## Framing

**The standard is maximizing expected wellbeing, or utilitarianism**

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

**2] Extinction comes first 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)

#### Collapses to util – Equality means util- only an impartial consequentialist theory can treat everyone’s pain and pleasure equally- anything else arbitrarily prioritizes one over another

**Ratner 84** [Leonard G. Ratner, professor of law at USC, Hofstra Law Journal, 12 Hofstra L. Rev. 723, spring, 1984] Recut VM

**John Rawls derives an equality principle from individual autonomy by presuming that "in the original position**," i.e., in a "state of nature", where a "veil of ignorance" cloaks prospective resource distributions, everyone (1) would be reluctant to risk impoverishment for a chance at abundance, and, consequently, (2) would agree to equal distribution generally, but (3) would allow above-average distributions for productivity incentives that increase resources sufficiently to reimburse those with below-average distributions. [164](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n164" \t "_self) Similar agreement on voting equality (which is the essential  [\*760]  procedural norm for majoritarian choice) [165](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n165" \t "_self) and on such "basic liberties" as "freedom of speech . . . conscience . . . thought . . . person . . . property [ownership] . . . and freedom from arbitrary arrest" [166](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n166" \t "_self) is premised on a general awareness that the "quality of civilization" [167](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n167" \t "_self) will be enhanced by "the most extensive liberty [for each] compatible with a like liberty for all," [168](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n168" \t "_self) i.e., by equal liberty "unless an unequal distribution . . . is to everyone's advantage." [169](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n169" \t "_self) **This concept, offered as "an alternative to utilitarian thought," is rested ultimately on "a sense of justice," derived from an inherent "moral capacity," "considered judgments," "intuitively appealing" presumptions, and a "reflective equilibrium" reached after weighing competing moral positions. But the intuitive conclusion suggests utilitarian perceptions.** The presumed majoritarian preference for *assured* need fulfillment rather than *possible* need-plus-want fulfillment; the productivity-incentive corollary; and the voting-equality, **basic-liberties postulate imply: a long-run survival goal**; the diminishing marginal utility of resources; [172](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n172" \t "_self) the priority of need fulfillment over want fulfillment; [173](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n173" \t "_self) the need-fulfilling consequences of productivity incentives; the needimpairing, counterproductive effect of minority discontent, majority insecurity, inhibited thought, disrupted communication, and arbitrarily constrained movement; the enhancement of per capita need/want fulfillment by avoidance of need-impairing allocations; and the contributions of both individual autonomy and majoritarian choice to such fulfillment. **The accuracy of these propositions in fact turns on empirically verifiable information about the world as it is, not on intuitively appealing presumptions about a fictitious state of nature. Despite his explicit rejection of utilitarian thought, Rawls intimates a utilitarian foundation for his equal-treatment conclusions by noting that a sense of justice, moral feelings, and altruistic reciprocity may have evolutionary origins and by designating scarce resources, conflicting resource claims, and resulting collaborative arrangements as "circumstances of justice."** [176](http://www.lexis.com/research/retrieve?_m=754140ea250c3e13cdfa30aef4da39a8&csvc=bl&cform=bool&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVzz-zSkAA&_md5=031548f35fa80bab5596b0fd0b35fe07" \l "n176" \t "_self) His environmental paradigm, however, is not an epochal struggle to survive but "the original position," and his rationale is not long-run survival, but innate moral intuition.

#### Consequences would still matter from under the veil because they are impartial to individual bias – absent any state of affairs, we would default to intuitive understandings of pain and pleasure

## Mining

#### Private companies are set to mine in space – new tech and profit motives make space lucrative

Gilbert 21, (Alex Gilbert is a complex systems researcher and PhD student in Space Resources at the Colorado School of Mines, “Mining in Space is Coming”), 4-26-21, Milken Institute Review, https://www.milkenreview.org/articles/mining-in-space-is-coming // MNHS NL

Space exploration is back. after decades of disappointment, a combination of better technology, falling costs and a rush of competitive energy from the private sector has put space travel front and center. indeed, many analysts (even some with their feet on the ground) believe that commercial developments in the space industry may be on the cusp of starting the largest resource rush in history: mining on the Moon, Mars and asteroids. While this may sound fantastical, some baby steps toward the goal have already been taken. Last year, NASA awarded contracts to four companies to extract small amounts of lunar regolith by 2024, effectively beginning the [era of commercial space mining](https://payneinstitute.mines.edu/wp-content/uploads/sites/149/2020/09/Payne-Institute-Commentary-The-Era-of-Commercial-Space-Mining-Begins.pdf). Whether this proves to be the dawn of a gigantic adjunct to mining on earth — and more immediately, a key to unlocking cost-effective space travel — will turn on the answers to a host of questions ranging from what resources can be efficiently. As every fan of science fiction knows, the resources of the solar system appear virtually unlimited compared to those on Earth. There are whole other planets, dozens of moons, thousands of massive asteroids and millions of small ones that doubtless contain humungous quantities of materials that are scarce and very valuable (back on Earth). Visionaries including Jeff Bezos [imagine heavy industry moving to space](https://www.fastcompany.com/90347364/jeff-bezos-wants-to-save-earth-by-moving-industry-to-space) and Earth becoming a residential area. However, as entrepreneurs look to harness the riches beyond the atmosphere, access to space resources remains tangled in the realities of economics and governance. Start with the fact that space belongs to no country, complicating traditional methods of resource allocation, property rights and trade. With limited demand for materials in space itself and the need for huge amounts of energy to return materials to Earth, creating a viable industry will turn on major advances in technology, finance and business models. That said, there’s no grass growing under potential pioneers’ feet. Potential economic, scientific and even security benefits underlie an emerging geopolitical competition to pursue space mining. The United States is rapidly emerging as a front-runner, in part due to its ambitious Artemis Program to lead a multinational consortium back to the Moon. But it is also a leader in creating a legal infrastructure for mineral exploitation. The United States has adopted the world’s first spaceresources law, recognizing the property rights of private companies and individuals to materials gathered in space. However, the United States is hardly alone. Luxembourg and the United Arab Emirates (you read those right) are racing to codify space-resources laws of their own, hoping to attract investment to their entrepot nations with business-friendly legal frameworks. China reportedly views space-resource development as a national priority, part of a strategy to challenge U.S. economic and security primacy in space. Meanwhile, Russia, Japan, India and the European Space Agency all harbor space-mining ambitions of their own. Governing these emerging interests is an outdated treaty framework from the Cold War. Sooner rather than later, we’ll need [new agreements](https://issues.org/new-policies-needed-to-advance-space-mining/) to facilitate private investment and ensure international cooperation.

Back up for a moment. For the record, space is already being heavily exploited, because space resources include non-material assets such as orbital locations and abundant sunlight that enable satellites to provide services to Earth. Indeed, satellite-based telecommunications and global positioning systems have become indispensable infrastructure underpinning the modern economy. Mining space for materials, of course, is another matter. In the past several decades, planetary science has confirmed what has long been suspected: celestial bodies are potential sources for dozens of natural materials that, in the right time and place, are incredibly valuabl**e**. Of these, water may be the most attractive in the near-term, because — with assistance from solar energy or nuclear fission — H2O can be split into hydrogen and oxygen to make rocket propellant, facilitating in-space refueling. So-called “rare earth” metals are also potential targets of asteroid miners intending to service Earth markets. Consisting of 17 elements, including lanthanum, neodymium, and yttrium, these critical materials (most of which are today mined in China at great environmental cost) are required for electronics. And they loom as bottlenecks in making the transition from fossil fuels to renewables backed up by battery storage. The Moon is a prime space mining target. Boosted by NASA’s mining solicitation, it is likely the first location for commercial mining. The Moon has several advantages. It is relatively close, requiring a journey of only several days by rocket and creating communication lags of only a couple seconds — a delay small enough to allow remote operation of robots from Earth. Its low gravity implies that relatively little energy expenditure will be needed to deliver mined resources to Earth orbit. The Moon may look parched — and by comparison to Earth, it is. But recent probes have confirmed substantial amounts of water ice lurking in [permanently shadowed craters](http://lroc.sese.asu.edu/posts/1105) at the lunar poles. Further, it seems that solar winds have implanted significant deposits of helium-3 (a light stable isotope of helium) across the equatorial regions of the Moon. Helium-3 is a potential fuel source for second and third-generation fusion reactors that one hopes will be in service later in the century. The isotope is packed with energy (admittedly hard to unleash in a controlled manner) that might augment sunlight as a source of clean, safe energy on Earth or to power fast spaceships in this century. Between its water and helium-3 deposits, the Moon could be the resource stepping-stone for further solar system exploration. Asteroids are another near-term [mining target](https://foreignpolicy.com/2016/04/28/the-asteroid-miners-guide-to-the-galaxy-space-race-mining-asteroids-planetary-research-deep-space-industries/). There are all sorts of space rocks hurtling through the solar system, with varying amounts of water, rare earth metals and other materials on board. The asteroid belt between the orbits of Mars and Jupiter contains most of them, many of which are greater than a kilometer in diameter. Although the potential water and mineral wealth of the asteroid belt is vast, the long distance from Earth and requisite travel times and energy consumption rule them out as targets in the near term. The prospects for space mining are being driven by technological advances across the space industry. The rise of reusable rocket components and the now-widespread use of off-the-shelf parts are lowering both launch and operations costs. Once limited to government contract missions and the delivery of telecom satellites to orbit, private firms are now emerging as leaders in developing “NewSpace” activities — a catch-all term for endeavors including orbital tourism, orbital manufacturing and mini-satellites providing specialized services. The space sector, with a market capitalization of $400 billion, could grow to as much as $1 trillion by 2040 as private investment soars.

#### Squo private companies are willing to invest, but the plan crosses a perception barrier which destroys investment

Shaw 13 - Lauren E, J.D. from Chapman University School of Law, ”Asteroids, the New Western Frontier: Applying Principles of the General Mining Law of 1872 to Incentive Asteroid Mining”, JOURNAL OF AIR LAW AND COMMERCE, Volume 78, Issue 1, Article 2, <https://scholar.smu.edu/cgi/viewcontent.cgi?article=1307&context=jalc> // recut MNHS NL

To some, the mining of asteroids might sound like the premise of a science fiction novel' or the solution to the heartwrenching, fictional scenario depicted in the film Armageddon.2 To others, it evokes a fantastical idea that may come to fruition in a distant reality. However, impressively funded companies have plans to send spacecraft to begin prospecting on asteroids within the next two years.' The issues associated with the mining of asteroids should be addressed before these plans are set in motion. Much has been written about the issues that might arise from allowing nations to own these space bodies and the minerals they contain; one such issue is the impact on international treaties.4 However, little has been written about the applicability of preexisting mining laws-which provide a basic property right scheme for the private sector-such as the General Mining Law of 1872 (Mining Law) to the management of asteroid mining.' The literature to date on how to legally address asteroid mining is minimal.' The articles that do address it propose the creation of different systems, such as a "property rights-based system that relies on the doctrine of first possession"7 or an international authority that would regulate mining operations.' Implementing a scheme that offers ownership of extracted resources without bestowing complete sovereignty is necessary to avoid an impending legal limbo-that is, an outer space "Wild West" equivalent where there is neither certainty nor security in who owns what.9 If private sector miners of asteroids know this right already exists, they will have more incentive to extract resources.' 0 This, in turn, would increase the chances of successful missions, resulting in numerous scientific and explorative benefits, along with the potential replenishment of key elements that are becoming increasingly depleted on Earth yet are still needed for modern industry. Scientists speculate that key elements needed for modern industry, including platinum, zinc, copper, phosphorus, lead, gold, and indium, could become depleted on Earth within the next fifty to sixty years." Many of these metals, such as platinum, are chemical elements that, unlike oil or diamonds, have no synthetic alternative.12 Once the reserves on Earth are mined to complete depletion, industries will be forced to recycle the existing supply of minerals, which will result in increased costs due to increased scarcity.' 3 However, evidence is accumulating that asteroids only a few hundred thousand miles away from Earth may be composed of an abundance of natural resources-including many of the minerals being mined to depletion on Earth-that could lead to vast profits." Most of the minerals being mined on Earth, including gold, iron, platinum, and palladium, originally came from the many asteroids that hit the Earth after the crust cooled during the planet's formation.'

#### Space mining is the only way to solve climate change

Duran 21, (Paloma Duran is a journalist and industry analyst at Mexico Business News, “Is Space Mining the Best Option to Face Climate Change?”), 11-03-21, Mexico Business News, https://mexicobusiness.news/mining/news/space-mining-best-option-face-climate-change // MNHS NL

Going to net zero means that more mining is needed. Experts have said that the current supply cannot support the necessary metals demand for the green transition. As a result, new mining alternatives have gained greater relevance, among them is space mining. Several countries, including Mexico, have shown their interest in this alternative, creating a new space race. “The solar system can support a billion times greater industry than we have on Earth. When you go to vastly larger scales of civilization, beyond the scale that a planet can support, then the types of things that civilization can do are incomprehensible to us … We would be able to promote healthy societies all over the world at the same time that we would be reducing the environmental burden on the Earth,” said Dr. Phil Metzger, Planetary Scientist at the University of Central Florida. Currently, there are several attempts to address global warming and transition to a net zero carbon economy. There has been an increasing interest in renewable energy and infrastructure, which has increased demand for various minerals, especially lithium, cobalt, nickel, copper and rare earth elements. However, according to experts, the world is close to entering a metals supercycle, where demand will exceed available supply, causing prices to skyrocket. Consequently, the mining industry has sought alternatives to achieve the required supply. Options include recycling and improved mine waste management, sea mining and space mining. The latter is considered one of the alternatives with the greatest potential. However, a regulatory framework is still lacking and there is almost no experience in this regard. Despite the lack of knowledge regarding space mining, it has become a very attractive option since the planet is running out of resources. While some people believe that land-based mining is cheaper than space mining, experts believe this may change in the long term. Furthermore, within the solar system there are countless bodies rich in minerals, ores and elements that will accelerate the fight against climate change. “There will come a point when there is nothing left to mine on the surface, prompting mines to reach even further below. But even those resources are destined to run out and so we will aim toward ocean mining, which already has specific technologies that are being developed. Nevertheless, even those mines are limited as well. The mine of the future, which today may seem unlikely, will no longer be on our planet. There will be a time when space mining will be as common as an open leach mine,” Eder Lugo, Minerals Head at Siemens, told MBN. More than 150 million asteroids measuring approximately 100m are believed to be in the inner solar system alone. In addition, astronomers have also identified abundant minerals near the Earth’s space and the Main Asteroid Belt. There are three main groups into which asteroids are divided: C- type, S- type, and M- type. The last two groups are the most abundant in minerals such as gold, platinum, cobalt, zinc, tin, lead, indium, silver, copper and rare earth metals. "Energy is limited here. Within just a few hundred years, you will have to cover all of the landmass of Earth in solar cells. So, what are you going to do? Well, what I think you are going to do is you are going to move out in space … all of our heavy industry will be moved off-planet and Earth will be zoned residential and light-industrial,” said Jeff Bezos, Founder of Amazon and the Space Launch Provider Blue Origin.

#### Anthropogenic warming causes extinction --- mitigation efforts now are key

Griffin, 2015 (David, Professor of Philosophy at Claremont, “The climate is ruined. So can civilization even survive?”, CNN, 4/14/2015, <http://www.cnn.com/2015/01/14/opinion/co2-crisis-griffin/> )

Although most of us worry about other things, climate scientists have become increasingly worried about the survival of civilization. For example, Lonnie Thompson, who received the U.S. National Medal of Science in 2010, said that virtually all climatologists "are now convinced that global warming poses a clear and present danger to civilization." Informed journalists share this concern. The climate crisis "threatens the survival of our civilization," said Pulitzer Prize-winner Ross Gelbspan. Mark Hertsgaard agrees, saying that the continuation of global warming "would create planetary conditions all but certain to end civilization as we know it." These scientists and journalists, moreover, are worried not only about the distant future but about the condition of the planet for their own children and grandchildren. James Hansen, often considered the world's leading climate scientist, entitled his book "Storms of My Grandchildren." The threat to civilization comes primarily from the increase of the level of carbon dioxide (CO2) in the atmosphere, due largely to the burning of fossil fuels. Before the rise of the industrial age, CO2 constituted only 275 ppm (parts per million) of the atmosphere. But it is now above 400 and rising about 2.5 ppm per year. Because of the CO2 increase, the planet's average temperature has increased 0.85 degrees Celsius (1.5 degrees Fahrenheit). Although this increase may not seem much, it has already brought about serious changes. The idea that we will be safe from "dangerous climate change" if we do not exceed a temperature rise of 2C (3.6F) has been widely accepted. But many informed people have rejected this assumption. In the opinion of journalist-turned-activist Bill McKibben, "the one degree we've raised the temperature already has melted the Arctic, so we're fools to find out what two will do." His warning is supported by James Hansen, who declared that "a target of two degrees (Celsius) is actually a prescription for long-term disaster." The burning of coal, oil, and natural gas has made the planet warmer than it had been since the rise of civilization 10,000 years ago. Civilization was made possible by the emergence about 12,000 years ago of the "Holocene" epoch, which turned out to be the Goldilocks zone - not too hot, not too cold. But now, says physicist Stefan Rahmstorf, "We are catapulting ourselves way out of the Holocene." This catapult is dangerous, because we have no evidence civilization can long survive with significantly higher temperatures. And yet, the world is on a trajectory that would lead to an increase of 4C (7F) in this century. In the opinion of many scientists and the World Bank, this could happen as early as the 2060s. What would "a 4C world" be like? According to Kevin Anderson of the Tyndall Centre for Climate Change Research (at the University of East Anglia), "during New York's summer heat waves the warmest days would be around 10-12C (18-21.6F) hotter [than today's]." Moreover, he has said, above an increase of 4C only about 10% of the human population will survive. Believe it or not, some scientists consider Anderson overly optimistic. The main reason for pessimism is the fear that the planet's temperature may be close to a tipping point that would initiate a "low-end runaway greenhouse," involving "out-of-control amplifying feedbacks." This condition would result, says Hansen, if all fossil fuels are burned (which is the intention of all fossil-fuel corporations and many governments). This result "would make most of the planet uninhabitable by humans." Moreover, many scientists believe that runaway global warming could occur much more quickly, because the rising temperature caused by CO2 could release massive amounts of methane (CH4), which is, during its first 20 years, 86 times more powerful than CO2. Warmer weather induces this release from carbon that has been stored in methane hydrates, in which enormous amounts of carbon -- four times as much as that emitted from fossil fuels since 1850 -- has been frozen in the Arctic's permafrost. And yet now the Arctic's temperature is warmer than it had been for 120,000 years -- in other words, more than 10 times longer than civilization has existed. According to Joe Romm, a physicist who created the Climate Progress website, methane release from thawing permafrost in the Arctic "is the most dangerous amplifying feedback in the entire carbon cycle." The amplifying feedback works like this: The warmer temperature releases millions of tons of methane, which then further raise the temperature, which in turn releases more methane. The resulting threat of runaway global warming may not be merely theoretical. Scientists have long been convinced that methane was central to the fastest period of global warming in geological history, which occurred 55 million years ago. Now a group of scientists have accumulated evidence that methane was also central to the greatest extinction of life thus far: the end-Permian extinction about 252 million years ago. Worse yet, whereas it was previously thought that significant amounts of permafrost would not melt, releasing its methane, until the planet's temperature has risen several degrees Celsius, recent studies indicate that a rise of 1.5 degrees would be enough to start the melting. What can be done then? Given the failure of political leaders to deal with the CO2 problem, it is now too late to prevent terrible developments. But it may -- just may -- be possible to keep global warming from bringing about the destruction of civilization. To have a chance, we must, as Hansen says, do everything possible to "keep climate close to the Holocene range" -- which means, mobilize the whole world to replace dirty energy with clean as soon as possible.

#### Developments in asteroid mining are key to solve poverty – even a small asteroid creates an unlimited supply and drops prices.

**Gowan 13**Rajesh Gowan, March 15 2013, “Exploring the New Frontier: Space Mining,” (in [Economic Development](http://notenoughgood.com/category/economic-development/), [Environment](http://notenoughgood.com/category/environment-2/), [General Information](http://notenoughgood.com/category/uncategorized/), [International Economic Development](http://notenoughgood.com/category/international-economic-development/), [Technology](http://notenoughgood.com/category/technology/)) <http://notenoughgood.com/2013/03/space-mining/>

Growing up, many of you have probably watched [Star Trek](http://www.startrek.com/). Exploration of space was an exciting prospect indeed. What fascinated me though, while watching, was the huge abundance of resources available, such as basic [raw materials](http://en.wikipedia.org/wiki/Raw_material), [energy](http://en.wikipedia.org/wiki/Energy#Forms_of_energy), even food and water. I remember thinking that if this was actually possible it would solve all of Earth’s problems. [Poverty](http://en.wikipedia.org/wiki/Poverty),[famine](http://en.wikipedia.org/wiki/Famine) and [climate destruction](http://en.wikipedia.org/wiki/Climate_change)would be a thing of the past. But is it just [science fiction](http://en.wikipedia.org/wiki/Science_fiction)? Years ago I would have said “Yes!” Today I believe that [Space Mining](http://en.wikipedia.org/wiki/Space_mining) is a scientific fact. “It’s one small step for man, one giant leap for mankind” as said by [Neil Armstrong](http://en.wikipedia.org/wiki/Neil_Armstrong). It has been over 50 years now since his words, came crackling from the moon. Major strides, around the subject of Space, have since been taken. *Space mining is real*. There are *currently two companies* gearing up to start with that very endeavor,  a company named [Deep Space Industries](http://deepspaceindustries.com/), and another named[Planetary Resources](http://www.planetaryresources.com/). Both *have drawn up* accelerated *plans to prospect*[*asteroids*](http://en.wikipedia.org/wiki/Asteroids), and other near Earth objects, *with the view of mining* in the future. I say accelerated because these companies plan to have their probing done by 2015, and plan to begin mining *as early as 2023*. This has been further accelerated by[NASA](http://www.nasa.gov/) and President Obama, who have created a change of focus from the Moon, to[near Earth objects](http://www.nasa.gov/mission_pages/asteroids/news/asteroid20130214.html), particularly for mining purposes. These companies are searching primarily for metals. However, water and hydrogen are also a high priority, as these could be used to produce rocket fuel in Space itself, which would further aid exploration activities. A plan currently exists to build a [Space fueling station](http://www.popsci.com/technology/article/2011-03/first-space-gas-station-launch-2015-servicing-geosynchronous-satellites), for that very purpose. Why Space, what if there nothing to be found? It is proven that there are a vast number of objects to be found. *There are over 9000 asteroid’s* viably *close to* the *Earth*. The largest body of water has also been found in Space, it has a volume that is 140 trillion times more, than our own oceans. Those numbers are simply astronomical, pardon the pun. Just last month, *the* [*asteroid* 1012\_DA14](http://sciencenavigators.org/asteroid-comes-closer-to-earth/)*measuring a mere 150feet* (45m) zoomed passed Earth. It, however, *had $65 billion worth of water and $130 billion worth of metals* within it. *Imagine what the numbers would be for, even a slightly, larger asteroid.*How can this solve our problems, here on Earth? This for me is the most exciting part, *if all these resources are brought to Earth, an unlimited supply would be created*. Think back to those stories, told by your parent and grandparents. The ones about how much milk used to cost, or how much they forked out for their cars. Those prices were laughably low. If resources could possibly be brought in from Space, *it would bring an end to*[*inflation*](http://www.investopedia.com/terms/i/inflation.asp#axzz2NQEnDiEJ)*all together.* *All that we will be paying for is the*[*means of production*](http://en.wikipedia.org/wiki/Means_of_production). *This could eliminate poverty worldwide, as there will be an abundance of water for growing food, and an abundance of metals* and other materials *for housing*. Furthermore, mining on earth would become obsolete, freeing up valuable land, for farming and habitation. *This is very possible because of one simple law, the law of supply and demand.* *A huge supply of a resource, coupled to an equally huge demand, means the price of those resources will drop significantly.*What are costs and legal implications? Yes, the fact is that the initial costs are high. However like any new means of production, the initial costs will be recovered relatively quickly. Most of the costs will be negated, for the mined resources will also be used in the process of mining itself, for example, powering the Space vehicles and machinery with water and hydrogen from asteroids. The lack of atmosphere in Space also ensures an almost unlimited workable life for machinery and tools. These technologies have already been built and tested, and they stand at the ready. On the subject of Laws, new Laws will, eventually, be needed according to [Professor Frans Van Der Dunk](http://law.unl.edu/facstaff/faculty/resident/fvonderdunk.shtml). However he believes that, the [1967 Exploration of Space treaty](http://history.nasa.gov/1967treaty.html) Sec 2 which states: No claims of sovereignty can be made by any Country in Space,  will suffice and ensure no legal issues, from the process of mining, and from the process of bringing resources to Earth. What about [deep sea mining](http://en.wikipedia.org/wiki/Deep_sea_mining), as an alternative? The main issue with deep sea mining lays in the fact that, the ocean’s resources are completely unknown and undetectable. Resources available from Asteroids and other near Earth objects are presently detectable, measurable and fully known. Earth is going into a crisis from drastic climate changes. Drastic problems call for drastic solutions. If those solutions lay in Space, then I, resoundingly, say “Go for it!” Considering Mankind’s survival is at stake, I’m sure you would say the same.

#### Warming harms the least well off the most

**Paddinson 21** Laura Paddison, 21-10-2021, "How the rich are driving climate change," No Publication, https://www.bbc.com/future/article/20211025-climate-how-to-make-the-rich-pay-for-their-carbon-emissions

In 2018, Stefan Gössling and his team spent months scouring the social media profiles of some of the richest celebrities, from Paris Hilton to Oprah Winfrey. The tourism professor from Linnaeus University in Sweden was looking for evidence of how much they were flying.  The answer was a lot. Bill Gates, one of the world's most high-profile environmental advocates, took 59 flights in 2017, according to Gössling's [calculations](https://www.sciencedirect.com/science/article/abs/pii/S016073831930132X?via%3Dihub), covering a distance of around 343,500km (213,000 miles) – more than eight times around the world – generating more than 1,600 tonnes of greenhouse gases (that's equivalent to the [average yearly emissions of 105 Americans](https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=US)).  Gössling's aim was to try to uncover the individual consumption levels of the mega rich, whose lifestyles are often shrouded in secrecy. His research coincided with a growing environmental movement, spearheaded by Greta Thunberg, which put a spotlight on personal accountability. Flying, one of the most carbon-intensive forms of consumption, became a symbol of this new accountability.  "The bigger your carbon footprint, the bigger your moral duty," Thunberg [wrote in the Guardian](https://www.theguardian.com/environment/2019/jan/25/our-house-is-on-fire-greta-thunberg16-urges-leaders-to-act-on-climate) in 2019.  The last few decades have shone a spotlight on global inequality. From the 2008 financial crisis, to the pandemic and the [increasingly severe impacts of climate change](https://www.bbc.com/future/article/20200618-climate-change-who-is-to-blame-and-why-does-it-matter) – disruptive events tend to hit the poorest first and hardest.But in debates about how to solve inequality, over-consumption is often overlooked. "Each unit you overshoot means someone has to give [something] up," says Lewis Akenji, managing director of Hot or Cool Institute, a Berlin-based think tank. As a result, the outsized carbon footprints of society's richest entrench inequality and threaten the world's ability to stave off catastrophic climate change. The statistics are startling. The world's wealthiest 10% were responsible for around half of global emissions in 2015, according to a 2020 [report](https://www.sei.org/wp-content/uploads/2020/09/research-report-carbon-inequality-era.pdf) from Oxfam and the Stockholm Environment Institute. The top 1% were responsible for 15% of emissions, nearly twice as much as **the world's poorest 50%,** who were responsible for just 7% and **will feel the brunt of climate impacts despite bearing the least responsibility for causing them.**