## 1NC

### 1NC---OFF

#### Interpretation: Debaters must disclose all constructive positions on open source with the full text of all cards with highlighting on the 2021-22 NDCA LD wiki after the round in which they read them.

#### Violation they haven’t disclosed the majority of their rounds from barkley forum, Harvard Westlake, asu, ut, and more – these screenshots are just their aff wiki – they disclosed even less on the neg

#### No “ill disclose after” or “ill disclose if asked” I asked them 45 minutes before the round to disclose if they want to make this I meet we can read more violation screenshots but I don’t want the judges computers to crash

#### 1] Research- debaters won’t make it an entire topic with the same case unless they update it and frontline nuanced positions—disclosure allows for more specific research and goes into more depth about the topic

#### 2] Accessibility – disclosure is key to smaller school debaters alleviating big school prep outs – they’re able to scout but small school debaters don’t have the teams to figure out the affs being read. Disclosure is inevitable – the question is whether it happens on a mutually accessible forum.

#### Open source does equal the playing field

Overing 18 – Bob Overing, LD Scholar (“Holiday Disclosure Post #6 – 10 Things Edition” JANUARY 12, 2018. http://www.premierdebate.com/disclosure-post-6/)

**Open source improves on usual disclosure practices** in the obvious way – **you can read their evidence for better prep**aration – and in a number of smaller ways too. **It solves the analytics problem** I discussed above, **so round-altering uncarded arguments are available** (though this doesn’t really apply to Harvard-Westlake), **and it gives access to evidence from paywalled articles**. **Every season I coach debaters who lack access to major databases; for schools without robust online library offerings or teams without college coaches, this matters a lot**.

#### 3] Evidence ethics – open source is the only way to verify pre-round that cards aren’t miscut or highlighted or bracketed unethically. That’s a voter – maintaining ethical ev practices is key to being good academics and we should be able to verify you didn’t cheat

#### Fairness is a voter—it’s a gateway issue to the ballot.

#### Drop the debater to deter future abuse.

#### CI- Reasonability is arbitrary and we don’t know the brightline while prepping. Collapses since it uses an offense/defense paradigm to win it.

#### No RVIs- A] Illogical- you don’t win for being fair B] Encourages baiting theory which proliferates abuse C] Chills checking abuse for fear of the RVI

### 1NC---OFF

#### Starlink is key to Precision Ag – key to food sustainability and increasing food supply to account for exponential population growth.

Greensight 21 3-15-2021 "Can Starlink Save the World by Connecting Farms?" <https://www.greensightag.com/logbook/can-starlink-save-the-world-by-connecting-farms/> (Data Management Consulting Firm)//Elmer

GreenSight innovates in a number of different areas, but one of the areas we are most passionate about is in agriculture. We’ve deployed our drone intelligence systems all over the world at all sorts of different facilities. One of the most challenging has been deployments at farms, and one of the biggest challenges has been connectivity. Connected farms are a requirement to feed the world, and Starlink will make that happen. Most urban and suburban households in the United States have had easy and reasonably inexpensive access to high speed internet access for 20 years. It is easy to forget that the situation is not the same for rural areas of the country. Many areas have no access to high speed, “broadband”, internet access, with some having only dialup internet access in their homes. According to the 2015 FCC broadband report, only 53% of rural households have access to high speed internet, even using low standards for “high” speed. On average farms have even less access, and that doesn’t even include high speed connectivity out in their fields. Cellular service is spotty especially on large farms in primarily agricultural areas, and legacy satellite systems provide slow upload speeds at expensive prices. Utilizing modern internet connected technologies and cloud based systems that require constant, high speed access can be a challenge at best and potentially impossible. A 2016 research study by Goldman and Sachs projected that by 2050, the world’s food production efficiency needs to increase by 50% to support our growing population. This paper backs up this conclusion with a lot of research, but the fundamental conclusion is that farming land area is unlikely to increase nor will the number of farmers. Increased global food production increases must come from productivity boosts. Researchers feel that productivity improvements from chemistry and genomics are unlikely to yield significant increases as they have in the past. They predict that the most likely area for these improvements are with precision farming techniques, notably precision planting and precision application of chemicals and water. The term “Precision Agriculture” was coined in the late 1960s and 1970s in seminal research that projected that in the future farming would be driven by data with inputs and practices varied and optimized based on weather, measurements from the field, and accurate year over year yield measurements. Since then, many tools and technologies have been developed that have made true precision agriculture more and more practical. Precision RTK GPS can guide equipment with precision better than an inch. Drones and satellite mapping of fields using remote sensing can map out health and detect problems with the crops. In field IoT sensors will stream live data (such as our partners Soil Scout). Soil genomics and analysis can analyze macro and micro nutrient content of the soil and track the genetics of the soil microbiome (like our friends at Trace Genomics). Robotic and automated farming equipment (like our partners at Monarch Tractor and Husqvarna are building) can vary applications and planting according to precomputed variable rate application maps. Despite all these breakthroughs, precision farming techniques still have a low penetration. There are many reasons for this (more than could be discussed in this article!) but one of them is inadequate connectivity. Most of these modern technologies rely on access to the internet and in many cases it just isn’t possible. For decades subsidies and programs have been rolled out to improve rural connectivity but the reality is that connecting up far flung areas is expensive, often labor intensive, and consequently from a pure business standpoint does not make sense for the connectivity providers. Even as infrastructure expands to more remote areas, there will always remain large swaths of rural america where conventional connectivity infrastructure is highly impractical. Most of GreenSight’s data processing is done in the cloud. Several gigabytes of imagery data are uploaded from our aircraft after every flight to be processed and delivered to our customers. Our custom artificial intelligence analyses the data and informs farmers to problem areas. From many remote farm fields, uploading can be a slow process. We’ve invested heavily in the portability of our systems and our upcoming next generation aircraft will be capable of onboard processing, but despite this connectivity will still be needed to make data available for farmers and other automated agriculture systems. Advanced sensing systems like ours have to be able to integrate with connected robotic sprayers, harvesters and tractors, unlocking the productivity potential of precision agriculture. Humanity needs precision agriculture, and connected data-driven systems will be a big part of that revolution. Beyond the global necessity, the economics for farmers work too! A 2018 USDA studies indicate that connecting US farmland will unlock $50B in industry revenue. We are extremely excited about Starlink and its potential to bring cost effective internet connectivity to farms and rural areas. Starlink levels the playing field for rural areas, enabling high speed connectivity everywhere. No longer will farmers have to wait for high speed wired connectivity to come to their area or install a complex mesh network on their property. IoT data can be streamed from fields as easily as it now streams from urban homes. Starlink will be a catalyzing force for chance, advancing access to precision agriculture globally and contributing to solving global food challenges.

#### Food Insecurity goes nuclear – escalates multiple hotspots.

Cribb 19 Julian Cribb 8-23-2019 “Food or War” <https://www.cambridge.org/core/books/abs/food-or-war/hotspots-for-food-conflict-in-the-twentyfirst-century/1CD674412E09B8E6F325C9C0A0A6778A> (principal of Julian Cribb & Associates who provide specialist consultancy in the communication of science, agriculture, food, mining, energy and the environment. , His published work includes over 8000 articles, 3000 media releases and eight books. He has received 32 awards for journalism.)//Elmer

Future Food Wars The mounting threat to world peace posed by a food, climate and ecosystem increasingly compromised and unstable was emphasised by the US Director of National Intelligence, Dan Coats, in a briefing to the US Senate in early 2019. 'Global environmental and ecological degradation, as well as climate change, are likely to fuel competition for resources, economic distress, and social discontent through 2019 and beyond', he said. 'Climate hazards such as extreme weather, higher temperatures, droughts, floods, wildfires, storms, sea level rise, soil degradation, and acidifying oceans are intensifying, threatening infrastructure, health, and water and food security. Irreversible damage to ecosystems and habitats will undermine the economic benefits they provide, worsened by air, soil, water, and marine pollution.' Boldly, Coats delivered his warning at a time when the US President, Trump, was attempting to expunge all reference to climate from government documents. 23 Based upon these recent cases of food conflicts, and upon the lessons gleaned from the longer history of the interaction between food and war, several regions of the planet face a greatly heightened risk of conflict towards the mid twentyfirst century. Food wars often start out small, as mere quarrels over grazing rights, access to wells or as one faction trying to control food supplies and markets. However, if not resolved quickly these disputes can quickly escalate into violence, then into civil conflagrations which, if not quelled, can in turn explode into crises that reverberate around the planet in the form of soaring prices, floods of refugees and the involvement of major powers — which in turn carries the risk of transnational war. The danger is magnified by swollen populations, the effects of climate change, depletion of key resources such as water, topsoil and nutrients, the collapse of ecosystem services that support agriculture and fisheries, universal pollution, a widening gap between rich and poor, and the rise of vast megacities unable to feed themselves (Figure 5.3). Each of the world's food 'powderkeg regions' is described below, in ascending order of risk. United States In one sense, food wars have already broken out in the United States, the most overfed country on Earth. Here the issue is chiefly the growing depletion of the nation's mighty ground- water resources, especially in states using it for food production, and the contest over what remains between competing users — farmers, ranchers and Native Americans on the one hand and the oil, gas and mining industry on the other. Concern about the future of US water supplies was aggravated by a series of savage droughts in the early twentyfirst century in the west, south and midwest linked to global climate change and declining snow- pack in the Rocky Mountains, both of which affect not only agriculture but also the rate at which the nation's groundwater reserves recharge. 'Groundwater depletion has been a concern in the Southwest and High Plains for many years, but increased demands on our groundwater resources have overstressed aquifers in many areas of the Nation, not just in arid regions', notes the US Geological Survey.24 Nine US states depend on groundwater for between 50 per cent and 80 per cent of their total freshwater supplies, and five states account for nearly half of the nation's groundwater use. Major US water resources, such as the High Plains aquifers and the Pacific Northwest aquifers have sunk by 30—50 metres (100—150 feet) since exploitation began, imperilling the agricultural industries that rely on them. In the arid south- west, aquifer declines of 100—150 metres have been recorded (Figure 5.4). To take but one case, the famed Ogallala Aquifer in the High Plains region supports cropping industries worth more than US $20 billion a year and was in such a depleted state it would take more than 6000 years to replace by natural infiltration the water drawn from it by farmers in the past 150 years. As it dwindles, some farmers have tried to kick their dependence on ground- water other users, including the growing cities and towns of the region, proceeded to mine it as if there was no tomorrow.25 A study by Kansas State University concluded that so far, 30 per cent of the local groundwater had been extracted and another 39 per cent would be depleted by the mid century on existing trends in withdrawal and recharge.26 Over half the US population relies on groundwater for drinking; both rural and urban America are at risk. Cities such as New Orleans, Houston and Miami face not only rising sea levels — but also sinking land, due to the extraction of underlying ground- water. In Memphis, Tennessee, the aquifer that supplies the city's drinking water has dropped by 20 metres. Growing awareness of the risk of a nation, even one as large and technologically adept as the USA, having insufficient water to grow its food, generate its exports and supply its urban homes has fuelled tensions leading to the eruption of nationwide protests over 'fracking' for oil and gas — a process that can deplete or poison groundwater — and the building -of oil pipe- lines, which have a habit of rupturing and also polluting water resources. The boom in fracking and piping is part of a deliberate US policy to become more self-reliant in fossil fuels.27 Thus, in its anxiety to be independent of overseas energy suppliers, the USA in effect decided to barter away its future food security for current oil security — and the price of this has been a lot of angry farmers, Native Americans and concerned citizens. The depletion of US groundwater coincides with accelerating climate risk, which may raise US temperatures by as much as 4—5 oc by 2100, leading to major losses in soil moisture throughout the US grain belt, and the spread of deserts in the south and west. Food production will also be affected by fiercer storms, bigger floods, more heatwaves, an increase in drought frequency and greater impacts from crop and livestock diseases. In such a context, it is no time to be wasting stored water. The case of the USA is included in the list of world 'hot spots' for future food conflict, not because there is danger of a serious shooting war erupting over water in America in the foreseeable future, but to illustrate that even in technologically advanced countries unforeseen social tensions and crises are on the rise over basic resources like food, land and water and their depletion. This doesn't just happen in Africa or the Middle East. It's a global phenomenon. Furthermore, the USA is the world's largest food exporter and any retreat on its part will have a disproportionate effect on world food price and supply. There is still plenty of time to replan America's food systems and water usage — but, as in the case of fossil fuels and climate, rear-guard action mounted by corporate vested interests and their hired politicians may well paralyse the national will to do it. That is when the US food system could find itself at serious risk, losing access to water in a time of growing climatic disruption, caused by exactly the same forces as those depleting the groundwater: the fossil fuels sector and its political stooges. The probable effect of this will, in the first instance, be a decline in US meat and dairy production accompanied by rising prices and a fall in its feedgrain exports, with domino effects on livestock industries worldwide. The flip-side to this issue is that America's old rival, Russia, is likely to gain in both farmland and water availability as the planet warms through the twentyfirst century — and likewise Canada. Both these countries stand to prosper from a US withdrawal from world food markets, and together they may negate the effects of any US food export shortfalls. Central and South America South America is one of the world's most bountiful continents in terms of food production — but, after decades of improvement, malnutrition is once more on the rise, reaching a new peak of 42.5 million people affected in 2016. 28 'Latin America and the Caribbean used to be a worldwide example in the fight against hunger. We are now following the worrisome global trend', said regional FAO representative Julio Berdegué. 29 Paradoxically, obesity is increasing among Latin American adults, while malnutrition is rising among children. 'Although Latin America and the Caribbean produce enough food to meet the needs of their population, this does not ensure healthy and nutritious diets', the FAO explains. Worsening income inequality, poor access to food and persistent poverty are contributing to the rise in hunger and bad diets, it adds.30 'The impact of climate change in Latin America and the Caribbean will be considerable because of its economic dependence on agriculture, the low adaptive capacity of its population and the geographical location of some of its countries', an FAO report warned.31 Emerging food insecurity in Central and Latin America is being driven by a toxic mixture of failing water supplies, drying farmlands, poverty, maladministration, incompetence and corruption. These issues are exacerbated by climate change, which is making the water supply issue worse for farmers and city people alike in several countries and delivering more weather disasters to agriculture. Mexico has for centuries faced periodic food scarcity, with a tenth of its people today suffering under-nutrition. In 2008 this rose to 18 per cent, leading to outbreaks of political violence. 2 In 2013, 52 million Mexicans were suffering poverty and seven million more faced extreme hunger, despite the attempts of successive governments to remedy the situation. By 2100 northern Mexico is expected to warm by 4—5 oc and southern Mexico by 1.5—2.5 oc. Large parts of the country, including Mexico City, face critical water scarcity. Mexico's cropped area could fall by 40—70 per cent by the 2030s and disappear completely by the end of the century, making it one of the world's countries most at risk from catastrophic climate change and a major potential source of climate refugees.33 The vanishing lakes and glaciers of the high Andes confront montane nations — Bolivia, Peru and Chile especially — with the spectre of growing water scarcity and declining food security. The volume of many glaciers, which provide meltwater to the region's rivers, which in turn irrigate farmland, has halved since 1975.34 Bolivia's second largest water body, the 2000 square kilometres Lake Poopo, dried out completely.35 The loss of water is attributed partly to El Niho droughts, partly to global warming and partly to over-extraction by the mining industries of the region. Chile, with 24,000 glaciers (80 per cent of all those in Latin America) is feeling the effects of their retreat and shrinkage especially, both in large cities such as the capital Santiago, and in irrigation agriculture and energy supply. Chile is rated by the World Resources Institute among the countries most likely to experience extreme water stress by 2040.36 Climate change is producing growing water and food insecurity in the 'dry corridor' of Central America, in countries such as El Salvador, Guatemala and Honduras. Here a combination of drought, major floods and soil erosion is undermining efforts to raise food production and stabilise nutrition. Food production in Venezuela began falling in the 1990s, and by the late 2010s two thirds of the population were malnourished; there was a growing flood of refugees into Colombia and other neighbouring countries. The food crisis has been variously blamed on the Venezuelan government's 'Great Leap Forward' (modelled on that of China — which also caused widespread starvation), a halving in Venezuela's oil export earnings, economic sanctions by the USA, and corruption. However, local scientists such as Nobel Laureate Professor Juan Carlos Sanchez warn that climate impacts are already striking the densely populated coastal regions with increased torrential rains, flooding and mudslides, droughts and hurricanes, while inland areas are drying out and desertifying, leading to crop failures, water scarcity and a tide of climate refugees.37 These factors will tend to deepen food insecurity towards the mid century. Venezuela's climate refugees are already making life more difficult for neighbouring countries such as Colombia. Deforestation in the Brazilian Amazon has, in recent decades, removed around 20 per cent of its total tree cover, replacing it with dry savannah and farmland. At 40 per cent clearance and with continued global warming, scientists anticipate profound changes in the local climate, towards a drying trend, which will hammer the agriculture that has replaced the forest.38 Brazil has already wiped out the once- vast Mata Atlantica forest along its eastern coastline, and this region is now drying, with resultant water stress for both farming and major cities like Säo Paulo. Brazil's outlook for 2100 is for further drying — tied to forest loss as well as global climate change — increased frequency of drought and heatwaves, major fires and acute water scarcity in some regions. Moreover, as the Amazon basin dries out, if will release vast quantities of C02 from its peat swamps and rainforest soils. These are thought to contain in excess of three billion tonnes of carbon and could cause a significant acceleration in global warming, affecting everyone on Earth. 39 Latin America is the world capital of private armies, with as many as 50 major guerrilla groups, paramilitaries, terrorist, indigenous and criminal insurgencies over the past half century exemplified in familiar names like the Sandanistas (Nicaragua), FARC (Colombia) and Shining Path (Peru). 40 Many of these drew their initial inspiration from the international communist movement of the mid twentieth century, while others are right-wing groups set up in opposition to them or else represent land rights movements of disadvantaged groups. However, all these movements rely for oxygen on simmering public discontent with ineffectual or corrupt governments and lack of fair access to food, land and water generally. In other words, the tendency of South and Central America towards internal armed conflict is supercharged significantly by failings in the food system which generate public anger, leading to sympathy and support for anyone seen to be challenging the incumbent regimes. This is not to suggest that feeding every person well would end all insurgencies — but it would certainly take the wind of popular support out of a lot of their sails. In that sense the revolutionary tendency of South America echoes the preconditions for revolution in France and Russia in the eighteenth and twentieth centuries. Central Asia The risk of wars breaking out over water, energy and food insecurity in Central Asia is high.41 Here, the five main players — Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan — face swelling populations, crumbling Soviet-era infrastructure, flagging resource cooperation, a degrading land- scape, deteriorating food availability and a changing climate. At the heart of the issue and the region's increasingly volatile politics is water: 'Without water in the region's two great rivers — the Syr Darya and the Amu Darya — vital crops in the down- stream agricultural powerhouses would die. Without power, life in the upstream countries would be unbearable in the freezing winters' , wrote Rustam Qobil. Central Asia's water crisis first exploded onto the global consciousness with the drying of the Aral Sea — the world's fourth largest lake — from the mid 1960s43, following the damming and draining of major rivers such as the Amu Darya, Syr Darya and Naryn. It was hastened by a major drought in 200844 exacerbated by climate change, which is melting the 'water tower' of glacial ice stored in the Tien Shan, Pamir and Hindu Kush mountain ranges that feed the region's rivers. The Tien Shan alone holds 10,000 glaciers, all of them in retreat, losing an estimated 223 million cubic metres a year. At such a rate of loss the region's rivers will run dry within a generation.45 Lack of water has already delivered a body blow to Central Asia's efforts to modernise its agriculture, adding further tension to regional disputes over food, land and water. 'Water has always been a major cause of wars and border conflicts in the Central Asian region', policy analyst Fuad Shahbazov warned. This potential for conflict over water has been exacerbated by disputes over the Fergana valley, the region's greatest foodbowl, which underwent a 32 per cent surge in population in barely ten years — while more and more of it turned to desert.46 The Central Asian region is ranked by the World Resources Institute as one of the world's most perilously water-stressed regions to 2040 (Figure 5.6). With their economies hitting rock bottom, corrupt and autocratic governments that prefer to blame others for their problems and growing quarrels over food, land, energy and water, the 'Stans' face 'a perfect storm', Nate Shenkkan wrote in the journal Foreign Policy 47 Increased meddling by Russia and China is augmenting the explosive mix: China regards Central Asia as a key component of its 'Belt and Road' initiative intended to expand its global influence, whereas Russia hopes to lure the region back into its own economic sphere. Their rival investments may help limit some of the problems faced by Central Asia — or they may unlock a fresh cycle of political feuding, turmoil and regime change.48 A 2017 FAO report found 14.3 million people — one in every five — in Central Asia did not have enough to eat and a million faced actual starvation, children especially. It noted that after years of steady improvement, the situation was deteriorating. This combination of intractable and deteriorating factors makes Central Asia a serious internal war risk towards the mid twentyfirst century, with involvement by superpowers raising the danger of international conflict and mass refugee flight. The Middle East The Middle East is the most water-stressed region on Earth (see Figure 5.5 above). It is 'particularly vulnerable to climate change. It is one of the world's most water-scarce and dry regions, with a high dependency on climate-sensitive agriculture and a large share of its population and economic activity in flood-prone urban coastal zones', according to the World Bank. 49 The Middle East — consisting of the 22 countries of the Arab League, Turkey and Iran — has very low levels of natural rainfall to begin with. Most of it has 600 millimetres or less per year and is classed as arid. 'The Middle East and North Africa [MENA] is a global hotspot of unsustainable water use, especially of ground- water. In some countries, more than half of current water withdrawals exceed what is naturally available', the Bank said in a separate report on water scarcity. 50 'The climate is predicted to become even hotter and drier in most of the MENA region. Higher temperatures and reduced precipitation will increase the occurrence of droughts. It is further estimated that an additional 80—100 million people will be exposed by 2025 to water stress', the Bank added. The region's population of 300 million in the late 2010s is forecast to double to 600 million by 2050. Average temperatures are expected to rise by 3—5 oc and rainfall will decrease by around 20 per cent. The result will be vastly increased water stress, accelerated desertification, growing food insecurity and a rise in sea levels displacing tens of millions from densely popu- lated, low-lying areas like the Nile delta.51 The region is deemed highly vulnerable to climate impacts, warns a report by the UN Development Programme. 'Current climate change projections show that by the year 2025, the water supply in the Arab region will be only 15 per cent of levels in 1960. With population growth around 3 per cent annually and deforestation spiking to 4 per cent annually... the region now includes 14 of the world s 20 most water-stressed countries.'52 The Middle Fast/North Africa (MENA) region has 6 per cent of the world's population with only 1.5 per cent of the world's fresh water reserves to share among them. This means that the average citizen already has about a third less water than the minimum necessary for a reasonable existence — many have less than half, and populations are growing rapidly. Coupled with political chaos and ill governance in many countries, growing religious and ethnic tensions between different groups — often based on centuries-old disputes — a widening gap between rich and poor and foreign meddling by the USA, Russia and China, shortages of food, land and water make the Middle East an evident cauldron for conflict in the twentyfirst century. Growing awareness of their food risk has impelled some oil-rich Arab states into an international farm buying spree, purchasing farming, fishing and food processing companies in countries as assorted as South Sudan, Ethiopia, the Philippines, Ukraine, the USA, Poland, Argentina, Australia, Brazil and Morocco. In some food-stressed countries these acquisitions have already led to riots and killings.53 The risk is high that, by exporting its own food—land—water problems worldwide, especially to regions already facing scarcity, the Middle East could propagate conflicts and government collapses around the globe. This is despite the fact that high-tech solar desalination, green energy, hydroponics, aquaponics and other intensive urban food production technologies make it possible for the region to produce far more of its own food locally, if not to be entirely self-sufficient. Dimensions of the growing crisis in the Middle East include the following. Wars have already broken out in Syria and Yemen in which scarcity of food, land and water were prominent among the tensions that led to conflict between competing groups. Food, land and water issues feed into and exacerbate already volatile sentiment over religion, politics, corruption, mismanagement and foreign interference by the USA, China and Russia. The introduction of cheap solar-powered and diesel pumps has accelerated the unsustainable extraction of groundwater throughout the region, notably in countries like Libya, Egypt, Saudi Arabia and Morocco. 54 Turkish building of new dams to monopolise waters flowing across its borders is igniting scarcity and potential for conflict with downstream nations, including Iraq, Iran and Syria. 55 Egypt's lifeline, the Nile, is threatened by Ethiopian plans to dam the Blue Nile, with tensions that some observers consider could lead to a shooting war. 56 There are very low levels of water recycling throughout the region, while water use productivity is about half that of the world as a whole. There is a lack of a sense of citizen responsibility for water and food scarcity throughout the region. Land grabs around the world by oil-rich states are threatening to destabilise food, land and water in other countries and regions, causing conflict. A decline in oil prices and the displacement of oil by the global renewables revolution may leave the region with fewer economic options for solving its problems. There is a risk that acquisition of a nuclear weapon by Iran may set off a nuclear arms race in the region with countries such as Saudi Arabia, Syria and possibly Turkey following suit and Israel rearming to stay in the lead. This would translate potential food, land and water conflicts into the atomic realm. Together these issues, and failure to address their root causes, make the Middle East a fizzing powder keg in the twentyfirst century. The question is when and where, not whether, it explodes — and whether the resulting conflict will involve the use of weapons of mass destruction, including nuclear, thus affecting the entire world. China China is the world's biggest producer, importer and consumer of food. Much of the landmass of the People's Republic of China (PRC) is too mountainous or too arid for farming, but the rich soils of its eastern and southern regions are highly productive provided sufficient water is available and climate impacts are mild. Those, however, are very big 'ifs'. In 1995, American environmentalist Lester R. Brown both Eked and aroused the PRC Communist Party bosses with a small, hard-hitting book entitled Who Will Feed China? Wake-Up Call for a Small Planet.57 In it he posited that Chinese population growth was so far out of control that the then-agricultural system could not keep up, and China would be forced to import vast amounts of grain, to the detriment of food prices and availability worldwide. His fears, so far, have not been realised — not because they were unsoundly based, but because China managed — just — to stay abreast of rising food demand by stabilising and subsidising grain prices, restoring degraded lands, boosting agricultural science and technology, piping water from south to north, developing high-intensity urban farms, buying up foreign farmland worldwide and encouraging young Chinese to leave the country. What Brown didn't anticipate was the economic miracle that made China rich enough to afford all this. However, his essential thesis remains valid: China's food supply will remain on a knife-edge for the entire twentyfirst century, vulnerable especially to water scarcity and climate impacts. If the nation outruns its domestic resources yet still has to eat, it may well be at the expense of others globally. Some western commentators were puzzled when China scrapped its 35-year 'One Child Policy' in 2015, but in fact the policy had done its job, shaving around 300 million people off the projected peak of Chinese population. It was also causing serious imbalances, such as China's huge unmarried male sur- plus. Furthermore, rising urbanisation and household incomes meant Chinese parents no longer wanted large families, as in the past. Policy or no policy, China's birthrate has continued to fall and by 2018 was 1.6 babies per woman — well below replacement, lower than the USA and nearly as low as Germany. Its population was 1.4 billion, but this was growing at barely 0.4 per cent a year, with the growth due at least in part to lengthening life expectancy. 58 For China, female fertility is no longer the key issue. The critical issue is water. And the critical region is the north, where 41 per cent of the population reside. Here surface and ground- waters — which support not only the vast grain and vegetable farming industries of the North China Plain but also burgeoning megacities like Beijing, Tianjin and Shenyang — have been vanishing at an alarming rate. 'In the past 25 years, 28,000 rivers have disappeared. Groundwater has fallen by up to 1—3 metres a year. One consequence: parts of Beijing are subsiding by 11 cm a year. The flow of the Yellow River, water supply to millions, is a tenth of what it was in the 1940s; it often fails to reach the sea. Pollution further curtails supply: in 2017 8.8 per cent of water was unfit even for agricultural or industrial use', the Financial Times reported.59 On the North China Plain, annual consump- tion of water for all uses, including food production, is about 27 billion cubic metres a year — compared with an annual water availability of 22 billion cubic metres, a deficit that is made up by the short-term expedient of mining the region's groundwater. 60 To stave off disaster, the PRC has built a prodigious network of canals and pipelines from the Yangtse River in the water-rich south, to Beijing in the water-starved north. Hailed as a 'lifeline', the South—North Water Transfer Project had two drawbacks: first, the fossil energy required to pump millions of tonnes of water over a thousand kilometres and, second, the fact that while the volume was sufficient to satisfy the burgeoning cities for a time, it could not supply and distribute enough clean water to meet the needs of irrigated farming over so vast a region in the long run, nor meet those of its planned industrial growth.61 Oft-mouthed 'solutions' like desalination or the piping of water from Tibet or Russia face similar drawbacks: demand is too great for the potential supply and the costs, both financial and environmental, prohibitive. China is already among the world's most water-stressed nations. The typical Chinese citizen has a 'water footprint' of 1071 cubic metres a year — three quarters of the world average (1385 cubic metres), and scarcely a third that of the average American (2842 cubic metres).62 Of this water, 62 per cent is used to grow food to feed the Chinese population — and 90 per cent is so polluted it is unfit to drink or use in food processing. Despite massive investment in water infrastructure and new technology, many experts doubt that China can keep pace with the growth in its demand for food, at least within its own borders, chiefly because of water scarcity.63 Adding to the pressure is that China's national five-year plans for industrialisation demand massive amounts more water — demands that may confront China with a stark choice between food and economic growth. 'The Chinese government is moving too slowly towards the Camel Economy. It has plans, incentives for officials; it invests in recycling, irrigation, pollution, drought resistant crops; it leads the world in high voltage transmission (to get hydro, wind and solar energy from the west of China). None of this is sufficient or likely to be in time', the Financial Times opined. As the world's leading carbon emitter, China is more responsible for climate change than any other country. It is also, potentially, more at risk. The main reason, quite simply, is the impact of a warming world on China's water supply — in the form of disappearing rivers, lakes, groundwater and mountain glaciers along with rising sea levels. To this is coupled the threat to agriculture from increasing weather disasters and the loss of ecosystem services from a damaged landscape. 65 China is thus impaled on the horns of a classic dilemma. Without more water it cannot grow its economy sufficiently to pay for the water-conserving and food-producing technologies and infrastructure it needs to feed its people. Having inadvertently unleashed a population explosion with its highly successful conversion to modern farming systems, the challenge for China now is to somehow sustain its food supply through the population peak of the mid twentyfirst century, followed by a managed decline to maybe half of today's numbers by the early twentysecond century. It is far from clear whether the present approach — improving market efficiency, continuing to modernise agricultural production systems, pumping water, trying to control soil and water losses and importing more food from overseas will work. 66 China has pinned its main hopes on technology to boost farm yields and improve water distribution and management. Unfortunately, it has selected the unsustainable American industrial farming model to do this — which involves the massive use of water, toxic chemicals, fertilisers, fossil fuels and machines. This in turn is having dreadful consequences for China's soils, waters, landscapes, food supply, air, climate and consumer health. Serious questions are now being asked whether such an approach is not digging the hole China is in, even deeper. Furthermore, some western analysts are sceptical whether the heavy hand of state control is up to the task of generating the levels of innovation required to feed China sustainably.67 Plan B, which is to purchase food from other countries, or import it from Chinese-owned farming and food ventures around the world, faces similar difficulties. Many of the countries where China is investing in food production themselves face a slow-burning crisis of land degradation, water scarcity, surging populations and swelling local food demand. By exporting its own problems, China is adding to their difficulties. While there may be some truth to the claim that China is helping to modernise food systems in Africa, for example, it is equally clear that the export of food at a time of local shortages could have dire consequences for Africans, leading to wars in Africa and elsewhere. How countries will react to Chinese pressure to export food in the face of their own domestic shortages is, as yet, unclear. If they permit exports, it could prove cata- strophic for their own people and governments — but if they cut them off, it could be equally catastrophic for China. Such a situation cannot be regarded as anything other than a menace to world peace. Around 1640, a series of intense droughts caused widespread crop failures in China, leading to unrest and uprisings which, in 1644, brought down the Ming Dynasty. A serious domestic Chinese food and water crisis today — driven by drought, degradation of land and water and climate change in northern China coupled with failure in food imports — could cause a re-run of history: 'The forthcoming water crisis may impact China's social, economic, and political stability to a great extent', a US Intelligence Assessment found. The adverse impacts of climate change will add extra pressure to existing social and resource stresses.' 68 Such events have the potential to precipitate tens, even hundreds, of millions of emigrants and refugees into countries all over the world, with domino consequences for those countries that receive them. Strategic analysts have speculated that tens of millions of desperate Chinese flooding into eastern Russia, or even India, could lead to war, including the risk of international nuclear exchange. 69 Against such a scenario are the plain facts that China is a technologically advanced society, with the foresight, wealth and capacity to plan and implement nationwide changes and the will, if necessary, to enforce them. Its leaders are clearly alert to the food and water challenge — and its resolution may well depend on the extent of water recycling they are able to achieve. As to whether the PRC can afford the cost of transitioning from an unsustainable to a sustainable food system, all countries have a choice between unproductive military spending and feeding their populace. A choice between food or war. It remains to be seen which investment China favours. However, it is vital to understand that the problem of whether China can feed itself through the twentyfirst century is not purely a Chinese problem. It's a problem, both economic and physical, for the entire planet — and it is thus in everyone's best interest to help solve it. For this reason, China is rated number 3 on this list of potential food war hotspots. Africa Food wars — that is, wars in which food, land and water play a significant contributing role — have been a constant in the story of Africa since the mid twentieth century, indeed, far longer. In a sense, the continent is already a microcosm of the world of the twentyfirst century as climate change and resource scarcity com- bine with rapid population growth to ratchet up the tensions that lead competing groups to fight, whether the superficial distinc- Mons between them are ethnic, religious, social or political. We have examined the particular cases of Rwanda, South Sudan and the Horn of Africa — but there are numerous other African conflicts, insurgencies and ongoing disturbances in which food, land and water are primary or secondary triggers and where famine is often the outcome: Nigeria, Congo, Egypt, Tunisia, Libya, Mali, Chad, the Central African Republic, the Maghreb region of the Sahara, Mozambique, Cote d'Ivoire and Zimbabwe have all experienced conflicts in which issues of access to food, land and water were important drivers and consequences. The trajectory of Africa's population in the first two decades of the twentyfirst century implies that the number of its people could quadruple from 1.2 billion in 2017 to 4.5 billion by 2100 (Figure 5.6). If fulfilled, this would make Africans 41 per cent of the world population by the end of the century. The UN Popula- tion Division's nearer projections are for Africans to outnumber Chinese or Indians at 1.7 billion by 2030, and reach 2.5 billion in 2050, which represents a doubling in the continent's inhabitants in barely 30 years. 70 While African fertility rates (babies per woman) remain high by world standards — 4.5 compared with a global average of 2.4 — they have also fallen steeply, from a peak of 8.5 babies in the 1970s. Furthermore, the picture is uneven with birthrates in most Sub-Saharan countries remaining high (around five to six babies/woman), while those of eight, mainly southern, countries have dropped to replace- ment or below (i.e. under 2.1). As has been the case around the world, birth rates tend to drop rapidly with the spread of urban isation, education and economic growth — whereas countries which slide back into poverty tend to experience rising birth- rates. Food access is a vital ingredient in this dynamic: it has been widely observed that better-fed countries tend to have much lower rates of birth and population growth, possibly because people who are food secure lose fewer infants and children in early life and thus are more open to family planning. So, in a real sense, food sufficiency holds one of the keys to limiting the human population to a level sustainable both for Africa and the planet in general. Forecasting the future of Africa is not easy, given the complexity of the interwoven climatic, social, technological and political issues — and many do not attempt it. However, the relentless optimism of the UN and its food agency, the FAO, is probably not justified by the facts as they are known to science — and may have more to do with not wishing to give offence to African governments or discourage donors than with attempting to accurately analyse what may occur. Even the FAO acknowledges however that food insecurity is rising across Sub-Saharan Africa as well as other parts. In 2017, conflict and insecurity were the major drivers of acute food insecurity in 18 countries and territories where almost 74 million food-insecure people were in need of urgent assistance. Eleven of these countries were in Africa and accounted for 37 million acutely food insecure people; the largest numbers were in northern Nigeria, Demo- cratic Republic of Congo, Somalia and South Sudan the agency said in its Global Report on Food Crises 2018.71 The FAO also noted that almost one in four Africans was undernourished in 2016 — a total of nearly a quarter of a billion people. The rise in undernourishment and food insecurity was linked to the effects of climate change, natural disasters and conflict according to Bukar Tijani, the FAO's assistant director general for Africa. 72 Even the comparatively prosperous nation of South Africa sits on a conflict knife-edge, according to a scientific study: 'Results indicate that the country exceeds its environmental boundaries for biodiversity loss, marine harvesting, freshwater use, and climate change, and that social deprivation was most severe in the areas of safety, income, and employment, which are significant factors in conflict risk', Megan Cole and colleagues found. 73 In the Congo, home to the world's second largest tropical forest, 20 years of civil war had not only slain five million civilians but also decimated the forests and their ecological services on which the nation depended. Researchers found evidence that reducing conflict can also help to reduce environ- mental destruction: 'Peace-building can potentially be a win for nature as well, and.. conservation organizations and govern- ments should be ready to seize conservation opportunities'. 74 As the African population doubles toward the mid century, as its water, soils, forests and economic wealth per capita dwindle, as foreign corporations plunder its riches, as a turbulent climate hammers its herders and farmers — both industrial and traditional — the prospect of Africa resolving existing conflicts and avoiding new ones is receding. The mistake most of the world is making is to imagine this only affects the Africans. The consequences will impact everyone on the planet. A World Bank study has warned that 140 million people will have to leave just three regions of the world as climate refugees before 2050 — and the vast majority of these, some 86 million, would be displaced from their homes in Sub-Saharan Africa. 75 The second decade of the

### 1NC---OFF

#### Text – States should

* implement cooperative active debris removal measures aimed at mitigating debris from mega-constellations.
* Implement collision avoidance systems
* Increase cooperation and communication between private companies and space agencies
* cooperate on the development of a cloud-based infrastructure system between private and public entities with the purpose of advancing overall cyber security and create a protected mandatory reporting system for government contractors and critical infrastructure employees on mega constellations
* The PLA ought to dismantle its integrated air defense system and bind itself to international treaties that bar Chinese dual use or civilian cyber operations on Indian infrastructure.
* The United States should provide direct link operational support and the Quad should be expanded to take a diplomatic stance against all military operations over Sino-China regions.

#### Adr solves for Mega-constellations debris

Hardy 20, Brian Patrick. Long-term effects of satellite megaconstellations on the debris environment in low earth orbit. Diss. 2020. (Master of Science in Aerospace Engineering in the Graduate College of the University of Illinois at Urbana-Champaign)//Elmer

The results of this thesis demonstrate that satellite megaconstellations have the potential to leave a significant mark on the LEO debris environment, even centuries after they cease operations. Various test cases for the Starlink megaconstellation were analyzed in a new, medium-fidelity simulation for orbital debris evolution, and a variety of PMD and ADR rates for Starlink were considered. It was shown that if Starlink adheres only to the minimum regulatory requirement of 90% PMD for large constellations, then LEO debris levels will grow almost twice as fast as the baseline scenario with no megaconstellations. Improving Starlink’s PMD rate to 95% would lead to only 19% more debris, while 99% PMD is the preferred option that prevents any significant debris contributions at all. Importantly, Starlink’s choice of PMD strategy will affect its own collision risk very little over the short term, but the impact will be noticeable on multi-century timescales by the overall LEO environment. Finally, in scenarios with 90% and 95% PMD, active debris removal of non-operating Starlink satellites yields significant, if limited, benefits. The 90% PMD scenario combined with an ADR rate of 5 Starlink satellites per year, for example, is able to reduce debris levels to those seen for the 95% PMD scenario. This result suggests that active debris removal could be a viable mitigation strategy for megaconstellations with sub-optimal PMD rates.

#### 3rd plank solves Cyber-Attacks.

**Robertl and Vocl 21** [Christopher Robertl and Vince Vocl. Christopher is the Senior Vice President of Cyber Intelligence and Supply Chain Security Policy at the U.S. Chamber of Commerce. Vince VocI is the Executive Director Cyber Policy and Operations at the U.S. Chamber of Commerce. 5-14-2021, accessed on 8-8-2021, U.S. Chamber of Commerce, "4 Ways U.S. Government Leaders Can Protect IP and Personal Data", <https://www.uschamber.com/on-demand/cybersecurity/how-can-the-government-help-protect-intellectual-property-and-personal-data>] Adam

During the past several months, U.S. adversaries have carried out significant cyber-enabled espionage campaigns, impacting a wide range of public and private sector targets. With our nation’s cybersecurity at risk, government leaders have quickly turned to legislative solutions to protect our intellectual property and personal data.

Protected Mandatory Reporting Can Help Thwart Increasingly Sophisticated Cyberattacks

Since the [Cybersecurity Information Sharing Act of 2015](https://www.cisa.gov/publication/cybersecurity-information-sharing-act-2015-procedures-and-guidance#:~:text=of%20Mass%20Destruction-,Cybersecurity%20Information%20Sharing%20Act%20of%202015%20Procedures%20and%20Guidance,indicators%20with%20the%20Federal%20Government.) was passed, companies facing data breaches have been encouraged to share this information with the U.S. government. Yet cyberattacks have only become more sophisticated since then, according to [Sen. Mark Warner](https://www.warner.senate.gov/public/), chairman of the Senate Select Committee on Intelligence.

“There is an evolving belief that the 2015 structure, on a voluntary basis, is not giving us the level of comprehensive security that we need,” said Warner. “The bad guys, when they’re focused, they’re going to have a fairly high probability of getting in.”

In response, the Committee on Intelligence is working on a bipartisan level to create a structure that would mandate reporting for government contractors and critical infrastructure employees.

“Some of the privacy and other kinds of counter-incentives don’t take place,” Sen. Warner noted, adding that affected companies would have limited immunity and anonymized information. “We can pulse the overall system in a way that will allow [the] public sector and private sector to respond in a more comprehensive way.”

The U.S. Seeks to Work With Its Allies to Establish Cyber Incident Notification Systems

After creating a limited mandatory reporting system in the country, Warner hopes that the U.S. can work with its allies to establish similar notification systems as well as multilateral cyber norms.

“If our adversaries violate these norms and we can find appropriate attribution, there will be consequences to their actions,” Warner explained. “Our failure to have norms [and] a more robust notification system in existence … has allowed, in many ways, Russia and China to launch cyberattacks with virtual impunity.”

“This is a problem of protecting intellectual property … [and] personal information,” he continued. “As long as we can provide that level of limited immunity with anonymity so that those reports are then not made public, I think we can earn industry support.”

The U.S. Cyberspace Solarium Commission Outlines Priorities for 2021

In 2019, the U.S. Cyberspace Solarium Commission was chartered to manage cyber risk and significant cyber events at home and abroad. With several of the Commission’s recommendations being codified into law in 2020, this year has seen a renewed focus in engaging the private sector.

“We’re looking at ways that [we] can get to a common cloud-based environment between federal government agencies, state, local, tribal, territorial and the private sector, basically to get common visibility,” said Solarium commissioner [Frank J. Cilluffo](https://www.solarium.gov/commissioners/frank-cilluffo).

“We’re also going to be zeroing in on what we’re calling SICI (systemically important critical infrastructure) ... which will basically hone in on the most critical of our critical infrastructures, our lifeline sectors, and establish a set of … benefits and burdens to truly get to that partnership between the public and private sector,” Cilluffo added.

Public and Private Sector Collaboration Is Crucial to Cybersecurity Advancement

“We want to make sure that at the end of the day, our companies, our national security agencies and our citizens as a whole are enhancing their overall cybersecurity efforts,” stated Cilluffo. “The bottom line is, we need to follow up our ideas with the resources.”

“This is not going to be accomplished through Washington alone,” he stressed. “The private sector needs a front-row seat at his table and ultimately will be most critical to any success going forward.”

[Mark Montgomery](https://www.solarium.gov/about/staff/mark-montgomery), executive director of the Cyberspace Solarium Commission, agreed that partnership between the public and private sectors would be crucial for success in 2021.

“We actually have to build, pay for and establish infrastructure for collaboration,” Montgomery noted. “Once you do that, the companies will see that their equities are protected … and their opinions matter, and then we’ll get things done.”

#### That solves sino-china and Quad coop independently prevents escalation.

**Tarapore '21**. Arzan Tarapore is a South Asia research scholar at Stanford University’s Asia-Pacific Research Center, and a senior non-resident fellow at the National Bureau of Asian Research. His research focuses on military strategy, Indian defense policy, and Indo-Pacific security issues. He previously held research positions at the RAND Corporation, the East-West Center in Washington, and the Observer Research Foundation in New Delhi. He previously served as a political-military analyst in the Defence Department., June 2021, "Mitigating the risk of a China–India conflict," ASPI

Given the risks involved, a possible China–India conflict requires urgent contingency planning in Washington, Canberra, Tokyo and other like-minded capitals. India’s partners—especially its Quad partners—have a national interest in minimising the strategic harm inflicted upon India. They have an even more direct interest in reinforcing the partnership in targeted ways to amplify the deterrent signal to Beijing and mitigate the risk of Indian disaffection with the Quad. For them, the primary purpose of policy isn’t to offer operational support in wartime, which is likely to be short and offer few opportunities to assist directly. Rather, their main goal would be to deter conflict in the first place; and, failing that, to preserve the long-term strategic partnership with India for the sake of maintaining as powerful and energetic a coalition as possible to counterbalance China. To shape India’s expectations and the strategic environment before any conflict, **US and Australian policymakers could usefully consider their responses in three categories, or tiers: support in the theatre of conflict; support in other theatres or domains; and other political or diplomatic action**. The policy options that follow aren’t exhaustive, but illustrative of that tiered framework. • Operational support. As I noted above, the US already provides some military assistance to India in times of crisis, especially in the form of intelligence and certain niche equipment needs. In wartime, its capacity to offer direct support is likely to be severely constrained, not least because New Delhi is highly unlikely to seek direct operational support. Beyond the provision of intelligence, the form of external support India is likely to seek is resupply of ammunition and stores—the Indian military has notoriously small holdings of certain types of war stocks.63 But, even there, the role of the US will be comparatively limited; most of India’s munitions originate elsewhere (especially in Russia, France and Israel) and are not interoperable. Another form of in-theatre support could come in the form of consultations in peacetime, before any possible conflict. Here, the US and its other Quad partners could valuably shape the strategic environment by helping the Indian military to war game its concepts of operations and the types of support India may require. US war games for a Taiwan contingency, for example, consistently suggested that the PLA’s integrated air defence system (IADS) would be the centre of gravity in any cross-strait conflict—the US couldn’t defeat China without neutralising the PLA’s IADS, and China was highly unlikely to succeed without a functioning IADS.64 A corresponding assessment of the PLA’s centre of gravity or key vulnerabilities in a Himalayan contingency would not only be operationally useful for India, but also help to cue the US and partners to the types of security cooperation they should prioritise to shape the pre-conflict environment. • Support in other theatres and domains. One of the Quad’s key strategic advantages is its wide geographical spread—its members in effect surround China. In a conflict on the India–China land border, for example, they could hypothetically coordinate their military actions to escalate horizontally—that is, to expand the conflict to new areas, thereby stretching the PLA or attacking it where it’s comparatively vulnerable. Despite the appealing logic, many specific concepts—such as blockading Chinese energy imports in the Indian Ocean—would face enormous hurdles in implementation.65 In the case of a smaller conflict on the LAC, other Quad members are highly unlikely to open hostilities against China elsewhere; such a move would be unduly escalatory and would be highly unlikely to affect operations on the LAC. But coordinated military manoeuvres—for example near the Strait of Malacca, one of China’s key vulnerabilities—may still be useful to signal to China the latent threat of widening the war. Indirectly, they may be useful to signal Quad members’ support for India and disapproval of China to shape the post-conflict environment . Support to India in other domains—especially the cyber domain—may be more practical and effective. This is an area where the asymmetry between China and India is currently sizeable, and where China has already demonstrated an intent and capability to strike in times of crisis. In a conflict, India’s Quad partners may consider threats or action in cyber operations because they may judge that problems of attribution and the lower likelihood of bloodshed make that a less escalatory option. Indeed, partners’ cyber operations need not attack China. Given India’s vulnerabilities, partner action to defend Indian networks, with due coordination with Indian authorities, may be a valuable way to reduce the strategic costs of conflict. Ideally, such coordination in peacetime may help to deter conflict, or at least to deter China from attacking dual-use or civilian cyber infrastructure in wartime. • Political and diplomatic support. The Quad remains a largely diplomatic, rather than military, enterprise. Its primary value is the opportunity to coordinate policies towards China and to signal to Beijing the prospect of open-ended cooperation among capable regional states. For Beijing, the threat of political isolation or economic decoupling is far more significant than the threat of military costs on the LAC. Indeed, even during the Ladakh crisis, the political costs of a possible continued deterioration in bilateral relations with India probably figured more in Beijing’s decision to disengage than any material costs it incurred on the border.66 In the case of a conflict, then, the Quad’s most effective policy instrument may be intangible—a unified political front that threatens Beijing’s political position in the region. Quad members should also take a more expansive view of political competition, beyond diplomacy. As I argued above, China’s wartime strategy against India is likely to include political warfare in the form of its ‘three warfares’. To ensure that the like-minded partners don’t cede the field to China’s campaign, they could also respond in kind. That is, they should seek to engage other regional leaders, craft a robust public affairs effort and deploy legal arguments against Chinese aggression. The audience for those political tools would partly be Beijing—to signal the threat of unpalatable political costs. At least as importantly, however, Quad political support should also be directed at regional states to generate an even wider chorus of opprobrium for China and further increase its political costs. Preparing policy options in these three tiers should send a deterrent signal to Beijing—ideally, to forestall any prospect of a war. Failing that, they should at least signal to both Beijing and New Delhi—assuming India is the victim of Chinese aggression—that Quad members are reliable and effective strategic partners. Shaping those expectations also requires that any policies be accompanied by active and astute messaging, both public and private. And they should be the product of early and constant consultation with New Delhi itself—most likely in a bilateral, rather than Quad, setting. In part, that consultation would seek to elicit Indian views of what types of wartime support may be valued but, equally, it would seek to convey to India what types of wartime support are feasible. 12 Strategic Insights The tiers of this framework suggest that the options that would, in principle, be most directly relevant to combat operations in a conflict aren’t the options that would be most effective in shaping the broader strategic competition against China. Quad members aren’t well postured to lend significant operational support to India (and nor would that be politically welcomed by Delhi), but they’re better prepared to act in other domains and, even more, to ensure that any Chinese adventurism is politically too costly. That’s especially true of Australia, which boasts comparatively minor material capacity but a proven willingness—sometimes at considerable cost to itself—to stand openly in opposition to Chinese coercion elsewhere. In the event of a conflict on the LAC, both China and India will bear direct military costs. But, as this paper has shown, such a conflict may pose even greater second-order risks, potentially disrupting or dampening India’s strategic partnerships with the US and the Quad—unless careful policy options are prepared well in advance of a conflict. This risk is amplified if the drivers of India’s strategic partnerships become narrower, focused largely on competition with China and less on shared political values or economic interests. Despite official rhetoric that consistently celebrates shared values, recent developments suggest a waning American enthusiasm for India’s economic dynamism and political liberalism.67 A narrower partnership is a less resilient partnership. If the US and Australia base their India policy largely on shared interests regarding the strategic challenge posed by China—which is legitimate and may be more durable—then a failure to manage that challenge in a wartime contingency could be devastating to the entire relationship.

### 1NC---OFF

#### Interpretation: Cards or evidence read by debaters must only include the words of the evidence cited verbatim and words inserted by debaters must be inserted in brackets. To clarify, debaters can’t add or delete words from the original article or re-order them in any way.

#### Violation:  I’ve inserted the screenshot of what they’ve cut and the actual source

#### A] They are missing a paragraph describing this graph – the 1ac peltrova ev is the violation

Actual article:

#### Prefer:

#### Evidence ethics- Evidence must be cut properly and not conceal information, regardless of perceived relevancy. Removing and adding text in cards allows debaters to manipulate evidence and lets them say whatever they want – putting the full-text of the cards verbatim solves all your offense. They justify debaters straw manning articles and just deleting whatever they want when it’s strategically beneficial or adding in their own data. They’ll say they’ve just re-ordered words from the article – it would justify reading cards which conclude negative but moving the conclusion section to the top and moving the part that agrees with you to the conclusion section.

#### This is a reason to reject the team—miscutting evidence is academic misconduct that should disqualify any other argument they make in the debate from counting on the record—a brilliant, plagiarized paper or speech would still get a zero---it’s the only portable skill we take from debate and ev ethics obscures the ability the engage with the aff insofar as they have cheated and all their args are epistemologically suspect---ow any other layer of debate or any of their theory arguments---it’s a sequencing question and a preeq to engaging in the debate or allowing the aff to finish this round---im willing to stake the round on it.

## Case

### 1NC---AT: Astronomy

#### No chance of apocalyptic NEOs. Consensus of studies.

Mark Boslough, Earth and Planetary Sciences @ University of New Mexico, PhD in applied physics from CalTech '19, Uncertainty and Risk at the Catastrophe Threshold, in Planetary Defense Global Collaboration for Defending Earth from Asteroids and Comets

There has been confusion over language used to describe risk reduction attributed to surveys. It is often said that risk is “retired” when an asteroid is discovered and is found to be in a benign orbit. However, risk is (by definition) a human assessment that includes uncertainty. Assessed risk is a redundant term, but the adjective reinforces this notion. When uncertainty is reduced through more observation or understanding, the assessed risk can change. The act of discovering an asteroid that is not on a collision course reduces the assessed risk. For a population of NEOs in unknown orbits, the risk is aleatory, because the trajectories can be thought of as random within some range. After they are discovered (and determined to be no threat), they can be “retired” or removed from the random population for purposes of risk assessment. The assessed risk is reduced, but the intrinsic (previously unknown) probability of impact is unchanged. An asteroid is either on a collision course or it isn’t, regardless of whether or not it has a name and entry in the Minor Planet Center database. A rational policy and course of action can only be based on our current risk assessment, which incorporates all we know. If our knowledge changes because something is discovered to be on a collision course, we can reduce its contribution to the risk by deflecting it.

NEO surveys have greatly succeeded in contributing to risk reduction because our assessment of impact probability has decreased. The 90% goal has been exceeded, and discovery of smaller objects continues to accelerate. The assessed risk of a global impact apocalypse has been virtually eliminated in our time. The likelihood of a continental-scale catastrophe has been greatly diminished, and the overall risk (measured in average fatalities per year) has been cut by an order of magnitude to a round-number estimate of about 100. More recent assessments (Boslough et al. 2015b; Mathias et al. 2017; Reinhardt et al. 2016; Rumpf et al. 2017; Stokes et al. 2017) make use of large-scale computer simulations and include the Earth’s population distribution with better estimates of asteroid populations and physical effects over a wide range of energies and asteroid physical properties. They remain in broad agreement with one another.

**European union solves.**

**Pelton 13**—Joseph Pelton, Executive Board International Association for the Advancement of Space Safety, Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PhD from Georgetown University (“Space Debris and Other Threats from Outer Space,” Springer, 2013, DOI 10.1007/978-1-4614-6714-4, Chapter 8, p 57-63)

Although the man in the street does not think about the threat from asteroids and comets, space scientists at NASA, ESA, and JAXA certainly do. The WISE space telescope launched by NASA in mid-December 2009 has been carefully mapping as many NEOs as possible during its time in orbit as well as far flung galaxies as well. In the time between its launch and its shut down on February 17,2011, the Wide-field Infrared Space Explorer had collected millions of images and com- pleted one and a half inventories of Earth’s overhead sky by a systematic scanning process. The WISE satellite infrared sensors during its mission captured some 1.8 million images. These have allowed scientists to detect nineteen previously unseen comets. It also allowed the detection of over 33,500 asteroids and 120 previously unknown near-Earth objects (NEOs) that could become potential hazards to Earth at a future date. The infrared sensors that detect radiation outside the visible light range was able to detect low heat dwarf “brown stars” and detect objects that might be invisible due to dense dust cloud layers and other obscuring elements. The quarter-of-a-billion-dollar project was certainly successful in living beyond its projected 10-month mission lifetime. Ultimately it was the exhaustion of the coolant for the infrared sensors that was the lifetime limiting factor. By cleverly shifting from a four IR sensor operation to only two the lifetime was extended further than expected. After the coolant was entirely expended, a further program called NEO-WISE was undertaken for three months up until its February 2011 end date. During this NEO-wise phase, the spacecraft was entirely devoted to searching for NEOs. But this task still remains to be completed. Currently this comet- and asteroid-detecting spacecraft is now in hibernation with its coolant expended. In order to complete this crucial inventory of potentially dangerous asteroids and comets that might eventually hit Earth, additional space telescopes are needed. This would likely mean satellites with the ability to alter their range of view, more IR sensors and sufficient coolants to extend the space- craft’s lifetime. The question that many would ask is: “Is it really necessary to spend this much money on the very long shot that we might find a killer asteroid?” It turn out there is a fairly good answer to that question. Asteroid 2011 AG5 was discovered in January 2011 by the WISE imaging process. After initial analysis it was determined that there was a very credible chance that Asteroid 2011 AG5 could indeed collide with Earth in 2040. After further analysis it was decided that this was a long shot indeed unless something very strange happens in terms of the asteroid’s interaction with the Sun’s gravity, known as a “keyhole” event. This “keyhole” gravitation event that would make the asteroid do a “loop-de-loop” in a way that could put this asteroid in a resonance orbit with Earth. If this should happen it could result in about a 15 % chance of a horrific collision in 2040. The problem at this time is that this PHA (potentially hazardous asteroid) is on the other side of the Sun, and thus no precise measurements can be taken until late in 2013 or 2014. Figure 8.2 indicates the possible “keyhole” event and how this could actually spell trouble down the road. Asteroid Diversion If it turns out the 2011 AG5 goes through the gravitational keyhole in just the wrong way, and it is set to hit Earth like multiple atomic bombs, what could we do about it? Well, the European Union has launched an admirable new multi-national research project involving efforts to develop better ways to divert the course of “killer asteroids”. The three prime areas of research are exploring the use of gravitational attraction for course diversion, “bombing” the asteroid out of existence, or hitting it with a missile. This program is called NEOShield. The problem is that the fouryear program is funded at a very inadequately low level of 4 million Euros. We spend billions on national defense and medical research against pandemics. The funding for NEOShield is a mere pittance. We need to be spending at least 10 times more to produce any real hope of viable results. There are dozens of meteor showers that occur each year as Earth orbits the Sun, since there are literally millions of small meteors in solar orbit. Larger meteoroids are called bolides and even larger ones still are called asteroids. It is the larger scale near-Earth asteroids (NEAs) and particularly the PHAs that come within 5 million miles (8 million km) that are the ones that are of the largest concern. Typical orbits for these asteroids and how they could intersect Earth orbit are shown in Fig. 8.3. Since it has been 65 million years since the K-T mass extinction event there is some reassurance that another such horrendous event is a very remote possibility. Nevertheless it is estimated that some 10 % of the really big PHA’s have still be discovered, and 80% of the PHSs in the 100–1,000 m range have not been identified. These projections are based on the NEO-WISE program activity and calculations undertaken based on the NEO-WISE program activity and calculations undertaken based on its observation of just one sector of the sky. Space scientists have take the potential threat seriously enough to adopt a hazard scale as provided in Fig. 8.4 [32].

**We know where asteroids are. None could hit earth.**

Al **Globus 14**, worked on the asteroid mining, space settlement, Hubble, ISS, X37, Earth observation, TDRSS, cubesats, lunar teleoperation, spaceflight affects on bone, computational fluid dynamics visualization, molecular nanotechnology and space solar power, board member of the National Space Society, June 6, “Understanding the Asteroid Threat,” Rooster GNN, http://en.roostergnn.com/2014/06/06/understanding-the-asteroid-threat/128689/

What is the current probability of an asteroid striking Earth? Depends on the size. Little ones hit every day. A city killer once or twice a century. Extinction event about **every 100 million years** (it’s been 66 million years). These, of course, are averages. We could get an extinction event tomorrow — or not for 200 million years. Fortunately, **we know where almost all of the big asteroids** (extinction event) that could hit Earth are and **none of them will hit us for at least 100 years**. We don’t know where 90% of the somewhat smaller asteroids are — ones that could devastate a region (say, the Eastern seaboard). We only know the location of 1% of the city killers. Even better, if we detect an incoming asteroid in time **we could deflect it.** Thus, if we were to mount a vigorous detection campaign we could make the probability essentially zero. This would cost around 1% of our civil space program budget.

#### Concede grid collapse devastates economy – we read blue

Alice Friedemann 16. Transportation expert, founder of EnergySkeptic.com and author of “When Trucks Stop Running, Energy and the Future of Transportation,” worked at American Presidential Lines for 22 years, where she developed computer systems to coordinate the transit of cargo between ships, rail, trucks, and consumers, citing Dr. Peter Vincent Pry. Pry is executive director of the Task Force on National and Homeland Security, a Congressional advisory board dedicated to achieving protection of the United States from electromagnetic pulse and other threats. Dr. Pry is also the director of the United States Nuclear Strategy Forum, an advisory body to Congress on policies to counter weapons of mass destruction. Dr. Pry has served on the staffs of the Congressional Commission on the Strategic Posture of the United States, the Commission to Assess the Threat to the U.S. from an EMP Attack, the House Armed Services Committee, as an intelligence officer with the CIA, and as a verification analyst at the U.S. Arms Control and Disarmament Agency. (1/24/16, “Electromagnetic pulse threat to infrastructure (U.S. House hearings)” http://energyskeptic.com/2016/the-scariest-u-s-house-session-ever-electromagnetic-pulse-and-the-fall-of-civilization/.

Modern civilization cannot exist for a protracted period without electricity. Within days of a blackout across the U.S., a blackout that could encompass the entire planet, emergency generators would run out of fuel, telecommunications would cease as would transportation due to gridlock, and eventually no fuel. Cities would have no running water and soon, within a few days, exhaust their food supplies. Police, Fire, Emergency Services and hospitals cannot long operate in a blackout. Government and Industry also need electricity in order to operate. The EMP Commission warns that a natural or nuclear EMP event, given current unpreparedness, would likely result in societal collapse. Terrorists, criminals, and even lone individuals can build a non-nuclear EMP weapon without great trouble or expense, working from Unclassified designs publicly available on the internet, and using parts available at any electronics store. In 2000, the Terrorism Panel of the House Armed Services Committee sponsored an experiment, recruiting a small team of amateur electronics enthusiasts to attempt constructing a radiofrequency weapon, relying only on unclassified design information and parts purchased from Radio Shack. The team, in 1 year, built two radiofrequency weapons of radically different designs. One was designed to fit inside the shipping crate for a Xerox machine, so it could be delivered to the Pentagon mail room where (in those more unguarded days before 9/11) it could slowly fry the Pentagon’s computers. The other radiofrequency weapon was designed to fit inside a small Volkswagon bus, so it could be driven down Wall Street and disrupt computers— and perhaps the National economy. Both designs were demonstrated and tested successfully during a special Congressional hearing for this purpose at the U.S. Army’s Aberdeen Proving Ground. Radiofrequency weapons are not merely a hypothetical threat. Terrorists, criminals, and disgruntled individuals have used home-made radiofrequency weapons. The U.S. military and foreign militaries have a wide variety of such weaponry. Moreover, non-nuclear EMP devices that could be used as radiofrequency weapons are publicly marketed for sale to anyone, usually advertised as ‘‘EMP simulators.’’ For example, one such simulator is advertised for public sale as an ‘‘EMP Suitcase.’’ This EMP simulator is designed to look like a suitcase, can be carried and operated by one person, and is purpose-built with a high energy radiofrequency output to destroy electronics. However, it has only a short radius of effect. Nonetheless, a terrorist or deranged individual who knows what he is doing, who has studied the electric grid for a major metropolitan area, could—armed with the ‘‘EMP Suitcase’’— black out a major city. A CLEAR AND PRESENT DANGER. An EMP weapon can be used by state actors who wish to level the battlefield by neutralizing the great technological advantage enjoyed by U.S. military forces. EMP is also the ideal means, the only means, whereby rogue states or terrorists could use a single nuclear weapon to destroy the United States and prevail in the War on Terrorism or some other conflict with a single blow. The EMP Commission also warned that states or terrorists could exploit U.S. vulnerability to EMP attack for coercion or blackmail: ‘‘Therefore, terrorists or state actors that possess relatively unsophisticated missiles armed with nuclear weapons may well calculate that, instead of destroying a city or military base, they may obtain the greatest political-military utility from one or a few such weapons by using them—or threatening their use—in an EMP attack.’’ The EMP Commission found that states such as Russia, China, North Korea, and Iran have incorporated EMP attack into their military doctrines, and openly describe making EMP attacks against the United States. Indeed, the EMP Commission was established by Congress partly in response to a Russian nuclear EMP threat made to an official Congressional Delegation on May 2, 1999, in the midst of the Balkans crisis. Vladimir Lukin, head of the Russian delegation and a former Ambassador to the United States, warned: ‘‘Hypothetically, if Russia really wanted to hurt the United States in retaliation for NATO’s bombing of Yugoslavia, Russia could fire an SLBM and detonate a single nuclear warhead at high altitude over the United States. The resulting EMP would massively disrupt U.S. communications and computer systems, shutting down everything.’’ China’s military doctrine also openly describes EMP attack as the ultimate asymmetric weapon, as it strikes at the very technology that is the basis of U.S. power. Where EMP is concerned, ‘‘The United States is more vulnerable to attacks than any other country in the world’’: ‘‘Some people might think that things similar to the ‘Pearl Harbor Incident’ are unlikely to take place during the information age. Yet it could be regarded as the ‘Pearl Harbor Incident’ of the 21st Century if a surprise attack is conducted against the enemy’s crucial information systems of command, control, and communications by such means as… electromagnetic pulse weapons… Even a superpower like the United States, which possesses nuclear missiles and powerful armed forces, cannot guarantee its immunity…In their own words, a highly computerized open society like the United States is extremely vulnerable to electronic attacks from all sides. This is because the U.S. economy, from banks to telephone systems and from power plants to iron and steel works, relies entirely on computer networks… When a country grows increasingly powerful economically and technologically…it will become increasingly dependent on modern information systems… The United States is more vulnerable to attacks than any other country in the world.’’ Iran—the world’s leading sponsor of international terrorism—in military writings openly describes EMP as a terrorist weapon, and as the ultimate weapon for prevailing over the West: ‘‘If the world’s industrial countries fail to devise effective ways to defend themselves against dangerous electronic assaults, then they will disintegrate within a few years… American soldiers would not be able to find food to eat nor would they be able to fire a single shot.’’ The threats are not merely words. The EMP Commission assesses that Russia has, as it openly declares in military writings, probably developed what Russia describes as a ‘‘Super-EMP’’ nuclear weapon—specifically designed to generate extraordinarily high EMP fields in order to paralyze even the best protected U.S. strategic and military forces. China probably also has Super-EMP weapons. North Korea too may possess or be developing a Super-EMP nuclear weapon, as alleged by credible Russian sources to the EMP Commission, and by open-source reporting from South Korean military intelligence. But any nuclear weapon, even a low-yield first generation device, could suffice to make a catastrophic EMP attack on the United States. Iran, although it is assessed as not yet having the bomb, is actively testing missile delivery systems and has practiced launches of its best missile, the Shahab–III, fuzing for high- altitude detonations, in exercises that look suspiciously like training for making EMP attacks. As noted earlier, Iran has also practiced launching from a ship a Scud, the world’s most common missile—possessed by over 60 nations, terrorist groups, and private collectors. A Scud might be the ideal choice for a ship-launched EMP attack against the United States intended to be executed anonymously, to escape any last-gasp U.S. retaliation. Unlike a nuclear weapon detonated in a city, a high-altitude EMP attack leaves no bomb debris for forensic analysis, no perpetrator ‘‘fingerprints.’’ Under present levels of preparedness, communications would be severely limited, restricted mainly to those few military communications networks that are hardened against EMP. Today’s microelectronics are the foundation of our modern civilization, but are over 1 million times more vulnerable to EMP than the far more primitive and robust electronics of the 1960s, that proved vulnerable during nuclear EMP tests of that era. Tests conducted by the EMP Commission confirmed empirically the theory that, as modern microelectronics become ever smaller and more efficient, and operate ever faster on lower voltages, they also become ever more vulnerable, and can be destroyed or disrupted by much lower EMP field strengths. Microelectronics and electronic systems are everywhere, and run virtually everything in the modern world. All of the civilian critical infrastructures that sustain the economy of the United States, and the lives of 310 million Americans, depend, directly or indirectly, upon electricity and electronic systems. Of special concern is the vulnerability to EMP of the Extra-High-Voltage (EHV) transformers, that are indispensable to the operation of the electric grid. EHV transformers drive electric current over long distances, from the point of generation to consumers (from the Niagara Falls hydroelectric facility to New York City, for example). The electric grid cannot operate without EHV transformers—which could be destroyed by an EMP event. The United States no longer manufactures EHV transformers. They must be manufactured and imported from overseas, from Germany or South Korea, the only two nations in the world that manufacture such transformers for export. Each EHV transformer must be custom-made for its unique role in the grid. A single EHV transformer typically requires 18 months to manufacture. The loss of large numbers of EHV transformers to an EMP event would plunge the United States into a protracted blackout lasting years, with perhaps no hope of eventual recovery, as the society and population probably could not survive for even 1 year without electricity. Another key vulnerability to EMP are Supervisory Control And Data Acquisition systems (SCADAs). SCADAs essentially are small computers, numbering in the millions and ubiquitous everywhere in the critical infrastructures, that perform jobs previously performed by hundreds of thousands of human technicians during the 1960s and before, in the era prior to the microelectronics revolution. SCADAs do things like regulating the flow of electricity into a transformer, controlling the flow of gas through a pipeline, or running traffic control lights. SCADAs enable a few dozen people to run the critical infrastructures for an entire city, whereas previously hundreds or even thousands of technicians were necessary. Unfortunately, SCADAs are especially vulnerable to EMP. EHV transformers and SCADAs are the most important vulnerabilities to EMP, but are by no means the only vulnerabilities. Each of the critical infrastructures has their own unique vulnerabilities to EMP: The National electric grid, with its transformers and generators and electronic controls and thousands of miles of power lines, is a vast electronic machine—more vulnerable to EMP than any other critical infrastructure. Yet the electric grid is the most important of all critical infrastructures, and is in fact the keystone supporting modern civilization, as it powers all the other critical infrastructures. As of now it is our technological Achilles Heel. The EMP Commission found that, if the electric grid collapses, so too will collapse all the other critical infrastructures. But, if the electric grid can be protected and recovered, so too all the other critical infrastructures can also be restored. Transportation is a critical infrastructure because modern civilization cannot exist without the goods and services moved by road, rail, ship, and air. Cars, trucks, locomotives, ships, and aircraft all have electronic components, motors, and controls that are potentially vulnerable to EMP. Gas stations, fuel pipelines, and refineries that make petroleum products depend upon electronic components and cannot operate without electricity. Given our current state of unpreparedness, in the aftermath of a natural or nuclear EMP event, transportation systems would be paralyzed. Traffic control systems that avert traffic jams and collisions for road, rail, and air depend upon electronic systems, that the EMP Commission discovered are especially vulnerable to EMP. Communications is a critical infrastructure because modern economies and the cohesion and operation of modern societies depend to a degree unprecedented in history on the rapid movement of information—accomplished today mostly by electronic means. Telephones, cell phones, personal computers, television, and radio are all directly vulnerable to EMP, and cannot operate without electricity. Satellites that operate at Low-Earth-Orbit (LEO) for communications, weather, scientific, and military purposes are vulnerable to EMP and to collateral effects from an EMP attack. Within weeks of an EMP event, the LEO satellites, which comprise most satellites, would probably be inoperable. Banking and finance are the critical infrastructure that sustain modern economies. Whether it is the stock market, the financial records of a multinational corporation, or the ATM card of an individual—financial transactions and record keeping all depend now at the macro- and micro-level upon computers and electronic automated systems. Many of these are directly vulnerable to EMP, and none can operate without electricity. The EMP Commission found that an EMP event could transform the modern electronic economy into a feudal economy based on barter. Food has always been vital to every person and every civilization. The critical infrastructure for producing, delivering, and storing food depends upon a complex web of technology, including machines for planting and harvesting and packaging, refrigerated vehicles for long-haul transportation, and temperature-controlled warehouses. Modern technology enables over 98 percent of the U.S. National population to be fed by less than 2 percent of the population. Huge regional warehouses that resupply supermarkets constitute the National food reserves, enough food to feed the Nation for 30–60 days at normal consumption rates, the warehoused food preserved by refrigeration and temperature control systems that typically have enough emergency electrical power (diesel or gas generators) to last only about an average of 3 days. Experience with storm-induced blackouts proves that when these big regional food warehouses lose electrical power, most of the food supply will rapidly spoil. Farmers, less than 2 percent of the population as noted above, cannot feed 310 million Americans if deprived of the means that currently makes possible this technological miracle. Water too has always been a basic necessity to every person and civilization, even more crucial than food. The critical infrastructure for purifying and delivering potable water, and for disposing of and treating waste water, is a vast networked machine powered by electricity that uses electrical pumps, screens, filters, paddles, and sprayers to purify and deliver drinkable water, and to remove and treat waste water. Much of the machinery in the water infrastructure is directly vulnerable to EMP. The system cannot operate without vast amounts of electricity supplied by the power grid. A natural or nuclear EMP event would immediately deprive most of the U.S. National population of running water. Many natural sources of water—lakes, streams, and rivers—would be dangerously polluted by toxic wastes from sewage, industry, and hospitals that would backflow from or bypass wastewater treatment plants, that could no longer intake and treat pollutants without electric power. Many natural water sources that would normally be safe to drink, after an EMP event, would be polluted with human wastes including feces, industrial wastes including arsenic and heavy metals, and hospital wastes including pathogens. Emergency services such as police, fire, and hospitals are the critical infrastructure that upholds the most basic functions of government and society—preserving law and order, protecting property and life. Experience from protracted storm-induced blackouts has shown, for example in the aftermath of Hurricanes Andrew and Katrina, that when the lights go out and communications systems fail and there is no gas for squad cars, fire trucks, and ambulances, the worst elements of society and the worst human instincts rapidly takeover. The EMP Commission found that, given our current state of unpreparedness, a natural or nuclear EMP event could create anarchic conditions that would profoundly challenge the existence of social order.

#### This ev doesn’t come close to saying extinction so err heavily neg

#### Rising global inequality makes growth terminally unsustainable.

**World Bank 10/27** [The World Bank, 10-27-2021, "Global Wealth Has Grown, But at the Expense of Future Prosperity: World Bank," World Bank, [https://www.worldbank.org/en/news/press-release/2021/10/27/global-wealth-has-grown-but-at-the-expense-of-future-prosperity-world-bank Accessed 11/12/2021](https://www.worldbank.org/en/news/press-release/2021/10/27/global-wealth-has-grown-but-at-the-expense-of-future-prosperity-world-bank%20Accessed%2011/12/2021)] Adam

WASHINGTON, Oct. 27, 2021 – Global wealth has grown overall—but at the expense of future prosperity and by exacerbating inequalities, according to the World Bank’s new Changing Wealth of Nations report released today.

Countries that are depleting their resources in favor of short-term gains are putting their economies on an unsustainable development path. While indicators such as Gross Domestic Product (GDP) are traditionally used to measure economic growth, the report argues for the importance of considering natural, human, and produced capital to understand whether growth is sustainable.

The Changing Wealth of Nations 2021 tracks the wealth of 146 countries between 1995 and 2018, by measuring the economic value of renewable natural capital (such as forests, cropland, and ocean resources), nonrenewable natural capital (such as minerals and fossil fuels), human capital (earnings over a person’s lifetime), produced capital (such as buildings and infrastructure), and net foreign assets. The report accounts for blue natural capital—in the form of mangroves and ocean fisheries—for the first time.

“A deeper and more nuanced understanding of the sustainability of wealth is crucial to a green, resilient, and inclusive future,” said World Bank Managing Director for Development Policy and Partnerships, Mari Pangestu. “It is essential that renewable natural capital and human capital are given the same importance as more traditional sources of economic growth, so that policymakers take steps to enable long-term prosperity.”

According to the report, global wealth grew significantly between 1995 and 2018, and middle-income countries are catching up to high-income countries. However, growing prosperity has been accompanied by unsustainable management of some natural assets. Low- and middle-income countries saw their forest wealth per capita decline 8% from 1995 to 2018, reflecting significant deforestation. Meanwhile, the value of global marine fish stocks collapsed by 83% due to poor management and overfishing over the same period. The projected impacts of climate change may exacerbate these trends.

In addition, mispricing of assets like carbon-emitting fossil fuels can lead to overvaluation and over-consumption. Development can be put on a more sustainable path by taking a comprehensive view of wealth and putting in place policy measures including carbon pricing to better value and nurture assets such as forests, mangroves, and human capital.

Global wealth inequality is growing, the report indicates. Low-income countries’ share of global wealth has changed little from 1995 to 2018, remaining below 1% of the world’s wealth, despite having around 8% of the world’s population. Over one-third of low-income countries saw declining wealth per capita. Countries with declining wealth tend also to be degrading their base of renewable natural assets. For low-income countries, appropriately managing renewable natural capital, which accounts for 23% of their wealth, remains crucial.

Globally, the share of total wealth in renewable natural capital (forests, cropland, and ocean resources) is decreasing and being further threatened by climate change. At the same time, renewable natural capital is becoming more valuable as it provides crucial ecosystem services. For example, the value of mangroves for coastal flood protection has grown more than 2.5 times since 1995 to over $547 billion in 2018. The value of protected areas per square kilometer has also rapidly increased.

“The Changing Wealth of Nations provides the data and analysis to help governments get prices and policies right for sustainable development,” said World Bank Global Director for Environment, Natural Resources, and the Blue Economy, Karin Kemper. “By ignoring polluting and climate warming impacts, fossil fuel assets have historically been overvalued, while assets that contribute to climate mitigation, like forests, are undervalued.”

The report shows that human capital, measured as the population’s expected lifetime earnings, is the largest source of worldwide wealth, comprising 64% of total global wealth in 2018. Middle-income countries increased their investment in human capital and in turn saw significant increases in their share of global human capital wealth.

Although the long-lasting effects of the COVID-19 pandemic are still unknown, low-income countries are likely to experience the most severe impacts, with a projected loss of 14% of total human capital. Human capital is additionally constrained by gender gaps across all regions and income groups, with little improvement since 1995. Air quality also has serious consequences for both human capital and climate change, and accounts for over 6 million premature deaths annually.

Nonrenewable natural capital wealth (minerals, fossil fuels) has declined since 2014, mainly due to falling commodity prices. The report looks at the projected impacts of a low-carbon transition and border carbon adjustment taxes on fossil fuel wealth and provides recommendations for managing the economic risks posed for resource-dependent countries. Countries that are heavily dependent on fossil fuel wealth were found to have lower shares of wealth from human capital, despite their high income levels, with human capital only comprising 34% of their wealth.

#### Growth causes extinction via climate change, aging crisis, food and water wars, and global inequality—try or die for de-development

Gagulina 21 (Natalya Gagulina, Institute for Regional Economic Studies Russian Academy of Sciences Leading researcher, Artur Budagov, 2State University of Aerospace Instrumentation, Director of the Institute of Enterprinership Technologies, Elena Yanova, ITMO University, Faculty of Technological Management and Innovations, Department of Economics and Strategic Management, “Global Challenges of the Modern Paradigm of Economic Development,” SHS Web of Conferences 92 2021 NL)

1 Introduction Comprehension of the global problems at the beginning of the third millennium prompts us to take new approach to assessing the development of modern civilization, and sometimes to question the inviolability of values formed over centuries. For more than three centuries, the development of the world’s leading countries has been based on the paradigm, according to which realization of human creative potential occurs through the transformation of world and nature, and then society. Continuous growth of production and improvement of the human living standards, provided by the modern paradigm of development, are based on the ideas of progress, democracy, freedom and personal initiative. The flip side of the coin is exacerbation of key contradictions generated by the current paradigm of economic development: between wealth and poverty, liberal social practices and government guarantees, economic growth and the resource potential of nature. 2 Economic Development Paradigm Methods The progressive development of mankind within the framework of accepted scientific paradigm is continuous process of improving the laws, conditions of life, social reproduction, art, science, values. One of the most important results of formation of the modern development paradigm is to recreate the world general scientific picture as an integral system of scientific ideas about nature, man and society [1]. The important role in this is played by the rapid convergence of methodology of natural science and humanitarian knowledge. Thus, the ideas of irreversibility and variability in decision-making, the variety of directions for development of complex systems at bifurcation points and many other ideas that have been developed in synergetics are becoming more and more important for the humanities. The change in the place and role of man in the representation of most self-developing systems became manifestation of the principles of global evolutionism in the scientific paradigm of development and contributed to even greater dissemination of its ideas both in the scientific knowledge space and in the modern civilization space. The dominance of global evolutionism principles in the development paradigm has determined its influence on cultural values on the scale of the entire world economy. Besides convergence of the methodology of natural science and humanitarian knowledge, prerequisites are created for the convergence of the main, at first glance, diametrically opposed models of development of the modern East and West countries, which the main features are given in Table 1. Containing the human mind progress history, the modern paradigm of economic development has formed the basic laws, the laws of emergence and development of social relationships at all levels for many years to come. The manifestation of global evolutionism principles in the modern paradigm of economic development is becoming the important factor in cross-cultural interaction between East and West in connection with overarching significance of globalization, liberalization and informatization. Globalization has become tool for formation of world markets for goods, labour and capital, has expanded the information space to planetary scale. Liberalization, pushing the boundaries of private initiative in the implementation of economic activity, stimulated investment and entrepreneurship, created conditions for the effective use of information technologies. Informatization has created new capital-intensive and rapidly growing markets for infocommunication technologies and mass media. Perhaps the most significant result of the influence of these factors in formation of the cultural space at the turn of the XX-XXI centuries was the rooting and spread of the consumer society model on global scale, closed at consumption as a way of life. First of all, this was facilitated by new opportunities for standardizing the way of life, consciousness and behaviour, education, in increasing the role of supranational structures and transnational corporations, opened under the influence of globalization. The economy of consumer society is based on the principle of individual consumption, supported by system of attitudes and values that often ignore the laws of morality. Rapidly developing, dynamic and aggressive economy with its innovative guidelines and pronounced individualism of free personality, with active transformative vector in relation to the natural and social world, has had a huge impact on the entire social structure, starting with forms of human behaviour and social communication and ending with the rationalization of thinking in the whole [2,3]. The consumer economy does not encourage passivity and frugality, because they are accompanied by loss of consumer ability. Economic choice based on real human needs is replaced by choice dictated by the consumer society structure and the corresponding abstract values. Global scale result: overproduction and excessive consumption, accumulation of production and consumption wastes, anthropogenic pollution of atmosphere and water resources, energy overloads, etc. The processes generated by globalization are closely related to the tightening of competition in the world market for control over natural resources and information space through the use of the latest technologies. Market relations include natural resources that were previously outside the competition [4]. The problems of preserving the natural environment and ecology associated with degradation, and sometimes destruction of the environment of human life, are ignored. Social connections and relationships are increasingly falling into the sphere of private interests. Common human values are being levelled, creating the basis of morality, humanity and social justice. The influx of cheap labour into the labour market of prosperous countries complicates interethnic relations [5,6]. The influence of psychological shock of globalization processes creates the fertile ground for nationalism outbursts. Currently, the internationalization of all key problems is taking place against the background of globalization, liberalization and informatization: from interethnic and interconfessional conflicts to security problems [7,8]. This leads to the question of the crisis of the modern paradigm of economic development. 3 Results: Economic Development Paradigm Crisis The modern paradigm of economic development is continuation of the general development paradigm formed by the centuries-old history of scientific discoveries and achievements. At the present stage, the great influence on the general development paradigm, generally, and on the economic development paradigm, particularly, was exerted by convergence of methodology of natural science and humanitarian knowledge, exchange of attitudes of the current paradigm both within the natural science segment and in the field of natural sciences and social sciences and humanities. The combined application of principles of evolutionary and systemic approaches in the paradigm of economic development not only opened up new opportunities in describing complex self-regulating and self-developing systems, the search for approaches to managing such systems, but also identified problems that called into question the viability of paradigm itself. The aggravation of crisis situations in the economic, financial, socio-political, environmental and socio-spiritual spheres of the modern society life makes us take a new approach to understanding the modern paradigm of economic development. Achieving the better quality of life within the accepted paradigm of economic development seems to be difficult due to the problem of dominance of interests of subjects whose sources of income are non-renewable resources, harmful industries and outdated technologies. They not only stand in the way of progress, but also contribute to the emergence of such social risks as the loss of jobs, cuts in investment programs, reduction in tax payments to budgets of various levels, etc. Regarding the complication of classical contradictions and problems of the economy, some market instruments, mechanisms, institutions become poorly managed, stochastic, and acquire a spontaneous character. The existing classical contradictions are supplemented by new ones (Figure 1). Particularly, the classical contradiction between labour and capital was supplemented by contradictions between various forms of capital, rapidly developing science-intensive technologies of material production and archaic forms of capital reproduction, etc. At the international level, the contradiction between the world market globalization process and the national interests of the participating countries is growing [9], the crisis has emerged in the post-war system of international law and international organizations. A series of problematic situations that have no explanation by modern science and crises that arise in vital spheres of the economy indicate a crisis of the very economic development paradigm. At the same time, problems and challenges that are urgent for all countries of the world deserve special attention. 3.1 Global Problems and Challenges The term "global problems" began to be used in scientific literature in connection with concerns about population growth, environmental pollution, depletion of natural resources, etc., that is, almost simultaneously with the first models of J. Forrester, D. Meadows, and others. Understanding global problems as a set of social, natural-resource and socio-cultural problems, as the progressive development and preservation of civilization depends on the attitude towards them and which require the united efforts of all mankind for their resolution, we will group them (Figure 2). Among the problems of humanitarian nature are the problems of eliminating poverty, exploitation and other forms of social inequality, problems of education, health care, planning and regulation of the life level and quality. Natural resource problems include a wide range of problems caused not only by the objective limited natural resource potential of the planet, but also by the alarmingly high rates of its use. Comparing the growth rates of the planet's population and the rate of changes in the volumes of extraction of the main types of mineral raw materials, we see that the intensity of oil and gas consumption per capita is growing (Table 2). Problems that cannot be solved without revising international relations owe their origin to the loss of functionality by some codes of international law and international organizations. The close analysis of global problems, which are becoming more acute as the modern paradigm of economic development takes root, enable singling out the following ones from them: Climatic, ecological and biological aspects of the problem of human survival. The problem of preserving the individual integrity in the context of the disintegration of the traditional structures of transmission from generation to generation of such eternal global values as the value of labour, the living control of society over moral behaviour, etc. The inclusion of person simultaneously in many systems of social relations leads to personality splitting and stress. The problem of communicative unity of mankind and the need to resolve conflicts without the use of force. For successful dialogue focused on consent, tolerance, pluralism of opinions, new criteria and approaches are needed, and the use of double standards is unacceptable. The exacerbation of existing or the emergence of new global problems due to failures, which is adopted the economic development paradigm as a basis, produces global challenges (Figure 3). Challenges are consequence of the emergence of new factors in world development that disrupt the stability of the normal functioning of reproduction mechanisms, intercultural relations, etc. Thus, the acceleration of historical time is facilitated by a constant reduction in the life cycles of goods, services, infrastructures and ways, endless and rapid change of new methods of labour and technologies in the context of accelerating the period of implementation of scientific discoveries. This complicates the adaptation of people to changes in the technological, social and cultural environment. Not having time to fully realize the benefits of change, to take advantage of them, people are faced with new, more and more technically complex aspects of life. The global demographic imbalance, which manifests itself in the population structure change, the birth rate decrease and the indigenous population decline in developed countries, the general aging of the world's population, including the spread of the demographic deficit to some countries in Asia and South America, contributes to the emergence of migration waves, increases economic instability. The problem of shortage of food and fresh water in the world is caused not only by the fact of limited natural resources, but also by their irrational use [11]. Economic inequality, uneven distribution of food in the world and climate change have led to the fact that more than 1 billion people in underdeveloped countries are undernourished, and between 500 million and 1 billion people go hungry. The crisis of values, provoked by the predominance of the principles of global evolutionism in the development paradigm, threatens all further development of mankind. The problems and challenges associated with the new technological reality deserve special attention. 3.2 Digital Economy Problems and Challenges The contours of new technological reality in the context of global issues have emerged due to globalization, liberalization and informatization as the leading features of the modern paradigm of economic development. The emergence of the main innovations of new technological reality in form of information and telecommunication technologies, digital communication networks and virtual reality put on different scales the advantages and disadvantages of the digital economy, selectively presented in Figure 4. Digitalization satellites on global scale are the Internet of Things and smart cities, open source public access platforms, cloud information technologies, dynamic capitalization of Internet business and info-business, increase in the volume of financial assets and the emergence of their new forms (digital assets), predictive software events providing, increasing the influence of "new media" and much more [12-14]. The formation of information space covering the whole world has become innovative form of globalization, which is accompanied by its inherent problems. In our opinion, the following can be attributed to the global challenges of the digital economy: Accelerated virtualization of the economy associated with the phenomenon of virtual reality. According to M. Poster, the problematization of reality, which so far only occurs in the field of modern telecommunications (games, teleconferences, etc.), casts doubt on the validity, exclusivity and conventional evidence of "ordinary" time, space and identity. Information superhighways and virtual reality, which have not yet become common cultural practices, have enormous potential for creating such a subject that exists only into interactive environment. Examples of large-scale transformation processes caused by many years of virtualization can be observed in the economy financial sector [15-17]. b) The spontaneous reduction of jobs in the labour market and disappearance of occupations that were widespread and in demand until recently: teachers, shop assistants, cashiers, postmen, tourism managers, notaries, call centre operators, packers, accountants, etc. The number of "useless people" includes not only the listed professions "from the risk zone", but also older age categories, which find it more difficult to adapt to innovative technological changes. c) Computerization of the decision-making process at different levels, leading to the "cybernation" of the subject of control through the use of supercomputers. The inability of the subject of management to make adequate decisions about the most complex processes in social and technical systems in real time has led to the management crisis. Computer models, which incorporate more than a thousand mathematical equations and huge amounts of various kinds of data, enable to predict the types of behaviour of people in various situations and, in a time frame commensurate with the time for solving problems, develop ready-made solutions. d) The gradual decrease in the ability of individuals to make decisions due to formation of stereotype to overcome the limitation of individual cognitive abilities by tools of info communication technologies. The list of global challenges of the digital economy presented by us is very general, it can be supplemented and expanded taking into account the ongoing changes. 4 Discussions Global actions in response to global challenges are foreseen in almost all spheres of human life, which are usually associated with the human welfare and well-being. The list of global actions has more than half a century history and includes the UN Conference "Man and the Environment" (1972), the World Conservation Strategy (1980), the International Commission on Environment and Development Paper (1983), UN Conference on Environment and Development (COSR-92), Earth Summit +5, Millennium Declaration - 2000, Earth Summit - 2002, RIO + 20, Sustainable Development Goals (SDGs), developed and adopted by the UN for the period up to 2030, and a number of other equally important international events. It should be noted that the coordination of state policies in the field of legal regulation of information space, ecology, fight against terrorism, drug trafficking and crime also contributes to the development and implementation of global actions in response to global problems and challenges. At the same time, it can be argued that the crisis state of the modern paradigm of economic development is accompanied by a conflict of archaic and newest forms of economic reality, which "explode" it from the inside (Figure 5). The emergence of the newest forms of economic reality in the context of the acceleration of historical time creates the risk of delay in global actions in response to global challenges. This is especially true of the challenges associated with the economic space digitalization. 5 Conclusion The stability of adopted paradigm of economic development in the context of global challenges is under threat, therefore, a new look at the relationship "global challenges - global actions" is needed. The global problems and challenges we have outlined in the modern economic development paradigm force us to start searching for a new biocompatible and biocentric paradigm aimed at harmoniously solving the problems of life support, which is accompanied by revision of views on consumption and fair distribution, attitude to the living environment and nature, life values and dominant needs. The economic development paradigm change presupposes the initial condition change for existence of socio-ecological-economic system, which will radically affect the subsequent evolution of the system and the entire organizational structure of society. In this case, it seems appropriate, in our opinion, to use the quality economics methodology, which is distinguished by interdisciplinary and comprehensive scientific approach [18,19]. The economy of quality has features that make it possible to correlate it with a new, synergetic, paradigm for development of modern scientific knowledge. It is an integral part of all scientific areas, focusing on the need to take into account the quality features studied in a given aspect.

#### Corona sent shockwaves throughout the global economy and makes collapse inevitable—we need a new system to ensure survival

Tooze, 20

(Adam, history professor and director of the European Institute at Columbia University "The Normal Economy Is Never Coming Back," April 9 <https://foreignpolicy.com/2020/04/09/unemployment-coronavirus-pandemic-normal-economy-is-never-coming-back/> NL)

As the coronavirus lockdown began, the first impulse was to search for historical analogies—1914, 1929, 1941? As the weeks have ground on, what has come ever more to the fore is the historical novelty of the shock that we are living through. The economy is currently in something akin to free fall. If it were to continue to contract at its current pace, 12 months from now GDP would be [one-third lower](https://www.reuters.com/article/us-health-coronavirus-goldman/goldman-sachs-slashes-us-gdp-estimate-further-idUSKBN21I235) than at the beginning of 2020. That is a rate of shrinkage four times faster than during the Great Depression of the 1930s. There has never been a crash landing like this before. There is something new under the sun. And it is horrifying. As recently as five weeks ago, at the beginning of March, U.S. unemployment was at record lows. By the end of March, it had surged to somewhere around 13 percent. That is the highest number recorded since World War II. We don’t know the precise figure because our system of unemployment registration was not built to track an increase at this speed. On successive Thursdays, the number of those making initial filings for unemployment insurance has surged first to 3.3 million, then 6.6 million, and now by another 6.6 million. At the current rate, as the economist Justin Wolfers [pointed out](https://www.nytimes.com/2020/04/03/upshot/coronavirus-jobless-rate-great-depression.html) in the New York Times, U.S. unemployment is rising at nearly 0.5 percent per day. It is no longer unimaginable that the overall unemployment rate could reach 30 percent by the summer. Thursday’s news confirms that the Western economies face a far deeper and more savage economic shock than they have ever previously experienced. Regular business cycles generally start with the more volatile sectors of the economy—real estate and construction, for instance, or heavy engineering that depends on business investment—or sectors that are subject to global competition, such as the motor vehicles industry. In total, those sectors employ less than a quarter of the workforce. The concentrated downturn in those sectors transmits to the rest of the economy as a muffled shock. The coronavirus lockdown directly affects services—retail, real estate, education, entertainment, restaurants—where 80 percent of Americans work today. Thus the result is immediate and catastrophic. In sectors like retail, which has recently come under fierce pressure from online competition, the temporary lockdown may prove to be terminal. In many cases, the stores that shut down in early March will not reopen. The jobs will be permanently lost. Millions of Americans and their families are facing catastrophe. The shock is not confined to the United States. Many European economies cushion the effects of a downturn by subsidizing short-time working. This will moderate the surge in unemployment. But the collapse in economic activity cannot be disguised. The north of Italy is not just a luxurious tourist destination. It [accounts](https://www.bloomberg.com/news/articles/2020-03-31/nightmare-haunting-euro-s-founders-may-now-be-reality-with-italy) for 50 percent of Italian GDP. Germany’s GDP is predicted to fall by more than that of the United States, dragged down by its dependence on exports. The latest set of [forecasts](https://www.ft.com/content/b427db58-77e6-11ea-af44-daa3def9ae03) from the Organization for Economic Cooperation and Development are apocalyptic across the board. Hardest hit of all may be Japan, even though the virus has had a moderate impact there. In rich countries, we can at least attempt to make estimates of the damage. China was the first to initiate shutdowns on Jan. 23. The latest official figures show China’s unemployment at 6.2 percent, the highest number since records began in the 1990s, when the Chinese Communist Party reluctantly admitted joblessness was not a problem confined to the capitalist world. But that figure is clearly a gross understatement of the crisis in China. Unofficially, perhaps as many as [205 million migrant workers](https://www.scmp.com/economy/china-economy/article/3078251/coronavirus-chinas-unemployment-crisis-mounts-nobody-knows) were furloughed, more than a quarter of the Chinese workforce. How one goes about counting the damage to the Indian economy from Prime Minister Narendra Modi’s abrupt 21-day shutdown is anyone’s guess. Of India’s workforce of 471 million, only 19 percent are covered by social security, two-thirds have no formal employment contract, and at least [100 million](https://www.business-standard.com/article/economy-policy/coronavirus-lockdown-headed-home-as-migrants-have-no-room-to-isolate-120032501678_1.html) are migrant workers. Many of them have been sent in headlong flight back to their villages. There has been nothing like it since partition in 1947. The economic fallout from these immense human dramas defies calculation. We are left with the humdrum but no less remarkable statistic that this year, for the first time since reasonably reliable records of GDP began to be computed after World War II, the emerging market economies will contract. An entire model of global economic development has been brought skidding to a halt. An entire model of global economic development has been brought skidding to a halt. This collapse is not the result of a financial crisis. It is not even the direct result of the pandemic. The collapse is the result of a deliberate policy choice, which is itself a radical novelty. It is easier, it turns out, to stop an economy than it is to stimulate it. But the efforts that are being made to cushion the effects are themselves historically unprecedented. In the United States, the congressional stimulus package agreed within days of the shutdown is by far the largest in U.S. peacetime history. Across the world, there has been a move to open the purse strings. Fiscally conservative Germany has declared an emergency and removed its limits on public debt. Altogether, we are witnessing the largest combined fiscal effort launched since World War II. Its effects will make themselves felt in weeks and months to come. It is already clear that the first round may not be enough. An even more urgent task is to prevent the slowdown from turning into an immense financial crisis. It is commonly said that the U.S. Federal Reserve under Chairman Jerome Powell is following the 2008 playbook. This is true. Day by day, it spawns new programs to support every corner of the financial market. But what is different is the scale of the Fed’s interventions. To counter the epic shock of the shutdown, it has mobilized an immense wave of liquidity. In late March, the Fed was buying assets at a rate of $90 billion per day. This is more per day than Ben Bernanke’s Fed purchased most months. Every single second, the Fed was swapping almost a million dollars’ worth of Treasurys and mortgage-backed securities for cash. On the morning of April 9, at the same moment that the latest horrifying unemployment number was released, the Fed announced that it was launching an additional $2.3 trillion in asset purchases. This huge and immediate counterbalancing action has so far prevented an immediate global financial meltdown, but we now face a protracted period in which falling consumption and investment drive further contraction. Seventy-three percent of American households report having [suffered](https://www.ft.com/content/7a7233a3-160a-41be-8d63-40f64e041e57) a loss of income in March. For many, that loss is catastrophic, tipping them into acute need, default, and bankruptcy. Delinquencies on consumer debt will no doubt surge, leading to sustained damage to the financial system. Discretionary expenditure will be deferred. Petrol consumption in Europe has [fallen](https://www.ft.com/content/4c59fd16-6020-4798-b8f1-5df686bbd97a) by 88 percent. The market for automobiles is stone dead. Auto manufacturers across Europe and Asia are sitting on giant lots of unsold vehicles. The longer we sustain the lockdown, the deeper the scarring to the economy and the slower the recovery. In China, regular economic activity is inching back. But given the risk of second- and third-wave outbreaks, no one has any idea how far and fast the resumption of normal life can safely go. It seems likely, barring a dramatic medical breakthrough, that movement restrictions will need to stay in place to manage the unevenness of containment. A protracted and halting recovery seems far more likely at this point than a vigorous V-shaped bounce back. And even once current production and employment have restarted, we will be dealing with the financial hangover for years to come. The argument over fiscal policy is rarely engaged in the heat of the moment. In a crisis, it is easy to agree to spend money. But that fight is coming. We are engaged in the largest-ever surge in public debt in peacetime. Right now we are parking that debt on the balance sheet of central banks. Those central banks can also hold the interest rate low, which means that the debt service will not be exorbitant. But that defers the question of what to do with them. To the conventional mind debt must be eventually repaid through surpluses History suggests, however, there are also more radical alternatives. One would be a burst of inflation, though how that would be engineered given prevailing economic conditions is not obvious. Another would be a debt jubilee, a polite name for a public default (which would not be as drastic as it sounds if it affects the debts held on the account of the central bank). Some have [suggested](https://voxeu.org/article/fight-covid-pandemic-policymakers-must-move-fast-and-break-taboos#.Xos1vsVFjSp.twitter) it would be simpler for the central banks to cut out the business of buying debt issued by the government and instead simply to credit governments with a gigantic cash balance. And on 9 April that is exactly what the Bank of England [announced](https://www.ft.com/content/664c575b-0f54-44e5-ab78-2fd30ef213cb) it would be doing. For all intents and purposes, this means the central bank is simply printing money. That this is even being considered, and under a conservative government, is a measure of how extreme the situation is. It is also symptomatic that, rather than howls of outrage and immediate panic selling, the Bank of England’s decision has so far produced little more than a shrug from financial markets. They are under few illusions about the acrobatics that all the central banks are performing. This resigned attitude is helpful from the point of view of crisis-fighting. But do not expect the calm to last. When the lid comes off, politics will resume and so will the arguments about “debt burdens” and “sustainability.” When the lid comes off, politics will resume and so will the arguments about “debt burdens” and “sustainability.” And given the scale of the liabilities that have already been accumulated, we should expect it to get ugly.

#### Transition is possible in a post-coronavirus world—there’s a sea change towards sustainability

Cohen, 20

(Maurie, PhD from the University of Pennsylvania, Professor of Sustainability Studies at the New Jersey Institute of Technology, Editor of Sustainability: Science, Practice, and Policy, Associate Editor of Environmental Innovation and Sustainability Transitions, and co-coordinator of the Future Earth Knowledge-Action Network on Systems of Sustainable Consumption and Production, “Does the COVID-19 outbreak mark the onset of a sustainable consumption transition?,” Sustainability: Science, Practice and Policy Vol 16 No 1 pg 1-3 NL)

For nearly 30 years, since the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, sustainability proponents have sought in various ways to foster a “sustainable consumption transition.” For instance, Chapter Four of Agenda 21 forthrightly observes that “[w]hile poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances” (United Nation 1992; see also Cohen 2001). During the following decades, numerous governments, multilateral organizations, scientific societies, and others developed carefully detailed plans outlining how to facilitate less resource intensive forms of consumption and to ensure prosperity without transgressing planetary boundaries (Royal Society of London and the United States National Academy of Sciences 1997; Nash 2009; Scholl et al. 2010). For instance, in 1998 the United Nations Development Program described the circumstances of the affluent nations as a “runaway consumption train” (UNDP 1998). Consistent with this characterization, the Nordic Council, the Organization for Economic Co-operation and Development, the European Commission, the Royal Society of London, and the United States National Academy of Sciences highlighted the challenges of designing more sustainable means of consumption and production. More recently, given the close correspondence between consumption practices and greenhouse-gas emissions, the Paris Climate Agreement appropriately recognized, “sustainable patterns of consumption and production … play an important role in addressing climate change” (United Nations 2015; refer also to Alfredsson et al. 2018). The issue of sustainable consumption has evolved on the international policy agenda since the Rio Conference through three loosely demarcated phases. First, the 1990s were largely marked by an emphasis on the promotion of cleaner and more efficient processes for manufacturing consumer goods and their intermediary inputs (Hertwich 2005). Second, during the early 2000s attention shifted to “greener” forms of household provisioning exemplified by strategies devoted to educating consumers, designing eco-labels on product packages, and “nudging” shoppers to make responsible choices (Matthias, Mont, and Heiskanen 2016; Sunstein 2015). Finally, in the years since the onset of the global financial crisis in 2008, we have witnessed growing appreciation of the need for systemic change of the social and institutional arrangements that perpetuate contemporary consumerist lifestyles—in short, to achieve absolute reductions in consumptive throughput (Cohen 2019; Foden et al. 2019; see also Akenji et al. 2016). Against this background, we are now struggling to anticipate the impacts of COVID-19. Major financial markets are gyrating and international supply chains are in turmoil, prompting managers to canvass about to find local sources of fabricated materials to maintain industrial production. Tourism is grinding to a halt as travelers cancel trips, airlines suspend flights, and hotels become increasingly vacant. Sporting events, concerts, theatrical performances, museum exhibitions, and other public showcases are being postponed. Growing numbers of companies are encouraging employees to take time off from work and contemplating the imposition of compelled furloughs. Economic forecasters are warning that gross domestic product for many countries will contract, perhaps very significantly, in coming months. While the present situation is being treated as an emergent economic crisis, it merits acknowledging that sustainability scientists and policy makers have implicitly been seeking to achieve over the past decade broadly similar objectives—albeit with greater political subtlety and awareness for adverse societal consequences—in the form of a sustainable consumption transition (see, e.g. O’Rourke and Lollo 2015; Valentine, Ruwet, and Bauler 2015; Røpke 2015; Welch and Southerton 2018).1 It merits recognizing that COVID-19 is simultaneously a public health emergency and a real-time experiment in downsizing the consumer economy. Social scientists have long recognized that disasters, especially when the scale of their tragic consequences emerges with modest but steady pace, have a tendency to catalyze processes of social change. For instance, the renowned Russian-American sociologist Pitirim Sorokin observed in 1942 that society “is never the same as the one that existed before the calamity. For good or ill, calamities are unquestionably the supreme disruptors and transformers of social organization and institutions” (Sorokin 1942). Although current circumstances pose unique challenges to foretelling the future, it is notable that medical authorities are now making comparisons to the Spanish flu of 1918 and 1919 that internationally resulted in the death of 50 million people (Chen et al. 2020; Lambert 2020). While it is extremely premature to suggest that the current public health emergency will reach this alarming level, political regimes in a number of the most severely affected countries are coming under profound strain due to intensifying anxiety about the coronavirus epidemic. With respect to supply chains, at least some of the stopgap measures being implemented to get through the next few weeks or months will become locked in on a longer-term basis. Consumers are stockpiling nonperishable food and other supplies and public authorities have not disclaimed the eventual need for rationing and other consumption controls. A practical outcome is that we are liable to see customarily face-to face activities move to virtual platforms as users become more acclimated with online interfaces for conducting business, delivering educational programing, and engaging in a widening range of social activities. Experience in China to date suggests that extended periods of quarantine create novel forms of consumer demand as people cope with the exigencies of isolation. The more protracted the threat of contagion proves to be, the further engrained and resistant to reversal these adaptive responses will become. As is frequently the case in the aftermath of disasters, we will quickly forget “how things used to be.” Nonetheless, as soon as circumstances allow, there will be vigorous promotional efforts encouraging us to revert to “normal.” We should expect a relentless stream of inducements from governments and companies encouraging consumers to get out of the house and back on the bandwagon. Central banks are already signaling a willingness to lower interest rates—already in negative territory in some countries—as far as necessary to make this happen. Many individuals are likely, at least initially, to respond positively to these appeals, but we should not be surprised in due course to discover that other predilections have supplanted once-familiar practices. While it may seem both fanciful and insolent, COVID-19 is an opportunity to reduce over the longer term the prevalence of lifestyles premised on large volumes of energy and material throughput. At the same time, imperatives for social distancing to lower the risk of community transmission will regrettably reinforce commitments to individualized rather than public and shared modes of consumption. Despite what appears to be an increasingly dire public health emergency, policy makers should work to ensure that the coronavirus outbreak contributes to a sustainable consumption transition. This would be one way to offset some of the unfortunate suffering and disruption caused by this event.

#### It’s succeeding now.

Spencer Bokat-Lindell 9-16. Bachelor of Arts in French at Yale University. Member of the Yale Journalism Initiative. Staff editor in the Opinion section for the New York Times. Past Senior Writer and Co-Editor at [Katie Couric Media](https://www.linkedin.com/company/katie-couric-media?trk=public_profile_experience-item_profile-section-card_subtitle-click) Previous editor at The Paris Review and Axios."Do We Need to Shrink the Economy to Stop Climate Change?" New York Times. 9-16-2021. <https://www.nytimes.com/2021/09/16/opinion/degrowth-cllimate-change.html>

Forgetting about growth

At the moment, degrowth has no mass constituency. But some of its animating ideas are nonetheless exerting an influence on political economic thought — particularly the critique of G.D.P. growth as the lodestar of human progress.

“Even within mainstream economics, the growth orthodoxy is being challenged, and not merely because of a heightened awareness of environmental perils,” John Cassidy wrote in The New Yorker last year. “After a century in which G.D.P. per person has gone up more than sixfold in the United States, a vigorous debate has arisen about the feasibility and wisdom of creating and consuming ever more stuff, year after year.”

What’s the alternative? Kate Raworth, an English economist, has identified one option: “doughnut economics.” In Raworth’s view, 21st-century economies should abandon growth for growth’s sake and make it their goal to reach the sweet spot — or the doughnut — between the “social foundation,” where everyone has what they need to live a good life, and the “environmental ceiling.”

“The doughnut model doesn’t proscribe all economic growth or development,” Ciara Nugent explains in Time. “But that economic growth needs to be viewed as a means to reach social goals within ecological limits, she says, and not as an indicator of success in itself, or a goal for rich countries.”

Raworth’s ideas have had real-world impact: Last year, during the first wave of the pandemic, Amsterdam’s city government announced it would aim to recover from the crisis by adopting the precepts of “doughnut economics.” A year before that, Prime Minister Jacinda Ardern of New Zealand announced her country would prioritize its residents’ welfare and happiness over G.D.P. growth.

Delighted to hear that Jacinda Ardern is reading Doughnut Economics and that it reinforces her existing views. There is another economy waiting and it's starting to be made...

Even in the United States, which has embraced no such policy, G.D.P. growth has slowed in the past two decades, largely because of falling birthrates and a switch in spending patterns from goods to services.

That hasn’t solved the problem of America’s addiction to fossil fuels, of course. “Yet the sorts of policies on offer from degrowth advocates — like universal basic services and shorter working hours — could help address some of the long-standing ills now afflicting a wide range of economies,” Kate Aronoff writes in The New Republic. “Rather than chasing an increasingly far-off goal by trying to coax forth elusive corporate investment with giveaways, governments could start planning for what a fairer lower growth, lower carbon future might look like.”

### 1NC---AT: Debris

#### Squo debris thumps

**Wall 21** [Mike Wall, Michael Wall is a Senior Space Writer with [Space.com](http://space.com/) and joined the team in 2010. He primarily covers exoplanets, spaceflight and military space. He has a Ph.D. in evolutionary biology from the University of Sydney, Australia, a bachelor's degree from the University of Arizona, and a graduate certificate in science writing from the University of California, Santa Cruz. 11/15/21, "Kessler Syndrome and the space debris problem," Space, [https://www.space.com/kessler-syndrome-space-debris accessed 12/10/21](https://www.space.com/kessler-syndrome-space-debris%20accessed%2012/10/21)] Adam

Earth orbit is getting more and more crowded as the years go by. Humanity has launched about 12,170 satellites since the dawn of the space age in 1957, [according to the European Space Agency](https://www.esa.int/Safety_Security/Space_Debris/Space_debris_by_the_numbers) (ESA), and 7,630 of them remain in orbit today — but only about 4,700 are still operational. That means there are nearly 3,000 defunct spacecraft zooming around Earth at tremendous speeds, along with other big, dangerous pieces of debris like upper-stage rocket bodies. For example, orbital velocity at 250 miles (400 kilometers) up, the altitude at which the ISS flies, is about 17,100 mph (27,500 kph). At such speeds, even a tiny shard of debris can do serious damage to a spacecraft — and there are huge numbers of such fragmentary bullets zipping around our planet. ESA estimates that Earth orbit harbors at least 36,500 debris objects that are more than 4 inches (10 centimeters) wide, 1 million between 0.4 inches and 4 inches (1 to 10 cm) across, and a staggering 330 million that are smaller than 0.4 inches (1 cm) but bigger than 0.04 inches (1 millimeter). These objects pose more than just a hypothetical threat. From 1999 to May 2021, for example, the ISS conducted 29 debris-avoiding maneuvers, including three in 2020 alone, [according to NASA officials](https://www.nasa.gov/mission_pages/station/news/orbital_debris.html). And that number continues to grow; the station performed [another such move in November 2021](https://www.space.com/space-station-dodging-chinese-space-junk-spacex-crew-3), for example. Many of the smaller pieces of space junk were spawned by the explosion of spent rocket bodies in orbit, but others were more actively emplaced. In January 2007, for instance, China intentionally destroyed one of its defunct weather satellites in a much-criticized test of anti-satellite technology that generated [more than 3,000 tracked debris objects](https://swfound.org/media/9550/chinese_asat_fact_sheet_updated_2012.pdf) and perhaps 32,000 others too small to be detected. The vast majority of that junk remains in orbit today, experts say. Spacecraft have also collided with each other on orbit. The most famous such incident occurred in February 2009, when Russia's defunct Kosmos 2251 satellite slammed into the operational communications craft Iridium 33, producing [nearly 2,000 pieces of debris](https://swfound.org/media/6575/swf_iridium_cosmos_collision_fact_sheet_updated_2012.pdf) bigger than a softball. That 2009 smashup might be evidence that the Kessler Syndrome is already upon us, though a cataclysm of "Gravity" proportions is still a long way off. "The cascade process can be more accurately thought of as continuous and as already started, where each collision or explosion in orbit slowly results in an increase in the frequency of future collisions," [Kessler told Space Safety Magazine in 2012](http://www.spacesafetymagazine.com/space-debris/kessler-syndrome/don-kessler-envisat-kessler-syndrome/).

#### Debris creates deterrence by raising the bar for conflict – international norms fail

Miller 7/31 [(Gregory, Chair of the Department of Space Power at the Air Command and Staff College, Ph.D. in Political Science from The Ohio State University) “Deterrence by Debris: The Downside to Cleaning up Space,” Space Policy, 7/31/2021] JL

The danger of kinetic strikes increasing orbital debris is a common theme in the literature, but the positive deterrent effects of some debris are often overlooked. The debris resulting from destroyed satellites, or other space objects, creates a deterrent effect on actors who might otherwise violate international norms and strike at objects in space, either to test their capabilities or as an act of hostilities. This is not deterrence in the traditional sense, of one actor publicly threatening punishment in response to another actor’s unwanted actions. It is not deterrence by denial since the attacker is not damaged and may even achieve its objective. Nor is it deterrence by punishment because the debris itself does not threaten to punish the attacker’s country. But debris can increase the future costs to the aggressor, even if their initial attack succeeds, and thus it has a similar restraining effect on certain behavior. Like the automated response of the U.S. tripwire in West Germany, the threat that debris can pose to state interests acts as a form of deterrence, at least to prevent some actors from taking certain types of actions. Removing the danger of debris will weaken that restraint and thus weaken deterrence, making ASAT tests and hostile actions in space more likely.

Several factors may deter a state from launching kinetic tests or striking against an adversary’s interests in space. For one thing, if a state’s adversary has similar capabilities to destroy objects in space, deterrence would be a function of not wanting to escalate tensions. Although international law only explicitly prohibits states from placing weapons of mass destruction in orbit, international space law, like the Outer Space Treaty [30], does provide a framework for addressing the activities of one state that lead to the damage of another state’s property. Likewise, there are international norms (informal but expected rules of behavior) against the weaponization of space. But these norms seem to be in decline [31], and such norms only deter a state from engaging in certain types of behavior if the state cares about following norms, if it cares about how states perceive its behavior, or if it believes other states are willing to enforce the norms. The beauty of debris as a deterrent is that it does not rely on the enforcement of norms or the credibility of states to succeed.

### 1NC---AT: Sino India War

#### This ev doesn’t mention a full-on war once – just mentions that it would have general border skirmishes but no reason that goes nuclear – china has banned western media all the time without that causing a full on nuclear war

#### No Sino India War.

Zhou '21. (Laura Zhou covers China's diplomatic relations and has reported on topics such as Sino-US relations, China-India disputes, and reactions to the North Korea nuclear crisis, as well as other general news, 11-19-2021, "‘Frank and in-depth’: China and India exchange views on border situation," South China Morning Post, <https://www.scmp.com/news/china/diplomacy/article/3156610/china-and-india-agree-keep-working-resolving-border-dispute>) Ngong

China and India have agreed to come up with more measures to contain tensions on their disputed border after the failure of the last military talks on disengagement.

During a virtual meeting of the Working Mechanism for Consultation and Coordination on Sino-Indian Border Affairs, senior officials from the two neighbours also agreed to continue communication through diplomatic and military channels for another round of commander-level talks aimed at agreeing a full disengagement, the Chinese foreign ministry said.

The two sides would “continue their efforts to promote further de-escalation of the border situation and strive to move from emergency management to regular control as soon as possible”, its statement said.

The two sides had “a frank and in-depth exchange of views” on the latest situation along the border and agreed to follow strictly a previous consensus reached between the two militaries to “avoid any recurrence of the situation on the ground”.

India’s external affairs ministry said the two sides agreed on the need to find a resolution to their stand-off as soon as possible while fully abiding by bilateral agreements and protocols to restore peace.

“The two sides also agreed that both sides should in the interim continue to ensure a stable ground situation and avoid any untoward incidents,” it said.

The working mechanism meeting, the 23rd of its kind, was held between foreign ministry and defence officials from the two countries.