## Mining DA

#### Terrestrial mining major contributor to climate change. Sharma; 19

Rüttinger, Lukas, and Vigya Sharma. “Federal Foreign Office Climate Diplomacy Report.” Report Climate Diplomacy Climate Change and Mining, Climate Diplomacy, climate-diplomacy.org/sites/default/files/2020-10/AA%20Climate%20Diplomacy%20Report%202019.pdf

**The growing number and impact of extreme weather events has led to** increasing **awareness in the extractives industries of the potential negative impacts of climate change.** The mining industry has started thinking about their own vulnerabilities and the risks climate change could pose. However, there has been little research and political debate that takes a more comprehensive look at the links between climate change and mining. “Climate Change and Mining. A Foreign Policy Perspective” tries to fill this gap by shedding some light on these links and providing an overview of the complex challenges around extractive resources in the context of climate change. The report argues that foreign policy makers should pay more attention to the links between mining and climate change because (1) **the mining sector is one of the major emitters of greenhouse gases and it produces fossil energy resources that also significantly contribute to global CO2 emissions,** (2) **mining is a sector that is particularly vulnerable to climate change …The mining sector is extremely energy-intensive and one of the major emitters of greenhouse gases. Total CO2 emissions vary across the industry, largely depending upon the type of resource mined as well as the design and nature of the mining process. It is widely recognised that available mining deposits are increasingly deeper and of declining ore grade. This will lead to growing demands for water as well as greater mine waste, thereby raising energy consumption, and increasing the industry’s climate footprint.**

#### Current shortage of essential metals to stop climate change. Riley, 21

Riley, Charles. A Shortage of These Metals Could Make the Climate Crisis Worse, CNN, 5 May 2021, [www.cnn.com/2021/05/05/business/climate-crisis-metals-shortage/index.html](http://www.cnn.com/2021/05/05/business/climate-crisis-metals-shortage/index.html).

**The world won't be able to tackle the climate crisis unless there is a sharp increase in the supply of metals required to produce electric cars, solar panels, wind turbines and other clean energy technologies, according to the International Energy Agency. As countries switch to green energy, demand for copper, lithium, nickel, cobalt and rare earth elements is soaring. But they are all vulnerable to price volatility and shortages**, the agency warned in a report published on Wednesday, **because their supply chains are opaque, the quality of available deposits is declining and mining companies face stricter environmental and social standards. Limited access to known mineral deposits is another risk factor.** Three countries together control more than 75% of the global output of lithium, cobalt and rare earth elements. The Democratic Republic of Congo was responsible for 70% of cobalt production in 2019, and China produced 60% of rare earth elements while refining 50% to 70% of lithium and cobalt, and nearly 90% of rare earth elements. Australia is the other power player.

**Asteroid mining holds the solution to both cutting emissions and solving resource problem. Mahoney, 20**

Mahoney, Trevor. “Asteroid Mining and the Future of Resources.” Medium, Predict, 29 May 2020, medium.com/predict/asteroid-mining-and-the-future-of-resources-6bc0e4a5d317

As our technology advances, I believe that the answer to our resource-use problem may reveal itself out in the stars. Some groups are even putting money into the research to make it happen today. **Asteroid mining has the potential to provide humanity with the base materials needed for conversion to different forms of energy. Additionally, the abundance of asteroids in space, as well as the natural means by which they are created, may mark them as our next resource target… Mining these materials in space**, however, **would cut those emissions by a wide margin here on Earth. With no environment around them besides the vacuum of space, these materials could be harvested in a sustainable way.**

#### Private companies the future for space exploration - not governments. Houser, 17

Houser, Kristin. “Private Companies, Not Governments, Are Shaping the Future of Space Exploration.” Private Companies, Not Governments, Are Shaping the Future of Space Exploration, Futurism, 12 June 2017, futurism.com/private-companies-not-governments-are-shaping-the-future-of-space-exploration.

**In recent years, however, a new Space Race has taken shape**—Space Race 2.0. **Rather than** powerful **nations** guided by presidents and premiers, however, **the competitors in this race are** tech startups and **private businesses** spearheaded by billionaire entrepreneurs. And while the current atmosphere is far less contentious than that of the first Space Race (save the odd tweet or two), the competition is just as fierce. A CROWDED FIELD SpaceX, Blue Origin, Bigelow Airspace, Virgin Galactic, Boeing, Lockheed Martin… **Not only has the number of private companies engaged in space exploration grown remarkably in recent years, these companies are quickly besting their government-sponsored competitors. “We’re starting to see advances made by private entities that are more significant than any advances in the last three years that were made by the government,”** Chris Lewicki, CEO and President of Planetary Resources, tells Futurism. Amazon CEO Jeff Bezos’s Blue Origin and Tesla CEO Elon Musk’s SpaceX are arguably the two companies that are setting the pace. In November 2015, the former completed the first successful vertical rocket landing after sending their New Shepard 100 kilometers (62 miles) into the air. SpaceX landed its own rocket a month later, only they did so with a craft twice as heavy as Blue Origin’s and traveled all the way into space first. A month after that, in January 2016, Bezos’s company became the first entity to re-launch and re-land a previously used rocket. SpaceX followed suit in 2017. “The government was never able to [build reusable rockets], but now, two private companies within the space of the same year have done that,” points out Lewicki. **Not only are private companies already surpassing their government counterparts, several are poised to widen their lead in the coming months and years.** If all goes according to plan, when SpaceX’s Falcon Heavy launches in September, it’ll take the title of the world’s most powerful rocket away from NASA’s Saturn V. Virgin Galactic is already selling tickets for what it expects to be the first private spaceflights, which will take place aboard the sleek VSS Unity. SpaceX plans to send space tourists to the Moon in 2018, and then in 2024, the company hopes to launch a system that will take people all the way to Mars…roughly 5-15 years before NASA expects to do the same.

#### Opposition to private space mining will lead to climate change: the greatest threat-it magnifies every extinction risk

**Torres 16** (Phil Torres, PhD candidate @ Rice University in tropical conservation biology, affiliate scholar @ Institute for Ethics and Emerging Technologies, July 22, 2016. “Op-ed: Climate Change Is the Most Urgent Existential Risk”. <http://ieet.org/index.php/IEET/more/Torres20160807>)

Humanity faces a number of formidable challenges this century. Threats to our collective survival stem from asteroids and comets, supervolcanoes, global pandemics, climate change, biodiversity loss, nuclear weapons, biotechnology, synthetic biology, nanotechnology, and artificial superintelligence. With such threats in mind, an informal survey conducted by the Future of Humanity Institute placed the probability of human extinction this century at 19%. To put this in perspective, it means that the average American is more than a thousand times more likely to die in a human extinction event than a plane crash.\* So, given limited resources, which risks should we prioritize? Many intellectual leaders, including Elon Musk, Stephen Hawking, and Bill Gates, have suggested that artificial superintelligence constitutes one of the most significant risks to humanity. And this may be correct in the long-term. But I would argue that two other risks, namely **climate change** and biodiveristy loss, should **take priority** right now over **every other known threat**. Why? Because these ongoing catastrophes **in slow-motion** will frame our **existential predicament** on Earth not just for the rest of this century, but for literally **thousands of years** to come. As such, they have the capacity to **raise** or lower the **probability of other risks scenarios** unfolding. Multiplying Threats Ask yourself the following: are **wars** more or less likely in a world marked by **extreme weather events**, **megadroughts**, **food supply disruptions**, and sea-level rise? Are **terrorist attacks** **more** or less **likely** in a world beset by **the collapse of global ecosystems**, **agricultural failures**, **economic uncertainty**, and political instability? Both government officials and scientists agree that the answer is **“more likely.”** For example, the current Director of the CIA, John Brennan, recently identified “the impact of **climate change**” as one of the “deeper causes of this rising instability” in countries like **Syria**, **Iraq**, **Yemen**, **Libya**, and **Ukraine**. Similarly, the former Secretary of Defense, Chuck Hagel, has described climate change as a **“threat multiplier”** with “the potential to exacerbate many of the challenges we are dealing with today — from infectious disease to terrorism.” The Department of Defense has also affirmed a connection. In a 2015 report, it states, “Global climate change will aggravate problems such as **poverty**, **social tensions**, environmental degradation, **ineffectual leadership** and **weak political institutions** that threaten stability in a number of countries.” **Scientific studies have further shown a connection between the environmental crisis and violent conflicts.** For example, a 2015 paper in the Proceedings of the National Academy of Sciences argues that climate change was a causal factor behind the record-breaking 2007-2010 drought in Syria. This drought led to a mass migration of farmers into urban centers, which fueled the 2011 Syrian civil war. Some observers, including myself, have suggested that this struggle could be the beginning of World War III, given the complex tangle of international involvement and overlapping interests. The study’s conclusion is also significant because the Syrian civil war was the Petri dish in which the Islamic State consolidated its forces, later emerging as the largest and most powerful terrorist organization in human history. A Perfect Storm The point is that climate change and biodiversity loss could **very easily** push societies **to the brink of collapse**. This will exacerbate **existing geopolitical tensions** and introduce entirely **new power struggles** between state and nonstate actors. At the same time, advanced technologies will very likely become increasingly powerful and accessible. As I’ve written elsewhere, the malicious agents of the future will have bulldozers rather than shovels to dig mass graves for their enemies. The result is a perfect storm of more conflicts in the world along with unprecedentedly dangerous weapons. If the conversation were to end here, we’d have ample reason for placing climate change and biodiversity loss at the top of our priority lists. But there are other reasons they ought to be considered urgent threats. I would argue that they could make humanity more vulnerable to a catastrophe involving superintelligence and even asteroids. The basic reasoning is the same for both cases. Consider superintelligence first. Programming a superintelligence whose values align with ours is a formidable task even in stable circumstances. As Nick Bostrom argues in his 2014 book, we should recognize the “default outcome” of superintelligence to be “doom.” Now imagine trying to solve these problems amidst a rising tide of interstate wars, civil unrest, terrorist attacks, and other tragedies? The societal stress caused by climate change and biodiversity loss will almost certainly compromise important conditions for creating friendly AI, such as sufficient funding, academic programs to train new scientists, conferences on AI, peer-reviewed journal publications, and communication/collaboration between experts of different fields, such as computer science and ethics. It could even make an “AI arms race” more likely, thereby raising the probability of a malevolent superintelligence being created either on purpose or by mistake. Similarly, imagine that astronomers discover a behemoth asteroid barreling toward Earth. Will designing, building, and launching a spacecraft to divert the assassin past our planet be easier or more difficult in a world preoccupied with other survival issues? In a relatively peaceful world, one could imagine an asteroid actually bringing humanity together by directing our attention **toward a common threat**. **But** if the “**conflict multipliers**” of climate change and biodiversity loss have already **catapulted civilization** into chaos and turmoil, I strongly suspect that humanity will become more, rather than less, susceptible to dangers of this sort. Context Risks We can describe the dual threats of climate change and biodiversity loss as “context risks.” Neither is likely to directly cause the extinction of our species. But **both will define the context in which civilization confronts all the other threats** before us. In this way, they could **indirectly** contribute to the **overall danger of annihilation** — and this worrisome effect could be significant. For example, according to the Intergovernmental Panel on Climate Change, the effects of climate change will be “severe,” “pervasive,” and “irreversible.” Or, as a 2016 study published in Nature and authored by over twenty scientists puts it, the consequences of climate change “will extend longer than the entire history of human civilization thus far.” Furthermore, a recent article in Science Advances confirms that humanity has already escorted the biosphere into the sixth mass extinction event in life’s 3.8 billion year history on Earth. Yet another study suggests that we could be approaching a **sudden**, **irreversible**, catastrophic **collapse of the global ecosystem**. If this were to occur, it could result in “widespread social unrest, economic instability and loss of human life.” Given the **potential** for environmental degradation to **elevate the likelihood of nuclear wars**, **nuclear terrorism**, **engineered pandemics**, a **superintelligence takeover**, and perhaps even **an impact winter**, it ought to **take precedence over all other risk concerns**— at least in the near-term. Let’s make sure we get our priorities straight.