### DA – Infrastructure

#### Biden PC is key to getting Manchin & Sinema on board – continued negotiations tentatively get their votes – it’s try or die for Tuesday’s vote

Edmondson & Cochrane 10/24 [Catie Edmondson is a reporter in the Washington bureau of The New York Times, covering Congress, Emily Cochrane is a correspondent based in Washington. She has covered Congress since late 2018, focusing on the annual debate over government funding and economic legislation, ranging from emergency pandemic relief to infrastructure, “Biden Meets With Manchin and Schumer as Democrats Race to Finish Social Policy Bill”, 10-24-2021, New York Times, https://www.nytimes.com/2021/10/24/us/politics/biden-manchin-schumer-spending-bill.html]//pranav

WASHINGTON — President Biden huddled with key Democrats on Sunday to iron out crucial spending and tax provisions as they raced to wrap up their expansive social safety net legislation before his appearance at a U.N. climate summit next week. Speaker Nancy Pelosi of California said Democrats were close to completing the bill, displaying confidence that the negotiations over issues like paid leave, tax increases and Medicare benefits that have bedeviled the party for months would soon end. “We have 90 percent of the bill agreed to and written. We just have some of the last decisions to be made,” Ms. Pelosi said on CNN’s “State of the Union,” adding that she hoped to pass an infrastructure bill that had already cleared the Senate and have a deal in hand on the social policy bill by the end of the week. “We’re pretty much there now.” Her comments came as Mr. Biden met with Senators Chuck Schumer of New York, the majority leader, and Joe Manchin III of West Virginia, one of the critical centrist holdouts on the budget bill. The White House called the breakfast at Mr. Biden’s Wilmington home a “productive discussion.” For weeks, intraparty divisions over the scope and size of their marquee domestic policy plan have delayed an agreement on how to trim the initial $3.5 trillion blueprint Democrats passed this year. In order to bypass united Republican opposition and pass the final bill, Democrats are using an arcane budget process known as reconciliation, which shields fiscal legislation from a filibuster but would require every Senate Democrat to unite behind the plan in the evenly divided chamber. The party’s margins in the House are not much more forgiving. Facing opposition over the $3.5 trillion price tag, White House and party leaders are coalescing around a cost of up to $2 trillion over 10 years. They have spent days negotiating primarily with Mr. Manchin and Senator Kyrsten Sinema, Democrat of Arizona and another centrist holdout. House Democratic leaders hope to advance both a compromise reconciliation package and the $1 trillion bipartisan infrastructure package. Liberals have so far balked at voting on the bipartisan deal until the more expansive domestic policy package — which is expected to address climate change, public education and health care — is agreed upon. But Democrats are facing a new sense of urgency to finish the legislation before Mr. Biden’s trip to a major United Nations climate change conference, where he hopes to point to the bill as proof that the United States is serious about leading the effort to fight global warming. “The president looked us in the eye, and he said: ‘I need this before I go and represent the United States in Glasgow. American prestige is on the line,’” Representative Ro Khanna, a California Democrat who met with Mr. Biden last week at the White House, said on “Fox News Sunday.” Democrats are also increasingly eager to deliver the bipartisan legislation to Mr. Biden’s desk before elections for governor in Virginia and New Jersey on Nov. 2, to show voters the party is making good on its promise to deliver sweeping social change. And a number of transportation programs will lapse at the end of the month without congressional action on either a stopgap extension or passage of the infrastructure bill, leading to possible furloughs.

#### Plan requires significant Political Capital which Biden can’t afford to spend– Pharma, GOP, allies, and long negotiations.

Bhadrakumar ’21 [M.K., Retired Ambassador; Columnist for Hindu and Deccan Herald Indian newspapers, Rediff.com, Asia Times and Strategic Culture Foundation, Moscow Previous positions: career diplomat for 30 years in the Indian Foreign Service: served in the Indian Embassy in Moscow (1975-1977; 1987-1998); Under Secretary (1977-1979), Joint Secretary (1992-1995), Director (1989-1991), Iran-Pakistan-Afghanistan Division & Kashmir Unit, Foreign Ministry; held posts in the Indian Missions in Bonn, Colombo, Seoul; Charge d’Affaires, Indian embassies in Kuwait and Kabul; Acting/Deputy High Commissioner in Islamabad; Ambassador to Turkey and Uzbekistan., “Biden’s Decision on TRIPS Waiver is Political Theatre”, 05-08-2021, https://www.newsclick.in/biden-decision-TRIPS-waiver-political-theatre]//pranav

The US pharmaceutical industry and congressional Republicans have already gone on the offensive blasting Biden’s announcement saying it undermines incentives for American innovation. Besides, the argument goes, even with the patent waiver, vaccine manufacturing is a complex process and is not like simply flipping a switch. Sen. Richard Burr, the top Republican on the US Senate Health Committee, has denounced Biden’s decision: “Intellectual property protections are part of the reason we have these life-saving products; stripping these protections only ensures we won’t have the vaccines or treatments we need when the next pandemic occurs.” The Republican senators backed by Republican Study Committee Chairman Jim Banks propose to introduce legislation to block the move. Clearly, Biden would rather spend his political capital on getting the necessary legislation through the Congress to advance his domestic reform agenda rather than spend time and energy to take on the pharmaceutical industry to burnish his image as a good Samaritan on the world stage. Conceivably, Biden could be counting on the “text-based negotiations” at the WTO dragging on for months, if not years, without reaching anywhere. The US support for the waiver could even be a tactic to convince pharmaceutical firms to back less drastic steps, like sharing technology and expanding joint ventures, to quickly boost global production. So far, COVID-19 vaccines have been distributed primarily to the wealthy countries that developed them, while the pandemic sweeps through poorer ones, such as India, and the real goal is, after all, expanded vaccine distribution. Biden is well aware that there will be huge opposition to the TRIPS waiver from the US’ European allies as well. The British press has reported that the UK has been in closed-door talks at the WTO in recent months along with the likes of Australia, Canada, Japan, Norway, Singapore, the European Union and the US, who all opposed the idea.

#### Political Capital key to pass reconciliation – and it’s fragile now.

Kapur 8/22 (Sahil, national political reporter for NBC News, “Honeymoon over? Afghanistan chaos comes at a critical moment for Biden's agenda,” 8-22-2021, NBC, URL: <https://www.nbcnews.com/politics/white-house/honeymoon-over-afghanistan-chaos-comes-critical-moment-biden-s-agenda-n1277338>, //RN)

WASHINGTON — President Joe Biden’s honeymoon with congressional Democrats appeared to reach an abrupt halt last week when a number of his allies on Capitol Hill began pummeling his execution of the U.S. withdrawal from Afghanistan, promising investigations. It’s a precarious moment for Biden, who needs to save his political capital to pass his ambitious agenda with thin Democratic majorities. House leaders are battling dissent among moderate lawmakers skeptical of the dual-track strategy to approve a $550 billion infrastructure bill and a $3.5 trillion package to expand the social safety net and raise taxes on the wealthy. Some insiders see a new phase for relations between Biden and Democrats. “The relationship has certainly hit a rough spot,” said Jim Manley, who was an aide to former Senate Democratic leader Harry Reid of Nevada. “On a whole host of issues, he’s had a pretty good run since becoming president. Now I think the relationship is going to get a little trickier from here on out.” He said he was “surprised by the tough tone” that key Democratic committee chairs like Rep. Gregory Meeks of New York and Sen. Bob Menendez of New Jersey took on Afghanistan, adding that they appear determined to conduct “rigorous” oversight of Biden, their fellow Democrat. The larger political impact of the chaos in Afghanistan is unclear. Polls taken during the chaos found that Americans still prefer withdrawing over remaining. But the situation has enveloped the White House in a near-term crisis that may limit its persuasive powers over Democratic lawmakers. An NBC News poll released Sunday found that Biden's job approval rating is 49 percent, while 48 percent of U.S. adults disapprove. That is down from April, when Biden drew 53 percent approval and 39 percent disapproval. From Afghanistan to Covid, Biden faces most turbulent week in office AUG. 20, 202107:02 Dan Pfeiffer, who was a senior adviser to former President Barack Obama, said he doesn’t believe the situation will harm Biden’s agenda, but he said the concern is understandable. “Democrats have so little margin of error in Congress that even a little bit of turbulence is concerning, and the instinct for self-sabotage in centrist Democrats is always prevalent,” he said. Pfeiffer said Biden’s popularity will have an impact on Democrats down the ballot in the congressional elections next year, giving them an incentive to strengthen him and his presidency. “From the perspective of raw politics, the urgency to quickly pass the Biden legislative agenda is increased by recent events. Congressional Democrats need a strong Biden to have any chance of holding the majorities,” he said. “If the president takes a political hit from what's happening in Afghanistan, passing very popular, impactful legislation is the best way to ensure that blip is temporary.” The Senate has passed a $550 billion infrastructure bill on a vote of 69-30. The House is set to return Monday and kick off the process of advancing the bill and the separate $3.5 trillion budget resolution. Speaker Nancy Pelosi, D-Calif., has said the infrastructure legislation won’t get a vote until the Senate passes the multitrillion-dollar bill, which has sparked dissent from moderates. And those moderates are more likely to stick with Biden if their voters support him. “I am curious to figure out how much this is actually going to hurt President Biden. It’s probably a moving target for members,” Kristen Hawn, a former Democratic aide for the moderate Blue Dog Coalition, said of the Afghanistan conundrum. “I don’t think we’ll know that immediately. This is still playing out. “I do think that Democratic allies of the president want to deliver a win for him,” she said. “The bipartisan bill would be a very big win for the president at a very troubling time right now. There would be an incentive there to pass something, have it signed into law. Particularly with infrastructure, there are real-world impacts. People can see it.” A group of centrists, including Rep. Josh Gottheimer, D-N.J., is pushing for a swift vote on the infrastructure bill before the House proceeds to the budget bill. But Pelosi has said infrastructure doesn’t have the votes to pass unless it is linked to the larger package, which is a top priority for progressive lawmakers. Pelosi needs all the help she can get from Biden to get most reluctant Democrats to back her plan. “It’ll be interesting to see if Democrats, especially in the House, think he is weakened and they try to jam him on infrastructure and reconciliation,” Manley said. “Presidents and their staff as a general rule like to preserve their political capital for tough times. And they’ve done a good job of doing that so far,” he said. “But based on how difficult this is, they’re going to have to start calling in some chits.”

#### Infra’s k2 stopping existential climate change – warming is incremental and every change in temperature is vital

Higgins 8/16 [Trevor, Senior Director, Domestic Climate and Energy, “Budget Reconciliation Is the Key to Stopping Climate Change”, 08-16-2021, https://www.americanprogress.org/issues/green/news/2021/08/16/502681/budget-reconciliation-key-stopping-climate-change/]//pranav

The United States is suffering acutely from the chaotic changes in climate that scientists now directly attribute to the burning of fossil fuels and other human activity. The drought, fires, extreme heat, and floods that have already killed hundreds this summer across the continent and around the world are a tragedy—and a warning of worsening instability yet to come. However, this week, the Senate initiated an extraordinary legislative response that would set the world on a different path. Enacting the full scope of President Joe Biden’s Build Back Better agenda would put the American economy to work leading a global transition to clean energy and stabilizing the climate. A look at what’s coming next through the budget reconciliation process reveals a ray of hope that is easy to miss amid the fitful negotiations of recent months: At long last, Congress is on the verge of major legislation that would build a more equitable, just, and inclusive clean energy economy. This is our shot to stop climate change. Building a clean energy future must start now Until the global economy stops polluting the air and instead starts to draw down the emissions of years past, the world will continue to heat up, blundering past perilous tipping points that threaten irreversible and catastrophic consequences. Stemming the extent of warming at 1.5 degrees Celsius rather 2 degrees or worse will reduce the risk of crossing such tipping points or otherwise exceeding the adaptive capacity of human society. Every degree matters. Stabilizing global warming at 1.5 degrees Celsius starts with cutting annual greenhouse gas emissions in the United States to half of peak levels by 2030. This isn’t about temporary offsets or incremental gains in efficiency—it’s about the rapid adoption of scalable solutions that will work throughout the world to eliminate global net emissions by 2050 and sustain net-negative emissions thereafter. Building this better future will tackle climate change, deliver on environmental justice, and create good jobs. It will give us a shot to stop the planet from continuously warming. It will alleviate the concentrated burdens of fossil fuel pollution, which are concentrated in systemically disadvantaged, often majority Black and brown communities. It will empower American workers to compete in the global clean energy economy of the 21st century. There is no time to lose in the work of building a clean energy future.

### DA – Climate Patents

#### Climate Patents and Innovation high now and solving Warming but patent waivers set a dangerous precedent for appropriations - the mere threat is sufficient is enough to kill investment.

Brand 5-26, Melissa. “Trips Ip Waiver Could Establish Dangerous Precedent for Climate Change and Other Biotech Sectors.” IPWatchdog.com | Patents & Patent Law, 26 May 2021, www.ipwatchdog.com/2021/05/26/trips-ip-waiver-establish-dangerous-precedent-climate-change-biotech-sectors/id=133964/. //sid

The biotech industry is making remarkable advancestowards climate change solutions, and it is precisely for this reason that it can expect to be in the crosshairs of potential IP waiver discussions. President Biden is correct to refer to climate change as an existential crisis. Yet it does not take too much effort to connect the dots between President Biden’s focus on climate change and his Administration’s recent commitment to waive global IP rights for Covid vaccines (TRIPS IP Waiver). “This is a global health crisis, and the extraordinary circumstances of the COVID-19 pandemic call for extraordinary measures.” If an IP waiver is purportedly necessary to solve the COVID-19 global health crisis (and of course [we dispute this notion](https://www.ipwatchdog.com/2021/04/19/waiving-ip-rights-during-times-of-covid-a-false-good-idea/id=132399/)), can we really feel confident that this or some future Administration will not apply the same logic to the climate crisis? And, without the confidence in the underlying IP for such solutions, what does this mean for U.S. innovation and economic growth? United States Trade Representative (USTR) [Katherine Tai](https://www.ipwatchdog.com/2021/05/05/tai-says-united-states-will-back-india-southafrica-proposal-waive-ip-rights-trips/id=133224/) was subject to questioning along this very line during a recent Senate Finance Committee hearing. And while Ambassador Tai did not affirmatively state that an IP waiver would be in the future for climate change technology, she surely did not assuage the concerns of interested parties. The United States has historically supported robust IP protection. This support is one reason the United States is the center of biotechnology innovation and leading the fight against COVID-19. However, a brief review of the domestic legislation arguably most relevant to this discussion shows just how far the international campaign against IP rights has eroded our normative position. The Clean Air Act, for example, contains a provision allowing for the mandatory licensing of patents covering certain devices for reducing air pollution. Importantly, however, the patent owner is accorded due process and the statute lays out a detailed process regulating the manner in which any such license can be issued, including findings of necessity and that no reasonable alternative method to accomplish the legislated goal exists. Also of critical importance is that the statute requires compensation to the patent holder. Similarly, the Atomic Energy Act contemplates mandatory licensing of patents covering inventions of primary importance in producing or utilizing atomic energy. This statute, too, requires due process, findings of importance to the statutory goals and compensation to the rights holder. A TRIPS IP waiver would operate outside of these types of frameworks. There would be no due process, no particularized findings, no compensationand no recourse. Indeed, the fact that the World Trade Organization (WTO) already has a process under the TRIPS agreement to address public health crises, including the compulsory licensing provisions, with necessary guardrails and compensation, makes quite clear that the waiver would operate as a free for all. Forced Tech Transfer Could Be on The Table When being questioned about the scope of a potential TRIPS IP waiver, Ambassador Tai invoked the proverb “Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime.” While this answer suggests primarily that, in times of famine, the Administration would rather give away other people’s fishing rods than share its own plentiful supply of fish (here: actual COVID-19 vaccine stocks), it is apparent that in Ambassador Tai’s view waiving patent rights alone would not help lower- and middle-income countries produce their own vaccines. Rather, they would need to be taught how to make the vaccines and given the biotech industry’s manufacturing know-how, sensitive cell lines, and proprietary cell culture media in order to do so. In other words, Ambassador Tai acknowledged that the scope of the current TRIPS IP waiver discussions includes the concept of forced tech transfer. In the context of climate change, the idea would be that companies who develop successful methods for producing new seed technologies and sustainable biomass**,** reducing greenhouse gases in manufacturing and transportation, capturing and sequestering carbon in soil and products, and more, would be required to turn over their proprietaryknow-how to global competitors. While it is unclear how this concept would work in practice and under the constitutions of certain countries, the suggestion alone could be devastating to voluntary internationalcollaborations. Even if one could assume that the United States could not implement forced tech transfer on its own soil, what about the governments of our international development partners? It is not hard to understand that a U.S.-based company developing climate change technologies would be unenthusiastic about partnering with a company abroad knowing that the foreign country’s government is on track – with the assent of the U.S. government – to change its laws and seize proprietary materials and know-how that had been voluntarily transferred to the local company. Necessary Investment Could Diminish Developing climate change solutions is not an easy endeavor and bad policy positions threaten the likelihood that they will materialize. These products have long lead times from research and development to market introduction, owing not only to a high rate of failure but also rigorous regulatory oversight. Significant investment is required to sustain and drive these challenging and long-enduring endeavors. For example, synthetic biology companies critical to this area of innovation [raised over $1 billion in investment in the second quarter of 2019 alone](https://www.bio.org/sites/default/files/2021-04/Climate%20Report_FINAL.pdf). If investors cannot be confident that IP will be in place to protect important climate change technologies after their long road from bench to market, it is unlikely they will continue to investat the current and required levels**.**

#### Climate change destroys the world.

Specktor 19 [Brandon writes about the science of everyday life for Live Science, and previously for Reader's Digest magazine, where he served as an editor for five years] 6-4-2019, "Human Civilization Will Crumble by 2050 If We Don't Stop Climate Change Now, New Paper Claims," livescience, <https://www.livescience.com/65633-climate-change-dooms-humans-by-2050.html> Justin

The current climate crisis, they say, is larger and more complex than any humans have ever dealt with before. General climate models — like the one that the [United Nations' Panel on Climate Change](https://www.ipcc.ch/sr15/) (IPCC) used in 2018 to predict that a global temperature increase of 3.6 degrees Fahrenheit (2 degrees Celsius) could put hundreds of millions of people at risk — fail to account for the **sheer complexity of Earth's many interlinked geological processes**; as such, they fail to adequately predict the scale of the potential consequences. The truth, the authors wrote, is probably far worse than any models can fathom. How the world ends What might an accurate worst-case picture of the planet's climate-addled future actually look like, then? The authors provide one particularly grim scenario that begins with world governments "politely ignoring" the advice of scientists and the will of the public to decarbonize the economy (finding alternative energy sources), resulting in a global temperature increase 5.4 F (3 C) by the year 2050. At this point, the world's ice sheets vanish; brutal droughts kill many of the trees in the [Amazon rainforest](https://www.livescience.com/57266-amazon-river.html) (removing one of the world's largest carbon offsets); and the planet plunges into a feedback loop of ever-hotter, ever-deadlier conditions. "Thirty-five percent of the global land area, and **55 percent of the global population, are subject to more than 20 days a year of** [**lethal heat conditions**](https://www.livescience.com/55129-how-heat-waves-kill-so-quickly.html), beyond the threshold of human survivability," the authors hypothesized. Meanwhile, droughts, floods and wildfires regularly ravage the land. Nearly **one-third of the world's land surface turns to desert**. Entire **ecosystems collapse**, beginning with the **planet's coral reefs**, the **rainforest and the Arctic ice sheets.** The world's tropics are hit hardest by these new climate extremes, destroying the region's agriculture and turning more than 1 billion people into refugees. This mass movement of refugees — coupled with [shrinking coastlines](https://www.livescience.com/51990-sea-level-rise-unknowns.html) and severe drops in food and water availability — begin to **stress the fabric of the world's largest nations**, including the United States. Armed conflicts over resources, perhaps culminating in **nuclear war, are likely**. The result, according to the new paper, is "outright chaos" and perhaps "the end of human global civilization as we know it."

### DA - Biotech

#### US dominance is secured in biotech now, but China’s closing the gap fast – that allows geopolitical and economic advantages

**Moore** **2020** [(Director of the Penn Global China Program at the University of Pennsylvania. Previously, Moore was a Young Professional and Water Resources Management Specialist at the World Bank Group, and Environment, Science, Technology, and Health Officer for China at the U.S.) “China’s Role In The Global Biotechnology Sector And Implications For U.S. Policy” <https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_china_biotechnology_moore.pdf>] EV

EXECUTIVE SUMMARY Even by the standards of emerging technologies, **biotechnology has the potential to utterly transform geopolitics, economics**, and society in the 21st century. Yet while the United States has long been the world leader in most segments of the global biotechnology sector, **China is fast becoming a significant player**. This brief assesses the implications of China’s changing role in biotechnology for the United States, which span national security, data security, and economic competitiveness. On current trends the United States is likely to remain the world leader in most biotechnology areas. **However, the gap between China and the U.S. is narrowing in the biotechnology sector,** and U.S. policymakers must boost public investment, liberalize immigration and foreign student visa policies, and enact regulatory reforms to ensure America remains competitive. At the same time, areas like vaccine development and regulation of emerging technologies like synthetic biology present rich opportunities for Sino-U.S. cooperation. INTRODUCTION Thanks to extensive government funding for biomedical research, an unparalleled ability to translate basic research into commercial products and applications, and strong intellectual property protections, the United States has been the dominant global player in developing and commercializing biotechnology for decades.1 This dominance is reflected in the fact that United States accounted for almost half of all biotechnology patents filed worldwide from 1999 to 2013.2 However, in the intervening years, and just as in the case of artificial intelligence and other emerging technologies, other nations, including South Korea and Singapore, have invested heavily in developing their biotechnology sectors and industries. These efforts pale, however, in comparison to those of China, and the sheer size and scale of the Chinese biotechnology industry pose a range of economic, security, and regulatory issues for American policymakers. The determination of China’s one-party state to become a leading player in biotechnology is reflected by the rapid growth in investment in the sector. Some estimates claim that collectively, **China’s** central, local, and provincial **governments have invested over $100 billion in life sciences** research and development. Regardless of the true figure, official encouragement has led to a torrid place of investment. In just the two-year period from 2015 to 2017, venture capital and private equity investment in the sector totaled some $45 billion.3 The value of commercial deals concluded in the fields of biology, medicine and medical machine technology, meanwhile increased from 25.8 billion renminbi (RMB), or $3.6 billion, in 2011 to over 75 billion RMB ($10.6 billion) in 2017.4 Annual research and development expenditures by Chinese pharmaceutical firms, the foundation of the biotechnology sector, rose from some 39 billion RMB in 2014 ($5.5 billion) to over 53 billion RMB (US$7.5 billion) by 2017. Expenditure on new product development among these firms, an important indicator of future growth potential, increased from just over 40 billion RMB ($5.6 billion) to almost 60 billion ($8.4 billion).5 By Western standards, some of these figures are still low. Swiss drugmaker Roche, the world leader in biotechnology research and development, spent some $11 billion in 2018 alone.6 As these figures suggest, the development of China’s biotechnology sector paints a nuanced picture for U.S. policymakers. On one hand, the sector’s rapid growth, and high-level commitment to continued investment, means that China will inevitably become an increasingly important player in the global biotechnology sector, **with implications for national security, economic competitiveness, and regulation**. An executive from In-Q-Tel, the U.S. government’s inhouse national security venture capital fund, warned Congress in a November 2019 hearing, for example, that China “intends to own the biorevolution… and they are building the infrastructure, the talent pipeline, the regulatory system, and the financial system they need to do that.”7 The CEO of European drugmaker AstraZeneca has similarly opined that “Much of [China’s] innovation in the last three to four years has been ‘me too,’ but now on the horizon we can see firstin-class innovation.”8 Yet on the other hand, while China’s biotechnology sector will almost certainly continue to grow in scale, sophistication, and competitiveness, there is little reason to believe on current trends that the United States will lose its edge in the sector. Indeed, the biggest risk to the global competitiveness of the U.S. biotechnology industry likely comes from the prospect of declining public investment and reduced mobility for world-class researchers and industry professionals. Moreover, the COVID-19 crisis underscores both the importance of continued investment in biotechnology and the many challenges to promoting effective international cooperation on global health security. This brief first examines the key policies and actors in China’s biotechnology sector, then offers an assessment of the sector’s current capabilities and future trends, and finally further explores the implications of developments in Chinese biotechnology for U.S. policy.

#### The aff’s reduction of IPP doesn’t solve but it does give away sensitive national security information that allows China to lead ahead in biotech

Rogin 4-8. [(Washington Post Columnist covering National Security Issues.) “Opinion: The wrong way to fight vaccine nationalism” https://www.washingtonpost.com/opinions/global-opinions/the-wrong-way-to-fight-vaccine-nationalism/2021/04/08/9a65e15e-98a8-11eb-962b-78c1d8228819\_story.html ] EV

Americans will not be safe from covid-19 until the entire world is safe. That basic truth shows why vaccine nationalism is not only immoral but also counterproductive. But the simplest solutions are rarely the correct ones, **and some countries are using the issue to advance their own strategic interests**. The Biden administration must reject the effort by some nations to turn our shared crisis into their opportunity. As the inequities of vaccine distribution worldwide grow, a group of more than 50 developing countries led by India and South Africa is pushing the World Trade Organization to dissolve all international intellectual property protections for pandemic-related products, which would include vaccine research patents, manufacturing designs and technological know-how. The Trump administration rejected the proposal to waive the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) for the pandemic when it was introduced in October. Now, hundreds of nongovernmental organizations and dozens of Democratic lawmakers are pushing the Biden administration to support the proposal. But many warn **the move would result in the United States handing over a generation of advanced research** — much of it funded by the U.S. taxpayer — **to** our country’s greatest competitors, above all **China**. In Congress, there’s justified frustration with the United States’ failure to respond to China’s robust vaccine diplomacy, in which Beijing has conditioned vaccine offers to pandemic-stricken countries on their ignoring security concerns over Chinese telecom companies or abandoning diplomatic recognition of Taiwan. There’s also a lot of anger at Big Pharma among progressives for profiting from the pandemic. “We are in a race against time, and unfortunately Big Pharma is standing in the way of speedily addressing this problem,” Rep. Jan Schakowsky (D-Ill.), who supports the effort to waive intellectual property protections, told me in an interview. “I think the real security issue is that while the United States balks in making sure that we help ourselves, that these adversaries will just jump right in.” Schakowsky argued that alternative measures for helping poor countries manufacture vaccines are simply not moving fast enough to save lives and that the United States has a duty to respond. House Speaker Nancy Pelosi (D-Calif.) personally conveyed her support for the waiver to President Biden, Schakowsky said. But Big Pharma is just one piece of the puzzle. Countries such as India and South Africa have been trying to weaken WTO intellectual property protections for decades. **The mRNA technology that underpins the Pfizer and Moderna vaccines was funded initially by the Defense Advanced Research Projects Agency and has national security implications.** Inside the Biden administration, the National Security Council has already convened several meetings on the issue. The waiver is supported by many global health officials in the White House and at the U.S. Agency for International Development, who believe the United States’ international reputation is suffering from its perceived “America First” vaccine strategy. On Wednesday, U.S. Trade Representative Katherine Tai spoke with WTO Director General Ngozi Okonjo-Iweala about the waiver issue. USTR is convening its own interagency meetings on the issue, which many see as a move to reassert its jurisdiction over WTO matters. If and when this does get to Biden’s desk, he will also hear from national security officials who believe that waiving TRIPS would result in the forced transfer of national security-sensitive technology to China, **a country that strives to dominate the biotechnology** ***field*** as part of its Made in China 2025 strategy. **Once countries such as China have this technology, they will apply their mercantilist industrial models to ensure their companies dominate these strategically important industries, potentially erasing thousands of U.S. jobs.** “We would be delivering a competitive advantage to countries that are increasingly viewed as our adversaries, at taxpayer expense, when there are other ways of doing this,” said Mark Cohen, senior fellow at the University of California at Berkeley Law School. **A preferable approach would be to build more vaccine-manufacturing capacity** in the United States and then give those vaccines to countries in need, said Cohen. The U.S. pharmaceutical industry would surely benefit, but **that’s preferable to being dependent on other countries when the next pandemic hits.** “If there’s anything that the pandemic has taught us, it’s that we need to have a robust supply chain, for ourselves and for the world generally,” Cohen said. What’s more, it’s not clear that waiving the TRIPS agreement for the pandemic would work in the first place. Bill Gates and others involved in the current vaccine distribution scheme have argued that it would not result in more vaccines, pointing out that licensing agreements are already successfully facilitating cooperation between patent-holding vaccine-makers and foreign manufacturers. Critics respond that such cooperation is still failing to meet the urgent needs in the developing world. Vaccine equity is a real problem, but waiving intellectual property rights is not the solution. If the current system is not getting shots into the arms of people in poor countries, we must fix that for their sake and ours. But the pandemic and our responses to it have geopolitical implications, whether we like it or not. **That means helping the world and thinking about our strategic interests at the same time.**

#### China will convert biotechnology gains to military advantages, undermining US primacy on a global scale

Kuo 2017 [(Executive Vice President at Pamir Consulting.) “The Great US-China Biotechnology and Artificial Intelligence Race” <https://thediplomat.com/2017/08/the-great-us-china-biotechnology-and-artificial-intelligence-race/>] EV

Trans-Pacific View author Mercy Kuo regularly engages subject-matter experts, policy practitioners, and strategic thinkers across the globe for their diverse insights into the U.S. Asia policy. This conversation with Eleonore Pauwels – Director of Biology Collectives and Senior Program Associate, Science and Technology Innovation Program at the Wilson Center in Washington D.C. – is the 104th in “The Trans-Pacific View Insight Series.” Explain the motivation behind Chinese investment in U.S. genomics and artificial intelligence (AI). With large public and private investments inland and in the U.S., China plans to become the next AI-Genomics powerhouse, which indicates that these technologies will soon converge in China. China’s ambition is to lead the global market for precision medicine, **which necessitates acquiring strategic tech**nological and human capital in both genomics and AI. And the country excels at this game. A sharp blow in this U.S.-China competition happened in 2013 when BGI purchased Complete Genomics, in California, with the intent to build its own advanced genomic sequencing machines, therefore securing a technological knowhow mainly mastered by U.S. producers. There are significant economic incentives behind China’s heavy investment in the increasing convergence of AI and genomics. This golden combination will drive precision medicine to new heights by developing a more sophisticated understanding of how our genomes function, leading to precise, even personalized, cancer therapeutics and preventive diagnostics, such as liquid biopsies. By one estimate, the liquid biopsy market is expected to be worth $40 billion in 2017. Assess the implications of iCarbonX of Shenzhen’s decision to invest US$100 million in U.S.-company PatientsLikeMe relative to AI and genomic data collection. iCarbonX is a pioneer in AI software that learns to recognize useful relationships between large amounts of individuals’ biological, medical, behavioral and psychological data. Such a data-ecosystem will deliver insights into how an individual’s genome is mutating over time, and therefore critical information about this individual’s susceptibilities to rare, chronic and mental illnesses. In 2017, iCarbonX invested $100 million in PatientsLikeMe, getting a hold over data from the biggest online network of patients with rare and chronic diseases. If successful, this effort could turn into genetic gold, making iCarbonX one of the wealthiest healthcare companies in China and beyond. The risk factor is that iCarbonX is handling more than personal data, but potentially vulnerable data as the company uses a smartphone application, Meum, for customers to consult for health advice. Remember that the Chinese nascent genomics and AI industry relies on cloud computing for genomics data-storage and exchange, creating, in its wake, new vulnerabilities associated with any internet-based technology. This phenomenon has severe implications. How much consideration has been given to privacy and the evolving notion of personal data in this AI-powered health economy? And is our cyberinfrastructure ready to protect such trove of personal health data from hackers and industrial espionage? In this new race, will China and the U.S. have to constantly accelerate their rate of cyber and bio-innovation to be more resilient? Refining our models of genomics data protection will become a critical biosecurity issue. **Why is Chinese access to U.S. genomic data a national security concern**? **Genomics** and computing research **is inherently dual-use, therefore a strategic advantage in a nation’s security arsenal.** Using AI systems to understand how the functioning of our genomes impacts our health **is of strategic importance for biodefense.** This knowledge will lead to increasing developments at the forefront of medical countermeasures, **including vaccines, antibiotics**, and targeted treatments relying on virus-engineering and microbiome research. Applying deep learning to genomics data-sets could help geneticists learn how to use genome-editing (CRISPR) to efficiently engineer living systems, but also to treat and, even “optimize,” human health, **with potential applications in military enhancements**. A $15 million partnership between a U.S. company, Gingko Bioworks, and DARPA aims to genetically design new probiotics as a protection for soldiers against a variety of stomach bugs and illnesses. China could be using the same deep learning techniques on U.S. genomics data to better comprehend how to develop, patent and manufacture tailored cancer immunotherapies in high demand in the United States. Yet, what if Chinese efforts venture into understanding how to impact key genomics health determinants relevant to the U.S. population? **Gaining access to increasingly large U.S. genomic data-sets gives China a knowledge advantage into leading the next steps in bio-military research.** Could biomedical data be used to develop bioweapons? Explain. Personalized medicine advances mean that personalized bio-attacks are increasingly possible. The combination of AI with biomedical data and genome-editing technologies will help us predict genes most important to particular functions. Such insights will contribute to knowing how a particular disease occurs, how a newly-discovered virus has high transmissibility, but also why certain populations and individuals are more susceptible to it. Combining host susceptibility information with pathogenic targeted design, **malicious actors could engineer pathogens that are tailored to overcome the immune system or the microbiome of specific populations.**

#### Maintenance of the ILO is key to reduce a host of existential threats – establishes great-power peace.

Brands 18. [(Hal Brands is a Henry Kissinger Distinguished Professor at Johns Hopkins University’s School of Advanced International Studies, Scholar at the American Enterprise Institute. “America’s Global Order Is Worth Fighting For, Bloomberg Opinion, Politics & Policy,” August 14, 2018, Bloomberg. <https://www.bloomberg.com/opinion/articles/2018-08-14/america-s-global-order-is-worth-fighting-for>] EV

The first argument is easily disposed of. Yes, the postwar world has been thoroughly imperfect, featuring nuclear arms races, genocides, widespread poverty and other scourges. But the world has always been imperfect, and by any meaningful comparison, the last seven decades have been a veritable golden age. The liberal international economic order has led to an explosion of domestic and global prosperity: According to World Bank data, both U.S. and global per capita income have increased roughly three-fold (in inflation-adjusted terms) since 1960, with U.S. gross domestic product increasing nearly six-fold. The U.S. system of alliances and forward military deployments has contributed critically to the longest period of great-power peace in modern history, and the incidence of war and conquest more broadly have dropped dramatically. The number of democracies in the world has increased from perhaps a dozen during World War II to well over 100 today; respect for basic human rights has also reached impressive levels. As a bevy of scholarship has shown, the policies that the U.S. has pursued and the international order it has built have contributed enormously and directly to these outcomes. If the liberal international order can’t be considered a smashing success, no international order could be. The second critique is also overstated. It is true that Washington, like all great powers throughout history, has been willing to bend the rules to get its way. It is hard to reconcile Cold War-era interventions in Guatemala, Chile and other countries with a professed solicitude for human rights and democracy; the Iraq War of 2003 is only one instance in which the U.S. brushed aside the concerns of international organizations such as the U.N. Security Council. Likewise, when the U.S. government determined that the Bretton Woods system of monetary relations no longer suited its interests in the 1970s, it terminated that scheme and insisted on creating a more favorable one. But again, the proper standard here is not sainthood but reality. And the U.S. has generally enlisted its power in the service of universal values such as democracy and human rights; it has, more often than not, promoted a positive-sum international system in which like-minded nations can be secure and wealthy. This goes back to the very beginning of the liberal order: Washington did not seek to hold its defeated adversaries in subjugation after World War II; it rebuilt Japan and western Germany into thriving, democratic allies that became fierce economic competitors to the U.S. The U.S. has taken this approach not simply because it wanted to do good in the world — powerful as this motivation is — but because of a hard-headed desire to do good for itself. In an interdependent global environment, American officials have long calculated, the U.S. cannot divorce its own well-being from that of the wider world. And in contrast to how other great powers — Imperial Japan, for instance, or the Soviet Union — ruled their spheres of influence, American behavior has been positively enlightened. It is this relatively benign behavior that has convinced so many countries to tolerate American leadership — and it is the emergence of a darker form of U.S. hegemony under the Trump administration that so profoundly worries them today. As for the third critique, the premise is right, but the conclusion can easily go too far. It is always dangerous to become so enraptured by past achievements that one loses sight of the need for adaptation in the future. This is particularly true today, because the strength of the liberal order is being tested from within and without, by issues ranging from unequal burden-sharing among American allies to the ambivalence of the American people themselves. There is little evidence to suggest, however, that either American power or the liberal order it supports have eroded so dramatically that Washington’s postwar project cannot be sustained. Quite the contrary — the U.S. is likely to remain the world’s strongest power for decades to come.

### CP – Dual Use

#### Counterplan Text: The member nations of the World Trade Organization ought to

#### 1] reduce intellectual property protections for medicines except for dual-use biotechnologies and

#### 2] offer a 3 year patent extension on dual use biotechnologies conditioned on accompanying countermeasures.

#### The counterplan incentivizes development into countermeasures and removes terrorist access to biotechnologies.

Million-Perez, H. (2016). Addressing duel-use technology in an age of bioterrorism: Patent extensions to inspire companies making duel use technology to create accompanying countermeasures. AIPLA Quarterly Journal, 44(3), 387-436. Rachael Million-Perez is an associate with Fitzpatrick, Cella, Harper & Scinto and a graduate of the George Washington University Law School. //sid

Although previous congressional proposals, Acts, and committees aimed to fund and incentivize countermeasures, each failed to target dual-use technology countermeasure development. This article proposes, therefore, that the USPTO offer a patent-term extension for patents directed to dual-use technology on the condition that the patent owner creates an accompanying countermeasure. This article argues for an extension of three years 251 for patent owners who meet this condition in addition to any patent-term adjustments afforded to the patent owner pursuant to Title 35 of the U.S. Code or legislative acts. A. Patent Extension for Dual-Use Technologies in Exchange for an Accompanying Countermeasure is an Appropriate and Realistic Incentive that Could Yield Significant Benefit The conditional patent-term extension proposed here provides an incentive that will: (1) reduce unbridled accessibility to dual-use technologies, (2) make countermeasure development an attractive and cost-effective business investment, and (3) take advantage of companies and individuals who currently specialize in the dual-use technology field, and who possess the necessary resources to create accompanying counter-measures. The conditional patent-term extension proposed here provides an incentive that will reduce unbridled accessibility to dual-use technologies. Although accessibility to dual-use technology is essentially ungovernable in the Internet age, providing a three-year patent-term extension to a dual-use technology will motivate companies to collaborate with the U.S. Government to identify and enjoin individuals infringing their patented dual-use technology. As a result, biohackers and terrorist organizations will have diminished access to these technologies. Dissimilar to previous and current countermeasure incentives, the conditional patent-term extension proposed here will make countermeasure development an attractive and cost-effective business investment, because it will be easily applicable, lower the financial risk of countermeasure development, and potentially lead to profits. Unlike previous incentives, a patent-term extension on a dual-use technology in exchange for creating a countermeasure to that technology presents a simple and easily-applicable business model. Private companies need not contort themselves to meet the demands of legislation, like Project BioShield. Rather, a patent-term extension on the dual-use technology will be granted when the company identifies a dual-use quality of one of its innovations and opts to develop a countermeasure to the dual use of that specific innovation. Upon successful development of a countermeasure, the USPTO will then extend the company's dual use technology patent. Because the company likely has already received approval of the dual-use technology, it need not worry about whether the extension is affected by the countermeasure's approval time. The simplicity of this proposed regime would attract companies and individuals frustrated with other complicated or inapplicable incentives. In addition, the length and specificity of this proposed extension renders it a strong incentive that will lower the financial risk of countermeasure investment. The length of patent-term extension incentive must be able to generate participation by virtually guaranteeing a return on the company's investment in countermeasure production. As discussed above, the risk of countermeasure development is incredibly high, and thus the promise that a company may recoup or even profit from developing a countermeasure will entice companies who had previously avoided countermeasure investment.253 For these reasons, this article proposes a three-year patent term extension. Recent studies showed an increase in domestic R&D investment and new pharmaceutical product development when the patent-term extension changed from seventeen years to twenty years in both the United States and Canada.254 A similar surge may occur for dual-use technology countermeasure investment under the proposed extension. Over the additional three years of the patent term, companies are likely to receive the benefit of extending their monopoly on a profitable dual-use technology such that the company will likely recoup countermeasure development costs and, potentially, profit. As a result, dual-use technology countermeasure production is likely to increase. Additionally, proponents of patent extension, like Dr. Josh Bloom, Director of Chemical and Pharmaceutical Sciences at the American Council on Science and Health, contend that three-year patent extensions are likely appropriate for patents related to the company's portfolio.255 Unlike previous and current countermeasure incentives, the extension proposed here would neither under- nor over-compensate companies. For example, the six-month to two-year extension- offered in S. 975 and S. 3-are too short in length to ensure both that small and large companies find the incentive desirable.25 6 A three-year extension, however, would further assure that any size company would recoup its investment. Furthermore, unlike a wild card patent extension, which would permit a company to extend the life of any blockbuster product and thus accrue arguably unwarranted financial gain, under this proposal a company can only extend the life of a narrowly defined dual-use technology. A dual-use technology may or may not be a blockbuster. The chances that a dual-use technology has blockbuster status, however, are slim, considering only around 30 percent of newly-introduced pharmaceutical drugs have profits that exceed average R&D costs.257 As a result, large companies do not have an unfair advantage, nor do small companies have an unfair disadvantage. Rather, if a dual-use technology is not a blockbuster, both smaller biotechnology companies, with less than $500 million in annual revenue, and large companies will need a patent extension lengthy enough to guarantee cost recoup.258 Therefore, unlike the previously proposed extensions, three-year extensions to a dual-use technology patent will afford companies a considerable, yet fair, return on their investment in countermeasure development. A conditional patent-term extension like the one proposed here will also leverage companies' expertise and resources. Because a countermeasure to a dual-use technology will likely require the same expertise and resources used to develop the dual-use technology, a company may avoid some R&D costs when it develops both. Furthermore, tapping into a company's foundation of expertise and resources may expedite production of countermeasures to dual-use technology. Unlike acquiring separate countermeasures via mergers or acquisitions, using this expertise and resources springboard for countermeasure 259 The Monsanto herbicide, Roundup@, and the Roundup Ready@ crops genetically modified to be resistant to Roundup illustrates when a patent owner could be taking advantage of her expertise and resources. In the 1970s, Monsanto created the Roundup herbicide farmers use today.260 By the mid-90's, Monsanto neared the expiration date on its patent of Roundup and faced the possibility of losing the production rights of the blockbuster.261Yet Monsanto was able to use genetic engineering to create Roundup-Ready crops resistant to Roundup in 1996.262 In particular, Monsanto was able to create these plants after working on its herbicide when one of its scientists accidentally discovered Roundup-resistant bacteria. 263 Exploiting this discovery, the company worked diligently to splice the 26 resistant gene into a working plant model. 4 Because these crops were resistant to Roundup, a farmer used the herbicide in the fields to eliminate unwanted foliage while not harming the main crop. 265 Notably, Monsanto did not make a countermeasure to its herbicide, but similar to Monsanto's ability to create two technologies from a single concept, companies producing dual-use technologies can exploit discoveries made in their pursuit of creating a dual-use technology to eventually create an accompanying countermeasure. In sum, unlike previous countermeasure incentives, the conditional patent-term extension proposed here provides an incentive that reduces terrorist or biohacker accessibility to dual-use technologies, makes countermeasure development an attractive investment, and takes advantage of companies' resources and expertise.

#### Vulnerabilities exposed by COVID have invigorated availability and interest in bioterror, but technical challenges remain as barriers to acquisition.

Koblentz and Kiesel 7/14 [Gregory D. Koblentz (Deputy Director of the Biodefense Graduate Program and Assistant Professor of Government and Politics in the Department of Public and International Affairs at George Mason University) and Stevie Kiesel (Biodefense PhD Student, Schar School of Policy and Government, George Mason University). “The COVID-19 Pandemic: Catalyst or Complication for Bioterrorism?”. Studies in Conflict & Terrorism. Published online 14 Jul 2021. Accessed 7/22/21. <https://www.tandfonline.com/doi/abs/10.1080/1057610X.2021.1944023?journalCode=uter20> //Xu]

Since COVID-19 was declared a pandemic in March 2020, there has been no major bioterrorist incident that challenges or validates the core beliefs of the optimists, pessimists, or pragmatists. Extremists with violent apocalyptic or accelerationist ideologies—chiefly jihadists and far-right extremists—have sought to capitalize on the pandemic, but they still rely on conventional weapons. Based on available open-source information, terrorist interest in weaponizing SARS-CoV-2 seems limited. While some individuals and groups who subscribe to violent apocalyptic or accelerationist ideologies have shown some interest in crudely spreading the virus, most terrorists have sought to exploit the conditions the pandemic created rather than the virus itself. An increase in the risk of bioterrorism cannot be completely discounted as the equipment, knowledge, and expertise to work with high-risk pathogens is increasingly available and there are a small number of groups with the ideologies and objectives consistent with the use of biological weapons. Still, important technical barriers to acquiring and using a biological weapon capable of causing mass casualties, even far below the effects of a pandemic pathogen, will remain even after the pandemic is contained. While COVID-19 graphically demonstrated the vulnerability of modern societies to infectious diseases, the lessons learned from this experience, if properly implemented, should significantly improve the capability of governments around the world to detect and respond to future pandemics as well as deliberate disease outbreaks. Counterterrorism and biodefense efforts should not be dictated by the latest “‘risk of the month’ policies crafted in the wake of visible or highly publicized events.”117 Instead, strategies for reducing the likelihood and consequences of bioterrorism in the wake of the COVID-19 pandemic should be based on a realistic appraisal of the risk and investments should be optimized to strengthen preparedness against the full spectrum of biological threats.

#### IP protections are the only limit on proliferating dual-use biotech – losing patents puts financial pressure on companies to outsource R&D, which skyrockets bioterror acquisition.

Finlay 10 [Brian Finlay (President and Chief Executive Officer of the Stimson Center, M.A. from the Norman Patterson School of International Affairs at Carleton University, a graduate diploma from the School of Advanced International Studies, the Johns Hopkins University and an honors B.A. from Western University in Canada). “The Bioterror Pipeline: Big Pharma, Patent Expirations, and New Challenges to Global Security”. The Fletcher Forum of World Affairs. Vol. 34, No. 2 (Summer 2010), pp. 51-64. <https://www.jstor.org/stable/45289504?seq=1#metadata_info_tab_contents> //Xu]

Until recently, these investment risks were frequently mitigated by income generated from past drug development successes. In most markets, that income was guaranteed by strict patent protections that closed the window to outside competition for a set period of time. More recently, however, the uncertainty of R&D investments has been complicated not only by the global economic downturn, but more importantly by looming patent expirations that will open many of big pharma's patent-protected drugs to generic competition. Between 2007 and 2012, more than three dozen drugs will lose patent protection, removing an estimated $67 billion from big pharma's annual sales.33 With existing drug development pipelines unable to fill the gaps, biopharmaceutical companies are under intense pressure not only to cut costs - which would provide only temporary relief to the bottom line - but also to rapidly replenish their development pipelines. Some industry analysts have described this "perfect storm" as an "existential" moment for big pharma.34 Many pharmaceutical companies have approached this challenge by accelerating and widening the outsourcing and off-shoring of both R&D and manufacturing, and by aggressively buying promising assets from small biotech companies through acquisitions and strategic alliances. Interestingly, these partnerships are less frequently linked with American or even Western-owned and-operated companies than in the past. Many pharmaceutical giants like Indiana-based Eli Lilly are turning to alliances with firms in Asia and elsewhere around the world, outsourcing key technical operations. Instead of functioning as fully integrated firms, big pharma companies have found value in networked relationships with independent small to large firms, universities, and non-profit biotechnology laboratories around the globe.35 The net result has accelerated technology proliferation - for both beneficial and nefarious uses - far beyond the traditional hubs for biotech innovation. Pharma's increasingly desperate search to seed and ultimately acquire innovative new biotechnologies means that foreign (non- Western) markets are pulling ahead in biotech innovation. Indeed, the quantity of biotech companies outside the United States has grown remarkably in recent years: in Israel, the number grew from 30 in 1990 to about 160 in 2000; in Brazil, from 76 in 1993 to 354 in 2001; and remarkably, in South Korea, from one in 2000 to 23 in 2003. 36 More generally, the Asia-Pacific region has emerged as one of the world s fastest-growing biotechnology hubs, with the growth of publicly traded companies handily outpacing growth in the United States and Europe over recent years.37 As fruitful partnerships lead big pharma to increasingly generate resources, technologies, and knowledge, these capacities spin off new competitor firms in a self-executing multiplier effect. With the number of facilities and highly trained individuals increasing, the likelihood of a serious biological accident or nefarious incident will similarly rise, which will be particularly risky when dual-use technologies are introduced into insufficiently regulated markets. CONCLUSIONs In statements, U.S. officials continue to cite several countries believed to have or to be pursuing a biological weapons capability.38 But globalization exports the challenge of bioproliferation far beyond these geographic boundaries and transcends multiple societal layers well beyond government actors. As a result, it is increasingly clear that states no longer have a monopoly on dual-use biological R&D. Recent evidence suggests a growing threat of terrorist acquisition of biological weapons. As technological advancement in the life sciences is progressively pushed into countries of the Global South, some of which are also potential hotbeds for terrorist activity, the nexus of science and terrorism becomes especially acute. While far from perfect, the current system of stringent controls levied by Western governments over the biopharmaceutical sector has proven remarkably effective, especially given the diffusion of technologies and the ease of their redirection for hostile purposes. As the biotech revolution continues to widen, however, advanced industrialized governments are increasingly playing catch-up with changing technological realities. As these technologies proliferate, security analysts have become uneasy with the lack of controls in many states. The dearth of legal controls, the lack of rigor in their enforcement, and the growth in private-actor involvement in dual-use activities has sobering implications for global security.

#### Bioterrorism causes Extinction – overcomes any conventional defense.

Walsh 19, Bryan. End Times: A Brief Guide to the End of the World. Hachette Books, 2019. (Future Correspondent for Axios, Editor of the Science and Technology Publication OneZero, Former Senior and International Editor at Time Magazine, BA from Princeton University)//Elmer

I’ve lived through disease outbreaks, and in the previous chapter I showed just how unprepared we are to face a widespread pandemic of flu or another new pathogen like SARS. But a deliberate outbreak caused by an engineered pathogen would be far worse. We would face the same agonizing decisions that must be made during a natural pandemic: whether to ban travel from affected regions, how to keep overburdened hospitals working as the rolls of the sick grew, how to accelerate the development and distribution of vaccines and drugs. To that dire list add the terror that would spread once it became clear that the death and disease in our midst was not the random work of nature, but a deliberate act of malice. We’re scared of disease outbreaks and we’re scared of terrorism—put them together and you have a formula for chaos. As deadly and as disruptive as a conventional bioterror incident would be, an attack that employed existing pathogens could only spread so far, limited by the same laws of evolution that circumscribe natural disease outbreaks. But a virus engineered in a lab to break those laws could spread faster and kill quicker than anything that would emerge out of nature. It can be designed to evade medical countermeasures, frustrating doctors’ attempts to diagnose cases and treat patients. If health officials manage to stamp out the outbreak, it could be reintroduced into the public again and again. It could, with the right mix of genetic traits, even wipe us off the planet, making engineered viruses a genuine existential threat. And such an attack may not even be that difficult to carry out. Thanks to advances in biotechnology that have rapidly reduced the skill level and funding needed to perform gene editing and engineering, what might have once required the work of an army of virologists employed by a nation-state could soon be done by a handful of talented and trained individuals. Or maybe just one. When Melinda Gates was asked at the South by Southwest conference in 2018 to identify what she saw as the biggest threat facing the world over the next decade, she didn’t hesitate: “A bioterrorism event. Definitely.”2 She’s far from alone. In 2016, President Obama’s director of national intelligence James Clapper identified CRISPR as a “weapon of mass destruction,” a category usually reserved for known nightmares like nuclear bombs and chemical weapons. A 2018 report from the National Academies of Sciences concluded that biotechnology had rewritten what was possible in creating new weapons, while also increasing the range of people capable of carrying out such attacks.3 That’s a fatal combination, one that plausibly threatens the future of humanity like nothing else. “The existential threat that would be most available for someone, if they felt like doing something, would be a bioweapon,” said Eric Klien, founder of the Lifeboat Foundation, a nonprofit dedicated to helping humanity survive existential risks. “It would not be hard for a small group of people, maybe even just two or three people, to kill a hundred million people using a bioweapon. There are probably a million people currently on the planet who would have the technical knowledge to pull this off. It’s actually surprising that it hasn’t happened yet.”