## 2NR – DA

#### The CCP is not immune to a coup – this card describes what extra-legal action against Xi looks like

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The third option is resistance. Men with guns always have the option of using them. One or more groups of officers who feel their well-deserved economic gains are being threatened might well opt to take Xi on militarily. As far as we know, such things have not happened under the reign of the CCP (not least because under Mao and Deng, the line between civilians and the military was blurred indeed), but China has historically been prone to the military taking a hand in political affairs. It was a Ming general, Wu Sangui, who first opened China to the invading Manchus. It was Yuan Shikai, a Qing general, who usurped the leadership of the Republic of China at its birth. It was a benevolent general, Zhang Xueliang, who kidnapped Chiang Kai-shek, his civilian leader, and forced him to come to terms with the CCP. There is no guarantee that such military interference will never happen again. A combination of motives—an eagerness to protect a privileged economic place, the fear that if one does not strike, one will be struck down, the idea that one must protect one’s country from a dictator bent on tearing it apart—could impel soldiers to try to seize political power. These are the circumstances in which military coups happen elsewhere; there is no reason to suppose that China is exceptional in this regard. There, as anywhere else, it is impossible to know what will happen when one threatens heavily armed men.

A successful military seizure of the Chinese state could take several forms. The simplest would involve a senior officer or group of officers cooperating silently, gathering enough power, and then suddenly placing Xi under house arrest. Martial law would be declared—for the purest of patriotic motives, of course—and life would go on as normally as possible under such circumstances. Bloodshed would be minimal; our imaginary cabal would have gathered enough support to make resistance futile. They might then be either a transition back to Party rule, or the declaration of a new government that might or might not keep the policies of its predecessor largely unchanged. As military coups go, this would be the cleanest, neatest option.

It is an unlikely outcome, however, because the PLA is divided. Many within it have a stake in Xi’s survival. Far more probable is a scenario in which officers in charge of one of China’s military districts—in Sichuan, say, or perhaps in Jilin—decide that they have tolerated more than enough interference from the central government and declare war. There might be considerable local support for such a move; regional identities remain strong within China and resentment of a rapacious central government is easy to foster. Bo Xilai fell in part because of his popularity in Chongqing. Affordable housing and the idea that he would not let his Chongqingers down made Bo a hero to many locals. Beijing’s arresting him was for many just another example of the central government interfering with Chongqing’s well-being. Capitalizing on local discontent and China’s militia-rized culture, an enterprising military commander could well gather enough strength to challenge Beijing.

Were such a thing to happen, China’s fate could go in one of several different directions. If our imaginary commander were strong enough, an outright seizure of the capital after long, bloody warfare would be one outcome. Mao Zedong, after all, managed to seize power and unify the country after battling a series of foes. But given Xi’s strength, outright victory would be unlikely. Instead, one can expect a bloody stalemate, with the country dividing along north-south lines as old as China itself. “Two Chinas”, to use that dreaded phrase, could emerge. Balkanization might not stop there either. Once other military commands see the possibility of successful defiance, they too might act. Xi might find that quashing secessionists costs more blood and money than he can get his hands on. China might fall back into a new Warring States or warlord era, in which little fiefdoms spar, subside into coexistence, and then start sparring again.

## 1NC – DA

#### Xi is consolidating unprecedented political power – that’s only possible with strong PLA support

Chang 21 [(Gordon, columnist, author and lawyer, has given briefings at the National Intelligence Council, the CIA, and the State Department, JD from Cornell Law School) “China Is Becoming a Military State,” Newsweek, 1/14/2021] JL

At this moment, the Communist Party is taking back power from all others in society, including the State Council, and the military is gaining influence inside Party circles.

Why is the People's Liberation Army making a comeback? The answer lies in succession politics.

Xi Jinping was selected the top leader because he was not identified with any of the main factional groupings—like the Communist Youth League of Hu Jintao or the Shanghai Gang of Jiang—that dominated Party politics. Xi, in short, was the least unacceptable choice to the Party's squabbling factional elders.

Xi, once chosen, apparently decided that in order to rule, he needed a base, so he made certain officers the core of his support. As longtime China watcher Willy Lam told Reuters in 2013, Xi Jinping's faction is the military.

And with the help of the military, Xi has accumulated almost unprecedented political power, ending the Party's two-decade-old consensus-driven system and replacing it with one-man rule.

As Wang, a professor at the Georgia Institute of Technology, notes, Xi, with the amendments to the National Defense Law, is demonstrating his power of "leading everything and everyone." He is wrapping that effort in a "rule by law" move that is formalizing his perch at the top of the Chinese political system.

How is Xi using his newfound power? There is a hint in the National Defense Law amendments. These changes, Fisher tells us, "increase the powers of the CMC to mobilize the civilian sector for wartime and to better authorize the CMC to engage in foreign military exercises to defend China's 'development interests.'" As such, the changes "point to China's ambition to achieve 'whole nation' levels of military mobilization to fight wars, and give the CMC formal power to control the future Chinese capabilities for global military intervention."

"The revised National Defense Law also embodies the concept that everyone should be involved in national defense," reports the Communist Party's *Global Times*, summarizing the words of an unnamed CMC official. "All national organizations, armed forces, political parties, civil groups, enterprises, social organizations and other organizations should support and take part in the development of national defense, fulfill national defense duties and carry out national defense missions according to the law."

That sounds like Xi is getting ready to pick even more fights with neighbors—and perhaps the United States. On January 5, he ordered People's Liberation Army generals and admirals to be prepared to "act at any second."

Why would Xi want to start a war? "This is really indicative of there being instability in China, and Mr. Xi seeking to consolidate power around himself. ...The new National Defense Law essentially removes the alternative power base of the premier of the State Council, in this case Li Keqiang, from interfering with Mr. Xi's own power ambitions," said Charles Burton of the Ottawa-based Macdonald-Laurier Institute to John Batchelor, the radio host, earlier this month. As Burton noted, the amendments to the National Defense Law undermine Premier Li Keqiang, the head of the State Council and long-standing rival to Xi.

"I think this really gives the green light for him to dispatch the military on any pretext that he feels is necessary to defend his power," Burton says. "China is becoming a military state."

#### The plan alienates the PLA – they view space dominance as the linchpin of China’s legitimacy – specifically, public-private tech development is key

Economic Times 20 [(Economic Times, Indian daily newspaper, internally cites Dean Cheng, Senior Research Fellow at the Heritage Foundation and the Davis Institute for National Security and Foreign Policy, former analyst in the International Security and Space Program at the Office of Technology Assessment, BA in Politics from Princeton University) “China attempting to militarize space as it seeks to modernize its military power,” 8/31/2020] JL

The Jamestown Foundation, a US think-tank, hosted a webinar on August 19 entitled "China's Space Ambitions: Emerging Dimensions of Competition." One presenter, Dean Cheng, Senior Research Fellow at The Heritage Foundation, noted that Beijing's space programme is linked to China's central concept of comprehensive national power. "This is basically how the Chinese think about how they rack and stack, how they compare with other countries."

China recognises that military power is important, but it is not the only factor in being a great power. Cheng drew a parallel with the former USSR, where military power alone did not ensure survival of that communist state. Other comprehensive national power factors are political unity, economic power, diplomatic strength, science and technology, and even culture. "Space touches every one of these aspects in comprehensive national power, and that is a part of why Chinese see space as so important."

Indeed, a strong space industrial complex will generate benefits that ripple through the rest of China's economy. Furthermore, he said space achievements "promote pride within China, especially for the Chinese Communist Party (CCP) ... It's symbolic of how far China has come," he said, and "it gives the CCP legitimacy".

China is pushing into space services, including satellite launches, satellite applications and Earth observation/satellite imagery for others. Satellite customers include Belarus, Laos, Pakistan and Venezuela, for example, attracting hard currency and influence. Cheng said most underestimate the impact this has, as such countries grow almost totally dependent on Chinese equipment, assets and training over time. Incidentally, China could have manufactured back doors into these systems for foreigners to allow it access.

Mark Stokes, Executive Director at the US-based Project 2049 Institute think-tank, said in the same webinar that PLA requirements have always been fundamental to development of Chinese space capabilities. Potential PLA space missions in support of joint warfighting in a crisis include targeting (battlefield surveillance, electronic reconnaissance and ocean surveillance), communications, PNT services (obtaining target data, navigation information, navigation support and timing services), space jamming (encompassing space communications, radar, electro-optical and PNT) and space protection.

Stokes said the end of 2015 was "significant" for Chinese space efforts because consolidation of end-users under the PLA's Strategic Support Force (PLASSF) occurred, specifically within the Space Systems Department. In terms of developing and meeting requirements, the PLASSF is now "much more efficient," the American analyst posited.

Indeed, China created its space force in 2015, just a few months after Russia. After formally establishing its Space Force in December 2019, the US is still getting its equivalent off the ground. Cheng said both China and Russia have been pushing to militarise space, even though such a term is probably meaningless given that 95 per cent of space technology has dual applications for both military and civilian use. Certainly, outer space can no longer be viewed as a sanctuary.

Stokes said that "not much has changed really in terms of the space launch infrastructure and the launch, tracking and control of space ... but they are now integrated with end-users, and that is going to have an effect on making the whole system more efficient."

China has freedom of action in space, and the creation of the PLASSF and consolidation of space/counter-space research, development and acquisition, as well as training and operations, have benefitted from a single integrated command. The PLA's ability to interfere with American military operations in places like Taiwan will continue to grow yearly.

Cheng said, "The Chinese see future war as revolving around joint operations, which are not just land, air and sea forces." They also include the outer space and electronic warfare domains, which are necessary for information dominance." China, therefore, wishes to deny an adversary like the US the use of space, plus it needs to give the Chinese military every advantage.

China has therefore developed the ability to target hostile space-based assets (from the ground or space) and their all-important data-links. Indeed, jamming and electronic warfare complement anti-satellite weapons (which China has already tested), any of which can achieve effective mission kills against US and allied satellites. Stokes has not yet ascertained which agency is responsible for satellite kinetic kills, but it could well be the PLA Rocket Force, which is traditionally very tightly controlled by the Central Military Commission.

A detailed report entitled China's Space and Counter-space Capabilities and Activities, prepared for the US-China Economic and Security Review Commission, was published on March 30. Its authors, Mark Stokes, Gabriel Alvarado, Emily Weinstein and Ian Easton, summarised China's counter-space capabilities as follows.

"China has an operational counter-space capability that will evolve through 2020 and out to 2035. These capabilities include anti-satellite kinetic kill vehicles (KKV) and space electronic countermeasures ... On the non-kinetic side, the PLA has an operational ground-based satellite electronic countermeasures capability designed to disrupt adversary use of satellite communications, navigation, search and rescue, missile early warning and other satellites through use of jamming."

China obtained its first ground-based satellite jammers from Ukraine in the late 1990s, but it has developed its own solutions since then. "The PLA is capable of carrying out electronic countermeasures to disrupt, deny, deceive or degrade space services. Jamming prevents users from receiving intended signals and can be accomplished by attacking uplinks and downlinks.

The PLA and defence industry are developing and deploying jammers capable of targeting satellite communications over a large range of frequencies, including dedicated military communication bands. The PLASSF also has advanced cyber capabilities that could be applied in parallel with counter-space operations."

Nonetheless, the report asserted that the US still assumed a technological lead in space.

"China also is carrying out research, development and testing on potential space-based counter-space systems. The PLASSF and defense industry have carried out advanced satellite maneuvers and are likely testing orbital technologies that could be applied to counter-space operations." The PLASSF Network Systems Department probably oversees satellite jamming operations.

#### That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient

Simpson 16 [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling divided loyalties between Chinese Party, military and government bodies, one must also recognize that within each, factions exist, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of diffuse reporting chains, competing allegiances, and often effective socialization by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, the PLA is not unconditionally subservient to a particular leader and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which the military actually holds a preponderance of the power capabilities and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, support for Xi could erode very quickly.29

#### CCP instability collapses the international order – extinction

Perkinson 12 [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the implications for international and US national security are vast. Not only does China and the stability of the CCP play a significant role in the maintenance of peace in the East Asian region, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ largest holder of US treasury securities, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the largest trading partner of a number of countries, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

#### Independently, Xi will lash out to preserve cred in the SCS – US draw-in ensures extinction

Mastro 20 [(Oriana Skylar, Assistant Professor of Security Studies at Georgetown University's Edmund A. Walsh School of Foreign Service, Resident Scholar at the American Enterprise Institute) “Military Confrontation in the South China Sea,” Council on Foreign Relations, 5/21/2020] JL

The risk of a military confrontation in the South China Sea involving the United States and China could rise significantly in the next eighteen months, particularly if their relationship continues to deteriorate as a result of ongoing trade frictions and recriminations over the novel coronavirus pandemic. Since 2009, China has advanced its territorial claims in this region through a variety of tactics—such as reclaiming land, militarizing islands it controls, and using legal arguments and diplomatic influence—without triggering a serious confrontation with the United States or causing a regional backlash. Most recently, China announced the creation of two new municipal districts that govern the Paracel and Spratly Islands, an attempt to strengthen its claims in the South China Sea by projecting an image of administrative control. It would be wrong to assume that China is satisfied with the gains it has made or that it would refrain from using more aggressive tactics in the future. Plausible changes to China’s domestic situation or to the international environment could create incentives for China’s leadership to adopt a more provocative strategy in the South China Sea that would increase the risk of a military confrontation.

The United States has a strong interest in preventing China from asserting control over the South China Sea. Maintaining free and open access to this waterway is not only important for economic reasons, but also to uphold the global norm of freedom of navigation. The United States is also at risk of being drawn into a military conflict with China in this region as a result of U.S. defense treaty obligations to at least one of the claimants to the contested territory, the Philippines. China’s ability to control this waterway would be a significant step toward displacing the United States from the Indo-Pacific region, expanding its economic influence, and generally reordering the region in its favor. Preventing China from doing so is the central objective of the U.S. National Security Strategy and the reason the Indo-Pacific is the U.S. military’s main theater of operations. For these reasons, the United States should seek ways to prevent Chinese expansion, ideally while avoiding a dangerous confrontation and being prepared to deftly manage any crises should they arise.

China considers the majority of the South China Sea to be an inalienable part of its territory. Exercising full sovereignty over this area is a core component of President Xi Jinping’s “China Dream.” China does not accept or respect the sovereignty claims of Brunei, Indonesia, Malaysia, the Philippines, Taiwan, or Vietnam in this region. Although China has been cautious in pressing its claims thus far, three developments could convince Xi that China should be more assertive.

Xi could feel compelled to accelerate his timeline in the South China Sea to maintain his consolidated position within the Chinese Communist Party (CCP), particularly if the political situation in Hong Kong worsens, peaceful reunification with Taiwan becomes less likely, or domestic criticism of his management of the novel coronavirus outbreak increases. With China’s economic growth for 2020 projected to hit only 1.2 percent—the lowest since the mid-1970s—Xi could find it necessary to demonstrate strength while Beijing deals with internal fallout from the pandemic. China has already declared two new administrative districts in the South China Sea in April 2020 and has escalated its criticism of U.S. freedom of navigation operations (FONOPs) in the area. Moreover, with expectations that the first stage of China’s military modernization efforts will be completed in 2020, Xi could become more confident that China would succeed in pressing its claims militarily, especially if the United States is distracted internally with managing the coronavirus pandemic or its aftermath.

## 1NC – CP

#### CP: The appropriation of outer space by private entities except for in the United States is unjust.

#### The United States should submit an environmental impact assessment of the appropriation of outer space by private entities to the UN Office of Outer Space Affairs for public comment, modification, and approval. The United States federal government should implement the approved version of the submitted proposal.

**Counterplan competes and creates the least environmentally damaging version of the aff.**

William R. **Kramer**, PhD Polisci/Futures Studies @ U of H Manoa, Currently HDR Inc. Extraterrestrial Environmental Analyst, **’14**, “Extraterrestrial environmental impact assessments A foreseeable prerequisite for wise decisions regarding outer space exploration, research and development” Space Policy 30 (2014) 215-222

To be most effective, all spacefaring nations and enterprises would voluntarily participate in assessing their extraterrestrial environmental impacts prior to undertaking actions in space. A hypothetical chronology of such a process might include: (1) Impact assessments are prepared by the action proponent and submitted to an impartial international panel or board; (2) The panel determines the assessment's sufficiency; (3) The assessment is published in an electronic or other format accessible to the public followed by a comment period; (4) The action proponent addresses comments and submits responses to the panel; (5) The panel publishes its approval or concerns; (6) The action proceeds, is **modified or is abandoned**; and (7) should the action proceed, periodic reports of the action's progress and impacts are filed for future reference in a digital format to allow broad access. The process would support the spirit of both **NEPA** to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations” (42 USC x4331(b)(1)) and Article 4(1) of the Moon Agreement's directive that “due regard shall be paid to the interests of present and future generations.” Given the likelihood that all states would appreciate the need for maintaining extraterrestrial environments and landscapes for both future research and exploitation, pressure from peer states and space industries may be sufficient to **encourage a trend of compliance**.

Such a review and approval system (perhaps similar to NEPA's relationship with the Council on Environmental Quality and its oversight function) could be attempted within the structure of the UN, such as within the **UN Office of Outer Space Affairs**. The spirit of an extraterrestrial environmental assessment program would be likely to fit within the mandate of the organization. However, amending the Outer Space Treaty or otherwise developing an administrative UN capacity to achieve the goals proposed in this paper would require a level of international commitment and cooperation that may be both lengthy and difficult to achieve. Spacefaring nations and international organizations are already invited to submit annual reports on their space activities and research to the UN Committee on the Peaceful Uses of Space, **so a precedent for reporting exists.** **Presently, however, reports tend to document positive actions and research, not details of extraterrestrial environmental impacts**.

**Extinction. EIA is key to preserve space resources, stop resource wars, and extra-terrestrial environmental damage.**

William R. **Kramer**, Hawaii Research Center for Futures Studies @ University of Hawaii, **'17**, In dreams begin responsibilities – environmental impact assessment and outer space development, ENVIRONMENTAL PRACTICE, VOL. 19, NO. 3, 128–138

**Benefits of extraterrestrial environmental impact assessment** Most publications regarding outer space resources maintain that those resources are nearly limitless, and many business models for exploitation do not imagine that resources on Mars, for example, will ever be exhausted (Lewis, 1996; Zubrin, 1996; Renstrom, 2016). Ever is a long time. While the statement may be figuratively true for some mineral ores that may last through an individual company’s project timeline, it is not necessarily true for long-term planning. **There will likely be competition for the rarest (most valuable) minerals**. Without some form of planning and regulation, they may be extracted in an inefficient and environmentally damaging manner and be **quickly depleted** (as exemplified by hydraulic mining for gold on Earth, which wasted much of the resource and resulted in extensive environmental damage) (Merchant, 1998).

How might resources be put to their highest and best use unless regulated? Both the Moon and Mars have water ice which will be **crucial for human survival**, but water also has lucrative industrial uses; it is potentially the raw material for manufacturing both rocket fuel and oxygen. **Conflicts over resource allocation** may be better addressed during an **assessment process** that seeks to balance highest and best use with discovery and first use. Who gains access to specific areas for mining becomes more problematic in that the Outer Space Treaty does not allow “ownership” of extraterrestrial territory; there is no guarantee that companies such as those listed previously will gain access to the most productive sites. The China National Space Administration is planning to place a crew on the Moon by 2024, so **competition for the best sites will be intense** (Kramer, 2015b; China Digital Times, 2012).

Space industries generally are not considering that their proposed actions may preclude alternative uses such as scientific research and human settlement. There will be a stream of not yet imagined uses that could be adversely affected or foreclosed. Many of the same conflicts between land use and human habitation experienced on Earth may emerge on extraterrestrial sites. On the Moon, for example, there are preferable sites for collecting solar energy. These “peaks of eternal light” are areas nearly always or constantly exposed to sunlight at the poles. They are very limited in both distribution and size (Elvis, Milligan, and Krolikowski, 2016). If a mining operation were to determine such areas suitable for their operations, or if mining created a constant plume of dust that would diminish the effectiveness of solar panels, how might such a situation be resolved?

Should potentially dangerous industries such as fuel manufacturing or storage be located near living areas? Would hydraulic fluid pipelines be closely monitored for leaks that may affect subsurface ice deposits mined for drinking water? How might vibrations from detonations affect unrelated structures or scientific instrumentation, such as telescopes? And how might a search for life, whether extinct or still living, be affected by human presence and our trail of bacteria and organic wastes? Humans’ biological pollution of Mars, for example, may greatly affect the results of any search for extraterrestrial life there (Kramer, 2009; McKay, 2009). Peter Doran of the Planetary Protection Subcommittee of the NASA Advisory Council offered, “The big issue with all missions to Mars is we don’t want to create a situation where we are impacting future life-detection science. Picture humans … walking around shedding microbes everywhere we go. Space suits as we know them do not take care of this problem (Mack, 2016).”

## 1NC – CP

#### CP: The appropriation of outer space is unjust except for Starlink satellites.

#### Starlink has transformed Ukraine’s resistance – it’s the only reliable way to ensure connectivity

Lerman and Zakrzewski 3/19 [(Rachel, covers technology for The Washington Post in San Francisco, and Cat, technology policy reporter, tracking Washington's efforts to regulate Silicon Valley companies) “Elon Musk’s Starlink is keeping Ukrainians online when traditional Internet fails,” Washington Post, 3/19/2022] JL

Ukraine has already received thousands of antennas from Musk’s companies and European allies, which has proved “very effective,” Fedorov said in an interview with The Washington Post Friday.

“The quality of the link is excellent,” Fedorov said through a translator, using a Starlink connection from an undisclosed location. “We are using thousands, in the area of thousands, of terminals with new shipments arriving every other day.”

The use of Starlink as a stopgap measure for citizens and the government to stay connected during an invasion is a major test of the relatively new technology, experts say, and could have widespread implications for the future of war. Internet has become an essential tool for communication, staying informed and even powering weapons.

It’s also a test for Musk. The world’s richest man, valued at $232 billion according to the Bloomberg Billionaire‘s Index, makes a habit of turning to Twitter for brash promises and proclamations in the midst of world crises. Already this week, the Tesla CEO has challenged Putin to a fight and followed up by pledging he would use just one hand if Putin was scared. And he told Putin he could bring a bear.

He has fallen short on some past pledges, including making ventilators for coronavirus patients and efforts to help rescue Thai children stuck in a cave.

But this time, Fedorov and some experts say he’s come through. Tesla employees in Europe reportedly assembled systems to help power Starlink in Ukraine, and Fedorov said other European countries have sent Starlink equipment from their own supplies.

Musk responded to a request for comment on his efforts with Starlink and past efforts, telling The Post to give his regards “to your puppet master Besos😘😘.” (Amazon founder Jeff Bezos owns The Post.) Musk did not respond to a follow-up request specifically on his work with Starlink in Ukraine.

SpaceX declined to comment on its work in Ukraine.

Internet disruptions can be caused by power outages or by fiber optic cables being cut as a result of shelling, experts said. The Starlink technology is being used by civilians in areas under attack that have lost Internet service, and by government officials. Starlink terminals have also been provided to help the country’s tech companies stay online when the war has forced them to relocate. The Times of London reports that a Ukrainian unit is using Starlink to connect its drones attacking Russian forces.

Starlink has grown quickly in recent years, surpassing some satellite Internet competitors by launching more than 1,000 satellites into space. People can buy the service online for $99 a month, plus $499 for the equipment, but Starlink cautions it can take six or more months to ship in some cases.

A person familiar with Starlink’s effort in Ukraine, speaking on the condition of anonymity to discuss sensitive matters, said there are more than 5,000 terminals in the country.

Still, experts said that even a big Starlink network probably wouldn’t be enough power to keep an entire country online and operating at full-speed. But the terminals can serve as a reliable backup as Internet services falter. Fedorov said he and his staff are having discussions with other European leaders and companies about additional satellite and cellular technologies that could help keep Ukrainians online in the event of greater Internet outages.

Internet flows deteriorated on the first day of Russia’s invasion of Ukraine on Feb. 24 and have not fully recovered, according to data-monitoring services. But since that initial dip, connectivity has remained fairly stable, with mainly temporary, isolated outages even during heavy Russian shelling.

“Every day there are outages, but generally service comes back,” said Doug Madory, director of Internet analysis for Kentik, which monitors global data flows.

Even before Fedorov tweeted at Musk for help, SpaceX was working on a way to get Starlink to Ukraine. President and COO Gwynne Shotwell said in a talk at California Institute of Technology this month that the company had been working for several weeks to get regulatory approval to allow the satellites to communicate in Ukraine.

“But then they tweeted,” she said, according to SpaceNews. “There’s our permission.”

Fedorov’s agency is working to get Starlink terminals to regions where Internet access has been cut off, he said. The systems have in some instances been used to connect people when cellular networks in the country have been overloaded.

Fedorov said that he’s briefly texted with Musk and that the tech billionaire has also had a call with Ukrainian President Volodymyr Zelensky.

There are some concerns that accompany the use of the terminals. Like all satellite communications during war, Starlink signals could be used to detect the location of the antennas, experts say.

While it’s unclear if Russia can use the signals to target attacks, Musk instructed caution on Twitter.

“Important warning: Starlink is the only non-Russian communications system still working in some parts of Ukraine, so probability of being targeted is high,” he tweeted. He added that users should turn on the terminal only when needed and keep it far away from people.

Experts have warned that the devices could give away Ukrainians’ locations to Russian attackers, but that hasn’t been an issue so far, Fedorov said. The devices have usually been used in “densely populated areas where there would be a lot of civilians anyway.”

He said Russian cyberattacks have not ramped up on the systems — yet.

#### Starlink will secure Ukrainian victory – 2 internal links:

#### Information sharing – connectivity is key to morale, foreign support, and Russian infighting

Aral 3/1 [(Sinal, David Austin Professor of Management, IT, Marketing and Data Science at MIT,Director of the MIT Initiative on the Digital Economy, Ph.D. in Information Systems from MIT) “Ukraine is winning the information war,” Washington Post, 3/1/2022] JL \*brackets for ableist language

Today, the information war in Ukraine is more intense, more tightly contested and arguably more important than ever because motivating volunteer fighters at home and encouraging foreign support abroad are critical to success. And this time, it seems, Russia is losing. Reports abound on social media of more than 4,000 Russian casualties, images of [destroyed] ~~crippled~~ Russian helicopters and armored vehicles and cellphone videos of savage Russian missile attacks on civilian targets. This mix of official Ukrainian war statistics combined with videos (both verified and unverified), posted by Ukrainian citizens and sympathizers from the front lines, is painting a vivid picture of a homegrown resistance successfully slowing the advance of a much larger and ostensibly better organized military machine. Facebook posts showing Ukrainians kneeling in front of tanks to stop their progress and Twitter images of women and children sheltering in subways and basements set the emotional backdrop of senseless aggression against a peaceful nation. Viral videos and audio clips evoke a defiant optimism impossible to ignore: Ukrainian President Volodymyr Zelensky appearing via his cellphone walking the streets of Kyiv, unharmed, in a “proof of life” demonstration emphasizing his willingness to stay and fight for his country, despite a U.S. offer to evacuate him, for example, or the recording of soldiers in an isolated Ukrainian outpost on Snake Island, in the Black Sea, cursing and telling off the Russian Black Sea Fleet. These stories are spreading rapidly on social media and subsequently echoing through official news channels in a media feedback loop that amplifies the information war and broadcasts it on television sets all over the world.

Zelensky, in particular, is deftly outmaneuvering Putin in this information war. He rallied Ukrainian men to defend their homeland, used the encrypted messaging platform Telegram to speak directly to the Russian people to counter Putin’s narrative, urged the West to step up its assistance in defense of law, order and peace, and even pleaded with foreigners to cross the border into Ukraine to defend Western democracy. While misinformation exists on both sides, Zelensky gives the impression that he’s more committed to truth and transparency. In contrast, Russia has been secretive, obfuscating the true extent of its incursion into Ukraine, and out of touch, airing the rambling addresses of its leader. It’s as if Putin has forgotten that social media transitioned from text to real-time video around the time of the Crimean annexation. In today’s information war, Russian news claiming Zelensky had turned tail and fled was swiftly countered by a video selfie of the Ukrainian president in Kyiv, vowing to defend his homeland. The symbolic contrast between Zelensky striding through war-torn streets, confident even under fire, and Putin, seated, hunched over a large wooden desk in the safety of a secure office hundreds of miles away from the fighting, is stark.

This time, Facebook, YouTube, Twitter and Google are also proactively engaged in the information war. During the Crimean annexation, they were reactive and struggled to keep up with misinformation and false abuse reports. Today, in Ukraine, they have banned Russian state-owned media from advertising on their platforms and defiantly fact-checked Putin’s propaganda despite Russia’s protests and a full ban of Twitter and a partial ban of Facebook in Russia. Facebook has spun up a special operations center, staffed with native Russian and Ukrainian speakers, to monitor misinformation posted about the war, added warning labels to war-related images that its software detects are more than a year old, and restricted access to content from the state-affiliated Russian media outlets RT and Sputnik. YouTube is restricting access to Russian state-owned media outlets for users in Ukraine, removing Russian state-owned channels from recommendations, and limiting their content’s reach across the platform. Twitter has temporarily banned all ads in Ukraine and Russia, added labels to tweets with links to Russian state-affiliated media and downranked their content in algorithmic timelines. While numerous fake videos are circulating on TikTok about Ukraine, the Chinese-owned platform has no comprehensive policy on policing information about the conflict. Despite blocking state-owned Russian media in the European Union, this information flows freely in Ukraine and Russia on the platform, now dubbed “WarTok” by some observers, in part because it is organizing such videos into a convenient discover playlist by the same name.

The information war is critical to what happens next in Ukraine for several reasons. It motivates the resistance by inspiring Ukrainian citizens to take up arms in defense of their country and motivating them with social proof that they are united and not fighting alone. It encourages foreign assistance, pressuring Europe and the United States to step up their efforts to end the conflict. It fans the flames of protest in Russia, mobilizing the antiwar movement in Moscow and elsewhere in defiance of Putin’s aggression. And it may even eventually demoralize Russian troops, who must be wondering what on earth they are doing in Ukraine if the motivation for the intervention has been a lie all along. When Russia struck a Ukrainian television tower on Tuesday, it seemed to confirm Moscow’s keen awareness of the need to counter Ukraine’s information war and to highlight the importance of information in modern conflicts.

Information campaigns are difficult to quantify during the fog of war. But while it is hard to pinpoint the extent to which the information war is contributing to the overwhelming international unity against Putin’s aggression, one thing is clear: Social media, mainstream media and the narrative framing of the invasion of Ukraine undoubtedly will play an important role in how this conflict ends. Now, vigilance and fortitude are not only needed on the battlefield, where lives and territory will be won and lost, but also will be essential online, where the hearts and minds of the world will be won or lost.

#### Drone warfare – Starlink is key to surveillance and attacks

Brodkin 3/21 [(Jon, covers a wide array of IT and tech policy topics for Ars Technica, studied journalism and literature at Boston University) “Starlink helps Ukraine’s elite drone unit target and destroy Russian tanks,” Ars Technica, 3/21/2022] JL

SpaceX's Starlink Internet is proving to be useful for Ukraine's military as it fights the Russian invasion. In an article Friday titled, "Elon Musk's Starlink helping Ukraine to win the drone war," The Telegraph described how the satellite connection helps the Ukrainian army's Aerorozvidka (Aerial Reconnaissance) unit do its work of "using surveillance and attack drones to target Russian tanks and positions."

The Telegraph wrote:

Amid Internet and power outages, which are expected to get worse, Ukraine is turning to the newly available Starlink system for some of its communications. Drone teams in the field, sometimes in badly connected rural areas, are able to use Starlink to connect them to targeters and intelligence on their battlefield database. They can direct the drones to drop anti-tank munitions, sometimes flying up silently to Russian forces at night as they sleep in their vehicles.

The Ukrainian unit's "most sophisticated drones are connected using Starlink," The Times of London wrote. "If we use a drone with thermal vision at night, the drone must connect through Starlink to the artillery guy and create target acquisition," an Aerorozvidka officer told the paper.

The Times wrote that Aerorozvidka "has been picking off tanks, command trucks, and vehicles carrying electronic equipment since the invasion began," destroying dozens of "priority targets."

#### Ukrainian victory shores up global democracy – the alternative is mass genocide – that’s a decision rule

Applebaum 3/22 [(Anne, Senior Fellow at the Johns Hopkins School of Advanced International Studies and the Agora Institute, where she co-directs Arena, a program on disinformation and 21st century propaganda) “Ukraine Must Win,” The Atlantic, 3/22/2022] JL

Russian planners expected the entire war, the conquest of Ukraine, to last no more than six weeks. More than half that time has already passed. There must be an endgame, a moment when the conflict stops. The Ukrainians, and the democratic powers that support Ukraine, must work toward a goal. That goal should not be a truce, or a muddle, or a decision to maintain some kind of Ukrainian resistance over the next decade, or a vow to “bleed Russia dry,” or anything else that will prolong the fighting and the instability. That goal should be a Ukrainian victory.

Before you can achieve something, you have to imagine what it will look like. And in this war, victory can be imagined without difficulty. It means that Ukraine remains a sovereign democracy, with the right to choose its own leaders and make its own treaties. There will be no pro-Russian puppet regime in Kyiv, no need for a prolonged Ukrainian resistance, no continued fighting. The Russian army retreats back over the borders. Maybe those borders could change, or maybe Ukraine could pledge neutrality, but that is for the Ukrainians to decide and not for outsiders to dictate. Maybe international peacekeepers are needed. Whatever happens, Ukraine must have strong reasons to believe that Russian troops will not quickly return.

Imagine, too, the consequences of such a victory. In Washington, most people have long believed that Ukraine is part of a regional conflict, and that Ukraine is a piece of territory that the Russians care more about than we do and always will. But this is no longer true. The Ukrainians, and especially their president, Volodymyr Zelensky, have made their cause a global one by arguing that they fight for a set of universal ideas—for democracy, yes, but also for a form of civic nationalism, based on patriotism and a respect for the rule of law; for a peaceful Europe, where disputes are resolved by institutions and not warfare; for resistance to dictatorship. Zelensky has urged Americans to remember Pearl Harbor. He appealed to the German Parliament with the phrase “Never again”—a mantra used to mean that no Hitler would be allowed to arise again—and told members that, in light of the brutal war in his country, those words are now “worthless.” He called on the European Parliament to “prove that you indeed are Europeans” and admit Ukraine to the European Union.

This language is effective because it evokes the principles that bind together the majority of Europeans, Americans, and many other people around the world, reminding them of how much worse the world was in the bloodier past, and how much worse it could be in the future if those principles no longer matter. The words Zelensky uses also reverberate because they are true. A victory for Ukraine really will be a victory for all who believe in democracy and the rule of law. Citizens of existing democracies and members of the democratic opposition in Russia, Cuba, Belarus, and Hong Kong will all be emboldened. “Their struggle is ours,” a Venezuelan acquaintance told me last week. The institutions protecting the states that embody those ideas, most notably the European Union and NATO, will be strengthened too.

Zelensky’s words resonated further because the Russians have also given this conflict enormous significance. The Russian foreign minister has just declared that this war will change global politics: “This is not about Ukraine at all, but the world order. The current crisis is a fateful, epoch-making moment in modern history. It reflects the battle over what the world order will look like.” Much as Stalin once declared that, when the Second World War ended, “everyone imposes his own system as far as his army can reach,” President Vladimir Putin had planned for the Russian army to impose Russia’s autocratic, kleptocratic political system on all of Ukraine. Already, the Russian occupation of some eastern-Ukrainian towns resembles the Soviet occupation of Central Europe at the end of World War II. Public officials and civic leaders—mayors and police but also members of Parliament, journalists, museum curators—have been arrested and not seen since. Civilians have been terrorized at random. In Mariupol, authorities report that citizens are being forcibly deported to Russia, just as Soviet secret police deported Balts, Poles, and others to Russia after the invasions of 1939 and 1945. In the case of a Russian victory, these tactics would be applied all over Ukraine, creating mass terror, mass violence, and instability for years to come. And, yes, if we accept that outcome, autocrats from Minsk to Caracas to Beijing will take note: Genocide is now allowed*.*

#### Democracy caps a litany of converging existential threats.

Diamond 19, Professor of Political Science and Sociology at Stanford University, Senior Fellow at the Hoover Institution, Senior Fellow at the Freeman Spogli Institute for International Studies, PhD in Sociology from Stanford University, (Dr. Larry, Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency, p. 199-202)

The most obvious response to the ill winds blowing from the world’s autocracies is to help the winds of freedom blowing in the other direction. The democracies of the West cannot save themselves if they do not stand with democrats around the world. This is truer now than ever, for several reasons. We live in a globalized world, one in which models, trends, and ideas cascade across borders. Any wind of change may gather quickly and blow with gale force. People everywhere form ideas about how to govern—or simply about which forms of government and sources of power may be irresistible—based on what they see happening elsewhere. We are now immersed in a fierce global contest of ideas, information, and norms. In the digital age, that contest is moving at lightning speed, shaping how people think about their political systems and the way the world runs. As doubts about and threats to democracy are mounting in the West, this is not a contest that the democracies can afford to lose. Globalization, with its flows of trade and information, raises the stakes for us in another way. Authoritarian and badly governed regimes increasingly pose a direct threat to popular sovereignty and the rule of law in our own democracies. Covert flows of money and influence are subverting and corrupting our democratic processes and institutions. They will not stop just because Americans and others pretend that we have no stake in the future of freedom in the world. If we want to defend the core principles of self-government, transparency, and accountability in our own democracies, we have no choice but to promote them globally. It is not enough to say that dictatorship is bad and that democracy, however flawed, is still better. Popular enthusiasm for a lesser evil cannot be sustained indefinitely. People need the inspiration of a positive vision. Democracy must demonstrate that it is a just and fair political system that advances humane values and the common good. To make our republics more perfect, established democracies must not only adopt reforms to more fully include and empower their own citizens. They must also support people, groups, and institutions struggling to achieve democratic values elsewhere. The best way to counter Russian rage and Chinese ambition is to show that Moscow and Beijing are on the wrong side of history; that people everywhere yearn to be free; and that they can make freedom work to achieve a more just, sustainable, and prosperous society. In our networked age, both idealism and the harder imperatives of global power and security argue for more democracy, not less. For one thing, if we do not worry about the quality of governance in lower-income countries, we will face more and more troubled and failing states. Famine and genocide are the curse of authoritarian states, not democratic ones. Outright state collapse is the ultimate, bitter fruit of tyranny. When countries like Syria, Libya, and Afghanistan descend into civil war; when poor states in Africa cannot generate jobs and improve their citizens’ lives due to rule by corrupt and callous strongmen; when Central American societies are held hostage by brutal gangs and kleptocratic rulers, people flee—and wash up on the shores of the democracies. Europe and the United States cannot withstand the rising pressures of immigration unless they work to support better, more stable and accountable government in troubled countries. The world has simply grown too small, too flat, and too fast to wall off rotten states and pretend they are on some other planet. Hard security interests are at stake. As even the Trump administration’s 2017 National Security Strategy makes clear, the main threats to U.S. national security all stem from authoritarianism, whether in the form of tyrannies from Russia and China to Iran and North Korea or in the guise of antidemocratic terrorist movements such as ISIS.1 By supporting the development of democracy around the world, we can deny these authoritarian adversaries the geopolitical running room they seek. Just as Russia, China, and Iran are trying to undermine democracies to bend other countries to their will, so too can we contain these autocrats’ ambitions by helping other countries build effective, resilient democracies that can withstand the dictators’ malevolence. Of course, democratically elected governments with open societies will not support the American line on every issue. But no free society wants to mortgage its future to another country. The American national interest would best be secured by a pluralistic world of free countries—one in which autocrats can no longer use corruption and coercion to gobble up resources, alliances, and territory. If you look back over our history to see who has posed a threat to the United States and our allies, it has always been authoritarian regimes and empires. As political scientists have long noted, no two democracies have ever gone to war with each other—ever. It is not the democracies of the world that are supporting international terrorism, proliferating weapons of mass destruction, or threatening the territory of their neighbors.

## 1NC – Case

### 1NC – Solvency

#### There’s zero legal basis or enforcement mechanism for space as a “commons” – circumvention is inevitable

Herzfeld et al 15 [(Dr. Henry, Research Professor of Space Policy and International Affairs at George Washington University) “How Simple Terms Mislead Us: The Pitfalls of Thinking about Outer Space as a Commons,” Secure World Foundation, 2015] JL

Furthermore, there is a logical contradiction in this discussion about outer space being treated as a commons. If a commons needs a sovereign government to grant the open territory to the use of all people, it is that government that has to oversee, regulate, and enforce that charter. Art. II of the OST prohibits national sovereignty in outer space. Thus, it is an area without a government. Even if all nations regard outer space as a “commons,” it is a very different concept from any commons that has been established in the past. There is no real legal precedent, no true means of oversight or enforcement, and therefore should not be confused with any of the many ways that concept has been applied to the territory or oceans of the Earth. Thinking about space as a global commons may be a laudatory ideal, and one that perhaps can be regarded as a very long-term goal for society. But, it is hardly a practical solution or goal for the problems we face today, witnessed by at least a thousand years of precedent in law and practice coupled with radically different technologies, exponential world population growth from 500 million people (at most) in Roman times and the Middle Ages to over 7 billion people today,38 and other radical political and social changes.

### 1NC – Innovation

#### Turn – changes in appropriation scare investors and research---spills over to broader space.

Freeland 05, [Steven Freeland, 2005, (BCom, LLB, LLM, University of New South Wales; Senior Lecturer in International Law, University of Western Sydney, Australia; and a member of the Paris-based International Institute of Space Law), “Up, Up and … Back: The Emergence of Space Tourism and Its Impact on the International Law of Outer Space.”, Chicago Journal of International Law: Vol. 6: No. 1, Article 4. 2005. JDN, <https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1269&context=cjil//> Accessed: 02-22-22] Recut Sachin

V. THE NEED FOR CELESTIAL PROPERTY RIGHTS? ¶ The fundamental principle of "non-appropriation" upon which the international law of outer space is based stems from the desire of the international community to ensure that outer space remains an area beyond the jurisdiction of any state(s). Similar ideals emerge from UNCLOS (in relation to the High Seas) as well as the Antarctic Treaty, 42 although in the case of the latter treaty, it was finalised after a number of claims of sovereignty had already been made by various States and therefore was structured to "postpone" rather than prejudice or renounce those previously asserted claims.43 In the case of outer space, its exploitation and use is expressed in Article I of the Outer Space Treaty to be "the province of all mankind," a term whose meaning is not entirely clear but has been interpreted by most commentators as evincing the desire to ensure that any State is free to engage in space activities without reference to any sovereign claims of other States. This freedom is reinforced by other parts of the same Article and is repeated in the Moon Agreement (which also applies to "other celestial bodies within the solar system, other than the earth")." Even though both the scope for space activities and the number of private participants have expanded significantly since these treaties were finalised, it has still been suggested that the nonappropriation principle constitutes "an absolute barrier in the realization of every kind of space activity., 4 ' The amount of capital expenditure required to research, scope, trial, and implement a new space activity is significant. To bring this activity to the point where it can represent a viable "stand alone" commercial venture takes many years and almost limitless funding. From the perspective of a private enterprise contemplating such an activity, it would quite obviously be an important element in its decision to devote resources to this activity that it is able to secure the highest degree of legal rights in order to protect its investment. Security of patent and other intellectual property rights, for example, are vital prerequisites for private enterprise research activity on the ISS, and these rights are specifically addressed by the ISS Agreement between the partners to the project and were applicable to the experiments undertaken by Mark Shuttleworth when he was onboard the ISS.46

#### No terminal impact to private innovation

#### Can’t solve duopolies – 1AC ISS says the plan only prevents single actors from appropriating space, but their internal link is about SpaceX-Amazon collaboration

#### Squo debris thumps

Orwig 16 [(Jessica, MS in science and tech journalism from Texas A&M, BS in astronomy and physics from Ohio State) “Russia says a growing problem in space could be enough to spark a war,” Insider,’ January 26, 2016, https://www.businessinsider.com/russia-says-space-junk-could-spark-war-2016-1] TDI

NASA has already warned that the large amount of space junk around our planet is growing beyond our control, but now a team of Russian scientists has cited another potentially unforeseen consequence of that debris: War.

Scientists estimate that anywhere from 500,000 to 600,000 pieces of human-made space debris between 0.4 and 4 inches in size are currently orbiting the Earth and traveling at speeds over 17,000 miles per hour.

If one of those pieces smashed into a military satellite it "may provoke political or even armed conflict between space-faring nations," Vitaly Adushkin, a researcher for the Institute of Geosphere Dynamics at the Russian Academy of Sciences, reported in a paper set to be published in the peer-reviewed journal Acta Astronautica, which is sponsored by the International Academy of Astronautics.

#### Zero risk of escalation from ASATs

**Pavur and Martinovic 19** [James Pavur and Ivan Martinovic, May 2019, "The Cyber-ASAT: On the Impact of Cyber Weapons in Outer Space," ResearchGate, 11th International Conference on Cyber Conflict: Silent Battle [https://www.researchgate.net/publication/334422193\_The\_Cyber-ASAT\_On\_the\_Impact\_of\_Cyber\_Weapons\_in\_Outer\_Space accessed 12/10/21](https://www.researchgate.net/publication/334422193_The_Cyber-ASAT_On_the_Impact_of_Cyber_Weapons_in_Outer_Space%20accessed%2012/10/21)]Adam

A. Limited Accessibility

Space is difficult. Over 60 years have passed since the first Sputnik launch and only nine countries (ten including the EU) have orbital launch capabilities. Moreover, a launch programme alone does not guarantee the resources and precision required to operate a meaningful ASAT capability. Given this, one possible reason why space wars have not broken out is simply because only the US has ever had the ability to fight one [21, p. 402], [22, pp. 419–420].

Although launch technology may become cheaper and easier, it is unclear to what extent these advances will be distributed among presently non-spacefaring nations. Limited access to orbit necessarily reduces the scenarios which could plausibly escalate to ASAT usage. Only major conflicts between the handful of states with ‘space club’ membership could be considered possible flashpoints. Even then, the fragility of an attacker’s own space assets creates de-escalatory pressures due to the deterrent effect of retaliation. Since the earliest days of the space race, dominant powers have recognized this dynamic and demonstrated an inclination towards de-escalatory space strategies [23].

B. Attributable Norms

There also exists a long-standing normative framework favouring the peaceful use of space. The effectiveness of this regime, centred around the Outer Space Treaty (OST), is highly contentious and many have pointed out its serious legal and political shortcomings [24]–[26]. Nevertheless, this status quo framework has somehow supported over six decades of relative peace in orbit.

Over these six decades, norms have become deeply ingrained into the way states describe and perceive space weaponization. This de facto codification was dramatically demonstrated in 2005 when the US found itself on the short end of a 160-1 UN vote after opposing a non-binding resolution on space weaponization. Although states have occasionally pushed the boundaries of these norms, this has typically occurred through incremental legal re-interpretation rather than outright opposition [27]. Even the most notable incidents, such as the 2007-2008 US and Chinese ASAT demonstrations, were couched in rhetoric from both the norm violators and defenders, depicting space as a peaceful global commons [27, p. 56]. Altogether, this suggests that states perceive real costs to breaking this normative tradition and may even moderate their behaviours accordingly.

One further factor supporting this norms regime is the high degree of attributability surrounding ASAT weapons. For kinetic ASAT technology, plausible deniability and stealth are essentially impossible. The literally explosive act of launching a rocket cannot evade detection and, if used offensively, retaliation. This imposes high diplomatic costs on ASAT usage and testing, particularly during peacetime.

C. Environmental Interdependence

A third stabilizing force relates to the orbital debris consequences of ASATs. China’s 2007 ASAT demonstration was the largest debris-generating event in history, as the targeted satellite dissipated into thousands of dangerous debris particles [28, p. 4]. Since debris particles are indiscriminate and unpredictable, they often threaten the attacker’s own space assets [22, p. 420]. This is compounded by Kessler syndrome, a phenomenon whereby orbital debris ‘breeds’ as large pieces of debris collide and disintegrate. As space debris remains in orbit for hundreds of years, the cascade effect of an ASAT attack can constrain the attacker’s long-term use of space [29, pp. 295– 296]. Any state with kinetic ASAT capabilities will likely also operate satellites of its own, and they are necessarily exposed to this collateral damage threat. Space debris thus acts as a strong strategic deterrent to ASAT usage.

1. **No space war – insurmountable barriers and everyone has an interest in keeping space peaceful**

**Dobos 19** [(Bohumil Doboš, scholar at the Institute of Political Studies, Faculty of Social Sciences, Charles University in Prague, Czech Republic, and a coordinator of the Geopolitical Studies Research Centre) “Geopolitics of the Outer Space, Chapter 3: Outer Space as a Military-Diplomatic Field,” Pgs. 48-49] TDI

Despite the theorized potential for the achievement of the terrestrial dominance throughout the utilization of the ultimate high ground and the ease of destruction of space-based assets by the potential space weaponry, the utilization of space weapons is with current technology and no effective means to protect them far from fulfilling this potential (Steinberg 2012, p. 255). In current global international political and technological setting, the utility of space weapons is very limited, even if we accept that the ultimate high ground presents the potential to get a decisive tangible military advantage (which is unclear). This stands among the reasons for the lack of their utilization so far. Last but not the least, it must be pointed out that the states also develop passive defense systems designed to protect the satellites on orbit or critical capabilities they provide. These further decrease the utility of space weapons. These systems include larger maneuvering capacities, launching of decoys, preparation of spare satellites that are ready for launch in case of ASAT attack on its twin on orbit, or attempts to decrease the visibility of satellites using paint or materials less visible from radars (Moltz 2014, p. 31). Finally, we must look at the main obstacles of connection of the outer space and warfare. The first set of barriers is comprised of physical obstructions. As has been presented in the previous chapter, the outer space is very challenging domain to operate in. Environmental factors still present the largest threat to any space military capabilities if compared to any man-made threats (Rendleman 2013, p. 79). A following issue that hinders military operations in the outer space is the predictability of orbital movement. If the reconnaissance satellite's orbit is known, the terrestrial actor might attempt to hide some critical capabilities-an option that is countered by new surveillance techniques (spectrometers, etc.) (Norris 2010, p. 196)-but the hide-and-seek game is on. This same principle is, however, in place for any other space asset-any nation with basic tracking capabilities may quickly detect whether the military asset or weapon is located above its territory or on the other side of the planet and thus mitigate the possible strategic impact of space weapons not aiming at mass destruction. Another possibility is to attempt to destroy the weapon in orbit. Given the level of development for the ASAT technology, it seems that they will prevail over any possible weapon system for the time to come. Next issue, directly connected to the first one, is the utilization of weak physical protection of space objects that need to be as light as possible to reach the orbit and to be able to withstand harsh conditions of the domain. This means that their protection against ASAT weapons is very limited, and, whereas some avoidance techniques are being discussed, they are of limited use in case of ASAT attack. We can thus add to the issue of predictability also the issue of easy destructibility of space weapons and other military hardware (Dolman 2005, p. 40; Anantatmula 2013, p. 137; Steinberg 2012, p. 255). Even if the high ground was effectively achieved and other nations could not attack the space assets directly, there is still a need for communication with those assets from Earth. There are also ground facilities that support and control such weapons located on the surface. Electromagnetic communication with satellites might be jammed or hacked and the ground facilities infiltrated or destroyed thus rendering the possible space weapons useless (Klein 2006, p. 105; Rendleman 2013, p. 81). This issue might be overcome by the establishment of a base controlling these assets outside the Earth-on Moon or lunar orbit, at lunar L-points, etc.-but this perspective remains, for now, unrealistic. Furthermore, no contemporary actor will risk full space weaponization in the face of possible competition and the possibility of rendering the outer space useless. No actor is dominant enough to prevent others to challenge any possible attempts to dominate the domain by military means. To quote 2016 Stratfor analysis, "(a) war in space would be devastating to all, and preventing it, rather than finding ways to fight it, will likely remain the goal" (Larnrani 20 16). This stands true unless some space actor finds a utility in disrupting the arena for others.

#### Use or lose is wrong – It’d be irrational AND never be contemplated by any state.

Kroenig 18 Matthew Kroenig, Associate Professor in the Department of Government and the Edmund A. Walsh School of Foreign Service at Georgetown, The Logic of American Nuclear Strategy: Why Strategic Superiority Matters, Oxford UPress, pp. 137-142

The second, and more common, argument as to why nuclear superiority might be destabilizing is because the state in the position of nuclear inferiority (in this case, America’s adversaries) may feel “use ’em or lose ’em” (UELE) pressures, but this argument also withers under interrogation.26

According to strategic stability theorists, a US nuclear advantage increases the danger of nuclear war because the inferior opponent may fear that its nuclear arsenal is vulnerable to a first strike. Rather, than wait for the adversary (in this case the United States) to move first and wipe out, or seriously blunt, its strategic forces, the argument goes, the inferior state may decide to intentionally launch a nuclear war early in a crisis in order to avoid suffering a disarming first strike. This is the logic most often invoked by strategic stability theorists when they claim that US nuclear advantages are destabilizing. This is also the precise problem identified and inspired by Wohlstetter’s basing studies.

Use ’em or lose ’em enjoys a certain superficial plausibility, but, upon closer inspection, there are two fundamental reasons why the logic simply does not hold up. First, it ignores the fact that the superior state retains a healthy ability to retaliate. So, even if the inferior state is worried about having its nuclear weapons eliminated in a first strike, the decision to launch its nuclear weapons first as a coping mechanism would be a decision to intentionally launch a nuclear war against a state with at least a secure, second-strike capability. This means that even if the inferior state launches its nuclear weapons first, it will be virtually guaranteed to suffer devastating nuclear retaliation. Moreover, given that it is in a situation of extreme inferiority (so extreme that it might even be vulnerable to a preemptive nuclear strike), this would mean intentionally launching a devastating nuclear war that will likely turn out much worse for itself then for its opponent. It would simply be irrational for a state to intentionally launch a nuclear war against a state with an assured retaliatory capability.

Let us consider a concrete example. The United States maintains nuclear superiority over China, as we have seen in previous chapters. Strategic stability theorists want us to believe that if the United States takes additional steps to further enhance its superiority, then China would face even greater temptations to launch a nuclear first strike against the US homeland in the event of a serious crisis. In other words, strategic stability theorists hold that China would be so worried about losing a devastating nuclear war against United States that it would intentionally choose to start a devastating nuclear war against the United States. The argument does not make sense.

### 1NC – Ozone

#### Warming doesn’t trigger extinction

* peer-reviewed journal shows IPCC exaggeration
* history proves resilience
* no extinction- warming under Paris goals
* rock breaking strategy could offset warming

IBD 18 [Investors Business Daily, Citing Study from Peer reviewed journal by Lewis and Curry, “Here's One Global Warming Study Nobody Wants You To See”, 4/25/18, https://www.investors.com/politics/editorials/global-warming-computer-models-co2-emissions/]

Settled Science: A new study published in a peer-reviewed journal finds that climate models exaggerate the global warming from CO2 emissions by as much as 45%. If these findings hold true, it's huge news. No wonder the mainstream press is ignoring it.

In the study, authors Nic Lewis and Judith Curry looked at actual temperature records and compared them with climate change computer models. What they found is that the planet has shown itself to be far less sensitive to increases in CO2 than the climate models say. As a result, they say, the planet will warm less than the models predict, even if we continue pumping CO2 into the atmosphere.

As Lewis explains: "Our results imply that, for any future emissions scenario, future warming is likely to be substantially lower than the central computer model-simulated level projected by the (United Nations Intergovernmental Panel on Climate Change), and highly unlikely to exceed that level.

How much lower? Lewis and Curry say that their findings show temperature increases will be 30%-45% lower than the climate models say. If they are right, then there's little to worry about, even if we don't drastically reduce CO2 emissions.

The planet will warm from human activity, but not nearly enough to cause the sort of end-of-the-world calamities we keep hearing about. In fact, the resulting warming would be below the target set at the Paris agreement.

This would be tremendously good news.

The fact that the Lewis and Curry study appears in the peer-reviewed American Meteorological Society's Journal of Climate lends credibility to their findings. This is the same journal, after all, that recently published widely covered studies saying the Sahara has been growing and the climate boundary in central U.S. has shifted 140 miles to the east because of global warming.

The Lewis and Curry findings come after another study, published in the prestigious journal Nature, that found the long-held view that a doubling of CO2 would boost global temperatures as much as 4.5 degrees Celsius was wrong**.** The most temperatures would likely climb is 3.4 degrees.

It also follows a study published in Science, which found that rocks contain vast amounts of nitrogen that plants could use to grow and absorb more CO2, potentially offsetting at least some of the effects of CO2 emissions and reducing future temperature increases.

#### No ocean acidification impact and CO2 increases ocean bio-d

Goklany, 15—independent scholar and author, member of the US delegation that established the IPCC and helped develop its First Assessment Report, he subsequently served as a US delegate to the IPCC, and an IPCC reviewer, he is a member of the GWPF’s Academic Advisory Council (Indur, “CARBON DIOXIDE: The good news”, <http://www.thegwpf.org/content/uploads/2015/10/benefits1.pdf>, dml)

Increasing carbon dioxide levels in the atmosphere clearly increase the growth rate of land plants, other things being equal. Is the same true for marine photosynthesisers such as algae, phytoplankton and symbiotic zooxanthellae in corals? Carbon dioxide dissolves in seawater and there is good evidence that this causes enhanced growth rates in many taxa. This is despite the fact that dissolved carbon dioxide forms bicarbonate ions, which slightly decrease the pH of the water, leading to what is often inaccurately called ‘ocean acidification’. There is no likelihood of the ocean’s average pH getting anywhere near as low as 7 because of elevated carbon dioxide concentrations during the next three centuries. Ocean pH currently averages about 8 and is forecast to fall by 0.2 pH units or so during the present century. This change is considerably smaller than the difference in pH between different parts of the ocean, different days in the same part of the ocean, and even different times of day in coral reef lagoons. An examination of upper-ocean pH for a wide variety of ecosystems ranging from polar to tropical, open-ocean to coastal, kelp forest to coral reefs, indicates that variations in month-long pH spanned a range of 0.024 –1.430 pH units, and found that many organisms ‘are already experiencing pH regimes that are not predicted until 2100.’93 In other words, the projected change in pH is much smaller than the noise in its natural variation. So it is highly speculative that this small long-term trend will bring problems for marine life that are greater than the benefits of extra carbon dioxide for photosynthetic marine organisms and hence the whole marine biosphere.

Here follow some examples of studies finding positive or neutral impacts of lower pH on different groups of marine photosynthesisers:

Cocolithophores Iglesias-Rodriguez et al. found evidence that ‘calcification and net primary production in the coccolithophore species Emiliania huxleyi are significantly increased by high carbon dioxide partial pressures’ in the laboratory while ‘field evidence from the deep ocean is consistent with these laboratory conclusions, indicating that over the past 220 years there has been a 40% increase in average coccolith mass’.94 Coccolithophores are among the most abundant phytoplankton in the oceans. Notably, Duarte et al. classify the evidence for a decline of calcifiers due to ocean acidification for this century as weak.95

Diatoms In diatoms, ‘no significant change in the yield was found between the low and high carbon dioxide levels’ and ‘increased dissolved carbon dioxide concentration did not affect the mean cell size and cell volume of Phaeodactylum tricornutum’.96 Foraminifera Vogel and Uthicke found that ‘the species investigated were still able to build up their calcite skeletons in carbon dioxide conditions predicted for the year 2100 and beyond’, and ‘contrary to expectations, M. vertebralis showed significantly increased growth rates in elevated carbon dioxide’.97

Marine algae and other marine plants In marine algae, many studies find that enhanced carbon dioxide results in faster growth. In other marine plants such as eelgrasses, Palacios and Zimmermann concluded that ‘ocean acidification will stimulate seagrass biomass and productivity, leading to more favorable habitat and conditions for associated invertebrate and fish species’.98 Indeed, according to Hendriks et al, the carbon dioxide fertilisation effect might reverse acidification: ‘sea-grass photosynthetic rates may increase by 50% with increased carbon dioxide, which may deplete the carbon dioxide pool, maintaining an elevated pH that may protect associated calcifying organisms from the impacts of ocean acidification’,99 at least in their vicinity.

Thus for many primary producers in the ocean, increased levels of dissolved carbon dioxide will stimulate ecosystem productivity with positive implications for the food chain. Studies suggest that this effect will probably outweigh any drawbacks from slightly lower pH.

Could the same be true for corals? Corals build reefs by calcification, depositing calcium carbonate in their skeletons. This process is energetically costly and the energy cost increases at lower pH. However, the energy is supplied by symbiotic zooxanthellae in the corals, which photosynthesise.100 Thus the limiting factor on coral growth may be biological rather than chemical. Muscatine et al. conclude that ‘symbiotic algae may control calcification by. . . modification of physico-chemical parameters within the coral polyps’.101 This could explain why the growth rate of coral reefs shows no signs of declining as predicted. As Kleypas et al. argue with respect to benthic corals, ‘[t]he drawdown of total dissolved inorganic carbon due to photosynthesis and calcification of reef communities can exceed the drawdown of total alkalinity due to calcification of corals and calcifying algae, leading to a net increase in aragonite saturation state’.102

The general finding that calcifier organisms do not deposit less calcium when carbon dioxide concentrations increase is borne out by an experimental study by Findlay et al. using three molluscs, one barnacle and a brittle star. They write that ‘contrary to popular predictions, the deposition of calcium carbonate can be maintained or even increased in acidified seawater’.103 Similarly, a ‘field growth experiment revealed seven times higher growth and calcification rates of [blue mussel Mytilus edulis] at a high carbon dioxide inner fjord field station . . .in comparison to a low pCO2 outer fjord station. . . ’104

Recent laboratory experiments to investigate the variation in the coral calcification rate of the scleractinian coral Siderastrea siderea – an abundant reef-builder in the Caribbean Sea – with warming and changes in pH found that under a more-orless constant temperature of 28◦C, calcification rates increased as atmospheric carbon dioxide was increased from near-pre-industrial levels of 324 ppm to 447 ppm, remained relatively unchanged at the predicted end-of-century value of 604 ppm and then returned to near-pre-industrial rates at 2500 ppm.105 It also found that while holding the carbon dioxide level at 488 ppm, calcification rates increased as the temperature increased from 25◦C to 28◦C, but it declined by 80% when temperature was increased to 32◦C. These results suggest that rapid ocean warming will pose a threat to S. siderea in the longer term but that ocean acidification will be little or no threat for several centuries. Moreover, the experimentally determined calcification rates might have been adversely affected by the disruption to the coral due to the need to cut, transplant and prepare it for analysis. No less important is the fact that the changes in pH and temperature were imposed over a period of just a few months. In the real world such changes would occur over a century or more, which means some adaptation cannot be precluded, for example via symbiont shuffling.106

By far the largest peer-reviewed meta-analysis of the effect of ocean acidification upon marine life came to a strikingly unfashionable conclusion. Hendriks et al. studied the results of 372 experiments involving raised carbon dioxide levels on 44 species and found ‘limited experimental support’ for the theoretical predictions of negative impacts of ocean acidification. Marine organisms, they conclude, are ‘more resistant to ocean acidification than suggested by pessimistic predictions. . . ’, and thus this phenomenon ‘may not be the widespread problem conjured into the 21st century’.107

#### No Ozone Impact.

Ridley 14 (Matthew White Ridley, BA and PhD in Zoology from Oxford. “THE OZONE HOLE WAS EXAGGERATED AS A PROBLEM,” *Rational Optimist*, 9/25/14, <http://www.rationaloptimist.com/blog/the-ozone-hole-was-exaggerated-as-a-problem.aspx>) dwc 19

Serial hyperbole does the environmental movement no favours My recent Times column argued that the alleged healing of the ozone layer is exaggerated, but so was the impact of the ozone hole over Antarctica: The ozone layer is healing. Or so said the news last week. Thanks to a treaty signed in Montreal in 1989 to get rid of refrigerant chemicals called chlorofluorocarbons (CFCs), the planet’s stratospheric sunscreen has at last begun thickening again. Planetary disaster has been averted by politics. For reasons I will explain, this news deserves to be taken with a large pinch of salt. You do not have to dig far to find evidence that the ozone hole was never nearly as dangerous as some people said, that it is not necessarily healing yet and that it might not have been caused mainly by CFCs anyway. The timing of the announcement was plainly political: it came on the 25th anniversary of the treaty, and just before a big United Nations climate conference in New York, the aim of which is to push for a climate treaty modelled on the ozone one. Here’s what was actually announced last week, in the words of a Nasa scientist, Paul Newman: “From 2000 to 2013, ozone levels climbed 4 per cent in the key mid-northern latitudes.” That’s a pretty small change and it is in the wrong place. The ozone thinning that worried everybody in the 1980s was over Antarctica. Over northern latitudes, ozone concentration has been falling by about 4 per cent each March before recovering. Over Antarctica, since 1980, the ozone concentration has fallen by 40 or 50 per cent each September before the sun rebuilds it. So what’s happening to the Antarctic ozone hole? Thanks to a diligent blogger named Anthony Watts, I came across a press release also from Nasa about nine months ago, which said: “ Two new studies show that signs of recovery are not yet present, and that temperature and winds are still driving any annual changes in ozone hole size.” As recently as 2006, Nasa announced, quoting Paul Newman again, that the Antarctic ozone hole that year was “the largest ever recorded”. The following year a paper in Nature magazine from Markus Rex, a German scientist, presented new evidence that suggested CFCs may be responsible for less than 40 per cent of ozone destruction anyway. Besides, nobody knows for sure how big the ozone hole was each spring before CFCs were invented. All we know is that it varies from year to year. How much damage did the ozone hole ever threaten to do anyway? It is fascinating to go back and read what the usual hyperventilating eco-exaggerators said about ozone thinning in the 1980s. As a result of the extra ultraviolet light coming through the Antarctic ozone hole, southernmost parts of Patagonia and New Zealand see about 12 per cent more UV light than expected. This means that the weak September sunshine, though it feels much the same, has the power to cause sunburn more like that of latitudes a few hundred miles north. Hardly Armageddon. The New York Times reported “an increase in Twilight Zone-type reports of sheep and rabbits with cataracts” in southern Chile. Not to be outdone, Al Gore wrote that “hunters now report finding blind rabbits; fisherman catch blind salmon”. Zoologists briefly blamed the near extinction of many amphibian species on thin ozone. Melanoma in people was also said to be on the rise as a result. This was nonsense. Frogs were dying out because of a fungal disease spread from Africa — nothing to do with ozone. Rabbits and fish blinded by a little extra sunlight proved to be as mythical as unicorns. An eye disease in Chilean sheep was happening outside the ozone-depleted zone and was caused by an infection called pinkeye — nothing to do with UV light. And melanoma incidence in people actually levelled out during the period when the ozone got thinner.

#### Growth is sustainable – yes absolute decoupling

Hausfather 4/6 [(Zeke, climate scientist and energy systems analyst whose research focuses on observational temperature records, climate models, and mitigation technologies, PhD in climate science from the University of California, Berkeley, former research scientist with Berkeley Earth, senior climate analyst at Project Drawdown, and US analyst for Carbon Brief) “Absolute Decoupling of Economic Growth and Emissions in 32 Countries,” Breakthrough Institute, 4/6/2021] JL

The past 30 years have seen immense progress in improving the quality of life for much of humanity. Extreme poverty — the number of people living on less than $1.90 per day — has fallen by nearly two-thirds, from 1.9 billion to around 650 million. Life expectancy has risen in most of the world, along with literacy and access to education, while infant mortality has fallen. Despite perceptions to the contrary, the average person born today is likely to have access to more opportunities and have a better quality of life than at any other point in human history. Much of this increase in human wellbeing has been propelled by rapid economic growth driven largely by state-led industrial policy, particularly in poor-to-middle income countries.

However, this growth has come at a cost: between 1990 and 2019, global emissions of CO2 increased by 56%. Historically, economic growth has been closely linked to increased energy consumption — and increased CO2 emissions in particular — leading some to argue that a more prosperous world is one that necessarily has more impacts on our natural environment and climate. There is a lively academic debate about our ability to “absolutely decouple” emissions and growth — that is, the extent to which the adoption of clean energy technology can allow emissions to decline while economic growth continues.

Over the past 15 years, however, something has begun to change. Rather than a 21st century dominated by coal that energy modelers foresaw, global coal use peaked in 2013 and is now in structural decline. We have succeeded in making clean energy cheap, with solar power and battery storage costs falling 10-fold since 2009. The world produced more electricity from clean energy — solar, wind, hydro, and nuclear — than from coal over the past two years. And, according to some major oil companies, peak oil is upon us — not because we have run out of cheap oil to produce, but because demand is falling and companies expect further decline as consumers increasingly shift to electric vehicles.

The world has long been experiencing a relative decoupling between economic growth and CO2 emissions, with the emissions per unit of GDP falling for the past 60 years. This is the case even in countries like India and China that have been undergoing rapid economic growth. But relative decoupling alone is inadequate in a world where global CO2emissions need to peak and decline in the next decade to give us any chance at limiting warming to well below 2℃, in line with Paris Agreement targets.

Thankfully, there is increasing evidence that the world is on track to absolutely decouple CO2 emissions and economic growth — with global CO2 emissions potentially having peaked in 2019 and unlikely to increase substantially in the coming decade. While an emissions peak is just the first and easiest step towards eventually reaching the net-zero emissions required to stop the world from continuing to warm, it demonstrates that linkages between emissions and economic activity are not an immutable law, but rather simply a result of our current means of energy production.

In recent years we have seen more and more examples of absolute decoupling — economic growth accompanied by falling CO2 emissions. Since 2005, 32 countries with a population of at least one million people have absolutely decoupled emissions from economic growth, both for terrestrial emissions (those within national borders) and consumption emissions (emissions embodied in the goods consumed in a country). This includes the United States, Japan, Mexico, Germany, United Kingdom, France, Spain, Poland, Romania, Netherlands, Belgium, Portugal, Sweden, Hungary, Belarus, Austria, Bulgaria, El Salvador, Singapore, Denmark, Finland, Slovakia, Norway, Ireland, New Zealand, Croatia, Jamaica, Lithuania, Slovenia, Latvia, Estonia, and Cyprus. Figure 1, below, shows the declines in territorial emissions (blue) and increases in GDP (red).  
To qualify as having experienced absolute decoupling, we require countries included in this analysis to pass four separate filters: a population of at least one million (to focus the analysis on more representative cases), declining territorial emissions over the 2005-2019 period (based on a linear regression), declining consumption emissions, and increasing real GDP (on a purchasing power parity basis, using constant 2017 international $USD). We chose not to include 2020 in this analysis because it is not particularly representative of longer-term trends, and consumption and territorial emissions estimates are not yet available for many countries.

There is a wide range of rates of economic growth between 2005-2019 among countries experiencing absolute decoupling. Somewhat counterintuitively, there is no significant relationship between the rate of economic growth and the magnitude of emissions reductions within the group. While it is unlikely that there is not at least some linkage between the two factors, there are plenty of examples of countries (e.g., Singapore, Romania, and Ireland) experiencing both extremely rapid economic growth and large reductions in CO2 emissions.

One of the primary criticisms of some prior analyses of absolute decoupling is that they ignore leakage. Specifically, the offshoring of manufacturing from high-income countries over the past three decades to countries like China has led to “illusory” drops in emissions, where the emissions associated with high-income country consumption are simply shipped overseas and no longer show up in territorial emissions accounting. There is some truth in this critique, as there was a large increase in emissions embodied in imports from developing countries between 1990 and 2005. After 2005, however, structural changes in China and a growing domestic market led to a reversal of these trends; the amount of emissions “exported” from developed countries to developing countries has actually declined over the past 15 years.

This means that, for many countries, both territorial emissions and consumption emissions (which include any emissions “exported” to other countries) have jointly declined. In fact, on average, consumption emissions have been declining slightly faster than territorial emissions since 2005 in the 32 countries we identify as experiencing absolute decoupling. Figure 2, below, shows the change in consumption emissions (teal) and GDP (red) between 2005 and 2019.  
There is a pretty wide variation in the extent to which these countries have reduced their territorial and consumption emissions since 2005. Some countries — such as the UK, Denmark, Finland, and Singapore – have seen territorial emissions fall faster than consumption emissions, while the US, Japan, Germany, and Spain (among others) have seen consumption emissions fall faster. Figure 3 shows reductions in consumption and territorial emissions for each country, with the size of the dot representing the size of the population in 2019.  
Absolute decoupling is possible. There is no physical law requiring economic growth — and broader increases in human wellbeing — to necessarily be linked to CO2 emissions. All of the services that we rely on today that emit fossil fuels — electricity, transportation, heating, food — can in principle be replaced by near-zero carbon alternatives, though these are more mature in some sectors (electricity, transportation, buildings) than in others (industrial processes, agriculture).

This is not to say that infinite economic growth is desirable (or even possible), particularly given that the global population is expected to start to shrink by the end of the 21st century (and well before that in most currently wealthy countries). There will be some tradeoffs between economic growth and climate mitigation — particularly if the world is to meet ambitious mitigation targets. But it is possible to envision a world that is prosperous, equal, and at net-zero emissions; indeed, all of the future emissions scenarios used by the Intergovernmental Panel on Climate Change (IPCC) do just that.

#### Emissions prevent Ice Age---extinction.

Whitehouse ’12 [David; 2012; Science Adviser to the Global Warming Policy Foundation; Public Service Europe, “Could Rising CO2 Levels Help Prevent The Next Ice Age?” http://www.publicserviceeurope.com/article/1338/could-rising-co2-levels-help-prevent-the-next-ice-age]

That the trees no longer completely canopy this land is due to mankind as we cleared the forests. That the ice is no longer here is due to global warming. Without doubt, we live in an interglacial period – a warm time between ice ages. There have been many during the current great glaciation. Some have these periods have been warmer than today, many shorter than our current interglacial's duration. The return of the ice would, short of a giant meteor strike, be the biggest disaster to face humanity. Vast swathes of the northern Hemisphere would be frozen. Northern Europe, Asia, Canada and the United States would have extensive regions rendered uninhabitable. Mankind would have to move south. There would be no choice as no technology could stop the ice or allow our high populations to life amongst it. Some believe the return of the ice will not happen for thousands of years, other that the signs could be visible within decades.

But could it be that the greenhouse gasses being pumped into the atmosphere, that many believe are responsible for a recent warming of the planet, might counteract the forces bringing us a new glaciation? Could it be that greenhouse gasses might actually stave off the return of the ice and save the lives of tens of millions, if not civilisation itself? A recent study by scientists at Cambridge University and published in the Journal Nature Geoscience suggests that the carbon dioxide might extend the current interglacial until carbon dioxide levels fall. They believe that the atmospheric concentration of CO2 must be about 240 parts per million before glaciation could start.

Currently, it is about 390 ppm. In a 1999 essay, Sir Fred Hoyle said: "The renewal of ice-age conditions would render a large fraction of the world's major food-growing areas inoperable and so would inevitably lead to the extinction of most of the present human population. We must look to a sustained greenhouse effect to maintain the present advantageous world climate. This implies the ability to inject effective greenhouse gases into the atmosphere, the opposite of what environmentalists are erroneously advocating."

#### Warming unlocks Siberian ag productivity, creating a breadbasket for East Asia.

Parnell ’19 [Maarten; 2019; Founder and Managing Director of Vosbor; The Diplomat, “The Dormant Breadbasket of the Asia-Pacific,” <https://thediplomat.com/2019/02/the-dormant-breadbasket-of-the-asia-pacific/>]

Although some Siberian farmers in the south are anticipated to face production declines due to climate change, the perspectives will improve significantly for the rest of Siberia. With the growing seasons becoming longer and warmer, crop yields are anticipated to improve substantially. Moreover, abandoned cropland and forest areas further north are becoming more attractive for cultivation, with April-July temperatures now on average 1.3 to 2 degrees Celsius higher than in 1960. Nonetheless, (re)cultivation of these lands could release significant amounts of carbon stored in the soil and plants and aggravate climate change. Sustainable intensification of current agricultural lands should therefore have priority over cropland expansion. Substitution of summer fallows, efficient no-till crop rotation schemes, increased water-use-efficiency, and equipment sharing programs are the most cost-effective approaches to a sustainable intensification strategy in Siberia.

The logical destination for Siberian crop surplus is East and Southeast Asia, due to their proximity and large demand. However, in 20 17 only 3.3 percent of all Russian grain exports went to East Asia and 7.8 percent to Southeast Asia. The Russian government is acutely aware of the potential for increased Siberian agricultural exports and has actively pursued foreign policy, regulation and the development of infrastructure to that end. In 2015 it created a free-port zone in Primorsky Krai, the administrative region that borders the Pacific in the east and the Chinese border in the west. Named the Free Port of Vladivostok, its benefits include a free-customs regime for resident companies, lower corporate taxes, fast-track VAT reimbursement, and a simplified visa process for foreigners.

Vladivostok is directly linked to the Trans-Siberian Railway network, connecting the Western Siberian grain belt with the free port over more than 5,000 kilometers. This railway, however, has limited capacity and although there are plans to increase its capacity, the infrastructure network has yet to expand to accommodate this growth. The Free Port zone, which handles mainly energy, metals and mining commodities alongside containers, is also not equipped to efficiently load bulk grain and oilseed. To remedy this, a relatively minor fishing port called Zarubino, at the southern tip of the Free Port zone, was designated to become home to the first grain terminal on the Pacific coast of Russia. The project is largely supported by Chinese investors, who are interested in creating port access for the neighboring Chinese provinces Jilin and Heilongjiang, the country’s largest corn and soybean production areas. Currently, crops from these provinces need to be transported up to 1,000 km by a congested railway to the nearest Chinese port in the Bohai Bay, while Zarubino is a mere 50 km from the border with China. The terminal was to be completed by 2020 and initially slated to have an annual capacity of 40 million tonnes. Due to various setbacks, the project has yet to get off the ground.

Besides infrastructural issues, sparsely populated Siberia also suffers from a lack of skilled labor. To counter this the Russian government has actively supported foreign investment in the region. Last year for example, it has made 1 million hectares of arable land in the Far Eastern Federal District available to foreign buyers, who are normally only eligible for leasehold. Although most of the land is located in remote regions with low productivity, many Chinese buyers indicated interest. Wealthy farmers from China have been moving into the eastern part of Siberia ever since the collapse of the USSR, as centrally planned local economies imploded and agricultural subsidies disappeared. As crop production in some regions of China becomes more difficult in the face of climate change, more Chinese farmers may look north of the border for better opportunities.

Agricultural (land) investments are also attractive to institutional investors, in particular long-term investors like pension funds or sovereign wealth funds, as these investments have historically delivered stable returns, increased diversification, and outpaced inflation. Various institutional investors have committed to Russian agriculture recently, mostly through shareholdings in foreign listed groups focused on farmland acquisition and agribusiness. Among the major funds that invested in Russian farming are Sweden’s AP2 pension fund ($38 billion assets under management or AUM), Dutch pension fund PFZW ($234 billion AUM), California’s CalPERS pension fund ($365.5 billion AUM), Nordea Investment Funds, and insurer Swiss Life. Some investors have even acquired Russian farmland directly, such as New York based hedge fund Och-Ziff Capital and Harvard University’s endowment fund. The most active foreign investors are the large commodity traders and food processors, who invest not only in land and farming, but also in infrastructure (storage and export terminals) and processing (grain milling or oilseed crushing).

Investment risks remain substantial however, as reflected in the overall level of foreign investment in Russia. The risks are not specific to agriculture, but inherent to investing in Russia. Unstable regulation, red tape, corruption, and geopolitical uncertainty are some of the key concerns. More supportive economic policies and a better regulatory framework, as well as public spending on infrastructure would go a long way in improving investment climate in Russia, regardless of economic sanctions.

As surpluses in other growing regions are anticipated to decline, countries will compete for food supplies and put pressure on global prices, which will negatively affect food security worldwide. The underperforming agricultural sector of Siberia has great potential to support the growing demand of Russia’s neighbors in the Asia-Pacific. Local crop production can be increased significantly, especially through sustainable intensification. The existing infrastructure, albeit aging and insufficient for cost-competitive handling of agricultural bulk, has the potential to facilitate large agricultural exports eastward. Like Catherina the Great and her grandson Alexander I, who both successfully promoted the immigration of vast numbers of German farmers to areas that were sparsely populated and transformed them to what remain today the most productive agricultural regions of Russia and Ukraine, the current Russian government should consider policies that will make it more attractive for (foreign) investors to settle in Siberia if it earnestly wants to unlock the agricultural potential of the region. Siberia could become the breadbasket of the Asia-Pacific and boost global food security in the process.

#### Increasing Asian food supply prevents crises that escalate to World War III.

Heneghan ’15 [Carolyn; 2015; Contributing Editor at Food Dive, BA in Communication and Journalism from Tulane University, Citing UN Experts; Global Harvest Initiative Report – Food Dive, “Where Food Crises and Global Conflict Could Collide,” http://www.fooddive.com/news/where-food-crises-and-global-conflict-could-collide/350837/]

World War III is unimaginable for many, but some experts believe that not only is this degree of global conflict imminent, but it may be instigated not by military tensions, oil and gas, or nuclear threats, but instead by, of all things, food.

As it stands, countries across the globe are enduring food crises, and the U.N.’s Food & Agriculture Organization (FAO) estimates that about 840 million people in the world are undernourished, including the one in four children under the age of 5 who is stunted because of malnutrition.

Assistant director-general of U.N. FAO Asia-Pacific Hiroyuki Konuma told Reuters that social and political unrest, civil wars, and terrorism could all be possible results of food crises, and “world security as a whole might be affected.” Such consequences could happen unless the world increases its output of food production 60% by mid-century. This includes maintaining a stable growth rate at about 1% to have an even theoretical opportunity to circumvent severe shortages. These needs are due to the growing global population, which is expected to reach 9 billion by 2050 while demand for food will rise rapidly.

Where the problems lie

Exacerbating this issue is the fact that the world is spending less on agricultural research, to the dismay of scientists who believe global food production may not sustain the increased demand. According to American Boondoggle, “The pace of investment growth has slowed from 3.63 percent per year (after inflation) during 1950–69, to 1.79 percent during 1970–89, to 0.94 percent during 1990– 2009.” Decreased growth in agricultural research and development spending has slowed across the world as a whole, but it is even slower in high-income countries.

Water scarcity is another problem, including in major food-producing nations like China, as well as climate change. Extreme weather events are having a severe effect on crops, which have been devastated in countries like Australia, Canada, China, Russia, and the U.S., namely due to floods and droughts. An Intergovernmental Panel on Climate change recently warned that climate change may result in “a 2% drop each decade of this century,” according to RT.

Rising food costs also contribute to poor food security across the world as prices remain high and volatile. Higher food costs inhibit lower socioeconomic people’s access to food, which contributes to the FAO’s disturbing figure of global malnutrition. In addition to an inability for people to feed themselves, poverty can also reduce food production, such as some African farmers being unable to afford irrigation and fertilizers to provide their regions with food.

Still another issue for decreased food production is the fact that many farmers are turning crops like soy, corn, and sugar into sources for biofuel rather than edible consumption, which means these foods are taken away from people to eat.

Could these shortages lead to a major global conflict?

Studies suggest that the food crisis could begin as early as 2030, just a short 15 years from now, particularly in areas such as East Asia and Sub-Saharan Africa. Both regions have significant problems with domestic food production.

Some experts believe that, to secure enough food resources for their populations, countries may go to war over the increasingly scarce food supply. This could be due in part to warring parties blocking aid and commercial food deliveries to areas supporting their enemies, despite the fact that such a practice breaks international humanitarian law.

#### No internal link to existential pandemics – inserted in green

exposure to UV radiation may be important for conditions such as inflammatory bowel disease (for example, Nerich et al.[194](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit194)), type 1 diabetes,[195](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit195) and rheumatic diseases (including rheumatoid arthritis, systemic lupus erythematosus, dermatomyositis, and others),[196](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit196) the strongest evidence is for multiple sclerosis. Multiple sclerosis. Many studies (but not all) have shown that the prevalence, incidence, or mortality from multiple sclerosis (MS) increases with increasing latitude and decreasing altitude or intensity of ambient UV radiation, in predominantly fair-skinned populations (reviewed in Hewer et al.[197](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit197)). In the US Nurses Health Studies, a latitudinal gradient present in a cohort of female nurses born before 1946 was not apparent in a similar cohort born after 1946.[198](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit198) The findings reflected an increase in incidence in the south in the later cohort (rather than a decrease in the north). One explanation given to explain this change was that increasing sun-protective behaviours in the south had reduced the difference in personal dose of UV between the north and south.[199](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit199) Studies from the northern[200](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit200) and southern[201](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit201) hemispheres show that, compared to the general population, people with MS were more likely to have been born in late spring and less likely to have been born in late autumn. This timing would be consistent with a hypothesis that exposure of the mother to more UV radiation during the late first trimester, when the foetal nervous system is developing and maturing, is protective for the development of MS in later life.[201](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit201) Alternatively, it is also possible that exposures early in infancy, rather than in pregnancy, influence risk, or other factors that vary seasonally could be important. Animal studies suggest that UV-B irradiation can prevent the onset of experimental autoimmune encephalomyelitis, used as a model for MS,[202](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit202) and there is supportive evidence from recent studies in humans.[203,204](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit203) The role of UV-induced immune suppression in skin cancer Cutaneous malignant melanoma. Evidence that the immune response is important for the development of CMM is clearly shown by the increase in incidence following organ transplantation that requires ongoing treatment with immunosuppressive medications.[205](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit205) UV radiation, particularly UV-B, can cause suppression of many aspects of cell-mediated immunity but, until recently, how it influenced the initiation of CMM was unknown. In a transgenic mouse model, the recruitment of macrophages to the skin following UV-B irradiation and their subsequent proliferation were shown to be critical in the survival of melanocytes, including those with UV-induced DNA damage.[206–208](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit206) In addition, inflammation induced by UV radiation increased metastasis of melanoma, with neutrophils being the main drivers of the inflammatory process.[209](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit209) Consistent with these reports from animal models, in patients with metastatic melanoma there was a shorter survival time if metastases contained a high proportion of macrophages.[210](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit210) Non-melanoma skin cancer. Tumours induced by UV radiation are highly antigenic. UV-induced immune suppression plays a critical role in the development of NMSC as evidenced by the dramatically increased incidence in immunosuppressed people, for example, following organ transplantation.[211](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit211) This is especially shown for SCCs in organ transplant recipients receiving immunosuppressive drugs that suppress T cell activity, suggesting that effector T cells are of particular importance in the control of SCC.[212](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit212) Furthermore, Tregs induced by UV irradiation infiltrate SCCs and surround BCCs. Pharmacologically blocking steps in the pathway of UV-induced immunosuppression may be effective in preventing the development of skin cancers and actinic keratoses.[212–214](https://pubs.rsc.org/en/content/articlehtml/2015/pp/c4pp90033b#cit212)

#### No extinction from pandemics

* Death rates as high as 50% didn’t collapse civilization
* Fossil fuel record caps risk at .1% per century
* health, sanitation, medicine, science, public health bodies, solve
* viruses can’t survive in all locations
* refugee populations like tribes, remote researchers, submarine crews, solve

Ord 20 Ord, Toby. Toby David Godfrey Ord (born 18 July 1979) is an Australian philosopher. He founded Giving What We Can, an international society whose members pledge to donate at least 10% of their income to effective charities and is a key figure in the effective altruism movement, which promotes using reason and evidence to help the lives of others as much as possible.[3] He is a Senior Research Fellow at the University of Oxford's Future of Humanity Institute, where his work is focused on existential risk. BA in Phil and Comp Sci from Melbourne, BPhil in Phil from Oxford, PhD in Phil from Oxford. The precipice: existential risk and the future of humanity. Hachette Books, 2020.

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10 The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11 When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox. During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13 Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined. Yet even events like these fall short of being a threat to humanity’s longterm potential.15 In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale. The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16 It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted.

But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk. Our population now is a thousand times greater than over most of human history, so there are vastly more opportunities for new human diseases to originate.17 And our farming practices have created vast numbers of animals living in unhealthy conditions within close proximity to humans. This increases the risk, as many major diseases originate in animals before crossing over to humans. Examples include HIV (chimpanzees), Ebola (bats), SARS (probably bats) and influenza (usually pigs or birds).18 Evidence suggests that diseases are crossing over into human populations from animals at an increasing rate.19 Modern civilization may also make it much easier for a pandemic to spread. The higher density of people living together in cities increases the number of people each of us may infect. Rapid long-distance transport greatly increases the distance pathogens can spread, reducing the degrees of separation between any two people. Moreover, we are no longer divided into isolated populations as we were for most of the last 10,000 years.20 Together these effects suggest that we might expect more new pandemics, for them to spread more quickly, and to reach a higher percentage of the world’s people. But we have also changed the world in ways that offer protection. We have a healthier population; improved sanitation and hygiene; preventative and curative medicine; and a scientific understanding of disease. Perhaps most importantly, we have public health bodies to facilitate global communication and coordination in the face of new outbreaks. We have seen the benefits of this protection through the dramatic decline of endemic infectious disease over the last century (though we can’t be sure pandemics will obey the same trend). Finally, we have spread to a range of locations and environments unprecedented for any mammalian species. This offers special protection from extinction events, because it requires the pathogen to be able to flourish in a vast range of environments and to reach exceptionally isolated populations such as uncontacted tribes, Antarctic researchers and nuclear submarine crews. 21 It is hard to know whether these combined effects have increased or decreased the existential risk from pandemics. This uncertainty is ultimately bad news: we were previously sitting on a powerful argument that the risk was tiny; now we are not. But note that we are not merely interested in the direction of the change, but also in the size of the change. If we take the fossil record as evidence that the risk was less than one in 2,000 per century, then to reach 1 percent per century the pandemic risk would need to be at least 20 times larger. This seems unlikely. In my view, the fossil record still provides a strong case against there being a high extinction risk from “natural” pandemics. So most of the remaining existential risk would come from the threat of permanent collapse: a pandemic severe enough to collapse civilization globally, combined with civilization turning out to be hard to re-establish or bad luck in our attempts to do so.

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