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Interpretation – the aff may not defend that the appropriation of outer space by a certain set of private entities is unjust.

Entities is a generic bare plural

Nebel 20 [Jake Nebel is an assistant professor of philosophy at the University of Southern California and executive director of Victory Briefs. He writes a lot of this stuff lol – duh.] “Indefinite Singular Generics in Debate” Victory Briefs, 19 August 2020. no url AG

I agree that if “a democracy” in the resolution just meant “one or more democracy,” then a country-specific affirmative could be topical. But, as I will explain in this topic analysis, that isn’t what “a democracy” means in the resolution. To see why, we first need to back up a bit and review (or learn) the idea of generic generalizations.

The most common way of expressing a generic in English is through a *bare plural*. A bare plural is a plural noun phrase, like “dogs” and “cats,” that lacks an overt determiner. (A determiner is a word that tells us which or how many; determiners include quantifier words like “all,” “some,” and “most,” demonstratives like “this” and “those,” possessives like “mine” and “its,” and so on.) LD resolutions often contain bare plurals, and that is the most common clue to their genericity.

We have already seen some examples of generics that are not bare plurals: “A whale is a mammal,” “A beaver builds dams,” and “The woolly mammoth is extinct.” The first two examples use indefinite singulars—singular nouns preceded by the indefinite article “a”—and the third is a definite singular since it is preceded by the definite article “the.” Generics can also be expressed with bare singulars (“Syrup is viscous”) and even verbs (as we’ll see later on). The resolution’s “a democracy” is an indefinite singular, and so it very well might be—and, as we’ll soon see, is—generic.

But it is also important to keep in mind that, just as not all generics are bare plurals, not all bare plurals are generic. “Dogs are barking” is true as long as some dogs are barking. Bare plurals can be used in particular ways to express existential statements. The key question for any given debate resolution that contains a bare plural is whether that occurrence of the bare plural is generic or existential.

The same is true of indefinite singulars. As debaters will be quick to point out, some uses of the indefinite singular really do mean “some” or “one or more”: “A cat is on the mat” is clearly not a generic generalization about cats; it’s true as long as some cat is on the mat. The question is whether the indefinite singular “a democracy” is existential or generic in the resolution.

Now, my own view is that, if we understand the difference between existential and generic statements, and if we approach the question impartially, without any investment in one side of the debate, we can almost always just tell which reading is correct just by thinking about it.

It is clear that “In a democracy, voting ought to be compulsory” doesn’t mean “There is one or more democracy in which voting ought to be compulsory.” I don’t think a fancy argument should be required to show this any

more than a fancy argument should be required to show that “A duck doesn’t lay eggs” is a generic—a false one because ducks do lay eggs, even though some ducks (namely males) don’t. And if a debater contests this by insisting that “a democracy” is existential, the judge should be willing to resolve competing claims by, well, judging—that is, by using her judgment. Contesting a claim by insisting on its negation or demanding justification doesn’t put any obligation on the judge to be neutral about it. (Otherwise the negative could make every debate irresolvable by just insisting on the negation of every statement in the affirmative speeches.) Even if the insistence is backed by some sort of argument, we can reasonably reject an argument if we know its conclusion to be false, even if we are not in a position to know exactly where the argument goes wrong. Particularly in matters of logic and language, speakers have more direct knowledge of particular cases (e.g., that some specific inference is invalid or some specific sentence is infelicitous) than of the underlying explanations.

But that is just my view, and not every judge agrees with me, so it will be helpful to consider some arguments for the conclusion that we already know to be true: that, even if the United States is a democracy and ought to have compulsory voting, that doesn’t suffice to show that, in a democracy, voting ought to be compulsory—in other words, that “a democracy” in the resolution is generic, not existential.

Second, existential uses of the indefinite, such as “A cat is on the mat,” are upward-entailing.³ This means that if you replace the noun with a more general one, such as “An animal is on the mat,” the sentence will still be true. So let’s do that with “a democracy.” Does the resolution entail “In a society, voting ought to be compulsory”? Intuitively no, because you could think that voting ought to be compulsory in democracies but not in other sorts of societies. This suggests that “a democracy” in the resolution is not existential.

It applies to this topic – a] entities is an existential bare plural bc it has no determiner
Upward entailment test – spec fails the upward entailment test because saying that
one company's appropriation is bad does not entail that all companies' appropriation
is bad

Violation – they spec

Standards

1] Limits – they can spec infinite different entities like spaceX, etc.. - that's
supercharged by the ability to spec combinations of types of entities. This takes out
functional limits – it's impossible for me to research or predict every possible
combination of entities, governments, and appropriation.

2] Precision –any deviation justifies the aff arbitrarily jettisoning words in the
resolution at their whim which decks negative ground and preparation because the aff
is no longer bounded by the resolution.

****if time** Semantics first- anything else lets the aff arbitrarily jettison words at will -
its the internal link to fairness and edu**

Nebel 15 - (Jake [Marshall Scholar of Philosophy, Princeton University] "The Priority of Resolutional Semantics"
<http://vbriefly.com/2015/02/20/the-priority-of-resolutional-semantics-by-jake-nebel/>) GHS//GB

One reason why LDers may be suspicious of my view is because they see topicality as just another theory argument. But unlike other theory arguments, topicality involves two "interpretations." The first is an interpretation, in the ordinary sense of the word, of the resolution or of some part of it. The second is a rule—namely, that the affirmative must defend the resolution.² If we don't distinguish between these two interpretations, then the negative's view is merely that the affirmative must defend whatever proposition they think should be debated, not because it is the proposition expressed by the resolution, but rather because it would be good to debate. This failure to see what is distinctive about topicality leads quickly to the pragmatic approach, by ignoring what the interpretation is supposed to be an interpretation of. By contrast, the topicality rule—i.e., that the affirmative must defend the resolution—justifies the semantic approach. This rule is justified by appeals to fairness and education: it would be unfair to expect the negative to prepare against anything other than the resolution, because that is the only mutually acceptable basis for preparation; the educational benefits that are unique to debate stem from clash focused on a proposition determined beforehand. The inference to the priority of semantic considerations is simple. Consider the following argument: We ought to debate the resolution. The resolution means X. Therefore, We ought to debate X. The first premise is just the topicality rule. The second premise is that X is the semantically correct interpretation. Pragmatic considerations for or against X do not, in themselves, support or deny this second premise. They might show that it would be better or worse if the resolution meant X, but sentences do not in general mean what it would be best for them to mean. At best, pragmatic considerations may show that we should debate some proposition other than the resolution. They are (if anything) reasons to change the topic, contrary to the topicality rule. Pragmatic considerations must, therefore, be weighed against the justifications for the topicality rule, not against the semantic considerations: they are objections to the first premise, not the second premise, in the argument above.

3] TVA solves – just read your aff as an advantage to a whole rez aff – we don't stop
them from reading new FWs, mechanisms or advantages. PICs aren't aff offense – a]
it's ridiculous to say that neg potential abuse justifies the aff being non-T b] There's

only a small number of pics on this topic c] PICs incentivize them to write better affs that can generate solvency deficits to PICs

Voters:

Drop the debater to preserve fairness and education – use competing interps –reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation

Use competing interps –reasonability invites arbitrary judge intervention and a race to the bottom of questionable argumentation

Topicality is a voting issue because topicality indicts the aff's entire advocacy.

Fairness - you have an obligation to affirm the resolution given to you, not your interpretation of it which excludes negs.

Education - Only debating the topic gets the best topic edu

Drop the debater to preserve fairness and education – key to punishment and norm setting

No RVIs— a] it's their burden to be topical b] illogical c] chills t d] encourages baiting

2

CP

Text: The United Nations Committee on the Peaceful Uses of Outer Space should collaborate with private entities to apply federal restrictions on anti-competitive business practices to private companies and establish and implement Long-Term Sustainability guidelines, fully endorsing the appropriation of space by those entities that conforms with the agreed upon standards.

Only international, multilateral efforts can effectively incorporate the private sector to ensure space sustainability – non-uniform unilateral policies fail

Martinez 20 – Peter, Executive Director of the Secure World Foundation & 2011 - 2018 chair of UN COPUOS Working Group on the Long-Term Sustainability of Outer Space Activities, “UN COPUOS Guidelines for the Long-Term Sustainability of Outer Space Activities: Early implementation experiences and next steps in COPUOS,” 71st International Astronautical Congress (IAC) – The CyberSpace Edition, 12-14 October 2020

**LTS = Long-Term Sustainability

3. LTS 2.0 – Next Steps in COPUOS

While the 21 consensus LTS Guidelines represent a significant step forward to promote space sustainability, COPUOS Member States agree that the work of COPUOS on this issue is far from over. Building on the lessons learnt from the LTS discussions, the Committee has initiated a new phase of the LTS discussions in COPUOS – LTS 2.0.

At its 62nd session in June 2019, the Committee noted that it should continue to serve as the principal forum for continued institutionalized dialogue on issues related to the implementation and review of the guidelines. The Committee also decided to establish, under a five-year workplan, a working group under the Scientific and Technical Subcommittee to continue the LTS discussions in COPUOS. The Committee decided that this new working group would be guided by the following framework:

- a) Identifying and studying challenges and considering possible new guidelines for the long-term sustainability of outer space activities. This work could also take into consideration draft guidelines that were discussed, but for which consensus could not be reached during the term of the first LTS Working Group.[11]
- b) Sharing experiences, practices and lessons learned from voluntary national implementation of the 21 already adopted guidelines.
- c) Raising awareness and building capacity, in particular among emerging space nations and developing countries, to implement the guidelines.

In taking these discussions forward, COPUOS will have to deal with the challenge of preserving the consensus decision-making rule in a committee that is steadily increasing in size. When the Committee began its work on LTS in 2010 there were 70 member States. As of September 2020, COPUOS has 95 member States. As the Committee membership increases, so too does the diversity of space capabilities, views and priorities represented by the member States. These trends will make it ever more challenging to reach consensus in the Committee. As COPUOS takes this work forward, it will have to explore new methods of work, including ways of incorporating input from non-governmental organizations and the private sector.

Lastly, COPUOS will also need to discuss the ways by which the already agreed guidelines may be revised and updated in future, and also a process by which new topics for guidelines could be proposed for consideration by States. This is in keeping with the view of a number of member States that these guidelines should become a “living document” that is updated from time to time. Indeed, one may identify topics not included among the already agreed guidelines or the remaining unagreed draft guidelines, which could be addressed by COPUOS under the general context of LTS in future. Perhaps issues arising from on-orbit servicing or the placement and operation of large-scale constellations in Earth orbit could be the subjects of such future discussions and one or more possible draft guidelines. In this regard, industry initiatives such as CONFERS and the Space Safety Coalition discussed earlier may help to identify elements of future international standards and guidelines.

4. Conclusion

The adoption of the LTS Guidelines by COPUOS in 2019 was an important step forward for the international community in the sense that there is now a much wider appreciation among UN member States of the urgency of addressing this issue. To be sure, the LTS Guidelines hardly represent the cutting-edge of what it is technically possible to do in terms of promoting space sustainability. However, the importance of the guidelines is that they codify, for the first time, an internationally accepted set of best practices for space sustainability. These practices have been agreed by 92 States, which includes all spacefaring countries and the vast majority of other countries that rely on space. This is significant because space sustainability is essentially a global challenge that can only be addressed successfully if all countries act collectively. The challenges of space sustainability are inherently multilateral challenges that are most effectively addressed through multilateral space diplomacy in the forum of COPUOS, where the international community has the opportunity to work together to find ways to expand access to the benefits of space activities to more nations, but also to ensure that the space environment is preserved and protected for use by future generations.

Multilateralism creates uniform standards, establishes models of best behavior, and prevents conflict escalation

Marchisio 19 - Professor of International and Space Law at Sapienza University of Rome, Chairman of the European Centre for Space Law at the European Space Agency in Paris, and Member of the Advisory Council of the European Space Policy Institute in Vienna

Sergio, "The final frontier: Prospects for arms control in outer space," European Leadership Network Global Security Policy Brief, July 2019,
<https://www.europeanleadershipnetwork.org/wp-content/uploads/2019/07/10072019-Sergio-Marchisio-Arms-control-in-outer-space.pdf>

More than ever, a set of international norms addressing the security of outer space activities is needed. While the adoption of legally binding norms revising or complementing the existing international legal regime would be difficult and time consuming, a non-legally binding instrument on basic principles and voluntary TCBMs has the potential to be a near-term outcome and important means to encouraging trust and confidence among space actors. That is to say, a positive first-step toward more engaging commitments for arms control in outer space.

It is imperative to create a platform for exchanging views on the establishment of general principles of responsible behaviour, transparency and confidence building measures and make workable recommendations. These should address challenges associated with the dual-use applications, civil and military, of outer space objects and capabilities, but should avoid hindering access to such technologies for peaceful purposes. In this regard, regional organisations have an important role to play. The implementation of the already adopted, and practically oriented, recommendations of the 2013 Group of Governmental Experts (GGE) report on TCBMs should be ensured. These should be integrated, as needed, as a consequence of evolution in space operations. It remains necessary to continue developing and promoting a range of norms of behaviour not only to minimise orbital debris, but also to promote coordination of space operations, and to enable greater space situational awareness data sharing through international co-operation.

Codes of conduct are normative instruments used in the diplomatic practice in a variety of fields: they have characteristics making them different from other categories of soft law. They embody political commitments that endorse basic principles of responsible behaviours in outer space and are open for further integration at a more technical level through best practices, standards and guidelines. It is legitimate to express compelling views, both for and against, a nonlegally binding instrument having the peculiar features of a code of conduct. There is a value in agreeing such an instrument, potentially negotiated within the framework of the UN, which could compliment on-going initiatives in UN mandated bodies and take care not to duplicate efforts. This would allow for the delivery of key principles, such as common interest in progress of exploration and use of outer space for peaceful purposes, or the commitment to refrain from any action that brings about damage or destruction of space objects, creating long-lasting space debris, amongst others.

Crucially, there is a need to foster increased international cooperation in order to establish a set of politically backed principles and measures that prevent outer space from becoming an arena of conflict. This requires a renewed European engagement at the multilateral level, learning lessons from past experiences. There are two parallel paths for the EU to pursue, one to support the continuous discussion of guidelines, space norms, and regulations at the United Nations within the context of the COPUOS, and another to promote an autonomous initiative aimed at setting out a multilateral framework that could function as a platform for broader, global, agreements.

3

Goldstein 21

<https://washingtonmonthly.com/2021/11/07/why-are-we-letting-monopolists-corner-space/>

In effect, the FCC has given SpaceX a monopoly over the most premium real estate for satellite service and locked out competitors. Constellations 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 change, 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-twenty-first-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 Berdegue. 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 Niño 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 São 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, it will release vast quantities of CO2 from its peat swamps and degraded 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 East/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 Off-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 catastrophic 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 combine with rapid population growth to ratchet up the tensions that lead competing groups to fight, whether the superficial distinctions 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 Population 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 replacement 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 urbanisation, 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.

⁷¹ Eleven of these countries were in Africa and accounted for 37 million acutely food insecure people; the largest numbers were in northern Nigeria, Democratic Republic of Congo, Somalia and South Sudan the agency said in its Global Report on Food Crises 2018. ⁷² 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. **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'**

⁷³ Megan Cole and colleagues found. 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 environmental destruction: 'Peace-building can potentially be a win for nature as well, and... conservation organizations and governments 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**

⁷⁵ 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. ⁷⁶ The second decade of the

usly available.

Case

1NC - AR Theory

No 1AR theory

A] 4-6-3 skew means they get more time to respond and they get to make new responses and extensions in the 2ar which kills fairness

B] Incentivizes baiting since they can read 10 shells then collapse to the one i undercover in the 2n and frontline it for 3 straight minutes

C] Cross can resolve theory concerns

D] Incentivizes reading theory for an easy win instead of focus on substantive engagement

Yes RVI - key to checking against friv theory i need a ballot implication ensures reciprocity

THEY CANT ACCESS THEIR CHINA/RUSSIA IMPACT CARDS, THEY ARE COMPETING HEGEMONS AND IT PROVES NORMING FAILS

Russia, scs, uighurs prove the us is a weakling

No space war—interdependence checks AND commercial entanglement reduces the risk.

Bowen 18 [Bleddyn Bowen, Lecturer in International Relations at the University of Leicester. The Art of Space Deterrence. February 20, 2018.

<https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/>]

Fourth, the **ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence.** As **space is so useful to modern economies and military forces,** a large-scale **disruption of space infrastructure may be so intuitively escalatory** to decision-makers **that there may be a natural caution against a wholesale assault on a state's entire space** No space war – it's hype and systems are redundant

No space war – it's hype and systems are redundant

Johnson-Freese and Hitchens 16 [Dr. Joan Johnson-Freese is a member of the Breaking Defense Board of Contributors, a Professor of National Security Affairs at the Naval War College and author of Space Warfare in the 21st Century: Arming the Heavens. Views expressed are those of the author alone.

Theresa Hitchens is a Senior Research Scholar at the Center for International and Security Studies at Maryland (CISSM), and the former Director of the United Nations Institute for Disarmament Research (UNIDIR) in Geneva, Switzerland. Stop The Fearmongering Over War In Space: The Sky's Not Falling, Part

1. December 27, 2016.

<https://breakingdefense.com/2016/12/stop-the-fearmongering-over-war-in-space-the-skys-not-falling-part-1/>]

In the last two years, we've seen rising hysteria over a future war in space. Fanning the flames are not only dire assessments from the US military, but also breathless coverage from a cooperative and credulous press. This reporting doesn't only muddy public debate over whether we really need expensive systems. It could also become a self-fulfilling prophecy. The irony is that nothing makes the currently slim possibility of war in space more likely than fearmongering over the threat of war in space.

Two television programs in the past two years show how egregious this fearmongering can get. In April 2015, the CBS show 60 Minutes ran a segment called "The Battle Above." In an interview with General John Hyten, the then-chief of U.S. Air Force Space Command, it came across loud and clear that the United States was being forced to prepare for a battle in space — specifically against China — that it really didn't want.

It was explained by Hyten and other guests that China is building a considerable amount of hardware and accumulating significant know-how regarding space, all threatening to space assets Americans depend on every day. If viewers weren't frightened after watching the segment, it wasn't for lack of trying on the part of CBS.

Using terms like "offensive counterspace" as a 1984 NewSpeak euphemism for "weapons," it was made clear that the United States had no choice but to spend billions of dollars on offensive counterspace technology to not just thwart the Chinese threat, but control and dominate space. While it didn't actually distort facts — just omit facts about current U.S. space capabilities — the segment was basically a cost-free commercial for the military-industrial complex.

In retrospect though, "The Battle Above" was pretty good compared to CNN's recent special, War in Space: The Next Battlefield. The latter might as well have been called Sharknado in Space — because the only far-out weapons technology our potential adversaries don't have, according to the broadcast, seems to be "sharks with frickin' laser beams attached to their heads!"

First, CNN needs to hire some fact checkers. Saying "unlike its adversaries, the U.S. has not yet weaponized space" is deeply misleading, like saying "unlike his political opponents, President-Elect Donald Trump has not sprouted wings and flown away": A few (admittedly alarming) weapons tests aside, no country in the world has yet weaponized space. Contrary to CNN, stock market transactions are not timed nor synchronized through GPS, but a closed system. Cruise missiles can find their targets even without GPS, because they have both GPS and precision inertial measurement units onboard, and IMUs don't rely on satellite data. Oh, and the British rock group Pink Floyd holds the only claim to the Dark Side of the Moon: There is a "far side" of the Moon — the side always turned away from the Earth — but not a "dark side" — which would be a side always turned away from the Sun.

More nefariously, the segment sensationalized nuggets of truth within a barrage of half-truths, backed by a heavy bass, dramatic soundtrack (and gravelly-voiced reporter Jim Sciutto) and accompanied by sexy and scary visuals.

Make no mistake there are dangers in space, and the United States has the most to lose if space assets are lost. The question is how best to protect them. Here are a few facts CNN omitted.

The Reality

The U.S. has all of the technologies described on the CNN segment and deemed potentially offensive: maneuverable satellites, nano-satellites, lasers, jamming capabilities, robotic arms, ballistic missiles that can be used as anti-satellite weapons, etc. In fact, the United States is more technologically advanced than other countries in both military and commercial space.

That technological superiority scares other countries; just as the U.S. military space community is scared of other countries obtaining those technologies in the future. The U.S. military space budget is more than 10 times greater than that of all the countries in the world combined. That also causes other countries concern.

More unsettling still, the United States has long been leery of treaty-based efforts to constrain a potential arms race in outer space, as supported by nearly every other country in the world for decades. Indeed, under the administration of George W. Bush, the U.S. talking points centered on the mantra "there is no arms race in outer space," so there is no need for diplomat instruments to constrain one. Now, a decade later, the U.S. military — backed by the Intelligence Community which operates the nation's spy satellites — seems to be shouting to the rooftops that the United States is in danger of losing the space arms race already begun by its potential adversaries. The underlying assumption — a convenient one for advocates of more military spending — is that now there is nothing that diplomacy can do.

However, it must be remembered that most space-related technologies – with the exception of ballistic missiles and dedicated jammers – have both military and civil/commercial uses; both benign — indeed, helpful — and nefarious uses. For example, giving satellites the ability to maneuver on orbit can allow useful inspections of ailing satellites and possibly even repairs.

Further, the United States is not unable to protect its satellites, as repeated during the CNN broadcast by various interviewees and the host. Many U.S. government-owned satellites, including precious spy satellites, have capabilities to maneuver. Many are hardened against electro-magnetic pulse, sport “shutters” to protect optical “eyes” from solar flares and lasers, and use radio frequency hopping to resist jamming.

Offensive weapons, deployed on the ground to attack satellites, or in space, are not a silver bullet. To the contrary, U.S. deployment of such weapons may actually be detrimental to U.S. and international security in space (as we argued in a recent Atlantic Council publication, Towards a New National Security Space Strategy). Further, there are benefits to efforts started by the Obama Administration to find diplomatic tools to restrain and constrain dangerous military activities in space.

These diplomatic efforts, however, would be undercut by a full-out U.S. pursuit of “space dominance.” This includes dialogue with China, the lack of which Gen. William Shelton, retired commander of Air Force Space Command, lamented in the CNN report.

Given CNN’s “cast,” the spin was not surprising. Starting with Ghost Fleet author Peter Singer set the sensationalist tone, which never altered. The apocalyptic opening, inspired by Ghost Fleet, posited a scenario where all U.S. satellites are taken off-line in nearly one fell swoop. Unless we are talking about an alien invasion, that scenario is nigh on impossible. No potential adversary has such capabilities, nor will they ever likely do so. There is just too much redundancy in the system.

Heg is unsustainable---retrenchment is gradual now, but recommitting makes it violent and forced.

Kupchan 20, professor of international affairs at Georgetown University and senior fellow at the Council on Foreign Relations. (Charles A., 10-21-2020, "America’s Pullback Must Continue No Matter Who Is President", *Foreign Policy*, <https://foreignpolicy.com/2020/10/21/election-2020-smart-retrenchment/>)

As the Trump era potentially comes to an end, many foreign-policy voices in the United States and abroad relish the prospect of the country’s roaring return to the global stage. But attempting a full-on comeback would be a mistake. If anything, the strategic pullback that President Donald Trump has initiated needs to continue—albeit in a more coherent and judicious manner.

Much of the debate surrounding the next administration’s foreign policy has focused on boldly reasserting U.S. leadership in the world. And it’s true: Global interdependence and upheaval do require steady U.S. leadership and engagement. What’s been largely missing from this debate, however, are the challenges facing the next president when it comes to right-sizing U.S. engagement abroad—especially military involvement—and bringing the nation’s strategic commitments back into line with it means and purposes.

The American electorate has turned sharply inward in response to military overreach in the Middle East, the economic dislocations brought about by innovation and globalization, and the national calamity caused by COVID-19. The nation’s next president would be wise to take note—and craft a brand of global statecraft that is effective but also politically sustainable. Otherwise, the strategic pullback that needs to take place will occur by default rather than by design, risking that U.S. overreach could turn into even more dangerous underreach. Indeed, that’s what’s been happening during Trump’s presidency. He seems to have understood the need to retrench. But his troop withdrawals from Afghanistan, Iraq, Syria, and Germany have been haphazard, making a hash of the

effort. Retrenchment cannot be done by tweet, in unpredictable fits and starts, and couched in an abrasive “America first” unilateralism that has alienated allies and set the world on edge.

Democratic candidate Joe **Biden** is far better suited to **restore an equilibrium** between the nation’s **foreign policy** and its **political will**. Throughout his career, **he has been a pragmatic and prudent internationalist**; looking forward, **pragmatism and prudence will require a more selective and discriminating internationalism, not restoration of the status quo** ante. Three-quarters of the American public want U.S. troops to leave Afghanistan and Iraq—**it is time to downsize the U.S. footprint in the Middle East**. U.S. foreign policy has become **over-militarized**—the next administration should **reallocate priorities and resources**, putting more emphasis on **diplomacy**, cybersecurity, global public health, and climate change. Washington should also return to being a team player if it is to lighten its load; **retrenchment and multilateral engagement go hand in hand**. Meeting the threat posed by **China**, managing international **trade** and finance, **preventing nuclear proliferation**, **addressing pandemics**—these and other urgent challenges **all require broad international cooperation**. And **as the United States pulls back** from its role as global policeman, **it will want like-minded partners to help fill the gap**. These partnerships become stronger through diplomacy and teamwork.

The **top priorities** of the next president will be **at home: taming the pandemic, repairing the economy**, and **reviving democratic institutions** and norms. Only if the country’s democratic lights come back on can it effectively deal with the rest of the world. In the meantime, **the next administration needs to continue Trump’s effort to downsize the nation’s foreign entanglements**—but **in a smart and measured way**. The United States needs to step back without stepping away. “Build back better” applies abroad just as much as it does at home.

No Taiwan invasion – geography, and no heg solves because it removes the US from the war which keeps it conventional

Michael A. Cohen, MA, 21 [Fellow @ The Century Foundation, Adjunct Lecturer in School of International and Public Affairs @ Columbia], “No, Neocons, China Is Not About to Invade Taiwan,” New Republic, 11-19-2021 <https://newrepublic.com/article/164485/why-china-will-not-invade-taiwan> C.VC

Earlier this month, the Defense Department released its annual report to Congress on “Military and Security Developments Involving the People’s Republic of China.” **While the report lays out the ways in which China’s “People’s Liberation Army” is seeking to modernize its forces, the threat to Taiwan of armed invasion is still minimal at best:**

Large-scale amphibious invasion is one of the most complicated and difficult military operations, requiring air and maritime superiority, the rapid buildup and sustainment of supplies onshore, and uninterrupted support. An attempt to invade Taiwan would likely strain PRC’s armed forces and invite international intervention. These stresses, combined with the PRC’s combat force attrition and the **complexity of urban warfare and counterinsurgency, even assuming a successful landing and breakout, make an amphibious invasion of Taiwan a significant political and military risk.**

One might expect that a country intent on launching the largest and most difficult amphibious invasion in history would be making intense preparations. That’s not happening.

As the Pentagon report notes, **Chinese naval investments have focused on building up the capacity to launch “regional and eventually global expeditionary missions rather than** the large number of landing ship transports and medium landing craft that would be necessary for **a large-scale direct beach assault.**” The Pentagon also finds that while China is focusing on conducting joint operations that involve forces from the army, navy, and air force, as of present it currently lacks such capabilities.

That the Chinese military enjoys vast military superiority vis-à-vis Taiwan is not in doubt. But that such resources can be used to mount an amphibious assault is something else altogether. The Chinese military last fought a war in 1979 against Vietnam, and the PLA was badly bloodied. That means that the soldiers and officers who make up China's military today have virtually no direct combat experience.

China's own media outlets have, according to the Pentagon, noted the PLA's shortcomings, which include that "commanders cannot (1) judge situations; (2) understand higher authorities' intentions; (3) make operational decisions; (4) deploy forces; and, (5) manage unexpected situations." These problems would be challenging enough in a conventional conflict. For a complex invasion of Taiwan, they would render such efforts virtually impossible.

One big reason is that Taiwan is about as inhospitable an environment as can be imagined for an amphibious invasion. Ian Easton, a defense expert who has written extensively about Taiwan defense strategy, wrote earlier this year that the country's "coastal terrain ... is a defender's dream come true. Taiwan has only 14 small invasion beaches, and they are bordered by cliffs and urban jungles." Easton also notes that "many of Taiwan's outer islands bristle with missiles, rockets, and artillery guns. Their granite hills have been honeycombed with tunnels and bunker systems."

Nuclear war now spurs political will for disarmament without causing extinction.

Deudney 18 [Associate Professor of Political Science at Johns Hopkins University. 03/15/2018. "The Great Debate." The Oxford Handbook of International Security. www.oxfordhandbooks.com, doi:10.1093/oxfordhb/9780198777854.013.22] Recut Justin

Although nuclear war is the oldest of these technogenic threats to civilization and human survival, and although important steps to restraint, particularly at the end of the Cold War, have been achieved, the nuclear world is increasingly changing in major ways, and in almost entirely dangerous directions. The third "bombs away" phase of the great debate on the nuclear-political question is more consequentially divided than in the first two phases. Even more ominously, most of the momentum lies with the forces that are pulling states toward nuclear-use, and with the radical actors bent on inflicting catastrophic damage on the leading states in the international system, particularly the United States. In contrast, the arms control project, although intellectually vibrant, is largely in retreat on the world political stage. The arms control settlement of the Cold War is unraveling, and the world public is more divided and distracted than ever. With the recent election of President Donald Trump, the United States, which has played such a dominant role in nuclear politics since its scientists invented these fiendish engines, now has an impulsive and uninformed leader, boding ill for nuclear restraint and effective crisis management. Given current trends, it is prudent to assume that sooner or later, and probably sooner, nuclear weapons will again be the used in war. But this bad news may contain a "silver lining" of good news. Unlike a general nuclear war that might have occurred during the Cold War, such a nuclear event now would probably not mark the end of civilization (or of humanity). due to the great reductions in nuclear forces achieved at the end of the Cold War. Furthermore, politics on "the day after" could have immense potential for positive change. The survivors would not be likely to envy the dead, but would surely have a greatly renewed resolution for "never again." Such an event, completely unpredictable in its particulars, would unambiguously put the nuclear-political question back at the top of the world political agenda. It would unmistakably remind leading states of their vulnerability It might also trigger more robust efforts to achieve the global regulation of nuclear capability. Like the bombings of

Hiroshima and Nagasaki that did so much to catalyze the elevated concern for nuclear security in the early Cold War, and like the experience “at the brink” in the Cuban Missile Crisis of 1962, the now bubbling nuclear caldron holds the possibility of inaugurating a major period of institutional innovation and adjustment toward a fully “bombs away” future.