2017](http://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx), the number of people worldwide who had internet access went from 1 billion to over 3.5 billion - 16% to 48% of the population. Even more impressive, the number of people in developed nations to have internet access went from 8% to over 41%. **By the latter half of this century, internet access is expected to become universal.**

**B. Link**

**CLARIFICATION:** The Use of the word commercial is meant to signify a private/ non government affiliated group

**[Swords et al]** Banning private satellites brings innovation back to square one

**Swords:** Swords, Dan. Product Manager and Public manager of Intelsat. “We Can't Go Back To Life Without Satellites” *Intelsat* https://www.intelsat.com/resources/blog/we-cant-go-back-to-life-without-satellites/ 2016 JG

Appearing on the CBS newsmagazine “60 Minutes,” just over a year ago, Gen. John Hyten, who heads U.S. Air Force Space Command, warned that “**without satellites, you go back to World War II. You go back to** Industrial Era **warfare**.” In the April edition of Aerospace America, Maryland research scholar Theresa Hitchens wrote that because **civilians and the military are so dependent on commercial satellite capability**, “**attacks on those spacecraft could cripple the economy**.” In a June 6 [commentary in Space News magazine](http://spacenews.com/commentary-a-day-without-space/), David Logsdon, executive director of the CompTIA Space Enterprise Council, made **the consequences of losing satellites** more personal: “**No Internet. No smartphone. No weather forecasts** in the palm of your hand. Nightmarish flight delays thanks to a hobbled air traffic management system. **A military that is literally fighting blind: no satellite imagery. No** reliable global **communications**. No precision-guided anything. **Civilian government becomes chaotic without satellites. Disaster relief, increasingly driven by satellite imagery** and social media, **returns to days when it was slower**, more ponderous **and saved fewer lives**. Police, fire and other emergency responders go back in time. Weather forecasting becomes hit or miss. Having an understanding of the critical role satellites play in modern society is becoming more widespread. **Satellites**’ influence on our culture and everyday lives can be seen in the technology for growing the grapes for our wine or wheat for our bread; in bringing us our news; in selling our homes; and in a growing number of other ways that **have advanced our civilization. Anyone who has tried to use a credit card at a store** having computer/satellite link issues **can understand. Trying to withdraw cash from an automated teller machine that has gone down brings to mind the stifling economic impact of cutting off satellite connectivity.** More recently, imagining a world without reliable satellite connectivity has assumed a greater sense of reality – and urgency — because of declarations by the U.S. military and others that space has become more crowded and contested. Potential adversaries are developing threatening technology and the “Pax Americana” in space is coming to an end. Assumptions of a benign environment in which satellites are safe are history. That’s one of the reasons for the development of Intelsat’s EpicNG satellites, the second of which – IS 33e — is scheduled for launch in August. While capacity and versatility are drivers in the multiple spot beam and open architecture design of EpicNG, the satellite’s digital payload adds reliance with improved jamming and interference protection.

**C. Impacts**

**[Post]** The Impact is Underdeveloped nations fall behind.

**Post:** Post, Rebecca. 5 year editor for the IFAI. “Low Innovation is a Critical Barrier to Developing-Country Growth” *The World Bank* https://www.worldbank.org/en/news/press-release/2017/10/02/low-innovation-is-a-critical-barrier-to-developing-country-growth 2016 JG

The potential **gains from innovation in terms of boosting incomes, jobs, and economic growth are vast.** Yet, paradoxically, **developing countries do surprisingly little when it comes to adopting advanced**-country experience to upgrading their **products, technologies, and business** processes says a new report launched by the World Bank today. The report finds that **the lower level of technological adoption in developing countries** is a rational response of **firms to a range of constraints that they face**: barriers to accumulating physical and human capital, **low managerial capabilities, and weak government capacity.** Managing these constraints **to meet the challenges** of an intensely competitive and rapidly evolving global economy **requires a reconsideration of innovation** policies **and how we measure innovation progress** say the report’s authors, Xavier Cirera and William F. Maloney. The report, The Innovation Paradox: Developing-Country Capabilities and the Unrealized Promise of Technological Catch-Up, underscores the challenges that policymakers and entrepreneurs face in realizing the potential fruits of innovation. “**Understanding how to promote innovation in developing countries is more important than ever, given the new wave of** digitalization and automation that is rapidly **altering economies around the world**,” said Jan Walliser, Vice President, Equitable Growth, Finance, and Institutions.

Because government appropriation of space is just, and private entities will have to abide by the same laws, and it is unfair to limit private entities’ usage of outer space **I negate and move onto the aff**

**A2 Sanches et al**

**[Goguichvili et al]** Treaties have been formulated to ensure space safety and integrity for all.

**Goguichvili:** Goguichvili, Sophie, American University “The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?” *Wilson Center* 2021

**Following the ratification of** the five **U.N. foundational space treaties**—whether **with great** or little **support—the international space law community transitioned to** the development of voluntary **consensus principles and guidelines for space operations, debris mitigation and space sustainability.** In addition to the five general multilateral treaties, **the U.N. oversaw the drafting and formulation of** five sets of **principles adopted by the General Assembly, including the Declaration of Legal Principles**. Although **such influential voluntary international guidelines** may **contain** more **detailed**, challenging, **and aspirational goals,** they are non-binding.

**A2 Loder and Miraux**

**[Burnham]** Private entities are making environmentally friendly space developments

**Burnham:** Burnham, Michael. Utah State University. “Can Space Travel Be Environmentally Friendly?” *Scientific American* 2009

**Virgin Galactic** uses a landing strip in California's Mojave Desert now, but construction **crews plan to break ground** next month **on a state-of-the-art** "**spaceport**" near Truth or Consequences, N.M. "Spaceport America," a $198 million project funded by the state, will feature a vertical launch pad and a horizontal runway, according to project officials. **Virgin Galactic's fellow tenants will include UP Aerospace Inc. and Lockheed Martin Corp. The project**'sterminal and hangar facility, designed by URS Corp. and Foster + Partners, **will feature solar-thermal panels. A passive cooling system will draw in hot air from the outside and chill it through a series of concrete tubes. Virgin Galactic's spacecraft were also designed with environmental sustainability in mind**, Whitehorn said. **Mother ship Eve's jet engines** will run on kerosene initially but **are** also **capable of running on butanol, a biofuel that can be made from algae. SpaceShipTwo's rockets** will burn nitrous oxide —but only briefly—as the spaceship **would require no fuel for takeoff, reentry and landing.** According to Whitehorn's calculations, **carbon dioxide emissions per passenger on a Virgin Galactic spaceflight would be about 60 percent of a passenger's carbon footprint on a round-trip flight between New York and London.** About 70 percent of a spaceflight's CO2 emissions would come from mother ship Eve, which must carry *SpaceShipTwo* into the stratosphere. To lighten the load, **both spacecraft are made of carbon-composite materials. Swiss adventurer Andre Piccard**, a hot-air balloon enthusiast like Branson, **is building an experimental aircraft of his own with such lightweight materials. Piccard aims to take his** 1,500-kilogram "**Solar Impulse**" **aircraft around the world using only the power of the sun** (Greenwire, October 31, 2008). "The basic idea of **lightweighting spacecraft** or aircraft **is going to use a lot less fuel**," said Frances Arnold, a professor of biochemistry and chemical engineering at the California Institute of Technology. "The same is true of any kind of vehicle." **Virgin Galactic's** use of a **mother ship**, as opposed to a ground-based launch, **will** also **save fuel**, said Rob Anderson, a budding Cambridge University scientist. He is one of seven students planning a high-altitude rocket launch later this year. The "Cambridge University Spaceflight" team's mission is to deliver payload to space as cheaply and efficiently as possible—or for about $32,000, in this case. The team plans to send a helium balloon up 18.6 miles, at which point a rocket would blast solo to an elevation of 62.1 miles. Anderson said a balloon-based model would work best for small scientific payloads; the latex balloon will eventually pop as its helium expands. But he predicted that **the day when lightweight spaceships carry tourists is not too far away. "At the speed things are going today, I suspect we'll see a lot of it**," Anderson added.