## 1

#### U.S dominance over biotech now BUT Misguided policy cedes control to China.

Gupta 6/11 [“As Washington Ties Pharma's Hands, China Is Leaping Ahead.”, Gaurav Gupta, Opinion | America Risks Ceding Its Biotech Dominance to China | Barron's, Barrons, 11 June 2021, [www.barrons.com/articles/as-washington-ties-pharmas-hands-china-is-leaping-ahead-51623438808](http://www.barrons.com/articles/as-washington-ties-pharmas-hands-china-is-leaping-ahead-51623438808)., Gaurav Gupta, a physician, is the founder of the biotechnology investment firm Ascendant BioCapital.]//Lex AKu

There should be no doubt that we are living at the dawn of a golden age of biomedical innovation. The American scientific engine that produced Covid-19 vaccines in record time was fueled by a convergence of advances in genomics, biomarkers, data science, and manufacturing years in the making. The first Food and Drug Administration approvals of a host of new product formats—oligonucleotide, bispecific, oncolytic virus, CAR-T, and lentivirus/AAV—all took place within the last decade. These represent an unprecedented expansion of the armamentarium that physicians have at their disposal to treat and cure disease. In the last few years, [47% of all new medicines](https://www.efpia.eu/media/554521/efpia_pharmafigures_2020_web.pdf) were invented by U.S. biopharma companies, with [homegrown startups](https://www.cbo.gov/publication/57126) driving the majority of innovation. The bulk of the remainder were developed by foreign companies specifically for the U.S. market. An indirect benefit of these trends is that most novel therapeutics undergo clinical development and early commercial launch here in the U.S. The rest of the world understands that the American patient has earlier and broader access to groundbreaking therapies via these mechanisms. Indeed, the past decade is filled with examples of medical “firsts” for American patients: the first cure for Hepatitis C, the first gene therapy for blindness, the first immunotherapy for cancer. Future rewards will be greater still if we preserve our current system of incentivizing and protecting The remarkable innovation capacity of our biopharmaceutical industry ought to be a source of national pride. Yet while “Made in America” is the global standard for medicines in development today, misguided policy risks ceding our scientific prowess to other countries in the future. This is particularly true in the case of China, where biotechnology has become a strategic pillar for the health of its people and economy. From 2016 to 2020, the market capitalization of all Chinese biopharma companies increased exponentially from [$1 billion to over $200 billion](https://www.bloomberg.com/news/articles/2021-03-01/xi-mobilizes-china-for-tech-revolution-to-cut-dependence-on-west). China saw over [$28 billion](https://www.bioworld.com/articles/506978-china-sees-five-year-highs-in-life-sciences-investments-and-partnering) invested in its life sciences sector in 2020, double the previous year’s amount. Returns on China’s investment are already arriving. The FDA approved a drug developed in China for the first time ever in 2019. While China’s innovation capacity currently remains behind America’s, my experiences as a biopharma professional make it clear they are doing everything they can to catch up and catch up fast. In fact, when I speak to Chinese biotechnology executives, they boast that they can run clinical trials faster than their U.S. counterparts. The danger of misguided policies that disincentivize pharmaceutical innovation in the U.S. is effectively driving that same innovation to China. If we close off the market in the U.S. at the same time that China is opening its market to innovative new products, then we will see companies choose to first launch impactful novel medicines in China, based on clinical trials conducted in China. Because the FDA rarely accepts data generated entirely outside the U.S., this relocation of research capacity will negatively affect Americans’ access to cutting-edge therapies. The biotechnology field is advancing rapidly. Promising technologies such as targeted protein degradation and gene editing are perhaps not far from being developed into impactful medicines, and the U.S. risks these technologies being mastered by Chinese companies.

#### The plan chills American biomed innovation, ceding control to China – also can’t solve future diseases

Paulsen 7/9 [ERIK PAULSEN: We can save the world with our vaccines — without surrendering our IP to China," Bakersfield Californian, [https://www.bakersfield.com/opinion/erik-paulsen-we-can-save-the-world-with-our-vaccines-without-surrendering-our-ip-to/article\_b0b87692-df61-11eb-9a13-d7fa02eefaee.html]//Lex](https://www.bakersfield.com/opinion/erik-paulsen-we-can-save-the-world-with-our-vaccines-without-surrendering-our-ip-to/article_b0b87692-df61-11eb-9a13-d7fa02eefaee.html%5d//Lex) AKu

The Biden administration gave Beijing a gift when it endorsed a petition before the World Trade Organization to force the American developers of Covid-19 vaccines and therapeutics to relinquish their intellectual property rights to these medicines. The Chinese government seeks to take over in biotech, a sector where U.S. innovators lead. Biotech is included in its “Made in China 2025” plan, which lists 10 sectors that China aims to dominate. The government intends to force anyone doing business in China in those spheres to hand over know-how. Surrendering IP protections on biomedical technology has dire consequences. Foremost, it guts the foundation of biomedical innovation, which takes huge investments spanning many years to bear fruit. IP protections assure innovators that they can recover those investments and make a profit. Losing IP protection would have a chilling effect on investments in the sector. Equally injurious to America, the IP waiver would allow China to become a biotech powerhouse by piggybacking on American innovation. A waiver on IP for Covid-19 vaccines would accelerate the timeline for “Made in China 2025**.**” The mRNA technology, which undergirds the Pfizer-BioNTech and Moderna vaccines has uses beyond this pandemic. It has the potential to take on cancers and other diseases. With the waiver, China and others will be emboldened to use the once-proprietary mRNA know-how for broader research and applications. Is this in America’s interest? Mark Cohen**,** an expert on Chinese IP theft**,** recentlytold the Washington Post that the waiver would deliver **“**a competitive advantage to countries that are increasingly viewed as our adversaries, at taxpayer expense.” Beyond the damage that an mRNA giveaway will inflict on US R&D investments, the waiver sends a signal that America could agree to force American innovators to part with trade secrets every time there’s a global crisis. That attitude will arrest biopharmaceutical innovation. Small biotech firms spearhead 70 percent of the R&D pipeline, relying heavily on private investors to fund that work. If investors know that innovators may have to give away their discoveries in a global crisis, they’ll deploy their money elsewhere. That’ll make it even harder to draw the R&D investments needed to address infectious diseases, including drug-resistant infections and viruses. America is benefitting greatly from the early access to COVID-19 treatments and vaccines, saving lives and speeding economic recovery. Preserving U.S. leadership in biomedical innovation includes preserving the incentives that helped make it the world’s leader. A final downside of the waiver is the ability for American firms to find a cure for the next pandemic. Among the greatest threats is bacteria resistant to our current arsenal of antibiotics that becomes a pandemic-inducing superbug. Already, the market for new antimicrobials is broken**.** Only a handful of biotechs have them in development, and many have gone bankrupt trying to commercialize one. “A lot of people have rightly said we need to start thinking about preparing for the next pandemic now,” noted Craig Garthwaite, a healthcare-business professor at Northwestern University. “Suspending IP for vaccine manufacturers would send exactly the wrong signal for the future.**”** For the sake of patients everywhere, American IP rights must stay protected. It’s the only way to keep China at bay and American innovators at work.

#### Biotech leadership key to future military primacy.

Moore 21 [(Scott Moore is a political scientist and administrator at the University of Pennsylvania and the author of a forthcoming book, “How China Shapes the Future,” on China’s role in public goods and emerging technologies.) 8-8-2021, "In Biotech, the Industry of the Future, the U.S. Is Way Ahead of China," Lawfare, https://www.lawfareblog.com/biotech-industry-future-us-way-ahead-china]//Lex AKu

A [continuing refrain](https://phys.org/news/2020-10-america-edge-peril.html) from Washington in recent years has been that the United States is falling behind China in the development of critical emerging technologies. In some fields, this may be true. But not in biotechnology. To be sure, China’s biotech sector is growing at a torrid pace, and some of its firms are becoming leaders in [certain areas](https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_china_biotechnology_moore.pdf), such as cancer treatment. Yet the U.S. retains a dominant position in research, development and commercialization, accounting for [almost half](https://itif.org/publications/2018/03/26/how-ensure-americas-life-sciences-sector-remains-globally-competitive) of all biotech patents filed from 1999 to 2013. The triumph of its biotechnology industry during the coronavirus pandemic, producing two highly effective vaccines using an entirely new approach based on [messenger RNA](https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html), and in record time, shows that the U.S.’s competitive edge in biotechnology remains largely intact. And that has important implications as Washington gears up for a sustained period of geopolitical competition with Beijing. Biotech is such a critical area for technological competition between the U.S. and China because it is transforming fields from medicine to military power. The great advances of the 19th century, like chemical fertilizers, resulted from mastering chemistry. In the 20th century, mastery of physics led to nuclear energy—and, more ominously, nuclear weapons. In the 21st century, biology offers a similar mix of peril and promise. This was illustrated dramatically by the award of the 2020 Nobel Prize for the discovery of an enzyme system known as CRISPR-Cas9, which allows an organism’s genomes to be edited with high precision. It is a transformational breakthrough. But while CRISPR shows great promise in the development of [new cures](https://www.nature.com/articles/d41586-020-03476-x) for long-untreatable diseases, it could also lead to a whole new generation of [deadly bioweapons](https://foreignpolicy.com/2019/11/08/cloning-crispr-he-jiankui-china-biotech-boom-could-transform-lives-destroy-them/). That’s a prospect that increasingly alarms U.S. intelligence officials. In 2016, then-Director of National Intelligence James Clapper [warned Congress](https://www.technologyreview.com/s/600774/top-us-intelligence-official-calls-gene-editing-a-wmd-threat/) that “[r]esearch in genome editing conducted by countries with different regulatory or ethical standards than those of western countries probably increases the risk of the creation of potentially harmful biological agents or products.” Although Clapper didn’t name specific countries, it soon became clear that he was referring mainly to China. Four years later, his successor, John Ratcliffe, issued a far more [pointed warning](https://www.wsj.com/articles/china-is-national-security-threat-no-1-11607019599) that “China has even conducted human testing on members of the People’s Liberation Army in hope of developing soldiers with biologically enhanced capabilities. There are no ethical boundaries to Beijing’s pursuit of power.” Such capabilities are almost certainly only speculative—but they underscore why biotech leadership is so important for national security as well as economic competitiveness. Beijing has long envied the United States’s dominant position in biotechnology and spent heavily to overtake it. Biotech has been a priority sector for state investment since the 1980s, and by [one estimate](https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_china_biotechnology_moore.pdf) Beijing had poured some $100 billion into the sector by 2018. Nowhere did it lavish more attention or invest more of its propaganda power than in developing a coronavirus vaccine. State media have spent months [crowing](https://www.globaltimes.cn/content/1190615.shtml) that “China is working around the clock for breakthroughs in COVID-19 vaccines.” Yet despite this push, China’s vaccine program quickly took on a Potemkin air. In February 2020, barely two months after the onset of the pandemic and after a supposedly crash vaccine effort, a military doctor stood in front of a Chinese flag to receive what was billed as an experimental vaccine dose but was widely suspected to be a [staged photo op](https://www.sciencemag.org/news/2020/11/global-push-covid-19-vaccines-china-aims-win-friends-and-cut-deals). Now, having [spent months](https://www.nytimes.com/2021/01/13/business/chinese-vaccine-brazil-sinovac.html) talking up its two primary vaccine candidates to developing countries like Brazil and Indonesia, both of which have entered into purchase agreements with Chinese biotech firms, Chinese officials face [severe mistrust](https://www.nytimes.com/2021/01/13/business/chinese-vaccine-brazil-sinovac.html) among their nation’s overseas partners. For China’s leaders, the disappointing returns on their big bet on biotechnology look likely to cause them more headaches at home as well as abroad—there are [already signs](https://www.sciencemag.org/news/2020/11/global-push-covid-19-vaccines-china-aims-win-friends-and-cut-deals) that affluent Chinese place more trust in foreign-developed coronavirus vaccines than the homegrown ones produced at such great expense. For U.S. officials, though, China’s relative underperformance in vaccine development presents an opportunity to reassert the United States’s leadership in biotechnology and public health and bolster the nation’s depleted soft power in the process. The Biden administration has already signaled it will reengage in multilateral bodies such as the World Health Organization. Yet the U.S. shouldn’t stop there. Washington should begin thinking now about how to emulate the success of the President’s Emergency Plan for AIDS Relief (PEPFAR)—which, though imperfect, is widely regarded as one of the most successful single public health interventions in history—to address growing disparities in access to coronavirus vaccines between countries. At the moment, vaccine supplies are controlled largely by rich countries, creating the risk of moral and public health failure if the gap persists. While COVID-19, the respiratory disease caused by the novel coronavirus, differs in many respects from AIDS, PEPFAR combined research, prevention, and access to therapeutics. Developing a comparable institutional structure to close the coronavirus vaccine access gap is the right thing to do—but it would also go a long way to restoring America’s battered global reputation. At the same time, the United States can’t afford to rest on its laurels in biotechnology, or any other field. Aside from China, other nations like Singapore and Israel have also invested heavily to develop their biotechnology sectors, with Israel in particular giving rise to a thriving biotech industry. U.S. public investment in basic scientific research and development has meanwhile [been on the decline](https://www.wsj.com/articles/how-the-u-s-surrendered-to-china-on-scientific-research-11555666200) for decades, and there are worrying signs that America’s once world-beating innovation ecosystem is less productive, and less entrepreneurial, than it once was. Despite strengths in translational research, moreover, the frontiers of biology increasingly sit at the [intersection with other disciplines](https://www.startus-insights.com/innovators-guide/biotech-innovation-map-reveals-emerging-technologies-startups/) like computer science, meaning that funding agencies, universities and other organizations need to break down disciplinary silos. Boosting support for biotechnology research, while reforming how that money is used, will go a long way toward shoring up the United States’s leading position in the global biotech sector. The U.S. biotechnology sector also faces other threats, not least growing espionage and intellectual property theft by foreign actors, especially those linked to China. Several high-profile cases brought by the U.S. Department of Justice’s China Initiative have involved biotechnology researchers, and American biotech firms have been [top targets](https://www.jdsupra.com/legalnews/chinese-and-russian-hackers-targeting-78355/) for cyber theft and intrusion. Sustained outreach to researchers and research institutions is critical to preventing such theft. But efforts to clamp down on the threats posed by espionage and intellectual property theft can easily go too far and must preserve the researcher mobility and data-sharing that is essential to doing cutting-edge science. Beyond its shores, the United States should work with its partners and allies to enhance export controls on dual-use biotechnology—used for both peaceful and military gain—especially DNA templates. Many forms of genetic material and synthetic biology products are [already subject](https://www.bis.doc.gov/index.php/documents/regulations-docs/2332-category-1-materials-chemicals-microorganisms-and-toxins-4/file) to U.S. export controls, but gaps remain, and screening for genetic sequence orders relies primarily on voluntary regulation by biotech firms. Better coordinating export controls among major economies and U.S. allies can dramatically reduce the risk of sophisticated bioweapons development in the decades to come.

#### Heg solves arms races, land grabs, rogue states, and great power war.

Brands 18 [Hal, Henry Kissinger Distinguished Professor at Johns Hopkins University's School of Advanced International Studies and a senior fellow at the Center for Strategic and Budgetary Assessments." American Grand Strategy in the Age of Trump." Page 129-133]

Since World War II, the United States has had a military second to none. Since the Cold War, America has committed to having overwhelming military primacy. The idea, as George W. Bush declared in 2002, that America must possess “strengths beyond challenge” has featured in every major U.S. strategy document for a quarter century; it has also been reflected in concrete terms.6 From the early 1990s, for example, the United States consistently accounted for around 35 to 45 percent of world defense spending and maintained peerless global power-projection capabilities.7 Perhaps more important, U.S. primacy was also unrivaled in key overseas strategic regions—Europe, East Asia, the Middle East. From thrashing Saddam Hussein’s million-man Iraqi military during Operation Desert Storm, to deploying—with impunity—two carrier strike groups off Taiwan during the China-Taiwan crisis of 1995– 96, Washington has been able to project military power superior to anything a regional rival could employ even on its own geopolitical doorstep. This military dominance has constituted the hard-power backbone of an ambitious global strategy. After the Cold War, U.S. policymakers committed to averting a return to the unstable multipolarity of earlier eras, and to perpetuating the more favorable unipolar order. They committed to building on the successes of the postwar era by further advancing liberal political values and an open international economy, and to suppressing international scourges such as rogue states, nuclear proliferation, and catastrophic terrorism. And because they recognized that military force remained the ultima ratio regum, they understood the centrality of military preponderance. Washington would need the military power necessary to underwrite worldwide alliance commitments. It would have to preserve substantial overmatch versus any potential great-power rival. It must be able to answer the sharpest challenges to the international system, such as Saddam’s invasion of Kuwait in 1990 or jihadist extremism after 9/11. Finally, because prevailing global norms generally reflect hard-power realities, America would need the superiority to assure that its own values remained ascendant. It was impolitic to say that U.S. strategy and the international order required “strengths beyond challenge,” but it was not at all inaccurate. American primacy, moreover, was eminently affordable. At the height of the Cold War, the United States spent over 12 percent of GDP on defense. Since the mid-1990s, the number has usually been between 3 and 4 percent.8 In a historically favorable international environment, Washington could enjoy primacy—and its geopolitical fruits—on the cheap. Yet U.S. strategy also heeded, at least until recently, the fact that there was a limit to how cheaply that primacy could be had. The American military did shrink significantly during the 1990s, but U.S. officials understood that if Washington cut back too far, its primacy would erode to a point where it ceased to deliver its geopolitical benefits. Alliances would lose credibility; the stability of key regions would be eroded; rivals would be emboldened; international crises would go unaddressed. American primacy was thus like a reasonably priced insurance policy. It required nontrivial expenditures, but protected against far costlier outcomes.9 Washington paid its insurance premiums for two decades after the Cold War. But more recently American primacy and strategic solvency have been imperiled. THE DARKENING HORIZON For most of the post–Cold War era, the international system was— by historical standards—remarkably benign. Dangers existed, and as the terrorist attacks of September 11, 2001, demonstrated, they could manifest with horrific effect. But for two decades after the Soviet collapse, the world was characterized by remarkably low levels of great-power competition, high levels of security in key theaters such as Europe and East Asia, and the comparative weakness of those “rogue” actors—Iran, Iraq, North Korea, al-Qaeda—who most aggressively challenged American power. During the 1990s, some observers even spoke of a “strategic pause,” the idea being that the end of the Cold War had afforded the United States a respite from normal levels of geopolitical danger and competition. Now, however, the strategic horizon is darkening, due to four factors. First, great-power military competition is back. The world’s two leading authoritarian powers—China and Russia—are seeking regional hegemony, contesting global norms such as nonaggression and freedom of navigation, and developing the military punch to underwrite these ambitions. Notwithstanding severe economic and demographic problems, Russia has conducted a major military modernization emphasizing nuclear weapons, high-end conventional capabilities, and rapid-deployment and special operations forces— and utilized many of these capabilities in conflicts in Ukraine and Syria.10 China, meanwhile, has carried out a buildup of historic proportions, with constant-dollar defense outlays rising from US$26 billion in 1995 to US$226 billion in 2016.11 Ominously, these expenditures have funded development of power-projection and antiaccess/area denial (A2/AD) tools necessary to threaten China’s neighbors and complicate U.S. intervention on their behalf. Washington has grown accustomed to having a generational military lead; Russian and Chinese modernization efforts are now creating a far more competitive environment. Second, the international outlaws are no longer so weak. North Korea’s conventional forces have atrophied, but it has amassed a growing nuclear arsenal and is developing an intercontinental delivery capability that will soon allow it to threaten not just America’s regional allies but also the continental United States.12 Iran remains a nuclear threshold state, one that continues to develop ballistic missiles and A2/AD capabilities while employing sectarian and proxy forces across the Middle East. The Islamic State, for its part, is headed for defeat, but has displayed military capabilities unprecedented for any terrorist group, and shown that counterterrorism will continue to place significant operational demands on U.S. forces whether in this context or in others. Rogue actors have long preoccupied American planners, but the rogues are now more capable than at any time in decades. Third, the democratization of technology has allowed more actors to contest American superiority in dangerous ways. The spread of antisatellite and cyberwarfare capabilities; the proliferation of man-portable air defense systems and ballistic missiles; the increasing availability of key elements of the precision-strike complex— these phenomena have had a military leveling effect by giving weaker actors capabilities which were formerly unique to technologically advanced states. As such technologies “proliferate worldwide,” Air Force Chief of Staff General David Goldfein commented in 2016, “the technology and capability gaps between America and our adversaries are closing dangerously fast.”13 Indeed, as these capabilities spread, fourth-generation systems (such as F-15s and F-16s) may provide decreasing utility against even non-great-power competitors, and far more fifth-generation capabilities may be needed to perpetuate American overmatch. Finally, the number of challenges has multiplied. During the 1990s and early 2000s, Washington faced rogue states and jihadist extremism—but not intense great-power rivalry. America faced conflicts in the Middle East—but East Asia and Europe were comparatively secure. Now, the old threats still exist—but the more permissive conditions have vanished. The United States confronts rogue states, lethal jihadist organizations, and great-power competition; there are severe challenges in all three Eurasian theaters. “I don’t recall a time when we have been confronted with a more diverse array of threats, whether it’s the nation state threats posed by Russia and China and particularly their substantial nuclear capabilities, or non-nation states of the likes of ISIL, Al Qaida, etc.,” Director of National Intelligence James Clapper commented in 2016. Trends in the strategic landscape constituted a veritable “litany of doom.”14 The United States thus faces not just more significant, but also more numerous, challenges to its military dominance than it has for at least a quarter century.

## 2

#### CP Text – The member nations of the WTO ought to reduce IPP for medicines during public health emergencies and employ direct health support through the methods in the Lindsey evidence. In all other cases IPP ought to remain the same.

#### The CP incentivizes pharma medicine development during future pandemics – the aff fails.

Lindsey 21 Brink Lindsey is Vice President and Director of the Open Society Project at the Niskanen Center. Previously he was the Cato Institute's vice president for research [Brink Lindsey, 6-3-2021, "Why intellectual property and pandemics don’t mix," Brookings, <https://www.brookings.edu/blog/up-front/2021/06/03/why-intellectual-property-and-pandemics-dont-mix/>] //Lex AKo

On May 5 the Biden administration announced that it would support waiving intellectual property protections for COVID-19 vaccines under the World Trade Organization’s Agreement on Trade-Related Intellectual Property Rights (TRIPS). Predictably, the move drew fiery condemnation from drug companies. In addition, many disinterested observers criticized the support for a TRIPS waiver as empty symbolism, arguing that vaccine patents are not the major obstacle hindering the currently flagging drive to make vaccines available around the world. Waiving patent protections is certainly no panacea. **What is needed most urgently is a massive drive of technology transfer**, capacity expansion, and supply line coordination **to bring vaccine supply in line with global demand. Dispensing with patents in no way obviates the need for governments to fund and oversee this** effort. Although focusing on these immediate constraints is vital, we cannot confine our attention to the short term. First of all, the COVID-19 pandemic is far from over. Although Americans can now see the light at the end of the tunnel thanks to the rapid rollout of vaccines, most of the world isn’t so lucky. The virus is currently raging in India and throughout South America, overwhelming health care systems and inflicting suffering and loss on a horrific scale. And consider the fact that Australia, which has been successful in suppressing the virus, recently announced it was sticking to plans to keep its borders closed until mid-2022. Criticisms of the TRIPS waiver that focus only on the next few months are therefore short-sighted: this pandemic could well drag on long enough for elimination of patent restrictions to enable new vaccine producers to make a positive difference. Furthermore, and probably even more important, this is almost certainly not the last pandemic we will face. Urbanization, the spread of factory-farming methods, and globalization all combine to increase the odds that a new virus will make the jump from animals to humans and then spread rapidly around the world. Prior to the current pandemic, the 21st century already saw outbreaks of SARS, H1N1, MERS, and Ebola. Everything we do and learn in the current crisis should be viewed from the perspective of getting ready for next time. THE NATURE OF THE PATENT BARGAIN When we take the longer view, we can see a fundamental mismatch between the policy design of intellectual property protection and the policy requirements of effective pandemic response. Although **patent law**, properly restrained, **constitutes one important element of a well-designed national innovation system**, the way it goes about encouraging technological progress **is singularly ill-suited to the emergency conditions** of a pandemic or other public health crisis. Securing a TRIPS waiver for COVID-19 vaccines and treatments would thus establish a salutary precedent that, in emergencies of this kind, **governments should employ other, more direct means to incentivize the development of new drugs.** Here is the basic bargain offered by patent law: encourage the creation of useful new ideas for the long run by slowing the diffusion of useful new ideas in the short run. The second half of the bargain, the half that imposes costs on society, comes from the temporary exclusive rights, or monopoly privileges, that a patent holder enjoys. Under U.S. patent law, for a period of 20 years nobody else can manufacture or sell the patented product without the permission of the patent holder. This allows the **patent holder to block competitors from the market**, or extract licensing fees before allowing them to enter, and consequently charge above-market prices to its customers. Patent rights thus slow the diffusion of a new invention by restricting output and raising prices. **The imposition** of these short-run costs, however, **can bring net long-term benefits by sharpening the incentives to invent new products**. In the absence of patent protection, **the prospect of easy imitation by later market entrants can deter would-be innovators from incurring the up-front fixed costs of research and development**. But with a guaranteed period of market exclusivity, inventors can proceed with greater confidence that they will be able to recoup their investment. For the tradeoff between costs and benefits to come out positive on net, patent law must strike the right balance. **Exclusive rights should be valuable enough to encourage greater innovation, but not so easily granted or extensive in scope or term that this encouragement is outweighed by output restrictions** on the patented product and discouragement of downstream innovations dependent on access to the patented technology. Unfortunately, the U.S. patent system at present is out of balance. Over the past few decades, the expansion of patentability to include software and business methods as well as a general relaxation of patenting requirements have led to wildly excessive growth in these temporary monopolies: the number of patents granted annually has skyrocketed roughly fivefold since the early 1980s. One unfortunate result has been the rise of “non-practicing entities,” better known as patent trolls: firms that make nothing themselves but buy up patent portfolios and monetize them through aggressive litigation. As a result, a law that is supposed to encourage innovation has turned into a legal minefield for many would-be innovators. In the pharmaceutical industry, firms have abused the law by piling up patents for trivial, therapeutically irrelevant “innovations” that allow them to extend their monopolies and keep raising prices long beyond the statutorily contemplated 20 years. Patent law is creating these unintended consequences because policymakers have been caught in an ideological fog that conflates “intellectual property” with actual property rights over physical objects. Enveloped in that fog, they regard any attempts to put limits on patent monopolies as attacks on private property and view ongoing expansions of patent privileges as necessary to keep innovation from grinding to a halt. In fact, patent law is a tool of regulatory policy with the usual tradeoffs between costs and benefits; like all tools, it can be misused, and as with all tools there are some jobs for which other tools are better suited. **A well-designed patent system**, in which benefits are **maximized and costs kept to a minimum, is just one of various policy options that governments can employ to stimulate technological advance—including tax credits for R&D, prizes for targeted inventions**, and direct government support. PUBLIC HEALTH EMERGENCIES AND DIRECT GOVERNMENT SUPPORT For pandemics and other public health emergencies, patents’ mix of costs and benefits is misaligned with what is needed for an effective policy response. The basic patent bargain, even when well struck, is to pay for more innovation down the road with slower diffusion of innovation today. In the context of a pandemic, that bargain is a bad one and should be rejected entirely. Here the imperative is to accelerate the diffusion of vaccines and other treatments, not slow it down. Giving drug companies the power to hold things up by blocking competitors and raising prices pushes in the completely wrong direction. What approach to encouraging innovation should we take instead? How do we incentivize drug makers to undertake the hefty R&D costs to develop new vaccines without giving them exclusive rights over their production and sale? **The most effective approach** during a public health crisis **is direct government support: public funding of R&D, advance purchase commitments by the government to buy large numbers of doses at set prices, and other, related payouts**. And when we pay drug makers, we should not hesitate to pay generously, even extravagantly: **we want to offer drug companies big profits so that they prioritize this work** above everything else, and so that they are ready and eager to come to the rescue again the next time there’s a crisis.

#### Future pandemics cause extinction

Bar-Yam 16 Yaneer Bar-Yam 7-3-2016 “Transition to extinction: Pandemics in a connected world” <http://necsi.edu/research/social/pandemics/transition> (Professor and President, New England Complex System Institute; PhD in Physics, MIT)//Elmer

Watch as one of the more aggressive—brighter red — strains rapidly expands. After a time it goes extinct leaving a black region. Why does it go extinct? The answer is that it spreads so rapidly that it kills the hosts around it. Without new hosts to infect it then dies out itself. That the rapidly spreading pathogens die out has important implications for evolutionary research which we have talked about elsewhere [1–7]. In the research I want to discuss here, what we were interested in is the effect of adding long range transportation [8]. This includes natural means of dispersal as well as unintentional dispersal by humans, like adding airplane routes, which is being done by real world airlines (Figure 2). When we introduce long range transportation into the model, the success of more aggressive strains changes. They can use the long range transportation to find new hosts and escape local extinction. Figure 3 shows that the more transportation routes introduced into the model, the more higher aggressive pathogens are able to survive and spread. As we add more long range transportation, there is a critical point at which pathogens become so aggressive that the entire host population dies. The pathogens die at the same time, but that is not exactly a consolation to the hosts. We call this the phase transition to extinction (Figure 4). With increasing levels of global transportation, human civilization may be approaching such a critical threshold. In the paper we wrote in 2006 about the dangers of global transportation for pathogen evolution and pandemics [8], we mentioned the risk from Ebola. Ebola is a horrendous disease that was present only in isolated villages in Africa. It was far away from the rest of the world only because of that isolation. Since Africa was developing, it was only a matter of time before it reached population centers and airports. While the model is about evolution, it is really about which pathogens will be found in a system that is highly connected, and Ebola can spread in a highly connected world. The traditional approach to public health uses historical evidence analyzed statistically to assess the potential impacts of a disease. As a result, many were surprised by the spread of Ebola through West Africa in 2014. As the connectivity of the world increases, past experience is not a good guide to future events. A key point about the phase transition to extinction is its suddenness. Even a system that seems stable, can be destabilized by a few more long-range connections, and connectivity is continuing to increase. So how close are we to the tipping point? We don’t know but it would be good to find out before it happens. While Ebola ravaged three countries in West Africa, it only resulted in a handful of cases outside that region. One possible reason is that many of the airlines that fly to west Africa stopped or reduced flights during the epidemic [9]. In the absence of a clear connection, public health authorities who downplayed the dangers of the epidemic spreading to the West might seem to be vindicated. As with the choice of airlines to stop flying to west Africa, our analysis didn’t take into consideration how people respond to epidemics. It does tell us what the outcome will be unless we respond fast enough and well enough to stop the spread of future diseases, which may not be the same as the ones we saw in the past. As the world becomes more connected, the dangers increase. Are people in western countries safe because of higher quality health systems? Countries like the U.S. have highly skewed networks of social interactions with some very highly connected individuals that can be “superspreaders.” The chances of such an individual becoming infected may be low but events like a mass outbreak pose a much greater risk if they do happen. If a sick food service worker in an airport infects 100 passengers, or a contagion event happens in mass transportation, an outbreak could very well prove unstoppable.

## Case

#### Free markets key to solve disease cures

Jackson 16. Kerry, Pacific Research Institute; 12/19/16; Free Market Policies Needed To Incentivize Creation Of New Life-Saving Treatments; https://www.pacificresearch.org/article/free-market-policies-needed-to-incentivize-creation-of-new-life-saving-treatments/

“Our strongest antibiotics don’t work and patients are left with potentially untreatable infections,” Director Dr. Tom Frieden said when the CDC issued its warning. He asked doctors, hospitals and public health officials to “work together” to “stop these infections from spreading.” The 2014 Report to the President expressed a similar concern: “The evolution of antibiotic resistance is now occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security and national security.” For those thinking this sort of thing shouldn’t be happening when medical science is more advanced than can almost be conceived, be assured that it is. And unless there are public policy interventions, it’s likely to get worse. “More and more microorganisms will continue to gain resistance to the current drug therapies because (antimicrobial resistance, or AMR) is basic evolution,” Wayne Winegarden writes in the Pacific Research Institute’s newly-released report “Incenting the Development of Antimicrobial Medicines to Address the Problem of Drug-Resistant Infections.” The International Federation of Pharmaceutical Manufacturers says the problem is caused by “a dearth of new antibiotic medicines.” At the same time that there’s been an increase in AMR, there has been “a sharp decline in the development of new antibiotic medicines.” The group reports that only two new classes of antibiotics have been discovered in the last three decades compared to 11 in the previous 50 years. The answers to many medical problems are still not within reach of researchers. But the hazards of AMR can be diminished. Winegarden suggests we begin with public health campaigns that encourage handwashing, which he calls a highly effective and low-cost way to reduce the spread of infection. He further recommends policy that would address the problem of antibiotic overuse and greater use of vaccines to cut the incidents of infection. But Winegarden’s primary concern is establishing the correct incentives for developing new antimicrobial medicines that would be effective against AMR microorganisms. He’s specifically referring to policies “based on a thorough understanding of the disincentives that are currently inhibiting their development.” “These disincentives are well-recognized,” he writes. “Despite the medical need, and despite the generally strong return on investment for many other drug classes, the return on investment for developing new antimicrobial medicines (particularly antibiotics) is too low.” Producing a new drug is a grinding and expensive endeavor. It can take 10 to 15 years to develop a single prescription drug that is introduced to the market, and a company can spend as much as $5.5 billion on research and development for each medication that is eventually approved and prescribed. Less than 2 percent of all projects launched to create new drugs succeed. This is not an environment in which pharmaceutical companies can get too amped up about pursuing new treatments. Yet new drug approvals increased over the last decade. Don’t look for a surge of antimicrobial drugs in that pipeline, though. Winegarden says that particular drug class is among several that “face unique impediments” that serve as disincentives for innovation. To overcome the steep hill that impedes the development of new AMR drugs, lawmakers must implement policies that unleash the incentives of the free market. Policymakers also should look at the 1983 federal Orphan Drug Act and its market-oriented reforms that increased the number of drugs developed to treat rare diseases. More than 400 have been introduced to the market since the law was enacted, compared to fewer than 10 in the 1970s. Put another way, government needs to remove its anchors from the process and let the market do what it does so well. In this case, that’s restoring patients’ health, enriching innovative companies that create jobs, and inspiring biotech start-ups such as the group of Stanford undergraduates that has been capitalized to develop new antibiotics. If the proper incentives are in place, the needed treatments will follow.

#### Independently profit motive key to effective resource management

Fitzmaurice 15. Matthew, CEO, EcoAlpha Asset Management LLC. “ONLY CAPITALISM CAN SAVE THE PLANET,” Ensla. 3/23/2015. http://ensia.com/voices/only-capitalism-can-save-the-planet/

Here’s the thing, though: where there are problems to be solved, there’s money to be made. And where there’s money to be made, we awaken one of the world’s most powerful forces for change: capitalism. ¶ Of course capitalism has played a starring role in distressing the planet’s resources. Historically, the combination of unchecked industry, a readiness to externalize costs and a relentless thirst for growth have plundered and polluted the earth. It’s not a debate, but simple fact that our population size and economies cannot continue on their present trajectories without exhausting the world’s resources. Yet, a rapidly expanding global middle class — increasingly urbanized and hungry for protein — threatens further and accelerating distress. ¶ The hopeful news is that businesses, with their almost singular focus on economic self-interest, and governments, motivated by a variety of interests, are beginning to recognize and address in earnest these inevitable problems. ¶ Today, the businesses that develop practical and affordable solutions to burdened resource problems will end up being the world’s most profitable companies. No longer can they be considered “sustainability” businesses. They are everyday businesses with a long view, targeting problems that are not going away. That’s smart business. Burdened resources have become a strong economic driver for businesses of all sizes, in all industries everywhere to spend and change — and one that will only grow in scope and intensity over time. ¶ The companies that provide effective solutions to burdened resources will provide superior risk-adjusted returns to their investors as business and governments accelerate their solutions spending out of their own economic self-interest. And because the products, technologies and services these companies provide are common solutions to global problems — and are therefore exponentially repeatable — these investments will have amplified positive impact on global resource scarcity issues. ¶ Too often people have a narrow view of these solutions, thinking only of solar panels and windmills. But solutions are enormously diverse: They include, among many others, agricultural drones that monitor soil conditions, smart irrigation technology that delivers water only where and when it’s really needed, more efficient distributed energy generation and component suppliers that make cars use less gas. ¶ We face a new reality in which our economic self-interest and the long-term well-being of the planet are coming into alignment.¶ As a whole, the human race has a poor track record when it comes to altruism. Although there are a great many saints among us who spend — and even sacrifice — their lives to help others, most of us are hard pressed to take care of ourselves and our families. We have a much better track record when it comes to investing money in our own self- interest, which has fueled the unprecedented innovation, economic and life-expectancy growth of the past century. ¶ In the past, many people who invested in sustainable solutions were motivated principally by conscience, willing to accept reduced returns in order to invest their money in a way that was consistent with their beliefs and convictions — be they religious, social or environmental. Now, however, we face a new reality in which our economic self-interest and the long-term well-being of the planet are coming into alignment. Because we have to face the reality of burdened resources, there’s money in it. ¶ Recently, some asset managers have based investments on environmental, social and governance screening, betting that good corporate citizens are inherently better-managed companies, which will therefore be more profitable over time. Increasingly, however, ESG screening is becoming more pervasive and will likely over time become commonplace, robbing this sort of screening as a differentiator when making investment decisions. ¶ The primary goal for investing in sustainable solutions is to achieve superior risk-adjusted returns. Companies that provide solutions to the issues of burdened resources will be the recipients of a massive global spend cycle, no matter one’s motivation. The fact that one’s investment is also part of the solution rather than the problem is worth getting excited about. Self-interest is what moves markets. According to McKinsey’s report, How to make Green Growth the new normal, “In order to mobilize the US$3 trillion a year that will be needed to build a resource-efficient growth model, investing in the markets of the future needs to be seen as possessing superior risk-return characteristics.”¶ No government subsidy or charity case can move the needle for long. Only capitalism has the power to retool industries, reshape economies and rebuild infrastructure across the planet. It’s a big part of what got us into this mess, but it’s also what will get us out.

#### Critique of neoliberalism is politically useless—economic elites don’t identify with the title and dismiss social criticism as ‘economically illiterate.’

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Beyond conceptual proliferation and incoherence, there is an important third terminological feature of neoliberalism that more clearly distinguishes it from the multitude of other stressed and stretched concepts that dot the social sciences: it dares not speak its own name. While there are many who give out and are given the title of neoliberal, there are none who will embrace this moniker of power and call themselves as such. There is no contemporary body of knowledge that calls itself neoliberalism, no self-described neoliberal theorists that elaborate it, nor policy-makers or practitioners that implement it. There are no primers or advanced textbooks on the subject matter, no pedagogues, courses or students of neoliberalism, no policies or election manifestoes that promise to implement it (although there are many that promise to dismantle it). Pedantic as it may seem, this is a point that warrants repetition if only because there is a considerable body of critical literature that deploys neoliberalism under the mistaken assumption that, in doing so, it is being transported into the front-lines of hand-to-hand combat with free-market economics.

Advocates of market deregulation, private-sector-led growth or any of the various shifting components that might be part of neoliberalism do not describe themselves or their policies as such. Instead, neoliberalism is defined, conceptualized and deployed exclusively by those who stand in evident opposition to it, such that the act of using the word has the twofold effect of identifying oneself as non-neoliberal, and of passing negative moral judgment over it. Consequently, neoliberalism often features, even in sober academic tracts, in the rhetorical toolkit of caricature and dismissal, rather than of analysis and deliberation.

Boas and Gans-Morse (2009, p. 152) find that the inversion in its usage from positive to negative arose during the Pinochet regime in Chile. Until then, Latin American debates over economic policy in the 1960s and 1970s used the term largely in the positive sense, often with reference to West Germany's Wirtschaftswunder, whereas it became steadily negative in the 1980s. Importantly, neoliberalism, which was always a marginal part of the vocabulary in mainstream academic economics, even before its negative association, has since disappeared almost entirely in that arena in parallel with its growing influence and usage in the rest of the social sciences. As a result, the one-sided usage of neoliberalism extends not just to the way it is used only by self-consciously non-neoliberal critics, but also as a term used only by non-economists, and that, too, when referring to economic phenomena and economic forms of reasoning.

Indeed, the word neoliberalism is so utterly absent in modern economics that it is impossible to reconcile Ferguson's above definition of it as ‘macro-economic doctrine’ with the corpus of contemporary macro-economic theory at hand. For example, the word neoliberalism does not appear at all in any of the major macro-economic textbooks, including Mankiw's Principles of macroeconomics (2012), Blanchard's Macroeconomics (2012), Obstfeld and Rogoff's Foundations of international macroeconomics (1996), Krugman, Obstfeld and Melitz's International economics or Agénor and Montiel's Development macroeconomics (2008). Neither does it appear at all in a host of other widely read texts in the field, including Debraj Ray's Development economics (1998), Banerjee and Duflo's Poor economics (2011) or Barr's The economics of the welfare state (1993). Even the more unorthodox economists critical of market-based solutions, such as Paul Krugman or Joseph Stiglitz, find no need to use the concept. Neoliberalism is absent entirely from Krugman's End this depression now! and finds mention only once (in a footnote to the preface) in Stiglitz's The price of inequality: The avoidable causes and the invisible costs of inequality (2012).

Moreover, neoliberalism has, since 1966, only ever appeared twice in the pages of The American Economic Review, on both occasions as fleeting mentions. It has not appeared at all in The Quarterly Journal of Economics since 1960, nor in Journal of Political Economy since 1956. It has never appeared in Journal of Development Economics at all. In comparison, in 2012, it appeared in 10 papers in The Journal of Development Studies, eight papers in World Development, 17 papers in Development and Change and 10 papers in Journal of International Development. 5

What these strikingly different patterns of usage between economics and non-economics indicate is that, beyond dysfunctionality, neoliberalism signifies and reproduces the mutual incomprehensibility and the deep cognitive divide between these two domains (Jackson, 2013; Milonakis & Fine, 2013). Ha-Joon Chang notes that ‘critics of neoliberalism are routinely dismissed as “economically illiterate”’ (Chang, 2003, pp. 42–43). Indeed, for the rest of the social sciences, economics is an entirely alien discipline that is found to be intellectually vapid on the one hand, but also inscrutable and impenetrable due to the mathematical sophistication of its theory and empirics.

Neoliberalism purports to provide a lens through which this mysterious and hostile terrain can be surveyed, simplified, labelled and rendered understandable from a safe distance. Economic theory can thus be vicariously critiqued and dismissed without one having to encounter it, much less understand it. Not unsurprisingly, what emerges as a result is inadequate and often bears the character of dispatches from trench warfare, in which sketchy and vague outlines of enemy activity are reported from across a foggy and impassable no-man's land.

#### Intervention/Imperialism is not intrinsic to liberalism and is decreasing now.

Brooks et al. 12 — Stephen Brooks, Associate Professor of Government at Dartmouth College, and John Ikenberry, Albert G. Milbank Professor of Politics and International Affairs at Princeton University, and William C. Wohlforth, Daniel Webster Professor in the Department of Government at Dartmouth College, 2012 (“Don’t Come Home America: The Case Against Retrenchment,” *International Security*, Vol. 37, No. 3 (Winter 2012/13), pp. 7–51 Accessible Online via Subscribing Institutions to JSTOR, Accessed Online on 12-15-2015)

For many advocates of retrenchment, the mere possession of peerless, globe-girdling military capabilities leads inexorably to a dangerous expansion of U.S. definitions of national interest that then drag the country into expensive wars. 64 For example, sustaining ramified, long-standing alliances such as NATO leads to mission creep: the search for new roles to keep the alliance alive. Hence, critics allege that NATO’s need to “go out of area or out of business” led to reckless expansion that alienated Russia and then to a heedless broadening of interests to encompass interventions such as those in Bosnia, Kosovo, and Libya. In addition, peerless military power creates the temptation to seek total, non-Clausewitzian solutions to security problems, as allegedly occurred in Iraq and Afghanistan. 65 Only a country in possession of such awesome military power and facing no serious geopolitical rival would fail to be satisfied with partial solutions such as containment and instead embark on wild schemes of democracy building in such unlikely places. In addition, critics contend, the United States’ outsized military creates a sense of obligation to use it if it might do good, even in cases where no U.S. interests are engaged. As Madeleine Albright famously asked Colin Powell, “What’s the point of having this superb military you’re always talking about, if we can’t use it?”

Undoubtedly, possessing global military intervention capacity expands opportunities to use force. If it were truly to “come home,” the United States would be tying itself to the mast like Ulysses, rendering itself incapable of succumbing to temptation. Any defense of deep engagement must acknowledge that it increases the opportunity and thus the logical probability of U.S. use of force compared to a grand strategy of true strategic disengagement. Of course, if the alternative to deep engagement is an over-the-horizon intervention stance, then the temptation risk would persist after retrenchment. The main problem with the interest expansion argument, however, is that it essentially boils down to one case: Iraq. Sixty-seven percent of all the casualties and 64 percent of all the budget costs of all the wars the United States has fought since 1990 were caused by that war. Twenty-seven percent of the causalities and 26 percent of the costs were related to Operation Enduring Freedom in Afghanistan. All the other interventions—the 1990–91 Persian Gulf War, the subsequent airstrike campaigns in Iraq, Somalia, Bosnia, Haiti, Kosovo, Libya, and so on—account for 3 percent of the casualties and 10 percent of the costs. 66 Iraq is the outlier not only in terms of its human and material cost, but also in terms of the degree to which the overall burden was shouldered by the United States alone. As Beckley has shown, in the other interventions allies either spent more than the United States, suffered greater relative casualties, or both. In the 1990–91 Persian Gulf War, for example, the United States ranked fourth in overall casualties (measured relative to population size) and fourth in total expenditures (relative to GDP). In Bosnia, European Union (EU) budget outlays and personnel deployments ultimately swamped those of the United States as the Europeans took over postconflict peacebuilding operations. In Kosovo, the United States suffered one combat fatality, the sole loss in the whole operation, and it ranked sixth in relative monetary contribution. In Afghanistan, the United States is the number one financial contributor (it achieved that status only after the 2010 surge), but its relative combat losses rank fifth. 67 In short, the interest expansion argument would look much different without Iraq in the picture. There would be no evidence for the United States shouldering a disproportionate share of the burden, and the overall pattern of intervention would look “unrestrained” only in terms of frequency, not cost, with the debate hinging on whether the surge in Afghanistan was recklessly unrestrained. 68

How emblematic of the deep engagement strategy is the U.S. experience in Iraq? The strategy’s supporters insist that Iraq was a Bush/neoconservative aberration; certainly, there are many supporters of deep engagement who strongly opposed the war, most notably Barack Obama. Against this view, opponents claim that it or something close to it was inevitable given the grand strategy. Regardless, the more important question is whether continuing the current grand strategy condemns the United States to more such wars. The Cold War experience suggests a negative answer. After the United States suffered a major disaster in Indochina (to be sure, dwarfing Iraq in its human toll), it responded by waging the rest of the Cold War using proxies and highly limited interventions. Nothing changed in the basic structure of the international system, and U.S. military power recovered by the 1980s, yet the United States never again undertook a large expeditionary operation until after the Cold War had ended. All indications are that Iraq has generated a similar effect for the post–Cold War era. If there is an Obama doctrine, Dominic Tierney argues, it can be reduced to “No More Iraqs.” 69 Moreover, the president’s thinking is reflected in the Defense Department’s current strategic guidance, which asserts that “U.S. forces will no longer be sized to conduct large-scale, prolonged stability operations.” 70 Those developments in Washington are also part of a wider rejection of the Iraq experience across the American body politic, which political scientist John Mueller dubbed the “Iraq Syndrome.” 71 Retrenchment advocates would need to present much more argumentation and evidence to support their pessimism on this subject.

#### Productivity is good for global quality of life and reducing structural violence—they’re reductionist.

Iacono ‘16, Corey Iacono is a student at the University of Rhode Island studying Pharmaceutical Science and Economics, “How Capitalism and Globalization Have Made the World a Better Place,” Quillette, January 16, 2016, <http://quillette.com/2016/01/16/how-capitalism-and-globalization-have-made-the-world-a-better-place>, msm

Just kidding, that’s not what happened at all. In fact, as the world has become more capitalist and more globalized, the quality of life for the average person, and especially for the average poor person, has increased substantially. In 1990, 37% of the global population lived on less than $1.90 per day. By 2012, that number had been reduced to 12.8%, and in 2015 it was under 10%. The source of this progress isn’t a massive wealth redistribution program; it’s massive wealth creation — that is, economic growth. Economists David Dollar and Aart Kraay found that, in a global sample of over 100 countries, changes in the income growth of the bottom 40% of the world’s income earners are highly correlated with economic growth rates. On the other hand, changes in inequality contributed relatively little to changes in social welfare of the poor over the last few decades. There is good reason to believe that the expansion of free trade, facilitated by international organizations like the World Trade Organization (WTO) and its predecessor, the General Agreement on Tariffs and Trade (GATT), have had a considerable impact in accelerating the economic development of developing countries. In the 1990s GATT facilitated reforms which moved 125 countries towards freer trade by reducing the burden of government imposed trade barriers like tariffs. This was the first serious attempt at trade reform for most developing countries at the time, and arguably presents a unique natural experiment on the economic effects of trade reform. In fact, a paper published by the National Bureau of Economic Research (NBER), specifically examined how trade reforms facilitated by GATT affected the economic development of the reforming countries. In the paper, the authors compared the trends in economic growth before and after trade reform in the reforming countries. Then they compared those results to trends in economic growth of a control group of countries which didn’t undergo trade reform. What they found was very encouraging for proponents of free trade. Prior to reform, the economic development of reformers and non-reformers was practically identical, but after reform, the economic development of reforming countries accelerated while non-reforming countries saw their economies stagnate and decline. The results suggest that the reforms towards freer trade lead to an increase in income per capita of around 20% in the long-run, an effect so large that it almost certainly had a positive and non-trivial impact on poverty reduction. Similarly, other research has shown that more free market trade policies result in lower rates of extreme poverty and child mortality in developing countries. There are other benefits as well. One study on trade reform in Indonesia found that reductions of import tariffs led to an increase in disposable income among poor households, which allowed them to pull their children out of the labor force, leading to “a strong decline” in the incidence of child labor. Unfortunately, many activists have reflexively taken up the cause of opposing the expansion of global capitalism, for a number of reasons. Western anti-sweatshop activists, for example, will often argue in favor of government imposed barriers to trade with poor countries because their working conditions are terrible in comparison to those in developed Western nations. In their view, western consumers should not be promoting a cycle of capitalist exploitation by buying products made in Vietnamese sweat-shops. But satisfactory working conditions aren’t the natural state of mankind; they are a consequence of decades of economic development. Erecting barriers to trade with poor countries is surely a large impediment to their development, in fact, research suggests that existing developed world tariffs depress economic growth rates in the developing world by 0.6 to 1.6 percent per person, a considerably large effect. Moreover, the sweat-shops which produce clothing for Westerners are often much better than alternative forms of domestic employment. In poor countries like Bangladesh, China, and Vietnam, the apparel industry consistently pays more than most other domestic industries. According to research by economist Ben Powell, in poor countries “most sweatshop jobs provide an above average standard of living for their workers.” Notably, a paper published in the Journal of Development Economics found that the expansion of the garments industry in Bangladesh lead to an increase in employment and income among young women, giving them the means to finance their own education. Remarkably the authors found that, “the demand for education generated through manufacturing growth appears to have a much larger effect on female educational attainment compared to a large-scale government conditional cash transfer program to encourage female schooling.” Foreign investment is also more desirable than opponents of capitalism and globalization give it credit for. The conventional wisdom among activists in wealthy countries is that multinational corporations exploit poor workers in third world countries for cheap labor, profiting off people working in sweatshop conditions. It should come as a surprise to the individuals who hold this view to learn that 85% of people in developing countries believe that foreign companies building factories in their countries is a good thing, according to Pew Research. In fact, for all the talk of exploitative multinational corporations, research shows that, in general, these corporations provide higher wages and better working conditions than domestic employers in developing countries. Additionally, when multinational corporations build factories in poor countries, it raises the demand for low-skilled workers, resulting in higher wages for local workers. Consistent with this fact, recent empirical evidence demonstrates that investment by foreign companies in developing countries reduces both poverty and income inequality by raising the incomes of low-skilled workers. Foreign investment can also make people in relatively low-income countries better off by providing better or more inexpensive products. A recent analysis published by the NBER found that foreign retailers like Wal-Mart greatly reduce the cost of living for both the rich and poor in Mexico, making everyone along the income distribution better off. Global capitalism is by no means a perfect phenomenon. Many businesses do have questionable labor practices that are worthy of contempt. And free market policies may in many instances lead to socially undesirable outcomes, sometimes on a large scale. However, the one-dimensional, automatic denunciation of capitalism and the accompanying refusal to give it any credit for its successes — as social media activists have done — reflects an uncompromising, and quite frankly ignorant worldview. It is one in which capitalism is always bad, no matter what the evidence tells us.

#### Growth sustainable---technology removes dependence on nature and solves resource scarcity

John Asafu-Adjaye 15, associate professor of economics at the University of Queensland, et al., April 2015, “An Ecomodernist Manifesto,” http://www.ecomodernism.org/s/An-Ecomodernist-Manifesto.pdf

At the same time, human flourishing has taken a serious toll on natural, nonhuman environments and wildlife. Humans use about half of the planet’s ice-free land, mostly for pasture, crops, and production forestry. Of the land once covered by forests, 20 percent has been converted to human use. Populations of many mammals, amphibians, and birds have declined by more than 50 percent in the past 40 years alone. More than 100 species from those groups went extinct in the 20th century, and about 785 since 1500. As we write, only four northern white rhinos are confirmed to exist.¶ Given that humans are completely dependent on the living biosphere, how is it possible that people are doing so much damage to natural systems without doing more harm to themselves?¶ The role that technology plays in reducing humanity’s dependence on nature explains this paradox. Human technologies, from those that first enabled agriculture to replace hunting and gathering, to those that drive today’s globalized economy, have made humans less reliant upon the many ecosystems that once provided their only sustenance, even as those same ecosystems have often been left deeply damaged.¶ Despite frequent assertions starting in the 1970s of fundamental “limits to growth,” there is still remarkably little evidence that human population and economic expansion will outstrip the capacity to grow food or procure critical material resources in the foreseeable future.¶ To the degree to which there are fixed physical boundaries to human consumption, they are so theoretical as to be functionally irrelevant. The amount of solar radiation that hits the Earth, for instance, is ultimately finite but represents no meaningful constraint upon human endeavors. Human civilization can flourish for centuries and millennia on energy delivered from a closed uranium or thorium fuel cycle, or from hydrogen-deuterium fusion. With proper management, humans are at no risk of lacking sufficient agricultural land for food. Given plentiful land and unlimited energy, substitutes for other material inputs to human well-being can easily be found if those inputs become scarce or expensive.¶ There remain, however, serious long-term environmental threats to human well-being, such as anthropogenic climate change, stratospheric ozone depletion, and ocean acidification. While these risks are difficult to quantify, the evidence is clear today that they could cause significant risk of catastrophic impacts on societies and ecosystems. Even gradual, non-catastrophic outcomes associated with these threats are likely to result in significant human and economic costs as well as rising ecological losses.¶ Much of the world’s population still suffers from more-immediate local environmental health risks. Indoor and outdoor air pollution continue to bring premature death and illness to millions annually. Water pollution and water-borne illness due to pollution and degradation of watersheds cause similar suffering.¶ 2¶ Even as human environmental impacts continue to grow in the aggregate, a range of long-term trends are today driving significant decoupling of human well-being from environmental impacts.¶ Decoupling occurs in both relative and absolute terms. Relative decoupling means that human environmental impacts rise at a slower rate than overall economic growth. Thus, for each unit of economic output, less environmental impact (e.g., deforestation, defaunation, pollution) results. Overall impacts may still increase, just at a slower rate than would otherwise be the case. Absolute decoupling occurs when total environmental impacts — impacts in the aggregate — peak and begin to decline, even as the economy continues to grow.¶ Decoupling can be driven by both technological and demographic trends and usually results from a combination of the two.¶ The growth rate of the human population has already peaked. Today’s population growth rate is one percent per year, down from its high point of 2.1 percent in the 1970s. Fertility rates in countries containing more than half of the global population are now below replacement level. Population growth today is primarily driven by longer life spans and lower infant mortality, not by rising fertility rates. Given current trends, it is very possible that the size of the human population will peak this century and then start to decline.¶ Trends in population are inextricably linked to other demographic and economic dynamics. For the first time in human history, over half the global population lives in cities. By 2050, 70 percent are expected to dwell in cities, a number that could rise to 80 percent or more by the century’s end. Cities are characterized by both dense populations and low fertility rates.¶ Cities occupy just one to three percent of the Earth’s surface and yet are home to nearly four billion people. As such, cities both drive and symbolize the decoupling of humanity from nature, performing far better than rural economies in providing efficiently for material needs while reducing environmental impacts.¶ The growth of cities along with the economic and ecological benefits that come with them are inseparable from improvements in agricultural productivity. As agriculture has become more land and labor efficient, rural populations have left the countryside for the cities. Roughly half the US population worked the land in 1880. Today, less than 2 percent does.¶ As human lives have been liberated from hard agricultural labor, enormous human resources have been freed up for other endeavors. Cities, as people know them today, could not exist without radical changes in farming. In contrast, modernization is not possible in a subsistence agrarian economy.¶ These improvements have resulted not only in lower labor requirements per unit of agricultural output but also in lower land requirements. This is not a new trend: rising harvest yields have for millennia reduced the amount of land required to feed the average person. The average per-capita use of land today is vastly lower than it was 5,000 years ago, despite the fact that modern people enjoy a far richer diet. Thanks to technological improvements in agriculture, during the half-century starting in the mid-1960s, the amount of land required for growing crops and animal feed for the average person declined by one-half.¶ Agricultural intensification, along with the move away from the use of wood as fuel, has allowed many parts of the world to experience net reforestation. About 80 percent of New England is today forested, compared with about 50 percent at the end of the 19th century. Over the past 20 years, the amount of land dedicated to production forest worldwide declined by 50 million hectares, an area the size of France. the “forest transition” from net deforestation to net reforestation seems to be as resilient a feature of development as the demographic transition that reduces human birth rates as poverty declines.¶ Human use of many other resources is similarly peaking. The amount of water needed for the average diet has declined by nearly 25 percent over the past half-century. Nitrogen pollution continues to cause eutrophication and large dead zones in places like the Gulf of Mexico. While the total amount of nitrogen pollution is rising, the amount used per unit of production has declined significantly in developed nations.¶ Indeed, in contradiction to the often-expressed fear of infinite growth colliding with a finite planet, demand for many material goods may be saturating as societies grow wealthier. Meat consumption, for instance, has peaked in many wealthy nations and has shifted away from beef toward protein sources that are less land intensive.¶ As demand for material goods is met, developed economies see higher levels of spending directed to materially less-intensive service and knowledge sectors, which account for an increasing share of economic activity. This dynamic might be even more pronounced in today’s developing economies, which may benefit from being late adopters of resource-efficient technologies.¶ Taken together, these trends mean that the total human impact on the environment, including land-use change, overexploitation, and pollution, can peak and decline this century. By understanding and promoting these emergent processes, humans have the opportunity to re-wild and re-green the Earth — even as developing countries achieve modern living standards, and material poverty ends.

#### Capitalism lessens the intensity and quantity of wars--- studies prove

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Frédéric Bastiat famously claimed that “if goods don’t cross borders, soldiers will." Bastiat argued that free trade between countries could reduce international conflict because trade forges connections between nations and gives each country an incentive to avoid war with its trading partners. If every nation were an economic island, the lack of positive interaction created by trade could leave more room for conflict. Two hundred years after Bastiat, libertarians take this idea as gospel. Unfortunately, not everyone does. But as recent research shows, the historical evidence confirms Bastiat’s famous claim. To Trade or to Raid In “Peace through Trade or Free Trade?” professor Patrick J. McDonald, from the University of Texas at Austin, empirically tested whether greater levels of protectionism in a country (tariffs, quotas, etc.) would increase the probability of international conflict in that nation. He used a tool called dyads to analyze every country’s international relations from 1960 until 2000. A dyad is the interaction between one country and another country: German and French relations would be one dyad, German and Russian relations would be a second, French and Australian relations would be a third. He further broke this down into dyad-years; the relations between Germany and France in 1965 would be one dyad-year, the relations between France and Australia in 1973 would be a second, and so on. Using these dyad-years, McDonald analyzed the behavior of every country in the world for the past 40 years. His analysis showed a negative correlation between free trade and conflict: The more freely a country trades, the fewer wars it engages in. Countries that engage in free trade are less likely to invade and less likely to be invaded. The Causal Arrow Of course, this finding might be a matter of confusing correlation for causation. Maybe countries engaging in free trade fight less often for some other reason, like the fact that they tend also to be more democratic. Democratic countries make war less often than empires do. But McDonald controls for these variables. Controlling for a state’s political structure is important, because democracies and republics tend to fight less than authoritarian regimes. McDonald also controlled for a country’s economic growth, because countries in a recession are more likely to go to war than those in a boom, often in order to distract their people from their economic woes. McDonald even controlled for factors like geographic proximity: It’s easier for Germany and France to fight each other than it is for the United States and China, because troops in the former group only have to cross a shared border. The takeaway from McDonald’s analysis is that protectionism can actually lead to conflict. McDonald found that a country in the bottom 10 percent for protectionism (meaning it is less protectionist than 90 percent of other countries) is 70 percent less likely to engage in a new conflict (either as invader or as target) than one in the top 10 percent for protectionism. Protectionism and War Why does protectionism lead to conflict, and why does free trade help to prevent it? The answers, though well-known to classical liberals, are worth mentioning. First, trade creates international goodwill. If Chinese and American businessmen trade on a regular basis, both sides benefit. And mutual benefit disposes people to look for the good in each other. Exchange of goods also promotes an exchange of cultures. For decades, Americans saw China as a mysterious country with strange, even hostile values. But in the 21st century, trade between our nations has increased markedly, and both countries know each other a little better now. iPod-wielding Chinese teenagers are like American teenagers, for example. They’re not terribly mysterious. Likewise, the Chinese understand democracy and American consumerism more than they once did. The countries may not find overlap in all of each other’s values, but trade has helped us to at least understand each other. Trade helps to humanize the people that you trade with. And it’s tougher to want to go to war with your human trading partners than with a country you see only as lines on a map. Second, trade gives nations an economic incentive to avoid war. If Nation X sells its best steel to Nation Y, and its businessmen reap plenty of profits in exchange, then businessmen on both sides are going to oppose war. This was actually the case with Germany and France right before World War I. Germany sold steel to France, and German businessmen were firmly opposed to war. They only grudgingly came to support it when German ministers told them that the war would only last a few short months. German steel had a strong incentive to oppose war, and if the situation had progressed a little differently—or if the German government had been a little more realistic about the timeline of the war—that incentive might have kept Germany out of World War I. Third, protectionism promotes hostility. This is why free trade, not just aggregate trade (which could be accompanied by high tariffs and quotas), leads to peace. If the United States imposes a tariff on Japanese automobiles, that tariff hurts Japanese businesses. It creates hostility in Japan toward the United States. Japan might even retaliate with a tariff on U.S. steel, hurting U.S. steel makers and angering our government, which would retaliate with another tariff. Both countries now have an excuse to leverage nationalist feelings to gain support at home; that makes outright war with the other country an easier sell, should it come to that. In socioeconomic academic circles, this is called the Richardson process of reciprocal and increasing hostilities; the United States harms Japan, which retaliates, causing the United States to retaliate again. History shows that the Richardson process can easily be applied to protectionism. For instance, in the 1930s, industrialized nations raised tariffs and trade barriers; countries eschewed multilateralism and turned inward. These decisions led to rising hostilities, which helped set World War II in motion. These factors help explain why free trade leads to peace, and protectionism leads to more conflict. Free Trade and Peace One final note: McDonald’s analysis shows that taking a country from the top 10 percent for protectionism to the bottom 10 percent will reduce the probability of future conflict by 70 percent. He performed the same analysis for the democracy of a country and showed that taking a country from the top 10 percent (very democratic) to the bottom 10 percent (not democratic) would only reduce conflict by 30 percent. Democracy is a well-documented deterrent: The more democratic a country becomes, the less likely it is to resort to international conflict. But reducing protectionism, according to McDonald, is more than twice as effective at reducing conflict than becoming more democratic. Here in the United States, we talk a lot about spreading democracy. We invaded Iraq partly to “spread democracy.” A New York Times op-ed by Professor DOV Ronen of Harvard University claimed that “the United States has been waging an ideological campaign to spread democracy around the world” since 1989. One of the justifications for our international crusade is to make the world a safer place. Perhaps we should spend a little more time spreading free trade instead. That might really lead to a more peaceful world.

#### Solves warming – key to tech innovation in the short term

Parenti 13 (Christian Parenti, Christian Parenti is a Puffin Foundation Writing Fellow, contributing editor at The Nation and a visiting professor at Brooklyn College, CUNY, “A Radical Approach to the Climate Crisis” [http://www.dissentmagazine.org/article/a-radical-approach-to-the-climate-crisis] Summer //mtc)

Several strands of green thinking maintain that capitalism is incapable of a sustainable relationship with non-human nature because, as an economic system, capitalism has a growth imperative while the earth is finite. One finds versions of this argument in the literature of eco-socialism, deep ecology, eco-anarchism, and even among many mainstream greens who, though typically declining to actually name the economic system, are fixated on the dangers of “growth.”¶ All this may be true. Capitalism, a system in which privately owned firms must continuously out-produce and out-sell their competitors, may be incapable of accommodating itself to the limits of the natural world. However, that is not the same question as whether capitalism can solve the more immediate climate crisis.¶ Because of its magnitude, the climate crisis can appear as the sum total of all environmental problems—deforestation, Over-fishing, freshwater depletion, soil erosion, loss of biodiversity, chemical contamination. But halting greenhouse gas emissions is a much more specific problem, the most pressing subset of the larger apocalyptic panorama.¶ And the very bad news is, time has run out. As I write this, news arrives of an ice-free arctic summer by 2050. Scientists once assumed that would not happen for hundreds of years.¶ Dealing with climate change by first achieving radical social transformation—be it a socialist or anarchist or deep-ecological/neo-primitive revolution, or a nostalgia-based localista conversion back to a mythical small-town capitalism—would be a very long and drawn-out, maybe even multigenerational, struggle. It would be marked by years of mass education and organizing of a scale and intensity not seen in most core capitalist states since the 1960s or even the 1930s.¶ Nor is there any guarantee that the new system would not also degrade the soil, lay waste to the forests, despoil bodies of water, and find itself still addicted to coal and oil. Look at the history of “actually existing socialism” before its collapse in 1991. To put it mildly, the economy was not at peace with nature. Or consider the vexing complexities facing the left social democracies of Latin America. Bolivia, and Ecuador, states run by socialists who are beholden to very powerful, autonomous grassroots mOVements, are still very dependent on petroleum revenue.¶ A more radical approach to the crisis of climate change begins not with a long-term vision of an alternate society but with an honest engagement with the very compressed timeframe that current climate science implies. In the age of climate change, these are the real parameters of politics.¶ Hard Facts¶ The scientific consensus, expressed in peer-reviewed and professionally vetted and published scientific literature, runs as follows: For the last 650,000 years atmospheric levels of CO2—the primary heat-trapping gas—have hOvered at around 280 parts per million (ppm). At no point in the preindustrial era did CO2 concentrations go abOVe 300 ppm. By 1959, they had reached 316 ppm and are now Over 400 ppm. And the rate of emissions is accelerating. Since 2000, the world has pumped almost 100 billion tons of carbon into the atmosphere—about a quarter of all CO2 emissions since 1750. At current rates, CO2 levels will double by mid-century.¶ Climate scientists believe that any increase in average global temperatures beyond 2 degrees Celsius abOVe preindustrial levels will lead to dangerous climate change, causing large-scale desertification, crop failure, inundation of coastal cities, mass migration to higher and cooler ground, widespread extinctions of flora and fauna, proliferating disease, and possible social collapse. Furthermore, scientists now understand that the earth’s climate system has not evolved in a smooth linear fashion. Paleoclimatology has uncOvered evidence of sudden shifts in the earth’s climate regimes. Ice ages have stopped and started not in a matter of centuries, but decades. Sea levels (which are actually uneven across the globe) have risen and fallen more rapidly than was once believed.¶ Throughout the climate system, there exist dangerous positive-feedback loops and tipping points. A positive-feedback loop is a dynamic in which effects compound, accelerate, or amplify the original cause. Tipping points in the climate system reflect the fact that causes can build up while effects lag. Then, when the effects kick in, they do so all at once, causing the relatively sudden shift from one climate regime to another.¶ Thus, the UN’s Intergovernmental Panel on Climate Change says rich countries like the United States must cut emissions 25 percent to 40 percent below 1990 levels by 2020—only seven years away—and thereafter make precipitous cuts to 90 percent below 1990 levels by 2050. This would require global targets of 10 percent reductions in emissions per annum, starting now. Those sorts of emissions reductions have only occurred during economic depressions. Russia’s near total economic collapse in the early 1990s saw a 37 percent decrease in CO2 emissions from 1990 to 1995, under conditions that nobody wants to experience. ¶ The political implications of all this are mind-bending. As daunting as it may sound, it means that it is this society and these institutions that must cut emissions. That means, in the short-term, realistic climate politics are reformist politics, even if they are conceived of as part of a longer-term anti-capitalist project of totally economic re-organization.¶ Dreaming the Rational¶ Of course, successful reformism often involves radical means and revolutionary demands. What other sort of political pressure would force the transnational ruling classes to see the scientific truth of the situation? But let us assume for a second that political elites faced enough pressure to force them to act. What would be the rational first steps to stave off climate chaos?¶ The watchwords of the climate discussion are mitigation and adaptation—that is, we must mitigate the causes of climate change while adapting to its effects. Mitigation means drastically cutting our production of CO2 and other greenhouse gases, such as methane and chlorofluorocarbons, that prevent the sun’s heat from radiating back out to space.¶ Mitigation means mOVing toward clean energy sources, such as wind, solar, geothermal, and tidal kinetic power. It means closing coal-fired power plants, weaning our economy off fossil fuels, building a smart electrical grid, and making massive investments in carbon-capture and -sequestration technologies. (That last bit of techno-intervention would have to be used not as a justification to keep burning coal, as is its current function, but to strip out atmospheric CO2 rapidly and get back to 350 ppm and away from the dangerous tipping points.)¶ Adaptation, on the other hand, means preparing to live with the effects of climatic changes, some of which are already underway and some of which are inevitable. Adaptation is both a technical and a political challenge.¶ Technical adaptation means transforming our relationship to non-human nature as nature transforms. Examples include building seawalls around vulnerable coastal cities, giving land back to mangrOVes and everglades so they can act to break tidal surges during giant storms, opening wildlife migration corridors so species can mOVe away from the equator as the climate warms, and developing sustainable forms of agriculture that can function on an industrial scale even as weather patterns gyrate wildly.¶ Political adaptation, on the other hand, means transforming social relations: devising new ways to contain, avoid, and deescalate the violence that climate change is fueling and will continue to fuel. That will require progressive economic redistribution and more sustainable forms of development. It will also require a new diplomacy of peace building.¶ Unfortunately, another type of political adaptation is already under way—that of the armed lifeboat. This adaptation responds to climate change by arming, excluding, forgetting, repressing, policing, and killing. The question then becomes how to conceive of adaptation and mitigation as a project of radical reform—reforms that achieve qualitative change in the balance of power between the classes.¶ The core problem in the international effort to cut emissions is fundamentally the intransigence of the United States: it failed to ratify the Kyoto Protocol and has played an obstructionist role at subsequent negotiations. Domestically, progress has been just as frustratingly slow. We have no carbon tax, nor any program of robust investment in clean technology. Even the minimal production tax credit for clean energy generated by solar, wind, and hydro power has not been locked in as a long-term commitment. This creates uncertainty about prices, and, as a result, private investment in clean tech is stalling.¶ China, on the other hand, though now the world’s second-largest economy and largest greenhouse gas polluter, is mOVing ahead with a fast-growing clean-tech industry—that is to say, with mitigation. The Chinese wind sector has grown steadily since 2001. “According to new statistics from the China Electricity Council,” reported American Progress senior fellow Joseph Romm, “China’s wind power production actually increased more than coal power production for the first time ever in 2012.” This growth is the result, in part, of robust government support: China has invested $200.8 billion in stimulus funding for clean tech. Estimates of U.S. stimulus funding for clean technology range from $50 to $80 billion.¶ The European Union is also mOVing forward to create a €1 trillion regional supergrid. Germany and Portugal in particular are mOVing aggressively to expand their already quite large clean-tech sectors. Action in the core industrial economies is essential because only they have the infrastructure that can propel the clean-tech revolution and transform the world economy.¶ A De Facto Carbon Tax¶ Environmental economists tend to agree that the single most important thing the United States could do to accelerate the shift to clean energy would be to impose a carbon tax. Despite our political sclerosis and fossil fuel fundamentalism, the means to do that already exist.¶ First and foremost, there is the Environmental Protection Agency, which could achieve significant and immediate emissions reductions using nothing more than existing laws and current technologies. According to Kassie Siegel at the Center for Biological Diversity, “The Clean Air Act can achieve everything we need: a 40 percent reduction of greenhouse gas emissions Over 1990 levels by 2020.”¶ Rather boring in tone and dense with legalistic detail, the ongoing fight Over EPA¶ rulemaking is probably the most important environmental battle in a generation. Since 2007, thanks to the pressure and lawsuits of green activists, the EPA has had enormous—but under-utilized—power. That was the year when the Supreme Court ruled, in Massachusetts v. Environmental Protection Agency, that the agency should determine whether greenhouse gases threaten human health. In December 2010, the EPA published a science-based “endangerment finding,” which found that CO2 and five other greenhouse gases are, in fact, dangerous to human life because they cause global warming.¶ Once the EPA issues an endangerment finding, it is legally bound to promulgate regulations to address the problem. The first of these post–Massachusetts v. EPA “tailoring rules” were for “mobile sources.” Between 2011 and 2012, regulations for cars and for trucks went into effect. Then the EPA set strict limits for new power plants in 2012. But other major sources of greenhouse gas pollution—like existing electric power plants (which pump out roughly 40 percent of the nation’s total GHG emissions), oil refineries, cement plants, steel mills, and shipping—have yet to be properly regulated pursuant to Massachusetts v. EPA.¶ If the EPA were to use the Clean Air Act—and do so “with extreme prejudice”—it could impose a de facto carbon tax. Industries would still be free to burn dirty fossil fuels, but they would have to use very expensive, and in some cases nonexistent, new technology to meet emission standards. Or they would have to pay very steep and mounting fines for their emissions. Such penalties could reach thousands of dollars per day, per violation. Thus, a de facto carbon tax. Then cheap fossil fuel energy would become expensive, driving investment toward carbon-neutral forms of clean energy like wind and solar. For extra measure we could end fossil fuel subsidies. Before long, it would be more profitable to invest in clean energy sources than dangerous and filthy ones.¶ Big Green Buy and U.S. “Shadow Socialism”¶ According to clean-tech experts, innovation is now less important than rapid, large-scale implementation. In other words, developing a clean-energy economy is not about new gadgets but about new policies. Most of the energy technologies we need already exist. You know what they are: wind farms, concentrated solar power plants, geothermal and tidal power, all feeding an efficient smart grid that, in turn, powers electric vehicles and radically more energy-efficient buildings.¶ But leading clean technologies remain slightly more expensive than the old dirty-tech alternatives. This “price gap” is holding back the mass application of clean technology. The simple fact is that capitalist economies will not switch to clean energy until it is cheaper than fossil fuel. The fastest way to close the price gap is to build large clean-tech markets that allow for economies of scale. But what is the fastest way to build those markets? More research grants? More tax credits? More clumsy pilot programs?¶ Government procurement is one of the hidden tools of American capitalism’s “shadow socialism.”¶ No. The fastest, simplest way to do it is to reorient government procurement away from fossil fuel energy and toward clean energy and technology—to use the government’s vast spending power to create a market for green energy. Elsewhere, I have called this the Big Green Buy. Consider this: federal, state, and local government constitute more than 38 percent of our GDP. In more concrete terms, Uncle Sam owns or leases more than 430,000 buildings (mostly large office buildings) and 650,000 vehicles. (Add state and local government activity, and all those numbers grow by about a third again.) The federal government is the world’s largest consumer of energy and vehicles, and the nation’s largest greenhouse gas emitter.¶ Government procurement is one of the hidden tools of American capitalism’s “shadow socialism.” By shadow socialism I refer to the massively important but often Overlooked role of government planning, investment, subsidy, procurement, and ownership in the economic development of American capitalism. A detailed account of that history is offered in Michael Lind’s book Land of Promise. From railroads, to telecommunications, and aviation and all the attendant sub-industries of these sectors, government has provided the capital and conditions for fledging industries to grow large. For example, government didn’t just fund the invention of the microprocessor; it was also the first major consumer of the device. Throughout the 1950s, more than half of IBM’s revenue came from government contracts. Along with money, these contracts provided a guaranteed market and stability for IBM and its suppliers, and thus attracted private investment—all of which helped create the modern computer industry.¶ Now consider the scale of the problem: our asphalt transportation arteries are clogged with 250 million gasoline-powered vehicles sucking down an annual $200 to $300 billion worth of fuel from more than 121,000 filling stations. Add to that the cost of heating and cooling buildings, jet travel, shipping, powering industry, and the energy-gobbling servers and mainframes that are the Internet, and the U.S. energy economy reaches a spectacular annual tab of 1.2 trillion dollars.¶ A redirection of government purchasing would create massive markets for clean power, electric vehicles, and efficient buildings, as well as for more sustainably produced furniture, paper, cleaning supplies, uniforms, food, and services. If government bought green, it would drive down marketplace prices sufficiently that the momentum toward green tech would become self-reinforcing and spread to the private sector.¶ Executive Order 13514, which Obama signed in 2009, directed all federal agencies to¶ increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and storm water management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations.¶ The executive order also stipulates that federal agencies immediately start purchasing 95 percent through green-certified programs and achieve a 28 percent greenhouse gas reduction by 2020. But it has not been robustly implemented.¶ Government has tremendous latitude to leverage green procurement because it requires no new taxes, programs, or spending, nor is it hostage to the holy grail of sixty votes in the Senate. It is simply a matter of changing how the government buys its energy, vehicles, and services. Yes, in many cases clean tech costs more up front, but in most cases, savings arrive soon afterward. And government—because of its size—is a market mOver that can leverage money-saving deals if it wishes to. ¶ Protest and the “Relative Autonomy” of the State¶ Why would the capitalist state mOVe to euthanize the fossil fuel industry, that most powerful fraction of the capitalist class? Or put another way, how can the state regain some of its “relative autonomy” from capital? History indicates that massive, crisis-producing protest is one of the most common reasons a modern state will act against the interests of specific entrenched elites and for the “general interest” of society. When the crisis of protest is bad enough, entrenched elites are forced to take a loss as the state imposes ameliorative action for the greater good of society.¶ Clearly, we need to build a well-organized, broadly supported, yet tactically and strategically radical mOVement to demand proper climate policy. For such a mOVement to be effective it must use myriad tactics, from lawsuits and lobbying to direct action such as tree-sits, road blockades, and occupations aimed at the infrastructure of the fossil fuel industry. Only by disrupting the working of the political and economic system as a whole can we forge a consensus that ending the fossil fuel sector is essential. (The work of Francis Fox Piven and Richard Cloward is, in my opinion, still among the best in tracing the dynamic of this process of rebellion and reform.)¶ At question, then, is not just the state’s capacity to evolve, but the capacity of the American people to organize and mobilize on a massive scale. Far be it from me to say exactly how such mOVements could or should be built, other than the way they always have been: by trial and error and with good leadership. MOVement building is a mass and organic process.¶ The Rebellion of Nature¶ Along with protest, a more organic source of crisis is already underway and may also help scare political elites into confronting big carbon. Climate change is a “rebellion of nature,” by which I mean the disruption caused by ecological breakdown. The history of environmental regulation in the West is, in many ways, the story of protest and advocacy combining with the rebellion of nature at the local (urban) scale. Together, they have forced rudimentary regulation in the name of health and sanitation.¶ By the 1830s, America’s industrial cities had become perfect incubators of epidemic disease, particularly cholera and yellow fever. Like climate change today, these diseases hit the poor hardest, but they also sickened and killed the wealthy. Class privilege offered some protection, but it was not a guarantee of safety. And so it was that middle-class “goo-goos” and “mugwumps” began a series of reforms that contained and eventually defeated the urban epidemics.¶ First, garbage-eating hogs were banned from city streets, then public sanitation programs of refuse collection began, sewers were built, safe public water provided, and housing codes were developed and enforced. Eventually, the epidemics of cholera stopped. Soon other infectious diseases, such as pulmonary tuberculosis, typhus, and typhoid, were largely eliminated. At the scale of the urban, capitalist society solved an environmental crisis through planning and public investment.¶ Climate change is a problem of an entirely different order of magnitude, but these past solutions to smaller environmental crises offer lessons. Ultimately, solving the climate crisis—like the nineteenth-century victory Over urban squalor and epidemic contagions—will require a re-legitimation of the state’s role in the economy.¶ The modern story of local air pollution offers another example of the “rebellion of nature.” As Jim McNeil outlines in Something New Under The Sun, smog inundations in industrial cities of the United States and Europe used to kill many people. In 1879–1880 smog killed 3,000 Londoners, and in Glasgow a 1909 inversion—where cold air filled with smoke from burning coal was trapped near the ground—killed 1,063. As late as 1952, a pattern of cold and still air killed 4,000 people in London, according to McNeil, and even more according to others. By 1956, the Britons had passed a clean air act that drOVe coal out of the major cities. In the United States there was a similar process. In 1953, smog in New York killed between 170 and 260 people, and as late as 1966 a smog inversion killed 169 New Yorkers. All of this helped generate pressure for the Clean Air Act of 1970.¶ Today, a similar process is underway in China. Local air quality is so bad that it is forcing changes to Chinese energy policy. A major World Bank study has estimated that “the combined health and non-health cost of outdoor air and water pollution for China’s economy comes to around $US 100 billion a year (or about 5.8% of the country’s GDP).” People across China are protesting pollution. Foreign executives are turning down positions in Beijing because of the toxic atmospheric stew that western visitors have taken to calling “airpocalypse.” The film director Chen Kaige, who won the Palme d’Or for his 1993 film Farewell My Concubine, told the world he couldn’t think or make films because of the Chinese capital’s appallingly bad air.¶ These local pressures are a large part of what is driving Chinese investment in renewable energy. Last year China added more energy capacity from wind than from the coal sector.¶ Capitalism vs. Nature?¶ Some of the first thinkers to note a conflict between capitalism and non-human nature were Karl Marx and Friedrich Engels. They came to their ecology through examining the local problem of relations between town and country—expressed simultaneously as urban pollution and rural soil depletion. In exploring this question they relied on the pioneering work of soil chemist Justus von Liebig. And from this small-scale problem, they developed the idea of capitalism creating a rift in the metabolism of natural processes.¶ Here is how Marx explained the dilemma:¶ Capitalist production collects the population together in great centers, and causes the urban population to achieve an ever-growing preponderance. This has two results. On the one hand it concentrates the historical motive force of society; on the other hand, it disturbs the metabolic interaction between man and the earth, i.e., it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil….All progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil.¶ And as with “soil robbing,” so too concentrations of atmospheric CO2: the natural systems are out of sync; their elements are being rearranged and redistributed, ending up as garbage and pollution.¶ It may well be true that capitalism is incapable of accommodating itself to the limits of the natural world. But that is not the same question as whether or not capitalism can solve the climate crisis. Climate mitigation and adaptation are merely an effort to buy time to address the other larger set of problems that is the whole ecological crisis.¶ This is both a pessimistic and an optimistic view. Although capitalism has not Overcome the fundamental conflict between its infinite growth potential and the finite parameters of the planet’s pollution sinks, it has, in the past, addressed specific environmental crises.¶ Anyone who thinks the existing economic system must be totally transformed before we can deal with the impending climate crisis is delusional or in willful denial of the very clear findings of climate science. If the climate system unravels, all bets are off. The many progressive visions born of the Enlightenment will be swallowed and forgotten by the rising seas or smashed to pieces by the wrathful storms of climate chaos.

#### Ethical responsibility to stop extinction—human beings are ends in themselves

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The common elements making both phenomena paradigmatic and original are retraceable, according to Jonas, through the concepts of “totality”, “continuity” and “future” in relation to the existence and happiness of human beings. Human beings, like all other living beings, are ends in themselves; however, only human beings are able to carry out strategies which safeguard their being ends in themselves. Therefore, their very capacity for action implies an objective obligation in the form of external responsibility. For these reasons they can be defined as moral beings; that is, as capable of carrying out morally responsible or morally irresponsible behaviours33. Jonas reaffirms in any case that the archetype of every responsibility is that of human beings for human beings, in which the subject-object connection in the relationship of responsibility is irrefutable, and through this the responsibility for every living thing becomes clear. The totality of responsibility may be characterized by the paradigmatic examples of parents and of the statesman, which combine as the opposite poles of the greatest particularity and the greatest generality. In particular, the educational sphere demonstrates how the responsibility of parents and of the State are related, and how the private and public spheres integrate reciprocally, encompassing all aspects of the life of human beings. As Jonas describes, the education of the child includes socialization, beginning with speech and progressing with the transmission of the entire code of societal convictions and norms, through whose appropriation the individual becomes a member of the wider community. The private opens itself essentially to the public and includes it in its own completeness as belonging to the being of the person. In other words, the ‘citizen’ is an immanent aim of education, thus a part of parental responsibility, and this not only by force of the state’s enjoining it. From the other side, just as the parents educate their children ‘for the state’ (if for much more as well), so does the state assume responsibility for the education of the young. The earliest phase is left in most societies to the home, but everything after that comes under the supervision, regulation, and aid of the state – so that one can speak of a public ‘educational policy’.34 The continuity of responsibility depends on its own very nature since, for example, neither the care of parents nor the care of the government can cease, as they must respond to the ever new needs of life, which is rooted in the past and moves towards the future. Of course, political responsibility is greater in both temporal directions in relation to the greater duration of the historical community with respect to individual existence. Responsibility is projected beyond the present and today’s care into the future, despite life’s unpredictability; therefore, responsibility must have the function of making possible more than determining the present. Jonas writes: The object’s self-owned futurity is the truest futural aspect of the responsibility, which thus makes itself the guardian of the very source of that irksome unpredictability in the fruits of its labors. Its highest fulfillment, which it must be able to dare, is its abdication before the right of the never anticipated, which emerges as the outcome of its care […] In the light of such self-transcending width, it becomes apparent that responsibility as such is nothing else but the moral complement to the ontological constitution of our temporality35. Thus, every total responsibility, such as that of a parent or that of statesman or stateswoman – beyond its specific and important duties – is always also the preservation of the future possibility of responsible actions and of politics itself. Jonas affirms that by means of the difficult journey through the various regions of responsibility, he also found the answer to the question that at the beginning seemed to represent “the critical point of moral theory”: how to transform the will into the “ought”. The transition is mediated by the phenomenon of power in its uniquely human sense, in which causal force joins with knowledge and freedom. [...] Only in man is power emancipated from the whole through knowledge and arbitrary will and only in man can it become fatal to him and to itself, his capacity is his fate, and it increasingly becomes the general fate. In him, therefore, and in him alone, there arises out of the willing itself the ‘ought’ as the self-control of his consciously exercised power36. Human beings, as an epiphenomenon of nature capable of determining for itself the aims of actions and to carry them out autonomously, have reached even within nature the point at which their own self-destruction is possible. This imposes upon them the duty to pay special attention to not destroying, through irresponsible use, what exists, what has come about, and all the other living things, which are somehow in their power. Therefore, it is clear that, at the present time, human power not only requires the union of will and obligation, but also undeniably places responsibility at the centre of morality. Ethics and politics are necessarily interwoven, and Hans Jonas – in a situation where survival is threatened, of emergency, owing to the exponential development of technological power, and in the conviction that human beings cannot adapt themselves to everything – declares: “For the moment, all work on the ‘true’ [hu]man must stand back behind the bare saving of its precondition, namely, the existence of [hu]mankind in a sufficient natural environment”37. Responsible politics turns towards the future with the consciousness that it must guarantee the very possibility of responsible action and the existence of future generations, as well as the right to life of the world. It urges a limitation of technological development and the pursuit of a moderate and equitable use of resources.