

# Barkley 1AC vs. You

## Advantage 1: Water

### The First advantage is water—

We need to wake up to the water crisis- sources are becoming increasingly unreliable—  
by 2050 5 billion won't have water access

**WMO 21** “Wake up to the looming water crisis” World Meteorological Organization, 5 October 2021

<https://public.wmo.int/en/media/press-release/wake-looming-water-crisis-report-warns> WMO is a specialized agency of the United Nations (UN) with 193 Member States and Territories. It is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the land and oceans, the weather and climate it produces and the resulting distribution of water resources.

Water-related hazards and stress

According to figures cited in the report, **3.6 billion people had inadequate access to water at least one month per year** in 2018. **By 2050, this is expected to rise to more than five billion.**

**In the past 20 years, terrestrial water storage** – the summation of all water on the land surface and in the subsurface, including soil moisture, snow and ice – **has dropped at a rate of 1cm per year. The biggest losses are occurring in Antarctica and Greenland, but many highly populated lower latitude locations are experiencing significant water losses in areas that are traditionally providing water supply, with major ramifications for water security.**

**The situation is worsening** by the fact that **only 0.5% of water on Earth is useable and available freshwater.**

**Water-related hazards have increased in frequency** over the past 20 years. Since 2000, flood-related disasters have risen by 134% compared with the two previous decades. Most of the flood-related deaths and economic losses were recorded in Asia, where end-to-end warning systems for riverine floods require strengthening.

**The number and duration of droughts also increased by 29% over this same period.** Most drought-related deaths occurred in Africa, indicating a need for stronger end-to-end warning systems for drought in that region.

Integrated water resources management

Integrated Water Resources Management (IWRM) is vital to achieving long-term social, economic and environmental well-being. But, despite some advances, **107 countries remain off track to hit the goal of sustainably managing their water** resources by 2030.

Overall, the world is seriously behind schedule on the UN Sustainable Development Goal No. 6 (SDG 6) to ensure availability and sustainable management of water and sanitation for all. In 2020, 3.6 billion people lacked safely managed sanitation services, **2.3 billion lacked basic hygiene services and more than 2 billion live in water-stressed countries with lack of access to safe drinking water.**

75 countries reported water efficiency levels below average, including 10 with extremely low levels. **The current rates of progress need to quadruple** in order to reach the global targets by 2030.

The good news is that nations are determined to improve the situation. According to the United Nations Framework Convention on Climate Change (UNFCCC), water and food are the two top priority issues of the Nationally Determined Contributions (NDCs) to the Paris Agreement, with countries highlighting the need for strengthening climate services for water.

**AND**

**Thousands of Near-Earth-Asteroids (NEAs) contain larger and accessible quantities of water.**

**Tillman 19** Nola Taylor Tillman *"Tons of Water in satellites could fuel Satellites, Space Exploration,"*

Space.com, 9/29 2019, <https://www.space.com/water-rich-asteroids-space-exploration-fuel.html>

Experienced in writing science articles in clear terms for the general public Although my focus tends to be astronomical in nature, I also have experience writing about physics, biology, chemistry, and geology. I have articles published with several magazines, including Astronomy and Sky & Telescope, as well as online at Scientific American, New Scientist, Science News (AAS), Space.com, and Astrobiology magazine.

I have also worked on a research blog, aimed at the graduate and post-doctoral level, for the American Museum of Natural History in New York. Specialties: Astronomy, astrophysics, space exploration, space technology

When it comes to mining space for water, the best target may not be the moon: **Entrepreneurs' richest options are likely to be asteroids** that are larger and **close to Earth. A recent study suggested that roughly 1,000 water-rich, or hydrated, asteroids near our planet are easier to reach** than the lunar surface is. While most of **these space rocks** are only a few feet in size, more than 25 of them **should** be large enough to each **provide significant water**. Altogether, **the water locked in these asteroids should be enough to fill somewhere around 320,000 Olympics-size swimming pools — significantly more than the amount of water locked up at the lunar poles,** the new research suggested. Because asteroids are

small, they have less gravity than Earth or the moon do, which makes them easier destinations to land on and lift off from. If engineers can figure out how to mine water from these space rocks, they could produce a source of ready fuel in space that would allow spacecraft designers to build refuelable models for the next generation of satellites. Asteroid mining could also fuel human exploration, saving the expense of launching fuel from Earth. In both cases, would-be space-rock miners will need to figure out how to free the water trapped in hydrated minerals on these asteroids. "Most of the hydrated material in the near-Earth population is contained in the largest few hydrated objects," Andrew Rivkin, **an** asteroid researcher at Johns Hopkins University Applied Physics Research Laboratory in Maryland, told Space.com. Rivkin is the lead author

on the paper, which estimated that near Earth asteroids could contain more easily accessible water than the lunar poles

**AND**

**Instead of organizing projects for redistribution, private developments fantasize using space-water for their own pet projects.**

**Glester 18** Andrew Glester, "*The Asteroid trillionaires*," Physics World, 11 Ju 2018, <https://physicsworld.com/a/the-asteroid-trillionaires/>

An award winning podcast host, radio presenter and producer/director of films and live events, Andrew has worked with BBC Worldwide, The Natural History Museum, Physics World, Diamond Light Source and produced shows for arenas, concert halls, theatres and festivals internationally. He is a science writer and the host of the Physics World Stories podcast and the Cosmic Shed podcast which was recently named as one of the Guardian's Favourite Podcasts. Andrew produced the tours of the BBC Blue Planet Live! in 2006 and 2008 before directing and producing Polar in 2011.

Scientists have studied asteroids using ground-based telescopes and space missions – such as NASA's Galileo and Dawn crafts – which together have gathered close-up imagery and data. Perhaps the most important data came from Japan's Hayabusa, which in 2010 became the first spacecraft to have landed on an asteroid and successfully returned home with samples. These studies have revealed that there are two types of asteroids of interest to the mining community. The first are achondrites, which are rich in platinum group metals (ruthenium, rhodium, palladium, osmium, iridium and platinum). These precious metals gravitate to the cores of planets as they form, meaning that they are very deep down on Earth. In the turbulent early solar system, however, some burgeoning planets were smashed to pieces in collisions and became some of the achondrite asteroids that may provide a treasure trove for today's space miners. The other asteroids of interest are chondrites. They are perhaps the more immediately valuable, being rich in water. Astronauts need this vital resource not only as a drink and to hydrate food, but also because it is a very efficient radiation shield.

**Water will be precious for the Moon bases and hotels promised by today's space entrepreneurs such as Elon Musk (founder of SpaceX) and Jeff Bezos (founder of Blue Origin).**

But water is heavy and therefore expensive to launch out of the Earth's atmosphere. Indeed, it costs between \$9000 and \$43,000 to send a water bottle into space – which is why it is all recycled on the International Space Station. However, Hubble images of the largest known asteroid, Ceres, suggest that it could hold more water than our planet. Smaller asteroids hold lots too and a technique known as optical mining would use the heat from the Sun to bake the water out of the rock.

The elements of **water can also be used for rocket fuel. Asteroid miners are already planning to split the water from chondrites into hydrogen and oxygen, which would serve as fuel and oxidizer respectively. They are hoping to set up fuel stations in low-Earth orbit**

and the asteroid belt so that spacecraft can fill up on their way to the outer planets of the solar system. Currently, around 90% of the weight of modern rockets is taken up with fuel, so if you can carry less fuel on take-off because you can fill up off-Earth, space flight becomes much cheaper.

**AND**

Don't buy their glamorous DAs, the neg's reassuring rhetoric is a facade; **private companies have no interest in redistributing resources, which means no public water access.**

**Stockwell 20**

Samuel Stockwell, 7-20-2020, "Legal 'Black Holes' in Outer Space: The Regulation of Private Space Companies," E-International Relations, <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> //marlborough JH

On 30th April 2020, NASA – the US government’s space agency – awarded three private space companies a joint-contract worth \$967m to complete a lunar mission by 2024, in what was celebrated as “the last piece that [America] need[s] in order to get to the moon” by NASA administrator Jim Brindestine (The Telegraph, 2020). Yet, whilst this development was widely covered in the media, less coverage has focused on the extent to which existing international legislation surrounding outer space endeavours appropriately applies to private entities. Indeed, the prospect of a corporate foothold within the extra-terrestrial domain has thrown up both a mixture of optimism and concern regarding the potential benefits of expanding capital projects into space (Adolph, 2006; Dickens & Ormrod, 2007). ¶By adopting the 1967 UN Outer Space Treaty (OST) as an analytical framework in relation to the rise of the so-called US ‘NewSpace’ actors, this essay argues that there are significant legal ambiguities regarding the status of private space companies in orbital space. Such loopholes allow the US government to circumvent its own obligations to the OST, whilst simultaneously undermining the notion of space as a ‘global commons’ through a commodification process. The lack of specificity within the OST surrounding private property rights over extra-terrestrial resources risks the prospect of reinforcing Earth-bound wealth inequalities and US dominance in space, by restricting the potential economic benefits for the broader global citizenry in favour of a narrow class of wealthy American investors. Moreover, the OST’s weak clause regarding the regulation of space surveillance risks the incentivisation of a ‘global panopticon’ network of US satellites. The rise of dual-use technology is blurring the boundaries between military and civilian observations, raising serious ethical concerns over the nature of US space-based data collection. Finally, the increasing number of private satellite constellations is facilitating the possibility of cataclysmic space debris collisions which could exacerbate geopolitical tensions. Such developments are also contributing towards the contamination of the broader space environment in ways that the OST had never envisioned. ¶The UN Outer Space Treaty and Rise of the ‘NewSpace’ Actors ¶Although ratified into international law in 1967, the UN Outer Space Treaty (OST) is perhaps still the most relevant piece of legislation for analysing state and non-state entity activity in outer space. Designed to prevent both the militarisation of space and national appropriation of celestial bodies at the height of Cold War tensions, the UN OST holds significant influence as a form of customary international law (Hebert, 2014: 6). Ratified by over 100 nations – including major spacefaring nations such as the United States, Russia and China – the treaty is widely accepted as an authoritative document and has formed the basis for all other space treaties that have succeeded it (Kramer, 2017: 129). This is in contrast to more recent legislation such as the 1972 Moon Treaty designed to promote cooperation in Moon exploration and development, which the US and other major space superpowers have refrained from signing (Adolph, 2006: 968-969). ¶The type of American actors becoming involved in the realm of outer space has undergone significant diversification. Despite working alongside NASA since the 1950s, commercial enterprises were largely confined to the manufacturing of parts utilised in rockets and other equipment for space activities (Lal, 2016: 63-66). However, the continuous sharp decline in NASA’s overall budget that has occurred since the Apollo 11 moon landing, and the increasing trends towards the privatisation of government functions has drastically altered both the capabilities and the outlooks of private space companies. Indeed, although the space economy is growing overall, global government spending decreased by 1.3% between 2012 and 2013 while commercial-sector growth increased by roughly 7% (Conklin, 2017: 33). Central to the impetus behind this private sector space boom has been the emergence of the so-called ‘NewSpace’ actors – “a broad range of primarily US-based entrepreneurs... who, for more than 30 years, have aimed to commercialise space” (Valentine, 2012: 1046). Driven by a libertarian outlook of economics, and critical of NASA’s historical grip on space exploration, these individuals portray themselves as the pioneers of the ‘final frontier’ who will save humanity from extinction through privately-funded extra-terrestrial missions (Kearnes & van Dooren, 2017: 182). ¶Near-Earth Object and Lunar Resource Mining: US Private Property in Space ¶Lunar rock samples from the Apollo missions containing rare Earth resources, such as Helium-3 which produces more power and less waste than traditional nuclear reactors on Earth, have since fuelled incentives for extra-terrestrial resource mining (Brearley, 2006: 44-46). This was further facilitated by suggestions that near-earth objects (NEOs) like the so-called ‘Anteros asteroid’ could comprise of over five trillion dollars’ worth of magnesium silicate and aluminium (Kramer, 2017: 131). ¶Envisaging appropriation concerns that might arise from the future extraction of space assets by spacefaring nations, Article II of the UN OST declared that: “Outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means” (UN, 1967). The emphasis on claims of national sovereignty were intimately tied to the Cold War context at the time, where space activities were under the exclusive monopoly of governmental agencies and initiated for goals of military dominance or national prestige (Sachdeva, 2017: 210). However, the privatisation of the space industry that has occurred since the 1980s has meant that the legislation leaves an enormous amount of legal ambiguity and interpretation regarding the regulation of private resource mining in space. As Shaer (2016) demonstrates, the Article II provision fails to address either the exploitation of space for financial gain or the

property claims of commercial enterprises (Shaer, 2016: 47). ¶Nevertheless, Article VI of the UN OST asserts that: “States shall be responsible for national space activities whether carried out by governmental or non-governmental entities” (UN, 1967; own emphasis). Some scholars have suggested that this clause significantly restrains the activities of private space corporations by incentivising states to regulate their domestic organisations for fear of liability concerns (Abeyratne, 1998: 168). However, the US government recently enacted a piece of legislation which exploited this clause, in order to circumvent its own restrictions and strengthen US economic influence in space. The passage of the 2015 SPACE Act enabled US citizens to privately “possess, own, transport, use, and sell the resources” they obtain in outer space, whilst making careful consideration to deny national sovereign claims over such materials (Leon, 2018: 500). ¶Yet, regardless of whether it is an American private company or public venture, the US is still satisfying its geopolitical interests; by exclusively siphoning off extra-terrestrial resources for American gain, the nation’s soft power is thereby extended at the expense of spacefaring adversaries such as China (Basu & Kurlekar, 2016: 65). Indeed NewSpace actors cleverly played on these strategic concerns prior to the bill’s passage, with billionaire space entrepreneur Robert Bigelow asserting that the biggest danger wasn’t private enterprises on the Moon, but that “America is asleep and does nothing, while China comes along... surveying and laying claim [to the Moon]” (Klinger, 2017: 222). ¶The US government’s support for private space companies is also likely to lead to the reinforcement of Earth-bound wealth inequalities in space. Many NewSpace actors frame their long-term ambitions in space with strong anthropogenic undertones, by offering the salvation of the human race from impending extinction through off-world colonial developments (Kearnes & Dooren: 2017: 182). Yet, this type of discourse disguises the highly exclusive nature of these missions. Whilst they seem to suggest that there is a stake for ordinary citizens in the vast space frontier, the reality is that these self-described space pioneers are a member of a narrow ‘cosmic elite’ – “founders of Amazon.com, Microsoft, Pay Pal... and a smattering of games designers and hotel magnates” (Parker, 2009: 91). ¶Indeed, private space enterprises have themselves suggested that they have no obligation to share mineral resources extracted in space with the global community (Klinger, 2017: 208). This is reflected in the speeches of individuals such as Nathan Ingraham, a senior editor at the tech site Engadget, who claimed that asteroid mining was “how [America is] going to move into space and develop the next Vegas Strip” (Shaer, 2016: 50). Such comments highlight a form of what Beery (2016) defines as ‘scalar politics’: In similar ways to the ‘scaling’ of unequal international relations that has constituted our relationship with outer space under the guise of the ‘global commons’ (Beery, 2016: 99), private companies – through their anthropogenic discourse – are scaling existing Earth-bound wealth inequalities and social relations into space by siphoning off extra-terrestrial resources. By constructing their endeavours in ways that appeal to the common good, NewSpace actors are therefore concealing the reality of how commercial resource extraction serves the exclusive interests of their private shareholders at the expense of the vast majority of the global population

**AND**

Inevitable water shortages cause hydro-political conflict escalation which goes nuclear. It's most likely now!

**Harvey 21** [[Fiona, the Guardian's environment correspondent, won the Foreign Press Association award for Environment Story of the Year and the British Environment and Media Awards journalist of the year) "Global water crisis will intensify with climate breakdown, says report," The Guardian, 8/17/2021] JL

Mark's words should be a call to attention, and a call to action. The plight of farmers in Australia illustrates a larger reality: As planetary temperatures continue to increase and rainfall patterns shift due to human-caused climate disruption, our ability to grow crops and have enough drinking water will become increasingly challenged, and the outlook is only going to worsen.

The most recent United Nations Intergovernmental Panel on Climate Change report warned of increasingly intense droughts and mass water shortages around large swaths of the globe.

But even more conservative organizations have been sounding the alarm. "Water insecurity could multiply the risk of conflict" warns one of the World Bank's reports on the issue. "Food price spikes caused by droughts can inflame latent conflicts and drive migration. Where economic growth is impacted by rainfall, episodes of droughts and floods have generated waves of migration and spikes in violence within countries."

Meanwhile, a study published in the journal Global Environmental Change, looked at how "hydro-political issues" — including tensions and potential conflicts — could play out in countries expected to experience water shortages coupled with high populations and pre-existing geopolitical tensions.

The study warned that these factors could combine to increase the likelihood of water-related tensions — potentially escalating in armed conflict in cross-boundary river basins in places around the world by 74.9 to 95 percent. This means that in some places conflict is practically guaranteed.

These areas include regions situated around primary rivers in Asia and North Africa. Noted rivers include the Tigris and Euphrates, the Indus, the Nile, and the Ganges-Brahmaputra.

Consider the fact that 11 countries share the Nile River basin: Egypt, Burundi, Kenya, Eritrea, Ethiopia, Uganda, Rwanda, Sudan, South Sudan, Tanzania and the Democratic Republic of Congo. All told, more than 300 million people already live in these countries — a number that is projected to double in the coming decades, while the amount of available water will continue to shrink due to climate change.

For those in the US thinking these potential conflicts will only occur in distant lands — think again. The study also warned of a very high chance of these "hydro-political interactions" in portions of the southwestern US and northern Mexico, around the Colorado River.

Potential tensions are particularly worrisome in India and Pakistan, which are already rivals when it comes to water resources. For now, these two countries have an agreement, albeit a strained one, over the Indus River and the sharing of its water, by way of the 1960 Indus Water Treaty.

However, water claims have been central to their ongoing, burning dispute over the Kashmir region, a flashpoint area there for more than 60 years and counting.

**The aforementioned treaty is now more strained than ever**, as Pakistan accuses India of limiting its water supply and violating the treaty by placing dams over various rivers that flow from Kashmir into Pakistan.

In fact, **a 2018 report from the International Monetary Fund ranked Pakistan third among countries facing severe water shortages. This is largely due to the rapid melting of glaciers in the Himalaya that are the source of much of the water for the Indus**.

To provide an idea of how quickly water resources are diminishing in both countries, statistics from Pakistan's Islamabad Chamber of Commerce and Industry from 2018 show that **water availability (per capita in cubic meters per year) shrank from 5,260 in 1951, to 940 in 2015**, and are projected to shrink to 860 by just 2025.

**In India, the crisis is hardly better**. According to that country's Ministry of Statistics (2016) and the Indian Ministry of Water Resources (2010), **the per capita available water in cubic meters per year was 5,177 in 1951, and 1,474 in 2015**, and is projected to shrink to 1,341 in 2025.

**Both of these countries are nuclear powers. Given the dire projections of water availability as climate change progresses, nightmare scenarios of water wars that could spark nuclear exchanges are now becoming possible**.

**AND**

**Nuke war causes extinction AND outweighs other existential risks**

- Checked

**PND 16**. internally citing Zbigniew Brzezinski, Council of Foreign Relations and former national security adviser to President Carter, Toon and Robock's 2012 study on nuclear winter in the Bulletin of Atomic Scientists, Gareth Evans' International Commission on Nuclear Non-proliferation and Disarmament Report, Congressional EMP studies, studies on nuclear winter by Seth Baum of the Global Catastrophic Risk Institute and Martin Hellman of Stanford University, and U.S. and Russian former Defense Secretaries and former heads of nuclear missile forces, brief submitted to the United Nations General Assembly, Open-Ended Working Group on nuclear risks. A/AC.286/NGO/13. 05-03-2016.

<http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/OEWG/2016/Documents/NGO13.pdf> //Re-cut by Elmer

Consequences human survival 12. **Even if the 'other' side does NOT launch** in response the smoke from 'their' burning cities (incinerated by 'us') **will still make** 'our' country (and the rest of **the world**) **uninhabitable**, potentially **inducing global famine** lasting up to **decades**. **Toon and Robock note** in 'Self Assured Destruction', in the Bulletin of Atomic Scientists 68/5, 2012, that: 13. **"A nuclear war between Russia and the United States, even after the arsenal reductions planned under New START, could produce a nuclear winter.**  
Hence, an attack by either side could be suicidal, **resulting in self assured destruction. Even a 'small'**



**nuclear war** between India and Pakistan, with each country detonating 50 Hiroshima-size atom bombs--only about 0.03 percent of the global nuclear arsenal's explosive power--as air bursts in urban areas, **could produce** so much **smoke that** **temperatures would fall below** those of **the Little Ice Age** of the fourteenth to nineteenth centuries, shortening the growing season around the world and threatening the global food supply. Furthermore, there would be **massive ozone depletion**, allowing more **ultraviolet radiation** to reach Earth's surface. **Recent studies** predict that **agricultural production** in parts of the **United States and China** **would decline** by about 20 percent for four years, and by 10 percent for a decade." 14. A conflagration involving USA/NATO forces and those of Russian federation would **most likely cause the deaths of most/nearly all/all humans (and severely impact/extinguish other species)** as well as destroying the delicate interwoven techno-structure on which latter-day 'civilization' has come to depend. Temperatures would drop to below those of the last ice-age for up to 30 years as a result of the lofting of up to 180 million tonnes of very black soot into the stratosphere where it would remain for decades. 15. Though human ingenuity and resilience shouldn't be underestimated, human survival itself is **arguably problematic**, to put it mildly, under a 2000+ warhead USA/Russian federation scenario. 16. The Joint Statement on Catastrophic Humanitarian Consequences signed October 2013 by 146 governments mentioned 'Human Survival' no less than 5 times. The most recent (December 2014) one gives it a highly prominent place. **Gareth Evans' ICNND (International Commission on Nuclear Non-proliferation and Disarmament) Report** made it clear that it saw the threat posed **by nuclear weapons use as one that** at least threatens what we now call 'civilization' and that potentially **threatens human survival with an immediacy that even climate change does not,** though we can see the results of climate change here and now and of course the immediate post-nuclear results for Hiroshima and Nagasaki as well.

## Advantage 2 is Plutocracy

The Second Advantage is Plutocracy--

**Private entities are set to mine in space soon. New legislation and profit motive makes the industry lucrative.**

**Zeisl 19** [Yasemin Zeisl, MSc in International Relations and Affairs from the London School of Economics and Political Science (LSE), "Three Salient Risks of Mining in Space," 05/03/19, *GlobalRiskIntel*, <https://www.globalriskintel.com/insights/three-salient-risks-mining-space>, EA]

The **harvesting of natural resources from space objects is the goal of numerous companies** such as Planetary Resources or Deep Space Industries in the United States, Asteroid Mining Corporation in Scotland, or iSpace in Japan. While some **companies** such as iSpace are focusing on resources inside the Moon, others **are developing strategies to identify and extract resources from asteroids** and extinct comets. Given that **calculations evaluate space mining as a highly lucrative business with potential profits amounting to trillions in U.S.-dollars**, it is unsurprising that investment into space mining rose from 534 million USD in 2014 to 3.1 billion USD in 2018. Research institutions such as the Center for Near-Earth Object Studies (CNEOS) — which cooperates with the National Aeronautics and Space Administration (NASA) — detects, traces, and assesses risks of objects moving close to the Earth. Such calculations are relevant for future ventures into space mining, which will focus on metals such as platinum, gold, iron, rhodium, zinc, cobalt, and nickel, as well as water and



carbon found in asteroids and extinct comets. Celestial ice would be particularly useful for generating rocket fuel by splitting it into hydrogen and oxygen. This may facilitate long space travel to destinations such as Mars. The usage of extinct comets as gas stations may bring engineers and scientists one step closer to the goal of colonizing Mars. While rocket fuel extraction may be a relatively feasible project for the near future, it is expected that harvesting metals from space may require several more decades to realize.

**Spotting the potential profitability of space mining, the United States passed the Commercial Space Launch Competitiveness Act** in 2015 to grant U.S. citizens the right **to harvest natural resources from celestial bodies.** Similarly, Luxembourg established a space mining law and provided investment opportunities in August 2017.

In January 2019, Russia started negotiating a bilateral cooperation arrangement with Luxembourg. The fact that there is no clearly defined international treaty on space mining poses a major risk. Although the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1984 may provide some detail on the issue by asserting that no state, organization, or natural person can lay claim to any object in space, the fact that only 18 countries have committed to this multilateral treaty leaves the majority of states unbound by this regulation. An inconsistent legal landscape in regard to resource extraction of celestial bodies could lead to legal clashes between different countries and potential disadvantages for companies or organizations from certain countries. Mining in space could turn into a fierce competition among various private businesses and states. Therefore, licensing regulations will also have to be clearly defined. Licenses will help to clarify both ownership of yields and the relationships among miners, investors, and governments in order to avoid conflict in the future.

## AND

**Privatized space mining will generate trillions of dollars, resulting in a new generation of economic elites.**

**Shaer 16,** Matthew Shaer, “*The Asteroid Miner’s Guide to the Galaxy*,” Foreign Policy, 28 April 2016, <https://foreignpolicy.com/2016/04/28/the-asteroid-miners-guide-to-the-galaxy-space-race-mining-asteroids-planetary-research-deep-space-industries/> // AKRG

Matthew Shaer is a writer for the New York Times Magazine, an Emerson Fellow at New America, and a co-founder of the podcast studio Campside, which specializes in episodic nonfiction. His long-form reporting appears regularly in publications like The Atlantic, New York, Harper’s, and Wired.

<http://www.matthewshaer.com/about>

The tech firm **Deep Space Industries (DSI)** is headquartered on the second story of an aging office building at the edge of NASA’s Ames Research Center, not far from the town of Mountain View, California. Established in 1939 as a laboratory **for** the National Advisory Committee for Aeronautics, a predecessor to NASA, Ames is now part government research site, part industrial park, and part open-air museum — visitors pass rows of decommissioned rockets and the hulking skeleton of Hangar One, where the Navy once parked its experimental blimps in the 1930s. Shimmering nearby in the Pacific coast sun lies the sprawling aerospace facility owned by Google’s Sergey Brin and Larry Page. “The first time I came to Ames, I had the feeling I was standing between the history of spaceflight and its future,” Sagi Kfir, an aviation attorney, told me when I visited earlier this year. “You’ve got NASA labs here, but at the same time you’re in Silicon Valley,” he said. “Hard to think of a more exciting place to be.” Kfir is 43, with a high forehead, tawny hair he wears tied in a bun, and the kind of leanness that comes from hours of yoga practice. (His wife, Britta, is an instructor.) Since 2012, he has served as DSI’s chief lawyer, a job that encompasses both legal-counsel duties — liaising with legislators, vetting contracts — and the full-time proselytization of his company’s mission: **laying the foundation for an asteroid mining industry that one day will lead to a sprawling and profitable space economy. To evangelists of asteroid mining, the heavens are not just a frontier but a vast and resource-rich place teeming with opportunity. According to NASA, there are potentially 100,000 near-Earth objects — including asteroids and comets — in the neighborhood of our planet.** Some of **these NEOs**, as they’re called, are small. Others **are substantial and**

**potentially packed full of water and various important minerals, such as nickel, cobalt, and iron.** One day, advocates believe, **those objects will be tapped** by variations on the equipment used in the coal mines of

Kentucky or in the diamond mines of Africa. And **for immense gain:** According to industry experts, **the contents of a single**

**asteroid could be worth trillions of dollars.** Kfir pitched me on the long-term plan. First, a fleet of satellites will be dispatched to outer space, fitted with probes that can measure the quality and quantity of water and minerals in nearby asteroids and comets. Later, armed with that information, mining companies like DSI will send out vessels to mechanically remove and refine the material extracted. In some cases, the take will be returned to Earth. But most of the time, it will be processed in space — for instance, to produce rocket fuel — and stored in container vessels that will serve as the equivalent of gas stations for outbound spacecraft. This possibility isn't so unrealistic, Kfir said. Consider the recent and seismic growth of the space industry, he

suggested, as we climbed the stairs to DSI's second-floor suite. **Every year, the private spaceflight sector grows larger, and every year the goals become grander.** Jeff Bezos, founder of Amazon and the space exploration company Blue Origin, has spoken of the day "when millions of people are living and working in space"; Elon Musk's SpaceX

is expected to reveal a Mars colonization plan this year. "But how are they going to sustain this new space economy?" Kfir asked rhetorically. He nudged open DSI's office door. "Easy: by mining asteroids." Bezos, Musk, and the other billionaires who plan to be cruising around space in the near future won't be able to do so without celestial pit stops. In his book, *Asteroid Mining 101: Wealth for the New Space Economy*, John S. Lewis, professor emeritus of Cosmochemistry and Planetary Atmospheres at the University of Arizona's Lunar and Planetary Laboratory and DSI's chief scientist, envisions a future where "ever more remote and ever more massive reservoirs of resources" take astronauts farther and farther from our planet. "First to the Near Earth Asteroids and the moons of Mars, then to the asteroid belt, then to...[the] Trojan asteroids and the outer moons of Jupiter, then to the Saturn system and the Centaurs," and so on, to infinity. Copies of Lewis's book lined two shelves in DSI's headquarters, where the vibe was more nerd lair than sleek startup. A poster for the new Star Wars movie hung on a wall; a chunk of real meteorite, found over a century ago in Namibia, stood on display; and cans of Coke cluttered the snack table. Working inside what appeared to be an old utility closet, chief engineer Grant Bonin hunched over a desktop computer, designing the code that will help power the first asteroid probes that DSI plans to launch in 2017. Behind him, an electrical panel spouted a bouquet of colorful wires. Kfir pointed me in the direction of his office. A resident of San Diego, Kfir commutes once a week to Ames, 1,000 miles round trip, but if the constant travel was wearing on him, it didn't show — his eyes were bright, his skin SoCal bronze. He wore slacks and a button-down, with cactus-patterned socks. "You get used to the pace," he said, taking a pull from a large coffee mug marked "Kiss my Asteroid." "It's the life of a startup. You go, go, go seven days a week. Because you believe." For now, belief — and a fervid sense of enthusiasm — represent the core of the DSI business model. After all, the company, and its only major competitor in the asteroid mining arena, Washington-based Planetary Resources, are dealing in hypotheticals: equipment that remains largely in the planning phase, a market that won't fully emerge for years, if not decades, and a science that has yet to be tested in any meaningful way. Perhaps it's not surprising, then, that some critics have suggested Planetary Resources, which is backed by millions in venture capital — including cash from Eric Schmidt of Google — and the scrappier, less-moneyed DSI, are nothing more than vanity projects. Writing on the Discovery News website in April 2012, the month Planetary Resources co-founder Peter Diamandis unveiled his company's mission, space journalist Ian O'Neill dismissed the venture as "deliberately vague (who knows how many technological iterative steps are needed before a sustainable mining operation can begin anyway?)." He also argued it was wholly unrealistic: "In short, the only thing that seems unique about today's announcement is that a group of very well-respected and smart entrepreneurs and billionaires have clubbed together and thought asteroid mining seemed cool." For O'Neill and other skeptics, asteroid mining is, for the time being, a glitzy but far-fetched venture that will distract both attention and dollars from eminently more achievable — and perhaps more scientifically vital — missions, such as continuing the exploration of Mars. For the 12-person team at DSI, and the 50-person team at Planetary Resources, however, asteroid mining isn't just a dream. It's the future — one in which all those deep-pocketed private spaceflight companies (to say nothing of NASA) will be eager to pay by the bucket load for access to space's riches. DSI and Planetary Resources, both of which are determined to profit from a 21st-century extraterrestrial gold rush, might be the equivalent of the mining barons of yore. But first, they have to get to the rocks.

**AND**

## The impact is plutocracy

The advent of new trillionaire space-barons exacerbates plutocratic trends and gives way to authoritarian governments.

**(Suny 21)** Ronald G. Suny, "Autocracy, Democracy, Plutocracy" Agos, 24 July 2021,  
<http://www.agos.com.tr/en/article/25827/autocracy-democracy-plutocracy> // AKRG

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in Modern Armenian History at the University of Michigan (1981-1995), where he founded and directed the Armenian Studies Program.

<https://lsa.umich.edu/history/people/faculty/rgsuny.html>

Is there a way out? The struggle is clearly more difficult in authoritarian countries, and it must take the path of increasing democratic possibilities. After the fall of Soviet-style "socialist" states in 1991, there was euphoria in the West among scholars, journalists, and politicians that the World was experiencing an inexorable transition to democracy. Within a decade and a half, however, roughly in the mid- and late-2000s, that triumphalist effervescence was dampened by an observable shift toward more authoritarian regimes. In Russia, Poland, Hungary, Turkey, India, and elsewhere, the

promise of reformers to establish more participatory, egalitarian, and inclusive democratic states gave way to populist and nationalist leaders who manipulated constitutions and painted opponents as traitors and terrorists. All across the globe, from  
Modi's India through Erdoğan's Turkey to Trump's United States, illiberal leaders, using populist and nationalist rhetoric, shifted power toward strong executives. With the triumph of Trump in the United States, many American Cassandras, prophets

of a dark future, predicted a turn toward tyranny and the collapse of democracy altogether. As a consequence of the retreat of democracy, scholarly and journalistic interest in the phenomenal rise of authoritarianism exploded. As the transitologists (those who made their careers outlining how dictatorships transformed into democracies) appeared to be less relevant to current trends, political scientists began seriously exploring the nature, evolution, and durability of what they termed autocracy. Explanations for the rise of the new

authoritarianism [were] abound. The greater control of the economy by finance and globalizing of capitalism, the weakening of labor unions, the erosion of social welfare protections and the increase of privatization of public services have increased the risks to lower and middle class people and led them to seek solutions in populist parties that identify their grievances with foreigners, immigrants, and liberal elites. The neoliberal faith that free markets can solve all economic problems has in

fact led to a growing gap between the very rich and everyone else. Deregulation in favor of business has added to the global climate crisis and forced vulnerable people to choose between their jobs and their health. The limits and fragilities of liberal democracy have led to political stagnation and an erosion of belief in democratic politics to solve serious problems.

Populists stoke fears that the benefits that citizens enjoyed earlier are being eroded by elites and shared with those – people of a different ethnicity or skin color or country of origin -- who do not deserve them. Anxiety about status and future, along with resentment toward alien others, has led many voters to turn to charismatic demagogic

**populist and nationalist leaders. The erosion of democracy and the rise of autocracies is real,** and ordinary people all over the world – from Belarus to Hong Kong, Vladivostok, Myanmar, Saint Louis, and Delhi – have marched in the streets to oppose anti-democratic repression. People want competent government responsive to the popular will; they desire some degree of participation in decision-making through elected representatives; and they are prepared to fight for rights and protections from their government. But **the powerful forces of the state in many countries have ruthlessly crushed the mobilized opposition.** Yet there is another trend besides the autocratic threat to democracy that also needs to be recognized. And that trend, often closely related to autocracy but present in democracies as well, is **plutocracy -- the rule of the very rich**, which also **erodes** the possibilities of true **democratic choices and** the **possibilities of** real **social and political equality.** In the United States economic polarization has reached the point that the top 0.01 percent of the population owns roughly the same share of national wealth as the bottom 85 percent combined. **Money in America is considered free speech, and unlimited amounts of cash flow from millionaires and billionaires into political campaigns, favored candidates, and lobbies to influence legislation.** Low taxes (or often no taxes) for wealthy people with sophisticated accountants means that they can not only influence **elections** but through their charitable foundations or private philanthropy **shape policy** in areas like health care, education, or social welfare **without democratic oversight.**

Americans in general do not resent the rich. They all hope to become millionaires or better. Their anti-elitism is directed at intellectuals, journalists, and politicians. They believe in the good billionaire, though they wish he (or she) would pay their fair share of the tax burden. However, many voters did not seem bothered by presidential candidate Donald Trump's remarks, when accused of not paying any federal income tax, he quickly retorted: "That makes me smart." Recently, the trend toward autocracy and authoritarianism has slowed down or even been stopped. Trump lost his bid for reelection last year, whether he knows it or not. Victor Orban in Hungary and Janez Janša in Slovenia have lost popularity and are facing a resurgent public

looking for change. The party in power in Turkey is held responsible for the devastating economic decline and the erosion of the lira. Thousands of peasants march in India against Modi. But

**the power of the plutocrats has only increased, and the vulnerability of the poor and middle classes – the precariat -- remains. Is there a way out? The struggle is clearly more difficult in authoritarian countries, and it must take the path of increasing democratic possibilities.**

Elections where they are still possible can weaken or eliminate autocrats, but they do not affect the influence of the plutocrats, who benefit both from the corruption and nepotism endemic to autocracies and the free-for-all politics of liberal democracies. In democratic countries voters can choose representatives who are prepared to tax wealth and the wealthy, promote environmental protection, and increase social welfare and protection of the most-needy. We live in difficult but interesting times. Most people, particularly the young, are seeking alternatives to an intolerable present. They are less likely to succumb to the siren calls of populists who trade in hatred of the other, and appeal to imagined anti-Semitic, anti-Armenian, or anti-immigrant threats. Even without clear answers as to how to achieve what might seem to be utopian goals of greater freedom, it is essential not to despair, to remain optimistic and hopeful, and to use the tools at hand to move step-by-small-step toward empowerment of ordinary people. All power to the people is still a powerful slogan, but it also means that we need a new people. We need people with vision and courage.

**AND**

**The shift to authoritarianism causes extinction, multiple warrants-**

**Kendall-Taylor 16** [Andrea; Deputy national intelligence officer for Russia and Eurasia at the National Intelligence Council, Senior associate in the Human Rights Initiative at the Center for Strategic and International Studies in Washington; "How Democracy's Decline Would Undermine the International Order," CSIS; 7/15/16;

<https://www.csis.org/analysis/how-democracy%E2%80%99s-decline-would-undermine-international-order/>] Justin

It is rare that policymakers, analysts, and academics agree. But there is an emerging consensus in the world of foreign policy: **threats to the stability of the current international order are rising.** The norms, values, laws, and institutions that have undergirded the international system and governed relationships between nations **are being gradually dismantled.** The most discussed sources of this pressure are the ascent of China and other non-Western countries, Russia's assertive foreign policy, and the diffusion of power from traditional nation-states to nonstate actors, such as nongovernmental organizations, multinational corporations, and technology-empowered individuals. Largely missing from these discussions, however, **is the specter of widespread democratic decline. Rising challenges to democratic governance across the globe are a major strain on the international system, but they receive far less attention in discussions** of the shifting world order.

In the 70 years since the end of World War II, the United States has **fostered a global order dominated by states that are liberal, capitalist, and democratic.** The United States has promoted the spread of democracy to strengthen global norms and rules that constitute the foundation of our current international system. However, despite the steady rise of democracy since the end of the Cold War, over the last 10 years **we have seen dramatic reversals in respect for democratic principles** across the globe. A 2015 Freedom House report stated that the "**acceptance of democracy as the world's dominant form of government—and of an international system built on democratic ideals—is under greater threat than at any point in the last 25 years.**" Although the number of democracies in the world is at an all-time high, there are a number of key trends that are working to undermine democracy. The **rollback of democracy** in a few influential states or even in a number of less consequential ones would almost certainly accelerate meaningful changes in today's global order.

Democratic decline would **weaken U.S. partnerships and erode an important foundation for U.S. cooperation** abroad. Research demonstrates that domestic politics are a key determinant of the international behavior of states. In particular, **democracies are more likely to form alliances and cooperate** more fully with other democracies than with autocracies. Similarly, **authoritarian countries** have established mechanisms for cooperation and sharing of "worst practices." An increase in authoritarian countries, then, would provide a broader platform for coordination that could enable these countries to overcome their divergent histories, values, and interests—factors that are frequently cited as obstacles to the **formation of a cohesive challenge to the U.S.-led international system.**

Recent examples support the empirical data. **Democratic backsliding in Hungary and** the hardening of **Egypt's autocracy** under Abdel Fattah el-Sisi **have led to enhanced relations between these countries and Russia.** Likewise, **democratic decline in Bangladesh has led** Sheikh Hasina Wazed and her ruling Awami League **to seek closer relations with China and Russia,** in part to mitigate Western pressure and bolster the regime's domestic standing.

Although none of these burgeoning relationships has developed into a highly unified partnership, democratic backsliding in these countries has provided a basis for cooperation where it did not previously exist. And while the United States certainly finds common cause with authoritarian partners on specific issues, **the depth and reliability of such cooperation is limited. Consequently, further democratic decline could seriously compromise the United States' ability to form the kinds of deep partnerships that will be required to confront today's**

**increasingly complex challenges. Global issues such as climate change, migration, and violent extremism demand the coordination and cooperation that democratic backsliding would put in peril.** Put simply, the United States is a less effective and influential actor if it

loses its ability to rely on its partnerships with other democratic nations.

**A slide toward authoritarianism could also challenge the current global order by diluting U.S. influence in critical international institutions, including the United Nations, the World Bank, and the International Monetary Fund (IMF).** Democratic decline would weaken Western efforts within these institutions to advance issues such as Internet freedom and the responsibility to protect. In the case of Internet governance, for example, Western democracies support an open, largely private, global Internet. Autocracies, in contrast, promote state control over the Internet, including laws and other mechanisms that facilitate their ability to censor and persecute dissidents. Already many autocracies, including Belarus, China, Iran, and Zimbabwe, have coalesced in the “Likeminded Group of Developing Countries” within the United Nations to advocate their interests. **the rising influence of autocracies could enable these countries to bypass the IMF and World Bank all together.** For example, the Chinese-created Asian Infrastructure and Investment Bank and the BRICS Bank—which includes Russia, China, and an increasingly authoritarian South Africa—provide countries with the potential to bypass existing global financial institutions when it suits their interests. **Authoritarian-led alternatives pose the risk that global economic governance will become fragmented and less effective.**

**Violence and instability would also likely increase** if more democracies give way to autocracy. International relations literature tells us that **democracies are less likely to fight wars** against other democracies, suggesting that **interstate wars would rise as the number of democracies declines.** Moreover, within countries that are already autocratic, additional movement away from democracy, or an “authoritarian hardening,” would increase global instability. **Highly repressive autocracies are the most likely to experience state failure,** as was the case in the Central African Republic, Libya, Somalia, Syria, and Yemen. In this way, democratic decline would significantly strain the international order because rising levels of instability would exceed the West’s ability to respond to the tremendous costs of peacekeeping, humanitarian assistance, and refugee flows.

Finally, widespread **democratic decline would contribute to rising anti-U.S. sentiment that could fuel a global order that is increasingly antagonistic to the United States** and its values. Most autocracies are highly suspicious of U.S. intentions and view the creation of an external enemy as an effective means for boosting their own public support. Russian president Vladimir Putin, Venezuelan president Nicolas Maduro, and Bolivian president Evo Morales regularly accuse the United States of fomenting instability and supporting regime change. **This vilification of the United States is a convenient way of distracting their publics from regime shortcomings and fostering public support for strongman tactics.**

Since 9/11, and particularly in the wake of the Arab Spring, Western enthusiasm for democracy support has waned. Rising levels of instability, including in Ukraine and the Middle East, fragile governance in Afghanistan and Iraq, **and sustained threats from terrorist groups** such as ISIL have increased Western focus on security and stability. U.S.

preoccupation with intelligence sharing, basing and overflight rights, along with the perception that autocracy equates with stability, are trumping democracy and human rights considerations.

While rising levels of global instability explain part of Washington's shift from an historical commitment to democracy, the nature of the policy process itself is a less appreciated factor. Policy discussions tend to occur on a country-by-country basis—leading to choices that weigh the costs and benefits of democracy support within the confines of a single country.

From this perspective, the benefits of counterterrorism cooperation or access to natural resources are regularly judged to outweigh the perceived costs of supporting human rights. A serious problem arises, however, when this process is replicated across countries. The bilateral focus rarely incorporates the risks to the U.S.-led global order that arise from widespread democratic decline across multiple countries.

Many of the threats to the current global order, such as China's rise or the diffusion of power, are driven by factors that the United States and West more generally have little leverage to influence or control. Democracy, however, is an area where Western actions can affect outcomes. Factoring in the risks that arise from a global democratic decline into policy discussions is a vital step to building a comprehensive approach to democracy support. Bringing this perspective to the table may not lead to dramatic shifts in foreign policy, but it would ensure that we are having the right conversation.

## 1AC---Solvency

I affirm: The appropriation of outer space by private entities is unjust.

Plan: States ought to recognize that the appropriation of outer space by private entities is unjust through an implementation of a global public trust doctrine regulating outer space.

Common Usage Defines Appropriation as:

<https://dictionary.cambridge.org/us/dictionary/english/appropriation> - Cambridge

<https://www.dictionary.com/browse/appropriation#:~:text=the%20act%20of%20appropriating%20or,a%20special%20purpose%2C%20especially%20money>. - dictionary.com

**the act of taking something for your own use, usually without permission:**

**AND**

“Appropriation” includes claims to natural resources, not just real property.

Amanda M. **Leon**, Associate\*, Caplin & Drysdale, Chtd., **'18**, Virginia Law Review [“MINING FOR MEANING: AN EXAMINATION OF THE LEGALITY OF PROPERTY RIGHTS IN SPACE RESOURCES” Vol. 104:497 2018] TDI

Appropriation. The term “appropriation” also remains ambiguous. Webster’s defines the verb “appropriate” as “to take to oneself in exclusion of others; to claim or use as by an exclusive or pre-eminent right; as, let no man appropriate a common benefit.”<sup>165</sup> Similarly, **Black’s Law**

**Dictionary describes “appropriate” as an act “[t]o make a thing one’s own;** to make a thing the subject of property; to exercise dominion over an object to the extent, and for the purpose, of making it subserve one’s own proper use or pleasure.”<sup>166</sup> Oftentimes, appropriation refers to the setting aside of government funds, the taking of land for public purposes, or a tort



of wrongfully taking another's property as one's own. The term **appropriation** is often used not only with respect to real property but also with water. According to U.S. case law, a person completes an appropriation of water by diversion of the water and an application of the water to beneficial use.<sup>167</sup> This common use of the term "appropriation" with respect to water illustrates two key points: (1) the term applies to natural resources—e.g., water or minerals—not just real property, and (2) mining space resources and putting them to beneficial use—e.g., selling or manufacturing the mined resources—could reasonably be interpreted as an "appropriation" of outer space. While the ordinary meaning of "appropriation" reasonably includes the taking of natural resources as well as land, whether the drafters and parties to the OST envisioned such a broad meaning of the term remains difficult to determine with any certainty. The prohibition against appropriation "by any other means" supports such a reading, though, by expanding the prohibition to other types not explicitly described.<sup>168</sup> As illustrated by this analysis, considerable ambiguity remains after this ordinary-meaning analysis and thus, the question of Treaty obligations and property rights remains unresolved. In order to resolve these ambiguities, an analysis of preparatory materials, historical context, and state practice follows.

## AND

The doctrine solves – the plan forces government in the loop to ensure equitable distribution of resources

**Babcock 19** [Hope M. Babcock, Professor of Law, Georgetown University Law Center, "The Public Trust Doctrine, Outer Space, and the Global Commons: Time to Call Home ET," 2019, *Syracuse Law Review*, Vol. 69, <https://lawreview.syr.edu/wp-content/uploads/2019/09/H-Babcock-Article-Final-Documents-v2.pdf>, EA]

F. The Public Trust Doctrine (PTD) as a Gap Filling, Place-Holding Management Approach<sup>506</sup>

The PTD offers both an approach for managing an open access commons and a gap-filling tool until a regulatory regime is adopted.<sup>507</sup> The doctrine is based on the idea that the "sovereign holds certain common properties in trust in perpetuity for the free and unimpeded use of the general public."<sup>508</sup> The public's right to access and use trust resources is never lost, and neither the government nor private individuals can alienate resources unless for a comparable public purpose.<sup>509</sup> The resources the doctrine protects "have long been part of a 'taxonomy of property' [that recognizes] the division of natural wealth into private and public property."<sup>510</sup>

"The doctrine places on governments 'an affirmative, ongoing duty to safeguard the long-term preservation of those resources for the benefit of the general public,'"<sup>511</sup> thus

limiting the sovereign's power on behalf of both present and future individuals.<sup>512</sup> It directs the government to manage trust resources for public benefit, not private gain.<sup>513</sup> It applies to private as well as public resources and is used to preserve the public's access to CPRs.<sup>514</sup> Government agencies have the non-rescindable power to revoke uses of trust resources that are inconsistent with the doctrine.<sup>515</sup> This effectively places a permanent easement over trust resources that burdens their ownership with an overriding public interest in the preservation of those resources.<sup>516</sup> However, trust resources can be alienated in favor of private ownership, if the alienation will still serve the public's interest in those resources and not interfere with trust uses of the remaining land.<sup>517</sup> The PTD, therefore, protects the "people's common heritage,"<sup>518</sup> just as Article 11 of the Moon Treaty protects outer space as part of the common heritage of mankind.<sup>519</sup>

**The doctrine** also **appears to be infinitely malleable.** Original uses of the doctrine were restricted to only that “aspect of the public domain below the low-water mark on the margin of the sea and the great lakes, the waters over those lands, and the waters within rivers and streams of any consequence;”<sup>520</sup> and covered only traditional uses of those lands, like fishing and navigation.<sup>521</sup> Over time, the scope and application of the doctrine broadened to protect more public resources and different uses.<sup>522</sup> Thus, **the doctrine expanded to protect new trust resources**, such as dry sand beaches, inland lakes, groundwater, dry riverbeds, and wildlife,<sup>523</sup> and passive uses of those resources, like scientific study.<sup>524</sup> The original link to navigable water and tidelands disappeared.<sup>525</sup> Supporters of the doctrine successfully advocated that it be applied to “wildlife, parks, cemeteries, and even works of fine art,”<sup>526</sup> while arguing more recently its application to the atmosphere.<sup>527</sup> A doctrine that imposes a perpetual duty on the sovereign to preserve trust resources, prevents their alienation for private benefit, assures public access to them, and can be invoked by anyone seems particularly useful as a management tool in outer space.<sup>528</sup> **The fact that public access to trust resources is so central to the doctrine makes it reflective,** not contradictory, of international space law’s bar against appropriation **of outer space and of the principle of space being the “province of all mankind.”**<sup>529</sup> [BEGIN FN 529] 529. See Babcock, supra note 509, at 892 (internal footnote omitted) (“Since property containing trust lands is conveyed subject to the doctrine, absolute **private dominion over property impressed with the public trust can never be granted unless it is in the public interest to do so**.”); see also Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 453 (1892). [END FN 529] It avoids the problems of alienation and exclusion associated with any of the management approaches associated with some form of private property and requires neither the creation of a new administrative authority nor the presence of a close-knit group of like-minded people.<sup>530</sup> Members of the public, both rich and poor, can invoke and enforce the doctrine as easily as the sovereign.<sup>531</sup> It is cost effective to the extent that no separate apparatus is required to implement it, and **the doctrine has shown itself to be highly adaptable and innovative as different needs arise.**<sup>532</sup> **It could also fill the gap in international law with respect to managing celestial property.** Therefore, of all the management approaches studied here, the PTD seems the most suited to keep order in space until a regulatory regime is imposed.

## AND

No turns – Public Trust creates a win-win scenario by allowing sustainable exploitation without appropriation – solves water wars and plutocracy

**Pastorius 13** [Claudia Pastorius, J.D., Barry University School of Law, “Law and Policy in the Global Space Industry’s Lift-Off,” 2013, *Barry Law Review*, Vol. 19, Issue 1, <https://lawpublications.barry.edu/cgi/viewcontent.cgi?article=1007&context=barrylrev>, EA] C. The Public Trust Doctrine

Rooted in Roman law, **the public trust doctrine, whereby a state** actor **holds and manages property in trust for the benefit of the public, is** now **regularly applied through common law and statutory regulations around the world.**<sup>280</sup> The origins of the public trust doctrine are found in the Justinian Institute’s declaration that the air, running water, and the seas (and seashores) were common to mankind, and as such, are resources to be protected by the sovereign.<sup>281</sup> Virgiliu Pop, a Romanian Space Agency researcher, postulates that the Outer Space Treaty essentially creates a public trust in the agreement by stating: “for the benefit of and in the interest of all countries” in Article I.<sup>282</sup> The missing piece of the puzzle, he claims, is the undesignated trustee(s).<sup>283</sup> The sovereign or state is traditionally the trustee in a public trust.<sup>284</sup>

In a public trust holding property ownership rights, the bundle of property rights<sup>285</sup> is thus divided between the trustee (the State) and the beneficiaries (the Public).<sup>286</sup>

There are two co-existing interests to trust lands: the *jus publicum* which is the public’s right to use and enjoy trust lands; and the *jus privatum* which is the **private property** rights that may exist in the use and possession of trust lands. The State may convey the *jus privatum* to private owners, but this private interest is subservient to the *jus publicum*, which is the **State’s** inalienable **interest that it continues to hold in the trust** land or water.<sup>287</sup>

The ownership of the property thus remains with the trustee; but, the rights to exclude, use, and enjoy could be allocated to a group, an individual, or an entity.<sup>288</sup>

The United Nations created a Trusteeship Council in the hopes of applying the common heritage of mankind doctrine, but its operations centered on work with post-war decolonization territories and were suspended in 1994.<sup>289</sup> In its inception, it was conceived that the Trusteeship Council would operate as the “trustee of the common heritage of humankind to ensure the necessary coordinated approach to this concern” and manage the *jus privatum* rights of common heritage properties.<sup>290</sup> The board of trustees consisted of: China, France, Russia, the United Kingdom and the United States—the five permanent members of the Security Council.<sup>291</sup> Proposals to utilize the Trusteeship Council to address management of “global commons” have made little progress.<sup>292</sup> One contributing factor to the ineffectiveness of the Trusteeship Council may be that the political differences between Security Council members often leads to a stalemate in decisionmaking.<sup>293</sup>

Despite the dissolution of the Trusteeship Council, there are utilitarian reasons why the formation of a trust for outer space resources would minimize economic detriments to all nation-states and optimize economic benefits of outer space development for all, particularly for spacefaring pioneer nations.<sup>294</sup> The common heritage of mankind and public trust doctrine’s proposals and applications have been met with resistance due to the tension between the “haves” and the “have-nots,” or the developed and developing nations.<sup>295</sup> However, the successful application of public trusts to environmental resource management could be changing perspectives on the utility of the doctrine.<sup>296</sup> Where there are common preservation and conservation goals for a given resource, the public trust is more likely to succeed as the means for managing the benefits and responsibilities relative to the resource.<sup>297</sup>

Two successful applications of the public trust principles that could influence the management of outer space resources are the International Telecommunications Union (ITU) and the United States Bureau of Land Management (BLM).<sup>298</sup> The ITU issues licenses for orbital allocations of satellites and the use of radio frequencies.<sup>299</sup> By necessity, the nation-states of the world have peaceably participated in the licensing regime.<sup>300</sup> A true tragedy of the commons would result if our telecommunications channel appropriations were chaotic, and, if entities placed satellites into orbit unilaterally with no precautionary coordination.<sup>301</sup> Without coordination and commitment to the rules, the overlapping noises would prevent people from hearing each other on the radio, and millions of dollars of satellite equipment, as well as our communication systems, would be at risk.<sup>302</sup>

The BLM raises an incredible amount of revenue for the government by selling leases of publicly managed lands for oil and natural gas exploration and exploitation to the United States.<sup>303</sup> The BLM raised \$233 million through leases of public lands in 2012 alone.<sup>304</sup> Methods the BLM employs that could be adopted for use with outer space leaseholds are: (1) the auctioning of leases; (2) relative pricing per acre of lease payments depending on whether or not the land is producing; (3) imposing environmental resource management limits on resource exploitation, and (4) issuing fixed term leases with conditions for renewal.<sup>305</sup> Some space law academics have noted that United Nations’ treaties and other space law accords will need to distinguish surface property rights on celestial bodies and extraction rights.<sup>306</sup> Some even argue that asteroids should be treated as chattel and not land.<sup>307</sup> The BLM legal property rights management is an excellent model to look to for establishing the legal property rights that will be needed in outer space for mining minerals, extracting water, and harvesting Helium-3.

If leasehold estates held in trust were conferred in outer space, then measures could be taken to ensure optimal and equitable allocation of outer space leaseholds, and rules could be imposed to manage the sustainable exploitation of space resources.<sup>308</sup> Problems such as space debris pollution could be avoided by reviewing development plans to ensure measures to prevent pollution, exit strategies of endeavors, or plans of relative permanence are in place before the projects take-off.<sup>309</sup> Controversies regarding planned celestial land use and competing claims to more lucrative territories could be arbitrated and resolved on Earth. From an economic perspective, even though the possibility of “free” appropriation of outer space resources might encourage more space exploration initiatives, development with consistent and reliable rules would provide the stronger incentive of protecting the commercial investments in space exploration.<sup>310</sup>

An outer space public trust can also be more economically beneficial for nation-states and the people within them. Lease payments for outer space exploration, exploitation, and building rights could be very lucrative for spacefaring nation-states.<sup>311</sup> A different form of income from the global space industry may help re-capture lost economic benefits of space program investments that may occur because of the transferability of financial benefits within the globalized economy.<sup>312</sup> Beneficiaries do not have to benefit equally in a trust; in fact, the principles of the common heritage of mankind doctrine assert that the benefits should be shared “equitably.”<sup>313</sup> Distributions could be made equitably by establishing pro rata criteria for nation-state “shares” in the trust such as space program budget investments, the value of nationally incorporated space technology firms, and a nation-state’s stake in a given venture. Non-spacefaring nations could have nominal shares in the trust with the option of increasing their number of shares when they invest in the global space industry. Spacefaring nations could economically benefit in proportion to their investments in the global space industry and in particular ventures. In this manner, the benefits of space activities could be commonly shared by nation-states in a more equitable manner while also encouraging investments in infrastructure and funding to benefit the commercial space corporations.

AND

No PICs – decks the whole regime.

**Hickman 2** [John Hickman and Everett Dolman, \* associate professor in the Department of Government and International Studies at Berry College, “Resurrecting the Space Age: A State-Centered Commentary on the Outer Space Regime,” 2002, *Comparative Strategy*, Vol. 21, Issue 2, <https://www.tandfonline.com/doi/abs/10.1080/014959302317350855>]

Is the collectivization of all of outer space under international law a permanent disability? Fortunately, the answer is no. Under international law, state parties to a treaty may withdraw from its obligations through negotiation, novation, substitution, cancellation, or, rebus sic stantibus, when events overcome the intent of the original treaty, such as when one or more of the other state parties has ceased to exist. Moreover, Article 17 of the OST articulates a straightforward mechanism for withdrawal:

“Any state party to this treaty may give notice of its withdrawal from the treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.”

Thus a state party need merely announce its intention to withdraw and then wait one year. Withdrawal of a single state party to the treaty, however, would not necessarily terminate the treaty between the other state parties. Yet, the decision of an important state not to be bound by a regime-creating treaty obviously endangers the entire treaty. The decision of the United States or China to withdraw from the OST would have far greater implications for the survival of the international space regime than the same decision by Bangladesh, Burkina Faso, or Papua New Guinea—the equality of states under international law remains nothing more than a useful fiction. For the OST to remain good international law, it must be accepted as such by the major space faring states of the 21st Century: the United States, Russia, the European Union, Japan, and China. One defection from the regime by a member of this group would no doubt lead to its effective collapse, as the remaining space faring states are unlikely to use the kind of coercion necessary to enforce the regime. A more likely response to such a defection is a scramble to make similar claims to sovereignty, based on historical precedent and effective occupation. Similar rushes to stake claims for territory sovereignty in other celestial bodies might follow.

# Underview 1 -FW

**Morality is based on response to problems in the world, which justifies focus on resolving material conditions of violence.**

Gregory Fernando **Pappas 16** [Texas A&M University] "The Pragmatists' Approach to Injustice", The Pluralist Volume 11, Number 1, Spring 2016,

In Experience and Nature, Dewey names the empirical way of doing philosophy the "denotative method" (LW 1:371).<sup>18</sup> What Dewey means by "denotation" is simply the phase of an empirical inquiry where we are concerned with designating, as free from theoretical presuppositions as possible, the concrete problem (subject matter) for which we can provide different and even competing descriptions and theories. Thus an empirical **inquiry about an injustice must begin with a rough and tentative designation of where the injustices from within the broader context of our everyday life and activities are.** Once we designate the subject matter, we then engage in the inquiry itself, including diagnosis, possibly even constructing theories and developing concepts. Of course, that is not the end of the inquiry. We must then take the results of that inquiry "as a path pointing and leading back to something in primary experience" (LW 1:17). This looping back is essential, and it neverends as long as there are new experiences of injustice that may require a revision of our theories.¶ **Injustices are events suffered by concrete people at a particular time and in a situation. We need to start by pointing out and describing these problematic experiences instead of starting with a theoretical account or diagnosis of them.** Dewey is concerned with the consequences of not following the methodological advice to distinguish designation from diagnosis. Definitions, theoretical criteria, and diagnosis can be useful; they have their proper place and function once inquiry is on its way, but if stressed too much at the start of inquiry, they can blind us to aspects of concrete problems that escape our theoretical lenses. **We must attempt to pretheoretically designate the subject matter, that is, to "point" in a certain direction, even with a vague or crude description of the problem.** But, for philosophers, this task is not easy because, for instance, we are often too prone to interpret the particular problem in a way that verifies our most cherished theories of injustice. **One must be careful to designate the subject matter in such a way as not to slant the question in favor of one's theory or theoretical preconceptions.** A philosopher must make an honest effort to designate the injustices based on what is experienced as such because **a concrete social problem** (e.g., injustice) **is independent and neutral with respect to the different possible competing diagnoses or theories about its causes.** Otherwise, there is no way to test or adjudicate between competing accounts.¶ That designation precedes diagnosis is true of any inquiry that claims to be empirical. To start with the diagnosis is to not start with the problem. The problem is pretheoretical or preinquiry, not in any mysterious sense but in that it is first suffered by someone in a particular context. Otherwise, the diagnosis about the causes of the problem has nothing to be about, and the inquiry cannot even be initiated. In his Logic, Dewey lays out the pattern of all empirical inquiries (LW 12). All inquiries start with what he calls an "indeterminate situation," prior even to a "problematic situation." Here is a sketch of the process:¶ Indeterminate situation → problematic situation → diagnosis: What is the problem? What is the solution? (operations of analysis, ideas, observations, clarification, formulating and testing hypothesis, reasoning, etc.) → final judgment (resolution: determinate situation)¶ To make more clear or vivid the difference of the starting point between Anderson and Dewey, we can use the example (or analogy) of medical practice, one that they both use to make their points.<sup>19</sup> The doctor's starting point is the experience of a particular illness of a particular patient, that is, the concrete and unique embodied patient experiencing a disruption or problematic change in his life. "The patient having something the matter with him is antecedent; but being ill (having the experience of illness) is not the same as being an object of knowledge."<sup>20</sup> The problem becomes an object of knowledge once the doctor engages in a certain interaction with the patient, analysis, and testing that leads to a diagnosis. For Dewey, "diagnosis" occurs when the doctor is already engaged in operations of experimental observation in which he is already narrowing the field of relevant evidence, concerned with the correlation between the nature of the problem and possible solutions. Dewey explains the process: "A physician . . . is called by a patient. His original material of experience is thereby provided. This experienced object sets

the problem of inquiry. . . . He calls upon his store of knowledge to suggest ideas that may aid him in reaching a judgment as to the nature of the trouble and its proper treatment.”<sup>21</sup> Just as with the doctor, empirical inquirers about injustice must return to the concrete problem for testing, and should never forget that their conceptual abstractions and general knowledge are just means to ameliorate what is particular, context-bound, and unique. In reaching a diagnosis, the doctor, of course, relies on all of his background knowledge about diseases and evidence, but a good doctor never forgets the individuality of the particular problem (patient and illness).<sup>¶</sup> The physician in diagnosing a case of disease deals with something individualized. He draws upon a store of general principles of physiology, etc., already at his command. Without this store of conceptual material he is helpless. But he does not attempt to reduce the case to an exact specimen of certain laws of physiology and pathology, or do away with its unique individuality. Rather he uses general statements as aids to direct his observation of the particular case, so as to discover what it is like. They function as intellectual tools or instrumentalities. (LW 4:166)<sup>¶</sup> Dewey uses the example of the doctor to emphasize the radical contextualism and particularism of his view. The good doctor never forgets that this patient and “this ill is just the specific ill that it is. It never is an exact duplicate of anything else.”<sup>22</sup> Similarly, the empirical philosopher in her inquiry about an injustice brings forth general knowledge or expertise to an inquiry into the causes of an injustice. She relies on sociology and history as well as knowledge of different forms of injustice, but it is all in the service of inquiry about the singularity of each injustice suffered in a situation.<sup>¶</sup> The correction or refinement that I am making to Anderson’s characterization of the pragmatists’ approach is not a minor terminological or scholarly point; it has methodological and practical consequences in how we approach an injustice. The distinction between the diagnosis and the problem (the illness, the injustice) is an important functional distinction that must be kept in inquiry because it keeps us alert to the provisional and hypothetical aspect of any diagnosis. **To rectify or improve any diagnosis, we must return to the**

**concrete problem;** as with the patient, this may require attending as much as possible to the uniqueness of the problem. This is in the same spirit as Anderson’s preference for an empirical inquiry that tries to “capture all of the expressive harms” in situations of injustice. But this requires that we begin with and return to concrete experiences of injustice and not by starting with a diagnosis of the causes of injustice provided by studies in the social sciences, as in (5) above. For instance, a diagnosis of causes that are due to systematic, structural features of society or the world disregards aspects of the concrete experiences of injustice that are not systematic and structural.<sup>¶</sup> **Making problematic situations of injustice our explicit methodological commitment as a starting point rather than a diagnosis of the problem is an important and useful imperative for nonideal theories. It functions as a directive to inquirers toward the problem, to locate it, and designate it before venturing into descriptions, diagnosis, analysis, clarifications, hypotheses, and reasoning about the problem.** These operations are instrumental to its amelioration and must ultimately return (be tested) by the problem that sparked the inquiry. The directive can make inquirers more attentive to the complex ways in which such differences as race, culture, class, or gender intersect in a problem of injustice. Sensitivity to complexity and difference in matters of injustice is not easy; it is a very demanding methodological prescription because it means that no matter how confident we may feel about applying solutions designed to ameliorate systematic evil, **our cures should try to address as much as possible the unique circumstances of each injustice.** The analogy with medical inquiry and practice is useful in making this point, since the hope is that someday we will improve our tools of inquiry to practice a much more personalized medicine than we do today, that is, provide a diagnosis and a solution specific to each patient.

**Pleasure and pain are intrinsic value and disvalue – everything else regresses – robust neuroscience.**

## **Blum et al. 18**

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Pleasure is not only one of the three primary reward functions but it also defines reward. As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the basis for hedonic theories of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14].

Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain's pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals.

Evolutionary theories of pleasure: The love connection BO:D

Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us "what we are," i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others—when we are in love or desperately search for it.

It is well established that modern biological theory conjectures that organisms are the result of evolutionary competition. In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring.

Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards,



including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding.

There have been theories linking pleasure as a required component of health benefits salutogenesis, (salutogenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health.

Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage.

Finding happiness is different between apes and humans

As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are many brain regions, often termed hot and cold spots, that significantly modulate (increase or decrease) our pleasure or even produce the opposite of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered.

Desire and reward centers

It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation.

In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for

motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41].

Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42].

Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans.

In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45].

Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations.

Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50]

In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders.

In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, there was a remarkable contrast in the neocortices, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS.

Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter **dopamine plays a substantial role in humans' ability to pursue various rewards that are perhaps months or even years away** in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible afterlife. **This may explain what often motivates people to work for things that have no apparent short-term benefit** [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shifting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual's physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

## Extinction outweighs under any framework

**Pummer 15** [Theron, Junior Research Fellow in Philosophy at St. Anne's College, University of Oxford. "Moral Agreement on Saving the World" Practical Ethics, University of Oxford. May 18, 2015] AT

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)

**Death is bad and outweighs – a] agents can't act if they fear for their bodily security which constrains every ethical theory, b] it destroys the subject itself – kills any ability to achieve value in ethics since life is a prerequisite which means it's a side constraint since we can't reach the end goal of ethics without life**

## Underview 2

**1AR Theory –**

**---A] the aff gets it because otherwise the 1NC could be infinitely abusive which o/w,**

**---B] it's drop the debater because the 2AR is too short to win a shell AND substance so theory can only check abuse for the aff**

**---C] no neg RVI because otherwise they could dump on the shell for 6 minutes and get away with anything by sheer brute force,**

**---D] fairness is a voter and outweighs because it's constitutive of competitive activities like debate and every argument either debater makes relies on the judge evaluating them fairly, it comes before substance because it determines whether it's an accurate measure of who debate better.**