# **NEG**

#### **The value is justice.**

#### **The value criterion is mitigating structural violence.**

#### **Structural violence is based in moral exclusion, which is fundamentally unjust because exclusion is based on arbitrarily perceived differences – only action based off our theory of power can mitigate.**

**Winter and Leighton 99** |Deborah DuNann Winter and Dana C. Leighton. Winter|[Psychologist that specializes in Social Psych, Counseling Psych, Historical and Contemporary Issues, Peace Psychology. Leighton: PhD graduate student in the Psychology Department at the University of Arkansas. Knowledgeable in the fields of social psychology, peace psychology, and justice and intergroup responses to transgressions of justice] “Peace, conflict, and violence: Peace psychology in the 21st century.” Pg 4-5 ghs//VA

Finally, to recognize the operation of **structural violence forces us to ask questions about how and why we tolerate it, questions which often have painful answers for the privileged elite** who unconsciously support it. A final question of this section is how and why we allow ourselves to be so oblivious to structural violence. Susan Opotow offers an intriguing set of answers, in her article Social Injustice. She argues that **our normal perceptual cognitive processes divide people into in-groups and out-groups. Those outside our group lie outside our scope of justice. Injustice** that would be instantaneously confronted if it occurred to someone we love or know **is barely noticed if it occurs to strangers or those who are invisible or irrelevant**. We do not seem to be able to open our minds and our hearts to everyone, so **we draw conceptual lines between those who are in and out of our moral circle. Those who fall outside are morally excluded, and become either invisible,** or demeaned in some way so that we do not have to acknowledge the injustice they suffer. **Moral exclusion is** a human failing, but Opotow argues convincingly that it is **an outcome of everyday social cognition**. To reduce its nefarious effects, **we must be vigilant in noticing and listening to oppressed, invisible, outsiders.** Inclusionary thinking can be fostered by relationships, communication, and appreciation of diversity. Like Opotow, all the authors in this section point out that **structural violence is not inevitable if we become aware of its operation, and build systematic ways to mitigate its effects.** Learning about structural violence may be discouraging, overwhelming, or maddening, but these papers encourage us to step beyond guilt and anger, and begin to think about how to reduce structural violence. All the authors in this section note that the same structures (such as global communication and normal social cognition) which feed structural violence, can also be used to empower citizens to reduce it. In the long run, reducing structural violence by reclaiming neighborhoods, demanding social justice and living wages, providing prenatal care, alleviating sexism, and celebrating local cultures, will be our most surefooted path to building lasting peace.

# **COUNTERPLAN**

#### **Thus the plan – The United States federal government should ratify the United Nations General Assembly 1979 Moon Agreement (a.k.a. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies).**

#### **The Moon agreement puts regulations on private entities - The Moon and other celestial bodies would be reserved for peaceful activities**

**Martin 21** (James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterey and does not necessarily reflect the opinions of and has not been independently verified by NTI or its directors, officers, employees, or agents/”Moon Agreement”/ NTI/ Jan 29, 2021/ Accessed: Jan-11-2021/

<https://www.nti.org/education-center/treaties-and-regimes/agreement-governing-activities-states-moon-and-other-celestial-bodies-moon-agreement/> )(SPHS,SO)

**The Moon Agreement supplements the Outer Space Treaty and confirmed the demilitarization of the Moon and other celestial bodies as provided for in that treaty. The Agreement also prohibits the use or threat of use of force, or any other hostile action or threat of hostile action on the Moon, which is reserved exclusively for peaceful activities. It prohibits the use of the Moon in order to commit any hostile act or to engage in any such threat in relation to the Earth, the Moon, spacecraft, the personnel of spacecraft, or man-made space objects. States Parties shall not place in orbit around or other trajectory to or around the Moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the Moon.The agreement forbids the establishment of military bases, installations and fortifications on the Moon and, the testing of any type of weapons, and the conduct of military maneuvers on the Moon. But the use of military personnel for scientific research or for any other peaceful purposes is not prohibited.** The use of any equipment or facility necessary for peaceful exploration and use of the Moon is not prohibited. States Parties are committed to inform the UN Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of their activities concerned with the exploration and use of the Moon. Information on the time, purposes, locations, orbital parameters, and duration is to be given in respect of each mission to the Moon as soon as possible after launching, while information on the results of each mission, including scientific results, shall be furnished upon completion of the mission. In the case of a mission lasting more than 60 days, information on conduct of the mission, including any scientific results, is to be given periodically, at 30-day intervals. For missions lasting more than six months, only significant additions to such information need be reported thereafter. **As reflected in the provisions of this Agreement the Moon and its natural resources are the common heritage of mankind. The Moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means. Neither the surface nor the subsurface of the Moon, nor any part thereof or its natural resources, can become the property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity, or of any natural person.** The placement of personnel, space vehicles, equipment, facilities, stations and installations on or below the surface of the Moon, including structures connected with its surface or subsurface, shall not create a right of ownership over the surface or the subsurface of the Moon or any areas thereof.Each State Party may assure itself that the activities of other States Parties in the exploration and use of the Moon are compatible with the provisions of this Agreement. To this end, all space vehicles, equipment, facilities, stations, and installations on the Moon shall be open to other States Parties. Such States Parties shall give reasonable advance notice of a projected visit, so that appropriate consultations may be held and maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited. Any State Party may act on its own behalf or with the full or partial assistance of any other State Party or through appropriate international procedures within the framework of the United Nations and in accordance with the UN Charter. A State Party which has reason to believe that another State Party is not fulfilling its obligations under this Agreement or that another State Party is interfering with the rights which the former State Party has under this Agreement may request consultations with that State Party. A State Party receiving such a request shall enter into such consultations without delay. Any other State Party that requests to do so shall be entitled to take part in the consultations. Each State Party participating in such consultations shall seek a mutually acceptable resolution of any controversy and shall bear in mind the rights and interests of all States Parties. The UN Secretary-General shall be informed of the results of the consultations and shall transmit the information received to all States Parties concerned.

#### **We are currently in the middle of a climate crisis - with the largest contributing factor being Air pollution as a result of non sustainable energy sources**

**NYU 20** (NYU School of Law's State Energy & Environmental Impact Center and Institute for Policy Integrity co-hosted an online conference on September 22, 2020 to explore the serious threat that climate change poses to public health. Experts from around the country discussed climate-related health problems and some of the barriers working against the full consideration of health impacts in climate and environmental policy./“State energy and environmental impact center: Health effects of burning fossil fuels”/ Accessed jan 13 2022 /<https://www.law.nyu.edu/centers/state-impact/projects-reports/projects/climate-and-health/environmental-justice>)(SPHS,SO)

Air Pollution **The burning of fossil fuels is the world’s largest contributor to air pollution and is a major global public health concern. It releases a wide array of harmful pollutants, including particulate matter, ozone, nitrogen dioxide, sulfur dioxide, mercury, and other hazardous air pollutants. The health effects of breathing polluted air include reduced lung function, asthma, cardiovascular disease, preterm birth, and premature death.**39 Generally, older people are more susceptible to premature death due to air pollution40 while children are especially vulnerable to asthma and impaired lung function development.41 Air pollution, predominantly from burning fossil fuels, reduces worldwide average life expectancy by nearly three years.42 If fossil fuel emissions were completely eliminated, the global average life expectancy would increase by 1.1 years.43 In the U.S., more than 100 million people live in areas where pollution exceeds national standards.44 **Research has shown that reducing pollution and improving air quality has significant positive impacts on health.** In Southern California, for example, reductions in nitrogen dioxide and particulate matter (PM) over a 21-year period led to 20 percent fewer asthma diagnoses in children.45 Yet, research has shown that even pollution at levels below national standards adversely affects health, signaling a need for stronger regulation and enforcement. A study of the Medicare population in the U.S. found significant evidence of increased risk of death from exposure to fine PM and ozone at concentrations below the National Ambient Air Quality Standards.46 Another study concluded that as air pollution increases, the rate of mortality increases almost linearly, and that any level of air pollution is harmful to human health.47 Particulate Matter Pollution PM pollution is a mixture of solid particles and liquid droplets found in the air and is the largest environmental health risk factor in the U.S., accounting for 63 percent of deaths from environmental causes.48 PM pollution varies in size, and is usually classified in two categories — larger particles with diameters up to 10 micrometers and the more deadly49 fine particles with diameters 2.5 micrometers or smaller.50 The majority of PM2.5 is formed through chemical reactions in the air with pollutants emitted from power plants, automobiles, and other sources of fossil fuel emissions.51 Exposure to PM has been associated with a wide range of health problems, including cardiovascular disease, respiratory issues, lung cancer, and adverse birth outcomes,52 and is associated with up to 45,000 deaths annually.53 PM2.5 pollution has more recently been linked to hospitalizations for common diseases, including those related to blood, skin, and kidneys, even when daily PM2.5 levels are below World Health Organization (WHO) air quality guidelines.54 In fact, researchers have concluded that there is no level of PM2.5 pollution below which the risk of death is negligible, and therefore no “safe” level of PM2.5.55 Improvements in air quality from reducing PM pollution have been shown to have significant positive impacts on health. For example, reducing PM pollution could increase average life expectancy by eight months in the wildfire-prone areas in the Central Valley of California and by two months in the industry-heavy areas of Pittsburgh, Pennsylvania and eastern Ohio.56 Unfortunately, after declining by 24.2 percent from 2009 to 2016, average annual PM pollution in the U.S. increased by 5.5 percent between 2016 and 2018. This increase was associated with 9,700 additional premature deaths in 2018, representing $89 billion in damages.57 Ozone Pollution Ozone, the main ingredient in forming smog, is another exceptionally dangerous air pollutant that results from burning fossil fuels. Ozone is made up of nitrogen oxides and volatile organic chemicals that develop in the atmosphere after being emitted from tailpipes, power plants, refineries, and other sources.58 Exposure to ground-level ozone is associated with many adverse health effects including premature death, respiratory hospital admissions, cases of aggravated asthma, lost days of school, and reduced productivity among outdoor workers.59 More than one million deaths worldwide60 and 51,000 deaths in the U.S. are associated with ground level ozone pollution every year.61 Coal Impacts on Public Health **Burning coal releases a number of harmful pollutants, including particulate matter, sulfur dioxide, nitrogen dioxide, and metals such as mercury, arsenic, chromium, and other known and possible carcinogens. The public health consequences of extracting, processing, and burning coal include respiratory illness, cancer, cardiovascular disease, kidney disease, poor birth outcomes, poor quality of life, mental health problems, and death**.62 More than 3,000 deaths every year are attributable to PM2.5 pollution from U.S. coal-fired power plants.63 Exposure to mercury released from power plants has been linked to an increased risk of diabetes and autoimmune dysfunction in adults and permanent neurological damage in children.64 Research has shown that regulation and enforcement efforts aimed at reducing emissions from coal-fired power plants result in positive impacts for public health.65 For example, reductions in sulfur dioxide emissions from coal-fired power plants in Kentucky were associated with fewer local hospitalizations and emergency department visits due to asthma, as well as decreases in people’s use of rescue inhalers.66 Analysis by the Union of Concerned Scientists found that closing Illinois’ coal plants by 2030 and replacing them with clean energy would prevent significant numbers of heart attacks, hospital admissions, incidents of chronic bronchitis, and premature deaths.67 **Coal-fired power plants also harm public health by producing immense quantities of coal ash, a byproduct of burning coal that contains numerous toxic metals including mercury, arsenic, lead, chromium, cadmium, nickel, zinc, and others.**68 There are at least 737 coal ash dumps in 43 states, nearly all of which are contaminating groundwater with toxins.69 Power plants typically dispose of coal ash in surface impoundments, often unlined, which leak into surrounding soil, groundwater and surface water, and are disproportionately likely to be located near low-income communities. Breathing and ingesting coal ash toxins can cause a multitude of health problems including cancer, cardiovascular problems, and nervous system damage,70 and research has documented increased health problems in children who reside near coal ash impoundments.71 Oil & Gas Production and Public Health **More than 50 million Americans live near oil and gas operations that have measured air pollution levels exceeding the federal health standard.**72 Oil and gas operations are the leading industrial source of smog-forming volatile organic compounds, releasing numerous toxic chemicals, such as hydrogen sulfide, toluene, xylene, benzene, and formaldehyde, that have serious public health impacts.73 Exposure to air pollution released by the oil and gas sector is expected to cause 2,000 premature deaths, 3,600 emergency room visits, 100,000 lost days of work, and over a million asthma exacerbations annually by 2025 and each year thereafter, resulting in annual health damages of $13 to 26 billion.74 Studies have also linked living near oil and gas wells to lower birth weights, preterm births, and other negative birth outcomes in Colorado, Pennsylvania, Oklahoma, and Texas. A study of millions of birth records in California found that pregnant women living near the highest-producing wells in the state were 40 percent more likely to have low birth weight babies than people living farther away or near inactive sites.75 Transportation and Public Health **The transportation sector, which relies almost entirely on fossil fuels, is the largest source of U.S. greenhouse gas emissions and accounts for more than two-thirds of all oil burned in the U.S. every day.76 Pollution emitted by the transportation sector includes particulate matter, volatile organic compounds, nitrogen oxides, carbon monoxide, and sulfur dioxide, and causes a wide array of health impacts ranging from respiratory, cardiovascular, and immune system problems to cancer and premature death.**77 In New York City alone, PM2.5 pollution from motor vehicle emissions contributes to 320 deaths and 870 hospitalizations and emergency department visits annually.78 As with nearly all polluting industries, reducing air pollution from the transportation sector would have significant positive impacts on public health. For example, studies have found that implementing clean transportation policies could prevent 120,000 premature deaths by 2030 and 14,000 deaths annually thereafter.79

#### **Asteroid mining could help our current climate crisis - The moon agreement would need to be ratified for this to happen**

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All of a sudden, out of the dreams of geeks and the potential of technology, an entire new economy explodes into being. There are new networks full of new kinds of behavior to be cultivated or exploited. The rising tide of money lifts many startups upwards; some sink. The world is awash in a sense of abundance and fear — this could save us, this could destroy us. Some argue this new economy is saving the planet from the carbon economy. And at the apex of the revolution, a small number of foresighted people with famous names acquire wealth greater and faster than any tycoon in human history. This is the story of the internet economy in the early 21st century. (Arguably, it’s the story of every great market leap since the railroads). It is also, I confidently predict, the story of the space resources economy in the early 22nd. The main difference is this: Internet pioneers become billionaires; many, many asteroid mining pioneers will become trillionaires. The early 21st century thinks it’s seen a wealth gap; it ain’t seen nothing yet. **At the words “asteroid mining,” a contemporary reader would likely roll their eyes. We are still decades away from the orbital future where a vast semi-automated operation harvests the bottomless wealth of our solar system — the platinum, the gold, the diamonds, the rare earth metals that lay under layers of dust, there for the taking in ridiculous quantities.** How much, exactly? We’re only just beginning to guess. Asterank, a service that keeps track of some 6,000 asteroids in NASA’s database, prices out the estimated mineral content in each one in the current world market. More than 500 are listed as “>$100 trillion.” The estimated profit on just the top 10 asteroids judged “most cost effective” — that is, the easiest to reach and to mine, subtracting rocket fuel and other operating costs, is around $1.5 trillion. Is it ours for the taking? Well, here’s the thing — we’re taking it already, and have been doing so since we started mining metals thousands of years ago. Asteroid strikes are the only reason rare metals exist in the Earth’s crust; the native ones were all sucked into our planet’s merciless iron core millions of years ago. Why not go to the source? **As a side project, space mining can grab water from the rocks and comets — water which, with a little processing makes rocket fuel. Which in turn makes even more currently unimaginable space operations possible, including ones that could give the planet all the energy it needs to avert climate catastrophe.** Cislunar space — the bit around us and the moon, the local neighborhood, basically — is about to get very interesting. It’s hard, even for the most asteroid-minded visionaries, to truly believe the full scope of this future space economy right now. Just as hard as it would have been in 1945, when an engineer named Vannevar Bush first proposed a vast library of shared knowledge that people the world over would access via personal computers, to see that mushroom into a global network of streaming movies and grandmas posting photos and trolls and spies who move the needle on presidential elections. No technology’s pioneer can predict its second-order effects. The space vision thing is particularly difficult in 2019. Not only do we have plenty of urgent problems with democracy and justice to keep us occupied, but the only two companies on the planet to have gone public with asteroid-mining business plans, startups that seemed to be going strong and had launched satellites already, were just bought by larger companies that are, shall we say, less comfortable executing on long-term visions. Planetary Resources was founded in 2012 in a blaze of publicity. Its funding came from, among others, Larry Page, Eric Schmidt, Ross Perot, and the country of Luxembourg. It had inked an orbital launch deal with Virgin Galactic. And it was sold last October to a blockchain software company. (To 21st century readers, this paragraph would look like I’m playing tech world mad libs.) In January, the other company, Deep Space Industries, also partly funded by Luxembourg (way to get in the space race, Luxembourg!), was sold to Bradford Space, owned by a U.S. investment group called the American Industrial Acquisition Corporation. Maybe these new overlords plan on continuing their acquisitions' asteroid mining endeavors rather than stripping the companies for parts. Both companies have been notably silent on the subject. “The asteroid mining bubble has burst,” declared The Space Review, one of the few online publications to even pay attention. That’s also to be expected. After all, anyone trying to build Google in 1945 would go bankrupt. Just as the internet needed a half-dozen major leaps forward in computing before it could even exist, space industry needs its launch infrastructure. Currently, the world’s richest person and its most well-known entrepreneur, Jeff Bezos and Elon Musk, respectively, are working on the relatively cheap reusable rockets asteroid pioneers will need. (As I was writing this, Bezos announced in an email blast that one of his New Shepherd rockets had flown to space and back five times like it was nothing, delivering 38 payloads for various customers while remaining entirely intact.) Meanwhile, quietly, Earth’s scientists are laying the groundwork of research the space economy needs. Japan’s Hayabusa 2 spacecraft has been in orbit around asteroid Ryugu for the last year and a half, learning everything it can. (Ryugu, worth $30 billion according to Asterank, is the website's #1 most cost-effective target.) The craft dropped tiny hopping robot rovers and a small bomb on its target; pictures of the small crater that resulted were released afterwards. Officially, the mission is to help us figure out how the solar system formed. Unofficially, it will help us understand whether all those useful metals clump together at the heart of an asteroid, as some theorize. If so, it’s game on for asteroid prospectors. If not, we can still get at the metals with other techniques, such as optical mining (which basically involves sticking an asteroid in a bag and drilling with sunlight; sounds nuts to us, but NASA has proved it in the lab). It’ll just take more time. Effectively, we’ve just made our first mark at the base of the first space mineshaft. And there’s more to come in 2020 when Hayabusa 2 returns to Earth bearing samples. If its buckets of sand contain a modicum of gold dust, tiny chunks of platinum or pebbles of compressed carbon — aka diamonds — then the Duchy of Luxembourg won’t be the only deep-pocketed investor to sit up and take notice. The possibility of private missions to asteroids, with or without a human crew, is almost here. The next step in the process that takes us from here to where you are? Tell us an inspiring story about it, one that makes people believe, and start to imagine themselves mining in space. How would you explain the world-changing nature of the internet to 1945? How would you persuade them that there was gold to be mined in Vannevar Bush’s idea? You’d let the new economy and its benefits play out in the form of a novel. As Hayabusa dropped a bomb on Ryugu, Daniel Suarez was making the exact same asteroid the target of his fiction. Suarez is a tech consultant and developer turned New York Times bestselling author. His novels thus far have been techno-thrillers: his debut, Daemon, a novel of Silicon Valley’s worst nightmare, AI run rampant, made more than a million dollars. So it was a telling shift in cultural mood that Suarez’s latest thriller is also a very in-depth description of — and thinly-disguised advocacy for — asteroid mining. In Delta-v, published in April, a billionaire in the 2030s named Nathan Joyce recruits a team of adventurers who know nothing about space — a world-renowned cave-diver, a world-renowned mountaineer — for the first crewed asteroid mission. Elon Musk fans might expect this to be Joyce’s tale, but he soon fades into the background. The asteroid-nauts are the true heroes of Delta-v. Not only are they offered a massive payday — $6 million each for four years’ work — they also have agency in key decisions in the distant enterprise. Suarez deliberately based them on present-day heroes. The mission is essential, Joyce declares, to save Earth from its major problems. First of all, the fictional billionaire wheels in a fictional Nobel economist to demonstrate the actual truth that the entire global economy is sitting on a mountain of debt. It has to keep growing or it will implode, so we might as well take the majority of the industrial growth off-world where it can’t do any more harm to the biosphere. **Secondly, there’s the climate change fix. Suarez sees asteroid mining as the only way we’re going to build solar power satellites. Which, as you probably know, is a form of uninterrupted solar power collection that is theoretically more effective, inch for inch, than any solar panels on Earth at high noon, but operating 24/7. (In space, basically, it’s always double high noon). The power collected is beamed back to large receptors on Earth with large, low-power microwaves, which researchers think will be harmless enough to let humans and animals pass through the beam. A space solar power array like the one China is said to be working on could reliably supply 2,000 gigawatts — or over 1,000 times more power than the largest solar farm currently in existence. “We're looking at a 20-year window to completely replace human civilization's power infrastructure,” Suarez told me, citing the report of the Intergovernmental Panel on Climate Change on the coming catastrophe. Solar satellite technology “has existed since the 1970s. What we were missing is millions of tons of construction materials in orbit. Asteroid mining can place it there.”** The Earth-centric early 21st century can’t really wrap its brain around this, but the idea is not to bring all that building material and precious metals down into our gravity well. Far better to create a whole new commodities exchange in space. You mine the useful stuff of asteroids both near to Earth and far, thousands of them taking less energy to reach than the moon. That’s something else we’re still grasping, how relatively easy it is to ship stuff in zero-G environments. Robot craft can move 10-meter boulders like they’re nothing. You bring it all back to sell to companies that will refine and synthesize it in orbit for a myriad of purposes. Big pharma, to take one controversial industry, would benefit by taking its manufacturing off-world. The molecular structure of many chemicals grows better in microgravity. The expectation is that a lot of these space businesses — and all the orbital infrastructure designed to support them — will be automated, controlled remotely via telepresence, and monitored by AI. But Suarez is adamant that thousands if not millions of actual human workers will thrive in the space economy, even as robots take their jobs in old industries back on Earth. “Our initial expansion into space will most likely be unsettled and experimental. Human beings excel in such environments,” he says. “Humans can improvise and figure things out as we go. Robots must be purpose-built, and it's going to take time and experience for us to design and build them.” Which is another way startups back on Earth will get rich in the new economy: designing and building those robots, the nearest thing to selling picks and shovels to prospectors in the space gold rush. Thousands of humans in space at any one time will also require the design and construction of stations that spin to create artificial gravity. Again, this isn’t a great stretch: Using centrifugal force to simulate gravity in space was first proposed by scientists in the 19th century. NASA has had workable designs for spinning cislunar habitats called O’Neill cylinders since the 1970s. We just haven’t funded them. But the trillionaires clearly will. In short, Suarez has carefully laid out a vision of the orbital economy that offers something for everyone in our divided society. For Green New Deal Millennials, there’s the prospect of removing our reliance on fossil fuels at a stroke and literally lifting dirty industries off the face of the planet. For libertarians and other rugged individualists, there’s a whole new frontier to be developed, largely beyond the reach of government. For those who worry about asteroids that could wipe out civilization — though luckily, this isn't likely to happen any time soon — here is a way for humanity to get proficient in moving them out of the way, fast. Indeed, the National Space Society has offered a proposal to capture the asteroid Aphosis (which is set to miss Earth in the year 2029, but not by a very comfortable margin), keep it in orbit, and turn it into 150 small solar-power satellites, as a proof of concept. For the woke folks who care about the bloody history of diamond production, there’s the likelihood that space mining would wipe out Earth’s entire diamond industry. “They will be found in quantities unattainable on Earth,” claims Suarez, with good reason. We are starting to discover that there is more crystalized carbon in the cosmos than we ever suspected. Astronomers have identified one distant planet made entirely of diamond; there may be more, but they are, ironically, hard to see. We don’t have diamond planets in our solar system (and we can’t do interstellar missions), but we do have diamond-studded asteroids. Mine them for long enough and you will wear diamonds on the soles of your shoes. For investors and entrepreneurs, there is the thrill of racing to be the first member of the four-comma club. (Neil deGrasse Tyson believes that the first trillionaire will be an asteroid mining mogul; Suarez isn’t sure whether they’ll be the first, but he suspects that asteroid mining “will mint more trillionaires than any industry in history.”) For the regular guy or gal with a 401K, there’ll be a fast-rising stock market — inflated not by financial shenanigans this time, but an actual increase in what the world counts as wealth. For workers, there is the promise of sharing in the untold riches, both legally and otherwise. It would be hard to stop miners attaining mineral wealth beyond their paycheck, under the table, when your bosses are millions of miles away. Then there’s the likelihood of rapid advancement in this new economy, where the miners fast gain the knowledge necessary to become moguls. “After several tours in space working for others, perhaps on six-month or year-long contracts, it's likely that some workers will partner to set up their own businesses there,” says Suarez. “Either serving the needs of increasing numbers of workers and businesses in space, marketing services to Earth, or launching asteroid mining startups themselves.” All in all, it’s starting to sound a damn sight more beneficial to the human race than the internet economy is. Not a moment too soon. I’ve written encouragingly about asteroid mining several times before, each time touting the massive potential wealth that seems likely to be made. And each time there’s been a sense of disquiet among my readers, a sense that we’re taking our rapacious capitalist ways and exploiting space. Whereas the truth is, this is exactly the version of capitalism humanity has needed all along: the kind where there is no ecosystem to destroy, no marginalized group to make miserable. A safe, dead space where capitalism’s most enthusiastic pioneers can go nuts to their hearts’ content, so long as they clean up their space junk. (Space junk is a real problem in orbital space because it has thousands of vulnerable satellites clustered closely together around our little blue rock. The vast emptiness of cislunar space, not so much.) And because they’re up there making all the wealth on their commodities market, we down here on Earth can certainly afford to focus less on growing our stock market. Maybe even, whisper it low, we can afford a fully functioning social safety net, plus free healthcare and free education for everyone on the planet. It’s also clearly the area where we should have focused space exploration all along. If we settle on Mars, we may disturb as-yet-undiscovered native bacteria — and as the character Nathan Joyce shouts at a group of “Mars-obsessed” entrepreneurs in Delta-V, Mars is basically filled with toxic sand and is thus looking increasingly impossible to colonize. (Sorry, Mark Watney from The Martian, those potatoes would probably kill you.) Interstellar colonization, as we’ve already noted, is out. Cislunar space and near-Earth asteroids are where it’s at. And it’s almost certainly where you’re at. Hope you’re having a blast up there, and that you’re inspired to come up with new geek dreams that we, down in the gravity well of the past, cannot even begin to imagine.

#### **Minorities deal with the brunt of climate change - solving climate change can significantly improve their conditions**

**NYU 20** (NYU School of Law's State Energy & Environmental Impact Center and Institute for Policy Integrity co-hosted an online conference on September 22, 2020 to explore the serious threat that climate change poses to public health. Experts from around the country discussed climate-related health problems and some of the barriers working against the full consideration of health impacts in climate and environmental policy./“State energy and environmental impact center: Enviornmental justice”/Accessed jan 13 2022 /<https://www.law.nyu.edu/centers/state-impact/projects-reports/projects/climate-and-health/environmental-justice>)(SPHS,SO)

Environmental Justice **The toll of climate change on human health is a serious environmental justice issue. Although all Americans are vulnerable to the health impacts of climate change, these impacts are not felt equally across the country. People of color, Indigenous peoples, low-income communities, immigrant groups, people with disabilities, children, pregnant women, and older adults are more susceptible to many of the health harms related to climate change and fossil fuel emissions.**80 Ensuring that all people regardless of race, color, national origin or income are included and treated equally in the development, implementation, and enforcement of the laws and regulations mitigating the effects of climate change is crucial to protecting the health of all Americans. **Climate Impacts Limited economic resources and deteriorating infrastructure are some of the barriers to communities’ ability to recover after experiencing extreme weather events, increasing their vulnerability to climate-related health effects**. In the wake of Hurricanes Katrina and Sandy, many environmental justice communities experienced increased illness and injury, death, and displacement due to poor-quality housing, lack of access to emergency communications, lack of access to transportation, inadequate access to health care services and medications, limited post-disaster employment, and limited or no health and property insurance.81 In 2017, three hurricanes impacted the United States and caused severe damage. Yet, existing inequalities and the federal government’s abysmal response after Hurricane Maria in Puerto Rico resulted in long-lasting challenges to the island’s recovery. Puerto Ricans do not have access to many of the benefits of the Affordable Care Act and, therefore, rely on public programs like community health centers, Medicaid, and Medicare for healthcare. After the storm hit, these severely underfunded programs were not able to meet the health needs of the island.82 In addition, compared to the Federal Emergency Management Agency’s (FEMA) response after hurricanes made landfall in Texas and Florida in the same year, there are vast differences in the number of supplies and personnel that FEMA deployed to Puerto Rico. These discrepancies compounded with the widespread disruptions to already fragile medical systems on the island likely contributed to Hurricane Maria being one of the deadliest storms in U.S. history.83 In some areas of the country, climate change is permanently displacing people from their homes, creating climate refugees. In Alaska, the loss of sea ice due to abnormally high temperatures and unusual weather patterns is causing dramatic coastal erosion, threatening the existence of 31 Native coastal and river communities. In the small village Newtok, for example, erosion and flooding threaten the safety and wellbeing of residents and have forced many of them to relocate.84 Off the coast of Louisiana, repeated devastation from multiple hurricanes, the loss of landmass due to sea level rise and erosion, and oil and gas development are also forcing residents of bayou communities to relocate or make plans to relocate if these conditions continue to worsen.85 **Policy failures in areas outside of public health and environmental policy have also led to environmental injustice due to climate impacts. Evidence suggests that redlining policies of the 20th century, which segregated cities and diverted investments away from communities of color, have led to urban heat islands that continue to disproportionately impact these neighborhoods.86 Redlined neighborhoods in more than 100 U.S. cities are more likely to have fewer trees and parks that cool the air and more asphalt and highways that radiate heat.** On average, these neighborhoods are 5°F warmer than non-redlined districts, leading to a higher risk of heatstroke and other heat-related illnesses for these residents.87 Even cities that have enacted policies to combat the effects of past housing discrimination policies still experience differences in temperatures of as much as 12.5°F between historically redlined neighborhoods and non-redlined neighborhoods.88 As the effects of climate change lead to more days of extreme heat, these communities will feel the greatest impact. **Pollution Impacts Low-income communities and communities of color are more likely to be located near polluting industries and be exposed to polluted air.89 People of color are nearly twice as likely as white people to live within one mile of chemical facilities, and children of color make up more than two-thirds of the children that live in this zone**.90 A study of the burden of PM-emitting facilities on surrounding communities found that people living in poverty had 1.4 times more exposure to PM pollution than the overall population, and people of color had 1.3 times more exposure.91 In Imperial County, California, residents suffer from poor air quality due to high levels of ozone pollution from Mexicali, a large city across the border in Mexico. It is well-documented that residents of Imperial County experience above average rates of asthma, and high poverty and unemployment rates and language barriers prevent residents from receiving adequate medical care. Yet, the Environmental Protection Agency (EPA) waived requirements under the Clean Air Act to clean up the air in Imperial County because much of the air pollution comes from across the U.S.-Mexico border.92 Researchers have also found that environmental justice communities are disproportionately located near oil and gas facilities. For instance, over 1 million Black people live in counties with a risk of cancer from toxins emitted by natural gas facilities above EPA’s level of “concern,” and more than 6.7 million Black people live in the 91 counties in the U.S. with oil refineries.93 Wells, pipelines, and compressor stations are disproportionately located in low-income, non-white, and marginalized communities, where they may leak gas, generate noise, and endanger health while producing no local benefits.94 The location of these oil and gas facilities is undoubtedly a contributing factor to the 138,000 asthma attacks and 101,000 lost school days that Black children experience each year.95 In addition, the transportation sector places an excessive burden of air pollution on environmental justice communities. A study of air pollution from cars, trucks, and buses in the Northeast and Mid-Atlantic found that communities of color are exposed to 66 percent more PM2.5 pollution than white communities96; and an assessment of the health burden of vehicle emissions in New York City concluded that high poverty neighborhoods are disproportionately impacted by ozone and PM2.5 pollution.97