# 1NC TFA Doubles

### 1NC – T

#### Interpretation: The affirmative may not specify a condition in which a free press ought to prioritize objectivity over advocacy

#### Violation: they specify vaccines

#### Standards:

#### 1] limit—there are infinite conditions that they could specify like vaccines, war reporting, climate change, peace journalism, literally every issue in existence—explodes limits since there are tons of affs plus infinite combinations with different advantages in different situations—there are no DAs that apply to every aff—advocacy offense needs to be contextualized to each condition because they have different political climates.

#### 2] tva—just read your aff as an advantage under a whole res advocacy or one that specs a democracy—potential abuse doesn’t permit 1AC abuse—allows you to be infinitely abusive—if the neg doesn’t have specific prep, they’ll resort to cheaty word PICs which are net worse

#### Fairness is a voter and outweighs – debate is a competitive activity that requires fairness for objective evaluation.

#### Drop the debater to deter future abuse and set better norms for debate.

#### Competing interps – a] reasonability is arbitrary and encourages judge intervention since there’s no clear norm b] it creates a race to the top where we create the best possible norms for debate.

#### No RVIs – a] illogical—you don’t win for being fair which outweighs since it’s a prerequisite for making arguments b] RVIs incentivize baiting theory and prepping it out which leads to maximally abusive practices

### 1NC – K

#### The first commercial logistics began with the Atlantic slave trade necessitating a global paradigm of racism and eugenics.

**Moten & Harney 21** – Fred Moten, Professor of Performance Studies for the Tisch School of the Arts at NYU, PhD in English from UC Berkeley, 2020 MacArthur Genius Fellow, Stefano Harney, Professor of Strategic Management for the Lee Kong Chian School of Business at Singapore Management University, PhD in Social and Political Sciences from the University of Cambridge, co-founder of Ground Provisions—a curatorial collective, founder of the School for Study—a nomadic study collective (2021, *All Incomplete*, pp 13-18) Justin **\*\*Unread parts have some graphic descriptions of the Atlantic Slave Trade.**

LOGISTICS

The imperium of cotton and sugar not only hosted these fiendish early experiments in breaking collectivity on the line and inserting and asserting wills but also gave us an early glimpse of an integrated global supply chain. The breeding and marching or shipping of the enslaved southward and westward from Tidewater and Piedmont plantations, or inland from the Caribbean and Pacifc Coasts of Colombia, to make crops financed through speculation on their torture-enforced, metric-imposed labor; and the bales of cotton or barrels of molasses loaded on ships in New Orleans or Bridgetown, insured in London, bound for Liverpool’s wholesale clearinghouses or Massachusetts distilleries, are links in a global value chain created by bankers, planters and slavers. But it is only in our time that this supply chain becomes fully integrated with the flow of the line inside the factory gates. Around the same time that operations management was coming to understand kaizen and the valuation of the fow of the line itself, it was also rethinking the linearity and finitude of the line. It is at this point that a new subdiscipline in operations management becomes frmly established as a rigorous academic discipline in the business schools: logistics. Of course, logistics already existed as a practice going back in military affairs as long as there have been sieges, invasions, and forts. Food, water, weapons, and people had to be transported and maintained to support any strategy of war. The African and Trans-Atlantic slave trade represented the great, hideous introduction of mass logistics for commercial rather than military or state purposes. It became the ghoulish lab of experiment in access for singular means of work and sex, worldmaking and subjectivization. Much would follow, including infrastructure projects for the circulation of people, goods, and information and, of course, more mass displacements, indentures and migrations in the brutal enforcement against indigenous peoples and he very idea and practice of indigeneity of the law of genocide and geocide. All of this logistics would not only bear this trademark of ‘continent of origin’ in the slave trade, but with usufruct the improvement of fow would become indistinguishable from racialization. Whiteness, as racialization’s origin and residuum, where access is imposition and submission in self-protection and self-determination rather than practicing incompleteness, is the self-improvement of flow. Blackness becomes what it already was, the prior interruption, the sabotage to come, the incapacity to breathe into the fow as the capacity for breath as means, for the breadth of means.

It is little wonder, then, that when the modern idea of the economy appears, as Timothy Mitchell teaches us, the discipline emerges shackled to racial science. Mitchell reminds us that the founding American economist, the one who inaugurates the discipline by building the first working model of this independent ‘economy,’ was not incidentally a racist and eugenicist, but necessarily so. Irving Fisher theorized that economics should be the study of money and what today would be called human capital. Both, according to Fisher, could be improved (and therefore speculated upon). But “racial degeneracy” meant that some had no understanding of the future. The degenerate races had therefore no desire or ability to improve. They would have to have their utility maximized for them, by usufruction.

#### Their unattainable politics culminates in racist categorization.

Moten 03 – Fred Moten, Professor of Performance Studies for the Tisch School of the Arts at NYU, PhD in English from UC Berkeley, 2020 MacArthur Genius Fellow (2003, “In the Break: The Aesthetics of the Black Radical Tradition,” <https://www.kit.ntnu.no/sites/www.kit.ntnu.no/files/Moten-Fred-Break-Aesthetics-Black-Radical-Tradition.pdf>) Justin

The relationship between object and objectivity in Piper is disjunctive. Think about objectivity as universality, as a set of faculties or attributes given in the set of human beings; objectivity is the quality of being universal, that which is true for everyone. When Piper speaks about wanting to eliminate subjective judgments (i.e., valuative or aesthetic judgments, the question of beauty and, even, pleasure—what might have been called the immanent aesthetic) from her experience of art, she moves within a certain desire for the objective (i.e., epistemological/ethical, the categorical and its imperatives, the transcendental aesthetic as the ideality of space-time) in art. Similarly, when Piper turns herself into an object of art she could be said to be moving in the desire for a detachment from certain subjective/invalid judgments. What she calls, in her description of the Untitled Performance for Max’s Kansas City, the self-consciousness of art-consciousness, especially in that it is shaped by the visual pathology of racist categorization, is the Weld of such bad judgment.

But Piper seems to deny the implications of what is, for Kant, an enabling paradox: the objective-transcendental ground of humanity seems inseparable from a certain subjective condition of its possibility— the ideality of space-time is always conditioned, made possible, by a specific experience of space-time. And this experience or immanence is always susceptible, has always been susceptible, to bad judgment, to the irrationality that is, at once, constitutive of the rational and the rational’s necessary extension when it reaches its limits. And in this last lies the rub since one must tap into the possibility of bad judgment— aesthetic judgment—in order precisely to work these necessary augmentations of (devolved or delimited) rationality. The repression or denial of the subjective conditions of objectivity in Piper’s philosophy is overcome by an aggressive critique of the subject enacted in and by the rematerialization of the object. But this rematerialization of the object is always also the rematerialization of the artwork. So that the repression or denial of the subject/ive, which moves into a critique of the subject/ive, is enacted by way of a return or recovery of the subject/ive where the subject /ive is (the) reanimated, rematerialized personhood as objet d’art.

#### Modern intellectualism only legitimates a racist order founded upon white exceptionalism, casting deviant knowledge production as “non-objective”. Thus, the alternative is Black Radical Tradition – forefronting black scholarship is an a priori issue that can form new forms of radical organization.

Johnson & Lubin 18 – Gaye Theresa Johnson and Alex Lubin. (August 2018, “Futures of Black Radicalism,” <https://rampages.us/goldstein/wp-content/uploads/sites/7807/2018/08/Johnson-and-Lubin-2017-Futures-of-Black-radicalism.pdf>) Justin

With other middle classes, the intellectual often acts as a reactionary in contrast to those striving for liberation from racial capitalism. Ideologically, intellectuals are more inclined to maintain their position in the class-stratified society than destroy it. An agent who emerged from liberal bourgeois academic institutions, the petit bourgeois intellectual’s role has been to legitimate the social order. As the Gulbenkian Commission on the Restructuring of the Social Sciences notes, “The intellectual history of the nineteenth century is marked above all by disciplinarization and professionalization of knowledge, that is to say, by the creation of permanent institutional structures designed both to produce new knowledge and to reproduce the producers of knowledge.” 32 Through a racialized, gendered, and especially class-specific project, academic institutions have privatized and restricted knowledge production to elites and those from the upper classes. Any knowledge production by the lower orders of society has been interpreted as illegitimate, backward, or nonscientific, thereby allowing the knowledge produced through academic institutions by intellectuals to mask power relations through claims of objectivity and positivism.

Academic scholarship continues this practice under the neoliberal turn. Although people who were historically excluded from the academy have entered it, many have followed the path of becoming “private intellectuals.” 33 In her discussion of academic scholarship by those once marginalized by the academy, Ruth Wilson Gilmore notes several broad, overlapping tendencies that have shaped “oppositional studies” under neoliberalism, including “individualistic careerism,” “romantic particularism,” and “luxury production.” These tendencies, according to Gilmore, produce scholars and intellectuals who are disconnected from larger struggles for social change, who write about oppressive conditions in the abstract, and who produce knowledge accessible only to a specific few. 34 As much as they claim to be “oppositional,” such scholars and intellectuals “waste precious intellectual resources and displace needed energy from where it is most needed,” 35 a learned behavior that emerges from the social and cultural pedagogies of neoliberalism. As Barbara Tomlinson and George Lipsitz demonstrate, “neoliberal subjects” are produced in “entrepreneurial” universities that function through market competition and market subjects. Neoliberalism has been “invented, learned, and legitimated” 36 in the academy, where the petit bourgeois intellectual becomes an entrepreneur. Their scholarship is aimed at acquiring social capital and material rewards rather than producing knowledge that advances, informs, or supports the social struggles of those most marginalized.

No research is value-free; therefore all intellectual labor is political. Though guided by the rules and logics of academic research, the intellectual’s knowledge is never divorced from the historical context of its production. 37 There is no freefloating, neutral intellectual, and the petit bourgeois intellectual is part of an institution structured by dominance; this requires them to reflect on what their scholarship is doing and not doing. Does it follow the path of individualistic careerism, romantic particularism, or luxury production? Or does it pursue what Gilmore calls “organic praxis”? Does it connect to struggles in and outside of the academy? Does it recognize that the “street has always run into the campus” 38? The neoliberal turn is seductive; it inhibits radical scholarship that reveals the contradictions in its practice and ideology. To challenge this, the petit bourgeois intellectual and scholar must come to terms with their own positionality. They must, as the Italian socialist strategist Antonio Gramsci argues, develop a “new intellectual” grounded in social struggle:

The mode of being of the new intellectual can no longer consist in eloquence, which is an exterior and momentary mover of feelings and passions, but in active participation in practical life, as constructor, organizer, “permanent persuader” and not just a simple orator (but superior at the same time to the abstract mathematical spirit); from technique-as-work one proceeds to technique-as-science and to the humanistic co nception of history, without which one remains “specialized” and does not become “directive” (specialized and political). 39

The petit bourgeois intellectual can take the side of aggrieved communities. Alternatively, they can maintain their historical role of legitimating the social order and defending their position within the class structure. The latter is seductive, yet the following discussion should be useful in imagining the former.

THE BLACK RADICAL TRADITION AND CLASS SUICIDE

Have there been petit bourgeois intellectuals and scholars that have gone against their class interests and struggled from the position of the oppressed? What examples can the petit bourgeois intellectuals of today follow to challenge the neoliberal turn? A key site of such inspiration is the Black Radical Tradition. It is here where intellectuals and organizers from a petit bourgeois background but an enslaved and colonized past have emerged to exploit the contradictions of the system in order to speak, write, and organize against it. It is in the Black Radical Tradition that we find the emergence of a radical intelligentsia inspired by the historical struggles of their pasts and present and looking toward a future alongside the masses. As Robinson notes, those inspired by the Black Radical Tradition “began the realization of their history and their theoretical task” and became Black radicals whose work served the people. 40

Political scientist Michael Hanchard argues that Black political thought and theory have two distinct but interrelated purposes. The first is the practice of theorization and conceptualization in response to racial domination. The second consists of producing political writings and scholarship that center race and racism at the core of the Western modernity project. 41 Black political thought from the Black Radical Tradition pursues these two goals. However, before it embarked on theorization and conceptualization of race and racism, the tradition materialized from the struggles against European slavery, capital accumulation, and its inherent racialism. 42 “Even then,” Robinson notes, “the more fundamental impulse of Black resistance was the preservation of a particular social and historical consciousness rather than the revolutionary transformation of feudal or merchant capitalist Europe.” 43 Robinson illuminates the emergence of this tradition from surviving the destruction of Western civilization even before it began to provide a ruthless critique of it. It inspired many radical intellectuals through what Robinson refers to as “an ideology of liberation” against racial capitalism, while also challenging Western Marxism and its lack of accounting for the revolutionary forces of the Third World. 44 It showed that Marxist analyses must always be “stretched” to take into account the contradictions within social formations. 45 Moreover, Black radical intellectuals such as W. E. B. Du Bois and C. L. R. James critiqued and reflected on their own positions within the petite bourgeoisie and encouraged others to do the same. They, like Robinson, suggested that a radical tradition existed to inform revolutionary praxis.

Through the act of “accompaniment” with aggrieved communities, this praxis emerges from the scholarship of the petit bourgeois intellectual. 46 This is done by highlighting not individuals but rather communities in struggle. H. L. T. Quan argues that Robinson’s scholarship on the Black Radical Tradition provides a method for doing this kind of work—one that avoids the pitfall of centering individuals that is often encouraged by masculinist historiographies. “As in the case of Robinson’s work,” Quan suggests, “when the focus is on communities rather than individuals, and democratic and communitarian practices rather than elitism, we are able to make that shift from great men’s history to people’s history.” 47 In his scholarship Robinson shows that the brilliance of the radical intellectuals he highlights was derivative. “The truer genius,” he argues, “was in the midst of the people of whom they wrote.” 48

The Black Radical Tradition that Robinson shares with us provides many examples of petit bourgeois intellectuals and scholars who have challenged their positions within the political, economic, and ideological system, endeavoring to struggle alongside the masses against the “fatal couplings of difference and power.” 49 Anticolonial revolutionary Amilcar Cabral described how they did it. In a 1966 plenary speech delivered at the First Solidarity Conference of the Peoples of Africa, Asia, and Latin America in Havana, Cuba, Cabral discussed socialist strategy, the importance of ideology in national liberation struggles, and his analysis of direct and indirect forms of imperialism. Toward the end of his speech, Cabral addressed the role of the petite bourgeoisie in national liberation struggles. “It is important to stress that the mission with which it is entrusted demands from this sector of the petty bourgeoisie a greater revolutionary consciousness,” Cabral notes, “and the capacity for faithfully expressing the aspirations of the masses in each phase of the struggle and for identifying with them more and more.” 50 He argues that in the colonial context, the petite bourgeoisie had not acquired as much capital as the colonial bourgeoisie and still had the ability to act as a revolutionary force against imperialism and neocolonialism. Cabral was clearly aware that their class position was seductive and could encourage their “natural tendencies” to become a pseudo-national bourgeoisie. 51 Cabral’s radical suggestion for avoiding this was class suicide.

This means that in order to play completely the part that falls to it, in the national liberation struggle, the revolutionary petty bourgeoisie must be capable of committing suicide as a class, to be restored to life in the condition of a revolutionary worker completely identified with the deepest aspirations of the people to which [they belong]. 52

As Robinson notes, Cabral was shaped by the contradictions of domination that emerged from the dialectics of Portuguese imperialism in Guinea-Bissau. 53 This experience made him one of the world’s foremost revolutionary theorists and practitioners of liberation. According to Basil Davidson, “there are many stories about [Cabral’s] habit of linking the everyday scene, the banal scene you take for granted and barely even see, with the intellectual groundwork of an overall theory of society: of a theory, that is, always riveted to the reality of time and place.” 54 Class suicide for Cabral was the ability to tie the everyday struggle of his people to his theoretical analysis, to build an organization like the African Party of Independence of Guinea-Bissau and Cape Verde (PAIGC), and to keep the aspirations and needs of his people at the forefront. Cabral had realized that the Marxism in which he was trained while studying agronomy in Portugal needed further development. 55 His application of Marxism required actual engagement with material conditions in Guinea-Bissau. This allowed him to reformulate his theorization and program, evident in his speeches and writings on the peasantry, the culture of resistance, and national liberation. 56

Cabral had a clear understanding of the class and colonial conditions in Guinea-Bissau and encouraged the petite bourgeoisie to strive for similar awareness. In a message to Guinean and Cape Verdian civil servants and employees in commerce, Cabral reminded them that they were “servitors of Portuguese colonialism,” 57 and therefore received rewards such as homes, bread, health, and education that the majority of their compatriots were denied. Cabral recognized the class anxiety that these segments of the population felt toward national liberation, but urged them to revise their outlook. They had a responsibility to the African continent to join the struggle against colonialism. “Many with awareness of this necessity have bravely put themselves on the side of our people and our companions in struggle,” Cabral declared. 58 The destiny of the petite bourgeoisie must mirror the destiny of the people. “Turn each post you hold, in the civil service or in commerce,” he argued, “into a fortress of combat for the immediate destruction of Portuguese colonialism.” 59 It was time to recognize their historical role and refuse the “selfishness and blind” ambition inflicted on them by Portuguese colonialism. To achieve success in these efforts, Cabral believed that the culture of Guinean society had to be replaced with a revolutionary culture that would counter petit bourgeois class interests. This would include, as Patrick Chabal argues, a “set of beliefs” and “political experiences, which would lead them to accept their responsibilities as revolutionaries.” 60 Cabral’s involvement in the struggle for national liberation rejected notions of bourgeois individualism: “Nobody is indispensible in this struggle; we are all needed but nobody is indispensable.” 61 It was his loyalty to this struggle that led to his assassination.

Frantz Fanon also discussed the notion of class suicide. Born in Martinique, Fanon attained revolutionary consciousness in Algeria and learned to challenge and disinvest in the class position he had obtained through bourgeois academic institutions in France. Although, as Robinson notes, Fanon was struggling with his own personal contradictions, he soon learned about the importance of liberation from the revolutionary struggles of the Algerian people. 62 It was in this period that Fanon wrote his most important work, The Wretched of the Earth, which described the struggles he was witnessing. Fanon began his work thus: “National liberation, national reawakening, restoration of the nation to the people or Commonwealth, whatever the name used, whatever the latest expression, decolonization is always a violent event.” 63 He was not speaking from an abstract position but from the trenches of revolutionary struggle. In a letter written days before his untimely death, he declared: “We are nothing on earth if we are not in the first place the slaves of a cause, the cause of the people, the cause of justice and liberty.” 64

In his liberationist theorizing, Fanon provides a critique of the national bourgeoisie and colonized intellectuals that emerge in the anticolonial struggle. Fanon argues that historically, the national bourgeoisie “often turns away from his heroic and positive path, which is both productive and just, and unabashedly opts for the antinational, and therefore abhorrent, path of a conventional bourgeoisie, a bourgeois bourgeoisie that is dismally, inanely, and cynically bourgeois.” 65 In the colonial context, Fanon illustrates that colonized intellectuals are trained to think of society in individualist terms, clinging to the “notion of a society of individuals where each is locked in his subjectivity, where wealth lies in thought.” 66

The only way for the intellectual and the national bourgeoisie to avoid these conceits, according to Fanon, is to struggle alongside the people for liberation, educating themselves through the strength of collective knowledge sharing: “Village assemblies, the power of the people’s commissions and the extraordinary productiveness of neighborhood and section committee meetings.” 67 The real-life struggles of the people, Fanon argues, provide the colonized intellectual with better knowledge of real-world struggles than the “falsity” of the theories, values, perceptions, and cultural preoccupations taught to them by Western civilization.

Just as the intellectual should depart from their “egoism, arrogant recrimination, and the idiotic, childish need to have the last word,” the national bourgeoisie should repudiate its class position and serve the people it represents. Fanon notes:

In an underdeveloped country, the imperative duty of an authentic national bourgeoisie is to betray the vocation to which it is destined, to learn from the people, and make available to them the intellectual and technical capital it culled from its time in the colonial universities. 68

Fanon, like Cabral, held ambitiously to the (some may argue idealist) vision of the national and petite bourgeoisie coming to terms with their class illusions and enlisting in national liberation. Both men were exemplars of this process. To Fanon, the colonized intellectual must engage in dialogue with those suffering and organizing against oppression and exploitation. At first the interaction would be difficult given the intellectual’s training by bourgeois institutions in false notions of objectivity and neutrality, but, through the process of active engagement, their academic labor would change:

Whereas the colonized intellectual started out by producing work exclusively with the oppressor in mind—either in order to charm him or to denounce him by using ethnic or subjectivist categories—[they] gradually [switch] over to addressing [themselves] to [their] people. 69

To Fanon, the colonized intellectual and national bourgeoisie have a historic mission. Either they fulfill it by joining the revolutionary struggle, or they betray it and capitulate to the seductions of class aspirations.

Radical writings were important to Fanon as tools for building a liberatory culture with visions of an alternative social structure.

When the colonized intellectual writing for [their] people uses the past [they] must do so with the intention of opening up the future, of spurring them into action and fostering hope. But in order to secure hope, in order to give it substance, [they] must take part in the action and commit [themselves] body and soul to the national struggle. 70

#### The impact of categorization and exceptionalism is genocide and ecological destruction culminating in extinction.

**Moten & Harney 21** – Fred Moten, Professor of Performance Studies for the Tisch School of the Arts at NYU, PhD in English from UC Berkeley, 2020 MacArthur Genius Fellow, Stefano Harney, Professor of Strategic Management for the Lee Kong Chian School of Business at Singapore Management University, PhD in Social and Political Sciences from the University of Cambridge, co-founder of Ground Provisions—a curatorial collective, founder of the School for Study—a nomadic study collective (2021, *All Incomplete*, pp 13-18) Justin

Exception is a categorization one grants oneself only at the price of imagining that it has been granted by an Other. To declare one’s exceptionalism is not a matter of exempting, or excluding, or excusing oneself, all of which are transitive. Exceptionalism imagines the intransitive and attributes action to Others and, more importantly, an originary kind of power to someone else. And it is here that we see how the pre-text Serequeberhan identifes is in fact pre-given in a double sense – it must be given but in order to be given it must also have been granted. Tere is no dialectic here. Rather, we might say it is only the European who has ever been both master and slave. Tis is his drama. It is held in the body, and enacted in the world, that he has to have. Te exception will have been a power given by an Other to selves who, in taking it and its accompanying knowledge on, are supposed to have been provided, in this give and take, their own confrmation. But the pre-text is never truly grounded, never truly granted, never truly given. Europe is constantly disestablished by what it seeks to envelop, which, in and out of turn, envelops it. What surrounds the European even in his midst is the native informant Gayatri Spivak identifes as a creation text for a world of exception, against, but nonetheless within, the general antagonism of earthly anarrhythmia and displacement. Te paradox of the pre-text is thus that being exceptional can no more be taken than it can be given and can no more be claimed than it can be granted. Tis simultaneity of being-master and being-slave is sovereignty’s static, omnicidal decline. Tis is what it is to be chained to the struggle for freedom, a ‘rational‘ instrument run amok in place, as man’s perpetually stilled motion.

What does it mean to stand for improvement? Or worse, to stand for what business calls a ‘commitment to continuous improvement‘? It means to stand for the brutal speciation of all. To take a stand for speciation is the beginning of a diabolical usufruct. Improvement comes to us by way of an innovation in land tenure, where individuated ownership, derived from increasing the land’s productivity, is given in the perpetual, and thus arrested, becoming of exception’s miniature. This is to say that from the outset, the ability to own – and that ability’s first derivative, self-possession – is entwined with the ability to make more productive. In order to be improved, to be rendered more productive, land must be violently reduced to its productivity, which is the regulatory diminishment and management of earthly generativity. Speciation is this general reduction of the earth to productivity and submission of the earth to techniques of domination that isolate and enforce particular increases in and accelerations of productivity. In this regard, (necessarily European) man, in and as the exception, imposes speciation upon himself, in an operation that extracts and excepts himself from the earth in order to confirm his supposed dominion over it. And just as the earth must be forcefully speciated to be possessed, man must forcefully speciate himself in order to enact this kind of possession. This is to say that racialization is present in the very idea of dominion over the earth; in the very idea and enactment of the exception; in the very nuts and bolts of possession-by-improvement. Forms of racialization that both Michel Foucault and, especially and most vividly, Robinson identify in medieval Europe become usufructed with modern possession through improvement. Speciated humans are endlessly improved through the endless work they do on their endless way to becoming Man. This is the usufruct of man. In early modern England, establishing title to land by making it more productive meant eliminating biodiversity and isolating and breeding a species – barley or rye or pigs. Localized ecosystems were aggressively transformed so that monocultural productivity smothers anacultural generativity. The emergent relation between speciation and racialization is the very conception and conceptualization of the settler. Maintenance of that relation is his vigil and his eve. For the encloser, possession is established through improvement – this is true for the possession of land and for the possession of self. The Enlightenment is the universalization/ globalization of the imperative to possess and its corollary, the imperative to improve. However, this productivity must always confront its contradictory impoverishment: the destruction of its biosphere and its estrangement in, if not from, entanglement, both of which combine to ensure the liquidation of the human differential that is already present in the very idea of man, the exception. To stand for such improvement is to invoke policy, which attributes depletion to the difference, which is to say the wealth, whose simultaneous destruction and accumulation policy is meant to operationalize. This attribution of a supposedly essential lack, an inevitable and supposedly natural diminution, is achieved alongside the imposition of possession-by-improvement. To make policy is to impose speciation upon everybody and everything, to inflict impoverishment in the name of improvement, to invoke the universal law of the usufruct of man. In this context, continuous improvement, as it emerged with decolonization and particularly with the defeat of national capitalism in the 1970s, is the continuous crisis of speciation in the surround of the general antagonism. This is the contradiction Robinson constantly invoked and analyzed with the kind of profound and solemn optimism that comes from being with, and being of service to, your friends.

## Case

### 1NC – Pandemics

#### Disease doesn’t cause extinction

Adalja 16 [Amesh Adalja is an infectious-disease physician at the University of Pittsburgh. Why Hasn't Disease Wiped out the Human Race? June 17, 2016. https://www.theatlantic.com/health/archive/2016/06/infectious-diseases-extinction/487514/]

But when people ask me if I’m worried about infectious diseases, they’re often not asking about the threat to human lives; they’re asking about the threat to human life. With each outbreak of a headline-grabbing emerging infectious disease comes a fear of extinction itself. The fear envisions a large proportion of humans succumbing to infection, leaving no survivors or so few that the species can’t be sustained. I’m not afraid of this apocalyptic scenario, but I do understand the impulse. Worry about the end is a quintessentially human trait. Thankfully, so is our resilience. For most of mankind’s history, infectious diseases were the existential threat to humanity—and for good reason. They were quite successful at killing people: The 6th century’s Plague of Justinian knocked out an estimated 17 percent of the world’s population; the 14th century Black Death decimated a third of Europe; the 1918 influenza pandemic killed 5 percent of the world; malaria is estimated to have killed half of all humans who have ever lived. Any yet, of course, humanity continued to flourish. Our species’ recent explosion in lifespan is almost exclusively the result of the control of infectious diseases through sanitation, vaccination, and antimicrobial therapies. Only in the modern era, in which many infectious diseases have been tamed in the industrial world, do people have the luxury of death from cancer, heart disease, or stroke in the 8th decade of life. Childhoods are free from watching siblings and friends die from outbreaks of typhoid, scarlet fever, smallpox, measles, and the like. So what would it take for a disease to wipe out humanity now? In Michael Crichton’s The Andromeda Strain, the canonical book in the disease-outbreak genre, an alien microbe threatens the human race with extinction, and humanity’s best minds are marshaled to combat the enemy organism. Fortunately, outside of fiction, there’s no reason to expect alien pathogens to wage war on the human race any time soon, and my analysis suggests that any real-life domestic microbe reaching an extinction level of threat probably is just as unlikely. Any apocalyptic pathogen would need to possess a very special combination of two attributes. First, it would have to be so unfamiliar that no existing therapy or vaccine could be applied to it. Second, it would need to have a high and surreptitious transmissibility before symptoms occur. The first is essential because any microbe from a known class of pathogens would, by definition, have family members that could serve as models for containment and countermeasures. The second would allow the hypothetical disease to spread without being detected by even the most astute clinicians. The three infectious diseases most likely to be considered extinction-level threats in the world today—influenza, HIV, and Ebola—don’t meet these two requirements. Influenza, for instance, despite its well-established ability to kill on a large scale, its contagiousness, and its unrivaled ability to shift and drift away from our vaccines, is still what I would call a “known unknown.” While there are many mysteries about how new flu strains emerge, from at least the time of Hippocrates, humans have been attuned to its risk. And in the modern era, a full-fledged industry of influenza preparedness exists, with effective vaccine strategies and antiviral therapies. HIV, which has killed 39 million people over several decades, is similarly limited due to several factors. Most importantly, HIV’s dependency on blood and body fluid for transmission (similar to Ebola) requires intimate human-to-human contact, which limits contagion. Highly potent antiviral therapy allows most people to live normally with the disease, and a substantial group of the population has genetic mutations that render them impervious to infection in the first place. Lastly, simple prevention strategies such as needle exchange for injection drug users and barrier contraceptives—when available—can curtail transmission risk. Ebola, for many of the same reasons as HIV as well as several others, also falls short of the mark. This is especially due to the fact that it spreads almost exclusively through people with easily recognizable symptoms, plus the taming of its once unfathomable 90 percent mortality rate by simple supportive care. Beyond those three, every other known disease falls short of what seems required to wipe out humans—which is, of course, why we’re still here. And it’s not that diseases are ineffective. On the contrary, diseases’ failure to knock us out is a testament to just how resilient humans are. Part of our evolutionary heritage is our immune system, one of the most complex on the planet, even without the benefit of vaccines or the helping hand of antimicrobial drugs. This system, when viewed at a species level, can adapt to almost any enemy imaginable. Coupled to genetic variations amongst humans—which open up the possibility for a range of advantages, from imperviousness to infection to a tendency for mild symptoms—this adaptability ensures that almost any infectious disease onslaught will leave a large proportion of the population alive to rebuild, in contrast to the fictional Hollywood versions.

#### No extinction from pandemics

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

Are we safe now from events like this? Or are we more vulnerable? Could a pandemic threaten humanity’s future?10 The Black Death was not the only biological disaster to scar human history. It was not even the only great bubonic plague. In 541 CE the Plague of Justinian struck the Byzantine Empire. Over three years it took the lives of roughly 3 percent of the world’s people.11 When Europeans reached the Americas in 1492, the two populations exposed each other to completely novel diseases. Over thousands of years each population had built up resistance to their own set of diseases, but were extremely susceptible to the others. The American peoples got by far the worse end of exchange, through diseases such as measles, influenza and especially smallpox. During the next hundred years a combination of invasion and disease took an immense toll—one whose scale may never be known, due to great uncertainty about the size of the pre-existing population. We can’t rule out the loss of more than 90 percent of the population of the Americas during that century, though the number could also be much lower.12 And it is very difficult to tease out how much of this should be attributed to war and occupation, rather than disease. As a rough upper bound, the Columbian exchange may have killed as many as 10 percent of the world’s people.13 Centuries later, the world had become so interconnected that a truly global pandemic was possible. Near the end of the First World War, a devastating strain of influenza (known as the 1918 flu or Spanish Flu) spread to six continents, and even remote Pacific islands. At least a third of the world’s population were infected and 3 to 6 percent were killed.14 This death toll outstripped that of the First World War, and possibly both World Wars combined. Yet even events like these fall short of being a threat to humanity’s longterm potential.15 In the great bubonic plagues we saw civilization in the affected areas falter, but recover. The regional 25 to 50 percent death rate was not enough to precipitate a continent-wide collapse of civilization. It changed the relative fortunes of empires, and may have altered the course of history substantially, but if anything, it gives us reason to believe that human civilization is likely to make it through future events with similar death rates, even if they were global in scale. The 1918 flu pandemic was remarkable in having very little apparent effect on the world’s development despite its global reach. It looks like it was lost in the wake of the First World War, which despite a smaller death toll, seems to have had a much larger effect on the course of history.16 It is less clear what lesson to draw from the Columbian exchange due to our lack of good records and its mix of causes. Pandemics were clearly a part of what led to a regional collapse of civilization, but we don’t know whether this would have occurred had it not been for the accompanying violence and imperial rule. The strongest case against existential risk from natural pandemics is the fossil record argument from Chapter 3. Extinction risk from natural causes above 0.1 percent per century is incompatible with the evidence of how long humanity and similar species have lasted. But this argument only works where the risk to humanity now is similar or lower than the longterm levels. For most risks this is clearly true, but not for pandemics. We have done many things to exacerbate the risk: some that could make pandemics more likely to occur, and some that could increase their damage. Thus even “natural” pandemics should be seen as a partly anthropogenic risk. Our population now is a thousand times greater than over most of human history, so there are vastly more opportunities for new human diseases to originate.17 And our farming practices have created vast numbers of animals living in unhealthy conditions within close proximity to humans. This increases the risk, as many major diseases originate in animals before crossing over to humans. Examples include HIV (chimpanzees), Ebola (bats), SARS (probably bats) and influenza (usually pigs or birds).18 Evidence suggests that diseases are crossing over into human populations from animals at an increasing rate.19 Modern civilization may also make it much easier for a pandemic to spread. The higher density of people living together in cities increases the number of people each of us may infect. Rapid long-distance transport greatly increases the distance pathogens can spread, reducing the degrees of separation between any two people. Moreover, we are no longer divided into isolated populations as we were for most of the last 10,000 years.20 Together these effects suggest that we might expect more new pandemics, for them to spread more quickly, and to reach a higher percentage of the world’s people. But we have also changed the world in ways that offer protection. We have a healthier population; improved sanitation and hygiene; preventative and curative medicine; and a scientific understanding of disease. Perhaps most importantly, we have public health bodies to facilitate global communication and coordination in the face of new outbreaks. We have seen the benefits of this protection through the dramatic decline of endemic infectious disease over the last century (though we can’t be sure pandemics will obey the same trend). Finally, we have spread to a range of locations and environments unprecedented for any mammalian species. This offers special protection from extinction events, because it requires the pathogen to be able to flourish in a vast range of environments and to reach exceptionally isolated populations such as uncontacted tribes, Antarctic researchers and nuclear submarine crews. 21 It is hard to know whether these combined effects have increased or decreased the existential risk from pandemics. This uncertainty is ultimately bad news: we were previously sitting on a powerful argument that the risk was tiny; now we are not. But note that we are not merely interested in the direction of the change, but also in the size of the change. If we take the fossil record as evidence that the risk was less than one in 2,000 per century, then to reach 1 percent per century the pandemic risk would need to be at least 20 times larger. This seems unlikely. In my view, the fossil record still provides a strong case against there being a high extinction risk from “natural” pandemics. So most of the remaining existential risk would come from the threat of permanent collapse: a pandemic severe enough to collapse civilization globally, combined with civilization turning out to be hard to re-establish or bad luck in our attempts to do so.

#### Their impact starts at 4%

Cotton-Barratt 17 [Owen Cotton-Barratt, PhD in Pure Mathematics, Oxford, Lecturer in Mathematics at Oxford, Research Associate at the Future of Humanity Institute, 2/3/2017, Existential Risk: Diplomacy and Governance, https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf]

For most of human history, natural pandemics have posed the greatest risk of mass global fatalities.37 However, there are some reasons to believe that natural pandemics are very unlikely to cause human extinction. Analysis of the International Union for Conservation of Nature (IUCN) red list database has shown that of the 833 recorded plant and animal species extinctions known to have occurred since 1500, less than 4% (31 species) were ascribed to infectious disease.38 None of the mammals and amphibians on this list were globally dispersed, and other factors aside from infectious disease also contributed to their extinction. It therefore seems that our own species, which is very numerous, globally dispersed, and capable of a rational response to problems, is very unlikely to be killed off by a natural pandemic.

One underlying explanation for this is that highly lethal pathogens can kill their hosts before they have a chance to spread, so there is a selective pressure for pathogens not to be highly lethal. Therefore, pathogens are likely to co-evolve with their hosts rather than kill all possible hosts.39

#### Biological weapon attacks are too complex --- terrorists will choose not to pursue or will fail

---at: anthrax

---at: crispr

Revill ‘17 [Dr. James Revill, Research Fellow with the Harvard Sussex Program at SPRU, Past as Prologue? The Risk of Adoption of Chemical and Biological Weapons by Non-State Actors in the EU, European Journal of Risk Regulation, 8 (2017), pp. 626–642, https://www.cambridge.org/core/services/aop-cambridge-core/content/view/6B824CDE0E25FD86AC3D0BD07822A743/S1867299X17000356a.pdf/div-class-title-past-as-prologue-the-risk-of-adoption-of-chemical-and-biological-weapons-by-non-state-actors-in-the-eu-div.pdf]

The second factor is “the perceived complexity of the innovation in terms of adoption and use”.40 This is important in the innovation literature, as Rogers remarked, “[t]he complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption”.41 Several scholars of terrorist innovation have also highlighted the issue of complexity;42 or, as Cragin et al have stated, “[h]ow simple or complex a technology appears affects perceptions of how risky it will be to adopt.”43 In most cases terrorist groups appear to have largely opted for the simplest pathway towards the achievement of their goals and the weapons used tend to be vernacular, functional devices drawing on local and readily-available materials, rather than sophisticated, “baroque” technologies. This is certainly the case with IEDs, the history of which is characterised largely by incremental innovations – although nevertheless frequently effective ones – with many means of delivery recycled from the past.44 Complexity can therefore be seen as important in the adoption of technology by terrorists generally, but is perhaps particularly acute in the case of CBW technology. Some CBW can be relatively simple: “chlorine-augmented, vehicle-borne IEDs,” as employed by Al-Qaeda in Iraq (AQI) from 2006 to 2007 are not sophisticated weapons.45 Attacks on chemical production facilities, an apparent tactic of Serbian forces in the early to mid-1990s,46 employed relatively simple technologies – specifically explosives – with toxicity a secondary by-product. Direct contamination of food,47 drink48 or healthcare products49 does not require particularly sophisticated technology for the purposes of delivery – although may require some considerable skill to culture and scale-up a biological agent – and has been a common approach in European CBW incidents.50 Similarly, the contamination of water systems, something familiar to Europe,51 can also be relatively easily attempted. However, in most cases such methods of dissemination have generated results that are far short of the “mass destruction” that CBW are associated with, although this does not mean such a possibility can be ignored by those working on public health preparedness. Although some relatively simple approaches could cause significant harm, mass casualty attacks still require considerable expertise, something particularly acute in the context of biological weapons.52 The most effective route to weaponising biology is arguably through the process of aerosolising agents, something recognised mid-way through the last century as opening up the theoretical possibility of using biological weapons on a gigantic scale.53 However, realising such theoretical potential is difficult and it took states decades to develop more predictable biological weapons,54 and even then such weapons were acutely vulnerable to environmental factors.55 For non-state groups such complexity has proven a significant barrier to CBW development. By means of an example, one of the best-resourced biological weapons programs, that of Aum Shinrikyo, failed variously because the group acquired the wrong strain, contaminated fermenters and were faced with insurmountable production and dissemination difficulties.56 There are of course exceptions, such as the 2001 anthrax Letter Attacks in the US. However, if one accepts the conclusions of the FBI that this sophisticated attack with aerosolised anthrax in the US postal system was perpetrated by a US biodefence researcher, Dr Bruce Ivins,57 it is an exception that proves the rule. To circumvent the difficulties with aerosolisation, arguably one could use human-to-human transmissible biological agents as part of a suicide bioterror operation. There are good reasons for concern over how crude suicide bioterrorists could employ such a tactic. However, the use of highly contagious agents is also poorly predictable and would have to deal with social factors, such as the “spatial contact process among individuals”, which can spell “out the difference between large-scale epidemics and abortive ones”.58 The counter to this argument is the growing access to data and the changing human geography of the life sciences. Some 83% of European households reportedly are online, effectively allowing access to what is a growing body of available data on CBW, including so-called bioterrorist “recipes” and “blueprints” that are available in both mainstream scientific as well as more subversive literatures online. It is also clear that there is a changing human geography in European life sciences (for peaceful purposes), with the emergence of 30 DIY-bio groups located in Europe59 and some 80 European teams in the international Genetically Engineered Machines (IGEM) competition in 2016.60 This is compounded by reports that groups such as Daesh have deliberately sought to recruit foreign fighters “including some with degrees in physics, chemistry, and computer science, who experts believe have the ability to manufacture lethal weapons from raw substances”.61 Whilst it would be unwise to ignore such developments, there is a need for caution in looking at the extent to which new technologies and geographies will facilitate the adoption of chemical and biological weapons by groups seeking to target European countries. First, data is not information, and information is not knowledge, let alone the tacit knowledge required for CBW.62 In many cases a degree of determination and dedication will be required merely to separate online fantasy from fact and identify operationally useful information (of relevance to the European context) from nonsense (or information pertinent to contexts other than Europe). Second, with new technologies there is the potential for such tools to enable some, but certainly not all, actors, and even then new technologies bring new challenges. CRISPR, gene editing technology is currently seen as a particular source of promise and peril, which purportedly enables “even largely untrained people to manipulate the very essence of life”.63 As much may be technically true, yet “untrained people” would nonetheless require some guidance in identifying suitable areas of genetic structures to manipulate. Moreover, CRISPR would only get aspiring weaponeers so far, with the process of culturing, scaling-up and weaponisation still requiring considerable attention and interdisciplinary skills, typically generated through “large interdisciplinary teams of scientists, engineers, and technicians”,64 in order to be effective. Indeed, for all the progress in science and technology, biological weapons are still not used, in part, because of the complexity of such weapons; and the chemical weapons that are used today are largely the same as the chemical weapons of 100 years ago. As Robinson noted “It remains the case today that, in the design of CBW, increasingly severe technological constraint sets in as the mass-destruction end of the spectrum is approached: the greater and more assured the area-effectiveness sought for the weapon, the greater the practical difficulties of achieving it”.65

#### No bioweapons

Filippa **Lentzos 17**. Senior research fellow jointly appointed in the Departments of War Studies and of Global Health and Social Medicine at King’s College London. 07-03-17. "Ignore Bill Gates: Where bioweapons focus really belongs." Bulletin of the Atomic Scientists. http://thebulletin.org/ignore-bill-gates-where-bioweapons-focus-really-belongs10876

I disagree. At a stretch, terrorists taking advantage of advances in biology might be able to create a viable pathogen. That does not mean they could create a sophisticated biological weapon, and certainly not a weapon that could kill 30 million people. Terrorists in any event tend to be conservative. They use readily available weapons that have a proven track record—not unconventional weapons that are more difficult to develop and deploy. Available evidence shows that few terrorists have ever even contemplated using biological agents, and the extremely small number of bioterrorism incidents in the historical record shows that biological agents are difficult to use as weapons. The skills required to undertake even the most basic of bioterrorism attacks are more demanding than often assumed. These technical barriers are likely to persist in the near- and medium-term future. Gates does a disservice to the global health security community when he draws media and policy attention to amateurs such as terrorists. Where biological weapons are concerned, the focus should remain on national militaries and state-sponsored groups. These are the entities that might have the capability, now or in the near future, to develop dangerous biological weapons. The real threat is that sophisticated biological weapons will be used by state actors—or by financially, scientifically, and militarily well-resourced groups sponsored by states. So far, state-level use of biology to deliberately inflict disease or disrupt human functions has been limited by the strong international norm against biological weapons enshrined in the 1925 Geneva Protocol and the 1972 Biological and Toxin Weapons Convention. These two biological cornerstones of the rules of war uphold the international prohibition against the development, production, stockpiling, and use of biological weapons. But this norm may not survive indefinitely.

#### Technical barriers prevent synthetic pathogens.

--“select agents” are dangerous infectious agents

Eckard **Wimmer 18**. Prof @ Stony Brook University. 2018. “Synthetic Biology, Dual Use Research, and Possibilities for Control.” Defence Against Bioterrorism, Springer, Dordrecht, pp. 7–11. link.springer.com, doi:10.1007/978-94-024-1263-5\_2.

Listed below are some constraints that show how in the US the development of dangerous infectious agents, referred to as “select agents”, is controlled – perhaps misuse even prevented – through technical and administrative hurdles: I. Re-creating an already existing dangerous virus for malicious intent is a complex scientific endeavor. (i) It requires considerable scientific knowledge and experience and, more importantly, considerable financial support. That support usually comes from government and private agencies (NIH, NAF, etc.), organizations that carefully screen at multiple levels all applications for funding of ALL biological research. (ii) It requires an environment suitable for experimenting with dangerous infectious agents (containment facilities). Any work in containment facilities is also carefully regulated. II. Genetic engineering to synthesize or modify organisms relies on chemical synthesis of DNA. Synthesizing DNA is automated and carried out with sophisticated, expensive instruments. The major problem of DNA synthesis, however, is that the product is not error-free. Any single mistake in the sequence of small DNA segments (30–60 nucleotides) or large segments (>500 nucleotides) can ruin the experiment. Companies have developed strategies to produce and deliver error free, synthetic DNA, which investigators can order electronically from vendors, such as Integrated DNA Technologies (US), GenScript (US) or GeneArt (Germany). This offers a superb and easy way to control experimental procedures carried out in any laboratory: the companies will automatically scan ordered sequences in extensive data banks to monitor relationship to sequences of a select agent. If so, the order will be stalled until sufficient evidence has been provided by the investigator that she/he is carrying out experiments approved by the authorities. The entire complex issue of protecting society from the misuse of select agents has been discussed in two outstanding studies [11, 12]. III. Engineering a virus such that it will be more harmful (more contagious, more pathogenic) is generally difficult because, in principle, viruses have evolved to proliferating maximally in their natural environment. That is, genetic manipulations of a virus often lead to loss of fitness that, in turn, is unwanted in the bioterrorist agent.

#### Won’t get close to extinction

Farquhar et al. 17 – \*director of the Global Priorities Project, M.A in Physics and Philosophy from the University of Oxford, \*\*Global Priorities Project, \*\*\*Research Associate in the FHI at the University of Oxford, Lecturer in Mathematics at St. Hugh’s College, \*\*\*\*PhD in philosophy, Researcher at the Centre for Effective Altruism, \*\*\*\*\*Academic Project Manager, Centre for the Study of Existential Risk, \*\*\*\*\*\*Director of Research at FHI [Sebastian Farquhar\*, John Halstead\*\*, Owen Cotton-Barratt\*\*\*, Stefan Schubert\*\*\*\*, Haydn Belfield\*\*\*\*\*, Andrew Snyder-Beattie\*\*\*\*\*\*, 2017, Global Priorities Project 2017, “Existential Risk Diplomacy and Governance”, <https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf>] AMarb

Recent developments in biotechnology may, however, give people the capability to design pathogens which overcome this trade-off. Some gain-of-function research has demonstrated the feasibility of altering pathogens to create strains with dangerous new features, such as vaccine-resistant smallpox40 and human-transmissible avian flu,41 with the potential to kill millions or even billions of people. For an engineered pathogen to derail humanity’s long-term future, it would probably have to have extremely high fatality rates or destroy reproductive capability (so that it killed or prevented reproduction by all or nearly all of its victims), be extremely infectious (so that it had global reach), and have delayed onset of symptoms (so that we would fail to notice the problem and mount a response in time).42 Making such a pathogen would be close to impossible at present. However, the cost of the technology is falling rapidly,43 and adequate expertise and modern laboratories are becoming more available. Consequently, states and perhaps even terrorist groups could eventually gain the capacity to create pathogens which could deliberately or accidentally cause an existential catastrophe.

#### Can’t store, scale up, disseminate, OR overcome countermeasures

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The bioterror WMD myth. Those who have overemphasized the bioterrorism threat typically portray it as an imminent concern, with emphasis placed on high-consequence, mass-casualty attacks, performed with weapons of mass destruction (WMD). This is a myth with two dimensions. The first involves the identities of terrorists and what their intentions are. The assumption is that terrorists would seek to produce mass-casualty weapons and pursue capabilities on the scale of 20th century, state-level bioweapons programs. Most leading biological disarmament and non-proliferation experts believe that the risk of a small-scale bioterrorism attack is very real and present. But they consider the risk of sophisticated large-scale bioterrorism attacks to be quite small. This judgment is backed up by historical evidence. The three confirmed attempts to use biological agents against humans in terrorist attacks in the past were small-scale, low-casualty events aimed at causing panic and disruption rather than excessive death tolls. The second dimension involves capabilities and the level of skills and resources available to terrorists. The implicit assumption is that producing a pathogenic organism equates to producing a weapon of mass destruction. It does not. Considerable knowledge and resources are necessary for the processes of scaling up, storage, and dissemination. These processes present significant technical and logistical barriers. Even if a biological weapon were disseminated successfully, the outcome of an attack would be affected by factors like the health of the people who are exposed and the speed and manner with which public health authorities and medical professionals detect and respond to the resulting outbreak. A prompt response with effective medical countermeasures, such as antibodies and vaccination, can significantly blunt the impact of an attack.

#### Pandemics solve climate change – COVID was responsible for the largest drop in emissions ever

**Alexander 20** [(Kurtis, a general assignment reporter for The San Francisco Chronicle, frequently writing about water, wildfire, climate and the American West. His recent work has focused on the impacts of drought, the widening rural-urban divide and state and federal environmental policy. Before joining the Chronicle, Alexander worked as a freelance writer and as a staff reporter for several media organizations, including The Fresno Bee and Bay Area News Group, writing about government, politics and the environment.) "Coronavirus has altered the global warming trajectory. But for how long?" San Francisco Chronicle, 5/20/20, https://www.sfchronicle.com/health/article/Greenhouse-gas-emissions-on-track-for-record-drop-15279312.php] TDI

The disruption caused by the coronavirus has been so profound that it’s altered the trajectory of global warming.

Not since World War II — and perhaps never before — have the emissions of heat-trapping gases dropped as much around the planet as they have during the COVID-19 outbreak.

The latest and most detailed study yet on the pandemic’s impact on climate pollution, published Tuesday and authored by the research group Global Carbon Project chaired by Stanford University’s Rob Jackson, finds that the Earth will see up to a 7% decrease in carbon dioxide this year. The dip is five times the decline in emissions in 2009, when the recession choked the world’s economy, and double what it was in 1992, after the fall of the Soviet Union.

The paper’s findings mirror other reports that have similarly found sharp drops in greenhouse gases recently. The emerging research also is in agreement that the lull will likely be short-lived and, at best, buy time before the most devastating effects of climate change take hold. The lockdown that has halted factories, energy plants and automobiles during the pandemic is already lifting, and without deliberate action, carbon-intense activities are bound to resume.

“That’s the danger here,” said Jackson, a professor of earth system science and senior fellow at Stanford Woods Institute for the Environment. “We’ve decreased emissions for the wrong reasons. Will they jump back up starting this fall, or could the virus allow us to rethink transportation and other parts of the economy?”

The answer to the question, say Jackson and others, may not be so straightforward. Greenhouse gases could rebound in some areas, and there could be lasting decreases in others.

Measuring heat-trapping gas emissions, for which carbon dioxide is a proxy, is not easy to do, especially in real time. The researchers at the Global Carbon Project analyzed daily economic activity in 69 countries from January through April and modeled the carbon pollution that likely resulted, then compared it to last year. The countries included have historically produced almost all of the world’s carbon dioxide.

The researchers found that China, the largest polluter, reduced emissions by nearly 24% on some days in mid-February. The United States, the second-largest polluter, cut emissions by nearly 32% for almost two weeks in mid-April. The European Union, including Great Britain, trimmed emissions by about 27% during the first week of April.

The dates of peak reductions varied in different parts of the globe because each locked down at a different time. The biggest cumulative drop in carbon dioxide was on April 7 and measured about 17%, according to the study.

While a variety of activity explains the declines, fewer people driving was the largest contributor worldwide. Less industrial pollution was also a big contributor.

Based on the observed drops in emissions, the researchers estimate that going forward, carbon dioxide will fall between 4% and 7% for the year worldwide, depending on how quickly countries end their lockdowns.

Jackson said the amount of the decline can be viewed as both considerable, given that it’s the largest ever seen, and humbling because it’s the minimum needed annually to put the planet on track to meet the Paris climate agreement — enough of a drop to prevent the global temperature from rising 2 degrees Celsius above preindustrial levels.

“We would need to do this every year,” he said.

The International Energy Agency recently projected an 8% dip in greenhouse gases for the year while the International Monetary Fund came up with an estimate closer to 6%. Both organizations said carbon pollution would likely rise again in 2021.

After the decline in emissions in 2009 of about 1.4%, the following year saw an increase of 5.1%.

The Global Carbon Project says there’s reason to think that at least some parts of the globe will try to prevent heat-trapping gases from bouncing back. Stimulus programs aimed at developing clean energy and new carbon-friendly ways of living adopted during the pandemic, such as working from home, could help limit emissions.

“Cities from Seattle to Milan are keeping roads closed to cars and letting them stay open to bikes and pedestrians even after the shelter-in-place,” Jackson said. “And maybe COVID-19 and stimulus funding will jump-start electric cars.”

#### Pandemics solve climate change – substantially reduce emissions, air and water pollution, directs attention to climate

**Chow 20** [(Denise, a reporter for NBC News Science focused on general science and climate change) "Coronavirus shutdowns have unintended climate benefits: cleaner air, clearer water," NBC News, 3/18/20, https://www.nbcnews.com/science/environment/coronavirus-shutdowns-have-unintended-climate-benefits-n1161921] DRD

Concentrations of nitrogen dioxide in the atmosphere over Italy also fell precipitously, as they did in China. An analysis by The Washington Post found that the most dramatic drop was observed over northern Italy.

Nitrogen dioxide can irritate the lungs, and inhaling the pollutant can increase the risk of asthma and inflammation of the lungs. Although the noxious gas isn't thought to be a major contributor to climate change, studying its concentration in the atmosphere can help scientists understand other heat-trapping greenhouse gases that do drive global warming.

Jacqueline Klopp, co-director of the Center for Sustainable Urban Development at Columbia University in New York City, said she expects to see greenhouse gas emissions plummet across the board because of the quarantine measures.

"People were in their homes and really stopped a lot of the activities that lead to greenhouse gas emissions and other pollution," she said.

Early observations have shown that extreme social-distancing measures are likely also having an effect on air pollution at the city level in the U.S.

Jordan Wildish, a project director at Earth Economics, an environmental non-profit organization based in Tacoma, Washington, developed an online dashboard to track air quality in San Francisco, New York City and the Seattle area, comparing the measurements with figures from the same time last year.

In San Francisco, which is under shelter-in-place orders to control the spread of the coronavirus, the average concentration of fine particulate matter — tiny particles in the air that are dangerous because they can be breathed deeply into the lungs — over the past five days was almost 40 percent lower than the previous year.

In New York City, there was a 28 percent drop over the same period of time, and the Seattle-Tacoma-Bellevue saw a 32 percent decrease.

But experts warned that observed reductions are temporary and that as cities, countries and economies bounce back, so, too, will emissions — unless major infrastructure or societal changes are adopted.

Klopp said the pandemic could make companies and governments realize that other threats to humanity, including climate change, could be just as devastating and that it's imperative to develop protective measures.

#### Climate change causes extinction.

Dr. Peter Kareiva 18 – Ph.D. in Ecology and Applied Mathematics from Cornell University, Director of the Institute of the Environment and Sustainability at UCLA, Pritzker Distinguished Professor in Environment & Sustainability at UCLA, et al., September 2018, “Existential Risk Due To Ecosystem Collapse: Nature Strikes Back”, Futures, Volume 102, p. 39-50

In summary, six of the nine proposed planetary boundaries (phosphorous, nitrogen, biodiversity, land use, atmospheric aerosol loading, and chemical pollution) are unlikely to be associated with existential risks. They all correspond to a degraded environment, but in our assessment do not represent existential risks. However, the three remaining boundaries (climate change, global freshwater cycle, and ocean acidification) do pose existential risks. This is because of intrinsic positive feedback loops, substantial lag times between system change and experiencing the consequences of that change, and the fact these different boundaries interact with one another in ways that yield surprises. In addition, climate, freshwater, and ocean acidification are all directly connected to the provision of food and water, and shortages of food and water can create conflict and social unrest.

Climate change has a long history of disrupting civilizations and sometimes precipitating the collapse of cultures or mass emigrations (McMichael, 2017). For example, the 12th century drought in the North American Southwest is held responsible for the collapse of the Anasazi pueblo culture. More recently, the infamous potato famine of 1846–1849 and the large migration of Irish to the U.S. can be traced to a combination of factors, one of which was climate. Specifically, 1846 was an unusually warm and moist year in Ireland, providing the climatic conditions favorable to the fungus that caused the potato blight. As is so often the case, poor government had a role as well—as the British government forbade the import of grains from outside Britain (imports that could have helped to redress the ravaged potato yields).

Climate change intersects with freshwater resources because it is expected to exacerbate drought and water scarcity, as well as flooding. Climate change can even impair water quality because it is associated with heavy rains that overwhelm sewage treatment facilities, or because it results in higher concentrations of pollutants in groundwater as a result of enhanced evaporation and reduced groundwater recharge. Ample clean water is not a luxury—it is essential for human survival. Consequently, cities, regions and nations that lack clean freshwater are vulnerable to social disruption and disease.

Finally, ocean acidification is linked to climate change because it is driven by CO2 emissions just as global warming is. With close to 20% of the world’s protein coming from oceans (FAO, 2016), the potential for severe impacts due to acidification is obvious. Less obvious, but perhaps more insidious, is the interaction between climate change and the loss of oyster and coral reefs due to acidification. Acidification is known to interfere with oyster reef building and coral reefs. Climate change also increases storm frequency and severity. Coral reefs and oyster reefs provide protection from storm surge because they reduce wave energy (Spalding et al., 2014). If these reefs are lost due to acidification at the same time as storms become more severe and sea level rises, coastal communities will be exposed to unprecedented storm surge—and may be ravaged by recurrent storms.

A key feature of the risk associated with climate change is that mean annual temperature and mean annual rainfall are not the variables of interest. Rather it is extreme episodic events that place nations and entire regions of the world at risk. These extreme events are by definition “rare” (once every hundred years), and changes in their likelihood are challenging to detect because of their rarity, but are exactly the manifestations of climate change that we must get better at anticipating (Diffenbaugh et al., 2017). Society will have a hard time responding to shorter intervals between rare extreme events because in the lifespan of an individual human, a person might experience as few as two or three extreme events. How likely is it that you would notice a change in the interval between events that are separated by decades, especially given that the interval is not regular but varies stochastically? A concrete example of this dilemma can be found in the past and expected future changes in storm-related flooding of New York City. The highly disruptive flooding of New York City associated with Hurricane Sandy represented a flood height that occurred once every 500 years in the 18th century, and that occurs now once every 25 years, but is expected to occur once every 5 years by 2050 (Garner et al., 2017). This change in frequency of extreme floods has profound implications for the measures New York City should take to protect its infrastructure and its population, yet because of the stochastic nature of such events, this shift in flood frequency is an elevated risk that will go unnoticed by most people.

4. The combination of positive feedback loops and societal inertia is fertile ground for global environmental catastrophes.

Humans are remarkably ingenious, and have adapted to crises throughout their history. Our doom has been repeatedly predicted, only to be averted by innovation (Ridley, 2011). However, the many stories of human ingenuity successfully addressing existential risks such as global famine or extreme air pollution represent environmental challenges that are largely linear, have immediate consequences, and operate without positive feedbacks. For example, the fact that food is in short supply does not increase the rate at which humans consume food—thereby increasing the shortage. Similarly, massive air pollution episodes such as the London fog of 1952 that killed 12,000 people did not make future air pollution events more likely. In fact it was just the opposite—the London fog sent such a clear message that Britain quickly enacted pollution control measures (Stradling, 2016). Food shortages, air pollution, water pollution, etc. send immediate signals to society of harm, which then trigger a negative feedback of society seeking to reduce the harm.

In contrast, today’s great environmental crisis of climate change may cause some harm but there are generally long time delays between rising CO2 concentrations and damage to humans. The consequence of these delays are an absence of urgency; thus although 70% of Americans believe global warming is happening, only 40% think it will harm them (http://climatecommunication.yale.edu/visualizations-data/ycom-us-2016/). Secondly, unlike past environmental challenges, the Earth’s climate system is rife with positive feedback loops. In particular, as CO2 increases and the climate warms, that very warming can cause more CO2 release which further increases global warming, and then more CO2, and so on. Table 2 summarizes the best documented positive feedback loops for the Earth’s climate system. These feedbacks can be neatly categorized into carbon cycle, biogeochemical, biogeophysical, cloud, ice-albedo, and water vapor feedbacks. As important as it is to understand these feedbacks individually, it is even more essential to study the interactive nature of these feedbacks. Modeling studies show that when interactions among feedback loops are included, uncertainty increases dramatically and there is a heightened potential for perturbations to be magnified (e.g., Cox, Betts, Jones, Spall, & Totterdell, 2000; Hajima, Tachiiri, Ito, & Kawamiya, 2014; Knutti & Rugenstein, 2015; Rosenfeld, Sherwood, Wood, & Donner, 2014). This produces a wide range of future scenarios.

Positive feedbacks in the carbon cycle involves the enhancement of future carbon contributions to the atmosphere due to some initial increase in atmospheric CO2. This happens because as CO2 accumulates, it reduces the efficiency in which oceans and terrestrial ecosystems sequester carbon, which in return feeds back to exacerbate climate change (Friedlingstein et al., 2001). Warming can also increase the rate at which organic matter decays and carbon is released into the atmosphere, thereby causing more warming (Melillo et al., 2017). Increases in food shortages and lack of water is also of major concern when biogeophysical feedback mechanisms perpetuate drought conditions. The underlying mechanism here is that losses in vegetation increases the surface albedo, which suppresses rainfall, and thus enhances future vegetation loss and more suppression of rainfall—thereby initiating or prolonging a drought (Chamey, Stone, & Quirk, 1975). To top it off, overgrazing depletes the soil, leading to augmented vegetation loss (Anderies, Janssen, & Walker, 2002).

Climate change often also increases the risk of forest fires, as a result of higher temperatures and persistent drought conditions. The expectation is that forest fires will become more frequent and severe with climate warming and drought (Scholze, Knorr, Arnell, & Prentice, 2006), a trend for which we have already seen evidence (Allen et al., 2010). Tragically, the increased severity and risk of Southern California wildfires recently predicted by climate scientists (Jin et al., 2015), was realized in December 2017, with the largest fire in the history of California (the “Thomas fire” that burned 282,000 acres, https://www.vox.com/2017/12/27/16822180/thomas-fire-california-largest-wildfire). This catastrophic fire embodies the sorts of positive feedbacks and interacting factors that could catch humanity off-guard and produce a true apocalyptic event. Record-breaking rains produced an extraordinary flush of new vegetation, that then dried out as record heat waves and dry conditions took hold, coupled with stronger than normal winds, and ignition. Of course the record-fire released CO2 into the atmosphere, thereby contributing to future warming.

Out of all types of feedbacks, water vapor and the ice-albedo feedbacks are the most clearly understood mechanisms. Losses in reflective snow and ice cover drive up surface temperatures, leading to even more melting of snow and ice cover—this is known as the ice-albedo feedback (Curry, Schramm, & Ebert, 1995). As snow and ice continue to melt at a more rapid pace, millions of people may be displaced by flooding risks as a consequence of sea level rise near coastal communities (Biermann & Boas, 2010; Myers, 2002; Nicholls et al., 2011). The water vapor feedback operates when warmer atmospheric conditions strengthen the saturation vapor pressure, which creates a warming effect given water vapor’s strong greenhouse gas properties (Manabe & Wetherald, 1967).

Global warming tends to increase cloud formation because warmer temperatures lead to more evaporation of water into the atmosphere, and warmer temperature also allows the atmosphere to hold more water. The key question is whether this increase in clouds associated with global warming will result in a positive feedback loop (more warming) or a negative feedback loop (less warming). For decades, scientists have sought to answer this question and understand the net role clouds play in future climate projections (Schneider et al., 2017). Clouds are complex because they both have a cooling (reflecting incoming solar radiation) and warming (absorbing incoming solar radiation) effect (Lashof, DeAngelo, Saleska, & Harte, 1997). The type of cloud, altitude, and optical properties combine to determine how these countervailing effects balance out. Although still under debate, it appears that in most circumstances the cloud feedback is likely positive (Boucher et al., 2013). For example, models and observations show that increasing greenhouse gas concentrations reduces the low-level cloud fraction in the Northeast Pacific at decadal time scales. This then has a positive feedback effect and enhances climate warming since less solar radiation is reflected by the atmosphere (Clement, Burgman, & Norris, 2009).

The key lesson from the long list of potentially positive feedbacks and their interactions is that runaway climate change, and runaway perturbations have to be taken as a serious possibility. Table 2 is just a snapshot of the type of feedbacks that have been identified (see Supplementary material for a more thorough explanation of positive feedback loops). However, this list is not exhaustive and the possibility of undiscovered positive feedbacks portends even greater existential risks. The many environmental crises humankind has previously averted (famine, ozone depletion, London fog, water pollution, etc.) were averted because of political will based on solid scientific understanding. We cannot count on complete scientific understanding when it comes to positive feedback loops and climate change.

#### Pandemics promote peace AND solve war

Sebastian Mallaby 20 (Ford International Professor of Political Science at MIT and the director of MIT's Security Studies Program, 4-23-2020, "Do Pandemics Promote Peace?", Foreign Affairs, https://www.foreignaffairs.com/articles/china/2020-04-23/do-pandemics-promote-peace, accessed: 9-25-2020)//yeed

War is a risky business, with potentially very high costs. The historian Geoffrey Blainey argued in The Causes of War that most wars share a common characteristic at their outset: optimism. The belligerents usually start out sanguine about their odds of military success. When elites on both or all sides are confident, they are more willing to take the plunge—and less likely to negotiate, because they think they will come out better by fighting. Peace, by contrast, is served by pessimism. Even one party’s pessimism can be helpful: that party will be more inclined to negotiate and even accept an unfavorable bargain in order to avoid war.

When one side gains a sudden and pronounced advantage, however, this de-escalatory logic can break down: the optimistic side will increase its demands faster than the pessimistic side can appease. Some analysts worry that something like this could happen in U.S.-Chinese relations as a result of the new coronavirus. The United States is experiencing a moment of domestic crisis. China, some fear, might see the pandemic as playing to its advantage and be tempted to throw its military weight around in the western Pacific.

What these analysts miss is that COVID-19, the disease caused by the coronavirus, is weakening all of the great and middle powers more or less equally. None is likely to gain a meaningful advantage over the others. All will have ample reason to be pessimistic about their military capabilities and their overall readiness for war. For the duration of the pandemic, at least, and probably for years afterward, the odds of a war between major powers will go down, not up.

A cursory survey of the scholarly literature on war and disease appears to confirm Blainey’s observation that pessimism is conducive to peace. Scholars have documented again and again how war creates permissive conditions for disease—in armies as well as civilians in the fought-over territories. But one seldom finds any discussion of epidemics causing wars or of wars deliberately started in the middle of widespread outbreaks of infectious disease. (The diseases that European colonists carried to the New World did weaken indigenous populations to the point that they were more vulnerable to conquest; in addition, some localized conflicts were fought during the influenza pandemic of 1919–21, but these were occasioned by major shifts in regional balances of power following the destruction of four empires in World War I.)

That sickness slows the march to war is partly due to the fact that war depends on people. When people fall ill, they can’t be counted on to perform well in combat. Military medicine made enormous strides in the years leading up to World War I, prior to which armies suffered higher numbers of casualties from disease than from combat. But pandemics still threaten military units, as those onboard U.S. and French aircraft carriers, hundreds of whom tested positive for COVID-19, know well. Sailors and soldiers in the field are among the most vulnerable because they are packed together. But even airmen are at risk, since they must take refuge from air attacks in bunkers, where the virus could also spread rapidly.

Ground campaigns in urban areas pose still greater dangers in pandemic times. Much recent ground combat has been in cities in poor countries with few or no public health resources, environments highly favorable to illness. Ground combat also usually produces prisoners, any of whom can be infected. A vaccine may eventually solve these problems, but an abundance of caution is likely to persist for some time after it comes into use.

Major outbreaks damage national economies, which are the source of military power.

#### Best studies show COVID decreases conflict – contrary evidence isn’t correlative.

Salemi 20 Colette Salemi 10-15-2020 "Does COVID-19 raise the risk of violent conflict? Not everywhere" <https://archive.is/h591O#selection-309.0-312.0> (Colette Salemi is a PhD student in applied economics at the University of Minnesota. Her research focuses on conflict, forced displacement, environmental degradation and their intersections.)//Elmer

How we did our research We **used** the Armed Conflict Location and Event Data (**ACLED**), a **database** **that counts** the **number of conflict events daily around the world**. For 2019 and 2020, ACLED includes more than 100 countries in Africa, Asia, Latin America and Eastern Europe — and tracks three categories of violent conflict: battles, violence against civilians and explosions/remote violence. We examine trends in the number of conflict events over time. To see whether the trend changes in response to covid-19, we look at what happened after the World Health Organization declared a global pandemic (March 11) or the country declared a lockdown. [Don’t miss any of TMC’s smart analysis! Sign up here for our newsletter.] The **relationship between pandemics and conflict is theoretically unclear.** In some countries, job losses from the covid-19 pandemic mean people have fewer income-generating options — that can make participation in violence seem a more viable alternative. But if **market disruptions** and reduced global demand are **driving down** the **value of natural resources** such as oil wells, then **we** may **see less conflict** over control of such resources. We then **conducted** case **studies** based **on** our knowledge of countries with high rates of violent conflict before **covid**-19. These include countries with active civil wars (such as Syria) as well as countries with violent militia groups (such as the Philippines). Conflict during the coronavirus pandemic varies greatly **Worldwide**, **we didn’t observe an increase in violent conflict**. **If anything, conflict has decreased**, as the figure below shows. **Violent conflict** between March and August 2020 **was 23 percent lower** than violent conflict during the same period in 2019. Comparing these time periods, battles are down 20 percent and remote violence and bombings are down 40 percent. But violence against civilians — the deliberate attack of unarmed noncombatants by armed groups — continued at similar rates globally.

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#### Cooperation and Solidarity Check.

Ide 21, Tobias. "COVID-19 and armed conflict." World development 140 (2021): 105355. (School of Geography, The University of Melbourne, 221 Bouverie St, Carlton, VIC 3053, Australia Institute of International Relations, Brunswick University of Technology)//Elmer

**COVID**-19 might also **provide** a **chance to demonstrate solidarity and good intentions**, and hence lessen grievances. The literature on health diplomacy, for example, discusses how **cooperation on** shared h**ealth challenges can increase** the **prospects for peaceful relations**. The empirical success of such efforts is so far been limited (Kelman, 2019). However, research on environmental peacebuilding has revealed that low-level, mutually beneficial cooperation can yield peace dividends in certain contexts (Ide, 2019). Furthermore, **ceasefires** **to deliver health benefits** **have** at least temporally **reduced armed conflict intensity** on several occasions **in the past** (Chattu & Knight, 2019). **In response to the pandemic** (and António Guterres’ call), **armed groups in 14 countries have announced ceasefires** to support responses to COVID-19 (Rustad, 2020).

#### Actors turn inward NOT outward.

Ide 21, Tobias. "COVID-19 and armed conflict." World development 140 (2021): 105355. (School of Geography, The University of Melbourne, 221 Bouverie St, Carlton, VIC 3053, Australia Institute of International Relations, Brunswick University of Technology)//Elmer

However, **COVID**-19 might also **shape** **opportunity costs in a way** **to reduce armed conflict risks**, at least temporarily. If a **state’s capability is strained** and there is an **urgent need to deal with a health emergency**, **military offensives are** certainly **unlikely** (Price-Smith, 2009). Furthermore, existing as well as potential **rebel groups** and militias **face similar challenges** in the face of the pandemic. They need to raise money and food to supply to their fighters during an economic recession, convince their members to take part in operations rather than staying at home (to reduce infection risks and support their family or community), and deal with the logistical constraints of lockdowns and border closures. **Starting** or intensifying **attacks** **during** the **COVID**-19 crisis is **likely to decrease** the local (and international) **legitimacy** of armed groups, especially if health infrastructure is affected. The ceasefire declarations by armed conflict parties in several countries can also be interpreted as a sign that COVID-related capability and legitimacy concerns are warranted.

#### No limited nuclear wars – extinction.

Webber 19 – Dr Philip Webber has written widely on nuclear issues and is Chair of Scientists for Global Responsibility (SGR) – a membership organisation promoting responsible science and technology. We will all end up killing each other and one nuclear blast could do it. 5/18/19. [METRO.UK “We will all end up killing each other and one nuclear blast could do it,” <https://metro.co.uk/2019/05/18/we-will-all-end-up-killing-each-other-and-one-nuclear-blast-could-do-it-9370115/>] Recut Justin

The nuclear armed nations have inadvertently created a global Doomsday machine, built with 15,000 nuclear weapons.

Most (93%) have been built by Russia and in the US, 3,100 of them are ready to fire within hours.

Pre-programmed targets include main cities as well as a range of military and civilian targets across the world primarily in the UK, Europe, US, Russia and China but also in Japan, Australia and South America.

One nuclear blast, one mistake, one cyber attack could trigger it.

But first a reminder about the incredible destructive power of a nuclear weapon. Modern nuclear warheads are typically 20 times larger than either of the two bombs that obliterated Hiroshima and Nagasaki at the end of the Second World War. What just one nuclear warhead can do is unimaginable. We’ve drawn some of the key features to scale against cityscapes in the UK for a Russian SS-18 RS 20V (NATO designation ‘Satan’) 500kT warhead. US submarines deploy a similar weapon – the Trident II Mk5, 475kT warhead. A deafening, terrifying noise will be created, like an intense thunder that lasts for 10 seconds or longer.

After a blinding flash of light bright destroying the retina of anyone looking, and a violent electromagnetic pulse (EMP) knocking out electrical equipment several miles away, a bomb of this size quickly forms an incandescent fireball 850 metres across.

This is about the same height as the world’s tallest building, the Burj Khalifa. Drawn against the London Canary Wharf financial district or the Manchester skyline, the huge fireball dwarfs one Canary Sq. (240m), the South Tower Deansgate (201m) and the Beetham Tower Hilton, (170m). The fireball engulfs both city centres completely, melting glass and steel and forms an intensely radioactive 60m deep crater zone of molten earth and debris. A devastating supersonic blast wave flattens everything within a radius of two to three km, the entire Manchester centre, an area larger than the City of London, with lighter damage out to eight km. Most people in these areas would be killed or very seriously injured.

The fireball quickly rises forming an enormous characteristic mushroom shaped cloud raining highly radioactive particles (fallout). It rises to 60,000 ft (18,000m) – twice the altitude of Everest – and is 15 miles, 24km across.

This is one warhead. There are 10 such warheads on each of Russia’s 46 missiles (460 in total) and 48 on each of eight US Trident submarines (384 in total). In reality, in a nuclear conflict all of these warheads and a further 956 ready-to-fire are likely to be launched.

Whilst this scale of destruction is horrific and hundreds of millions of people would be killed in a few hours from a combination of blast, radiation and huge fires, there are also terrible longer-term effects.

Scientists predict that huge city-wide firestorms combined with very the high-altitude debris clouds would severely reduce sunlight levels and disrupt the world’s climate for a decade causing drought, a prolonged winter, global famine and catastrophic impacts for all life on earth and in the seas due to intense levels of UV with the destruction of the ozone layer.

But even at the level of a few hundred nuclear warheads, the consequences of a nuclear war would be extremely severe across the world far beyond the areas hit directly. A nuclear conflict between India and Pakistan with ‘only’ 100 small warheads would kill hundreds of millions and cause climate damage leading to a global famine. The sheer destructive nature of nuclear explosions combined with long lasting radiation, means that nuclear weapons are of no military use. ‘Enemy’ territory would be unusable for years because of intense radiation – especially when nuclear power stations and reprocessing plants are hit.

Even if your own country is not hit, radiation and climate damage will spread across the globe. No one escapes the consequences.

But the nuclear nations argue that they build and keep nuclear weapons to make sure that they are never used. After all no one would be stupid enough to actually launch a nuclear weapon facing such terrible retaliation? It sounds obvious. If you threaten any attacker with terrible nuclear devastation of course they won’t attack you. That might be true most of the time. It is very unlikely that any country would launch a nuclear attack deliberately. But there are two very major problems. First, a terrorist organisation with a nuclear weapon cannot be deterred in this way. Secondly, there are several ways in which a nuclear war can start by mistake. A report by the prestigious Chatham House in 2014 documents 30 instances between 1962 and 2002 when nuclear weapons came within minutes of being launched due to miscalculation, miscommunication, or technical errors. What prevented their use on many of these occasions was the intervention of individuals who, against military orders, either refused to authorise a nuclear strike or relay information that would have led to launch. Examples include a weather rocket launch mistaken for an attack on Russia, a US satellite misinterpreting sunlight reflecting off clouds as multiple missiles firings, a 42c chip fault creating a false warning of 220 missiles launched at the United States. Such risks are heightened during political crises.

The risk of mistake is very high because, in a hangover from the Cold War, the USA and Russia each keep 900 warheads ready to fire in a few minutes, in a ‘launch on warning’ status, should a warning of nuclear attack come in.

These nuclear weapons form a dangerous nuclear stand-off – rather like two people holding guns to each other’s heads.

With only a few minutes to evaluate a warning of nuclear attack before warheads would strike, one mistake can trigger disaster. A similar nuclear stand-off exists between India and Pakistan.