## 1

#### We are on pace to cut emissions by half in 2030 and prevent 2 degree tipping point, but continued biotech innovation is key

**Mcmurry-Health 5-21** Michelle Mcmurry-Heath May 21, 2021, 5-21-2021, "To help solve climate change, look to the biosciences," STAT, <https://www.statnews.com/2021/05/21/climate-change-solutions-from-biosciences/> //Nato

President Biden’s pledge to cut U.S. greenhouse gas emissions in half by 2030 is an admirable and ambitious undertaking. It’s nearly double the goal set by President Obama in 2015. And it establishes the United States as a world leader in battling climate change. But reaching the president’s target in just under 10 years is a monumental task. It’s so big, in fact, that we’ll never get there by government action alone. No amount of vehicle efficiency standards, forest conservation efforts, or gas taxes can [fully solve the problem](https://www.rff.org/publications/issue-briefs/emissions-projections-for-a-trio-of-federal-climate-policies/). We have to science our way out of it. The biosciences, including biotechnology, will play a pivotal role in the fight against climate change. It is already leading the way on several fronts. According to a [report from BIO](https://www.bio.org/sites/default/files/2021-04/Climate%20Report%20Executive%20Summary_FINAL.pdf), the organization I work for, the biotech industry’s green initiatives could mitigate the equivalent of 3 billion tons of carbon dioxide every year by 2030, or [about half](https://www.eia.gov/environment/emissions/carbon/#:~:text=Energy%E2%80%90related%20CO2%20emissions%20in,economy%20declined%204.9%25%20in%202019.) of the country’s annual CO2 emissions. Take food, for example. Food consumption — and production — is central to human existence. Global food production accounts for [one-quarter of greenhouse gas emissions](https://ourworldindata.org/food-ghg-emissions). A recent report from an international team of researchers concluded that even if all other fossil fuel emissions were eliminated, [emissions from food production alone](https://science.sciencemag.org/content/370/6517/705) would prevent us from reaching a key goal of the climate change agreement signed in Paris: preventing the global temperature from [rising more than 2 degrees Celsius](https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement). Halting food production isn’t an option, so biotech companies are helping farmers become part of the climate solution. Take, for example, Boston-based [Joyn Bio](https://joynbio.com/). It is engineering bacteria that pull nitrogen directly from the atmosphere. These microbes then pass the nitrogen to crops like wheat and corn, reducing the need to make, transport, and apply nitrogen fertilizers, which reduces greenhouse gas emissions. Minnesota-based Acceligen is using a technique it calls [precision breeding](https://www.acceligen.com/precision-breeding/) that improves the health of livestock while reducing their waste, greenhouse gas emissions, and water usage. Biotechnology can also help protect food from climate change. As fungal and bacterial infections accelerated by [human-driven environmental disturbances](https://www.nature.com/articles/s41579-019-0222-5) threaten to wipe out Cavendish bananas, [Tropic Biosciences](https://www.tropicbioscience.com/) in the United Kingdom is using CRISPR gene-editing technology to engineer infection-resistant bananas. Companies are also rethinking how food is packaged to reduce plastic pollution and open high-tech paths to broader adoption of biodegradables. This would be a game-changer in the interlinked fight to modulate climate change and protect the oceans. Globally, [100 million tons](https://www.wwf.org.au/news/blogs/plastic-waste-and-climate-change-whats-the-connection#gs.0r1uqu) of plastic are produced every year, [8 million of which ends up in the oceans](https://www.wwf.org.au/news/blogs/plastic-waste-and-climate-change-whats-the-connection#gs.0r1uqu). The production of plastic requires at least 8% of the world’s petroleum. Greenhouse gas emissions from plastic production and incineration [could rise](https://www.wwf.org.au/news/blogs/plastic-waste-and-climate-change-whats-the-connection#gs.0r1uqu) from the current 850 million tons a year to 3 billion tons a year by 2050. And discarded plastic that ends up in the ocean slowly breaks down in sunlight, releasing greenhouse gases and toxic microplastics. Georgia-based [Danimer Scientific](https://danimerscientific.com/) — partnering with the Mars Wrigley candy company — is working on biodegradable packaging that uses plant oils to manufacture “plastic” that dissolves in soil and water. Bioplastics and biopolymers can reduce greenhouse gas emissions reductions by up to [80%](https://www.bio.org/sites/default/files/2021-04/Climate%20Report%20Executive%20Summary_FINAL.pdf) more compared to their petroleum-based counterparts. Fuel is another target for biotechnology. Transportation accounts for the [highest percentage](https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions) of U.S. greenhouse gas emissions. While electric cars are gaining popularity, and the $174 billion allocated to support the transition to electrics in Biden’s American Jobs Plan is important, biofuels — which are [carbon neutral](https://link.springer.com/chapter/10.1007/978-4-431-54895-9_6#:~:text=of%20climate%20change.-,Biofuels%20can%20reduce%20the%20consumption%20of%20fossil%20fuels%20and%20thus,because%20biofuels%20are%20carbon%20neutral.&text=The%20production%20of%20a%20biofuel,material%20for%20making%20liquid%20fuel.) — will be needed to help reduce emissions in transportation and need comparable support. The biotech company [Synthetic Genomics](https://syntheticgenomics.com/algal-cell-factories/#beyond_biofuels), for instance, is utilizing saltwater algae, which convert sunlight and carbon dioxide into biomass, to make sustainable auto fuel. By 2025, 10,000 barrels of the algal biofuel could be produced per day for commercial use. Biofuels will also play an important role in air travel. While flying accounts for less than [3% of global CO2 emissions](https://ourworldindata.org/co2-emissions-from-aviation) a year, on a per-mile calculation it’s the least green form of travel. With the number of air travel passengers expected to double by 2040, the Biden administration is upping the financial incentives — through tax credits — for companies that produce sustainable aircraft fuels. Biotech firms are already stepping up. Companies like [Neste](https://www.neste.us/neste-in-north-america), [Gevo](https://gevo.com/), and [World Energy](https://www.worldenergy.net/products/sustainable-aviation-fuel-saf/) are using everything from algae to used or wasted cooking oil to create sustainable jet fuels. [LanzaTech](https://www.lanzatech.com/) recycles carbon from industrial emissions and other sources and turns it into aviation fuel — and has recently [partnered with other corporations](https://techcrunch.com/2020/06/02/lanzajet-launches-to-make-renewable-jet-fuel-a-reality/) to bring that fuel to market for commercial airline use. With help from biotechnology, the U.S. can achieve the climate change goals outlined by the Biden administration and the Paris Agreement. Human progress and technology got us into this mess. That same ingenuity can help get us out.

#### The aff sets the precedent that IP can be waived to solve global problems. That stunts innovation in Climate Change tech

**Brand 5-6** Melissa Brand, 5-26-2021, "TRIPS IP Waiver Could Establish Dangerous Precedent for Climate Change and Other Biotech Sectors," IPWatchdog, <https://www.ipwatchdog.com/2021/05/26/trips-ip-waiver-establish-dangerous-precedent-climate-change-biotech-sectors/id=133964/> //Nato

While the discussions around waiving intellectual property (IP) rights set forth in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) are currently (and somewhat amorphously) limited to COVID-19 related drug and medical products, it is probably shortsighted to ignore the implications for other technologies critical to sustaining our environment and advancing a more healthful world. In fact, if we want to ensure continued investment in these technologies, we should be very concerned about the message conveyed by the international political tide: if you overcome a challenging scientific problem and your solution has the potential to save lives, be prepared to be subjected to intense political pressure and to potentially hand over your technology without compensation and regardless of the consequences. The biotech industry is making remarkable advances towards 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. International Pressure May Be Influencing Domestic IP Policy 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 compensation and 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 proprietary know-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 international collaborations. 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 invest at the current and required levels. Next on the Chopping Block It is quite reasonable to be worried about the broad implications of a TRIPS IP waiver precedent. International campaigns to weaken IP rights seem to be taking hold in U.S. domestic policy. The TRIPS IP waiver discussions will not conclude in the near term and will not yield more shots in people’s arms. This is not even truly disputed, as our own administration acknowledges that the goal here is technology transfer abroad. Given the signaling that our Administration believes waiving IP rights is an appropriate measure to end global crises, it is proper to worry that facets of the biotech sector addressing climate change may be next on the chopping block.

#### 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; "Human Civilization Will Crumble by 2050 If We Don't Stop Climate Change Now, New Paper Claims," livescience, 6/4/19; <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."

#### Disad turns the case. Climate change increases the rate of disease outbreaks.

**Lustgarten 5/7** Abrahm Lustgarten (environmental reporter, with a focus at the intersection of business, climate and energy. He is currently covering changes at the U.S. Environmental Protection Agency, and working on a project about pollution at U.S. Defense sites). 5/7/2020, How Climate Change Is Contributing to Skyrocketing Rates of Infectious Disease, Propublica, <https://www.propublica.org/article/climate-infectious-diseases> //Nato

The scientists who study how diseases emerge in a changing environment knew this moment was coming. Climate change is making outbreaks of disease more common and more dangerous. Over the past few decades, the number of emerging infectious diseases that spread to people — especially coronaviruses and other respiratory illnesses believed to have come from bats and birds — has skyrocketed. A new emerging disease surfaces five times a year. One study estimates that more than 3,200 strains of coronaviruses already exist among bats, awaiting an opportunity to jump to people. The diseases may have always been there, buried deep in wild and remote places out of reach of people. But until now, the planet’s natural defense systems were better at fighting them off. Today, climate warming is demolishing those defense systems, driving a catastrophic loss in biodiversity that, when coupled with reckless deforestation and aggressive conversion of wildland for economic development, pushes farms and people closer to the wild and opens the gates for the spread of disease.

## 2

#### Interpretation: Reduce means unconditional and permanent – the aff is a suspension.

Reynolds 59 – Judge (In the Matter of Doris A. Montesani, Petitioner, v. Arthur Levitt, as Comptroller of the State of New York, et al., Respondents [NO NUMBER IN ORIGINAL] Supreme Court of New York, Appellate Division, Third Department 9 A.D.2d 51; 189 N.Y.S.2d 695; 1959 N.Y. App. Div. LEXIS 7391 August 13, 1959, lexis)

Section 83's counterpart with regard to nondisability pensioners, section 84, prescribes a reduction only if the pensioner should again take a public job. The disability pensioner is penalized if he takes any type of employment. The reason for the difference, of course, is that in one case the only reason pension benefits are available is because the pensioner is considered incapable of gainful employment, while in the other he has fully completed his "tour" and is considered as having earned his reward with almost no strings attached. It would be manifestly unfair to the ordinary retiree to accord the disability retiree the benefits of the System to which they both belong when the latter is otherwise capable of earning a living and had not fulfilled his service obligation. If it were to be held that withholdings under section 83 were payable whenever the pensioner died or stopped his other employment the whole purpose of the provision would be defeated, i.e., the System might just as well have continued payments during the other employment since it must later pay it anyway.  [\*\*\*13]  The section says "reduced", does not say that monthly payments shall be temporarily suspended; it says that the pension itself shall be reduced. The plain dictionary meaning of the word is to diminish, lower or degrade. The word "reduce" seems adequately to indicate permanency.

#### Violation: They only defend doing the aff during COVID-19 – their solvency advocate defends the TRIPS waiver which would stop after COVID-19

#### Vote neg:

#### 1] Limits and ground– their model allows affs to defend anything from pandemics to Biden’s presidency— there's no universal DA since it’s impossible to know the timeframe when there won’t be IP— that explodes neg prep and leads to random timeframe of the week affs which makes cutting stable neg links impossible — limits key to reciprocal engagement since they create a caselist for neg prep (innovation, collaboration, econ, ptx: all core neg literature thrown away)

#### 2] Precision o/w – anything else justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution.

#### 3] TVA – defend the advantage to a whole rez timeframe. We don’t prevent new FWs, mechanisms, or advantages. PICs don’t solve – our model allows you to specify countries and medicines.

#### Fairness – debate is a competitive activity that requires fairness for objective evaluation. Outweighs because it’s the only intrinsic part of debate – all other rules can be debated over but rely on some conception of fairness to be justified.

#### Drop the debater – a] deter future abuse and b] set better norms for debate.

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

#### No RVIs – a] illogical, you don’t win for proving that you meet the burden of being fair, logic outweighs since it’s a prerequisite for evaluating any other argument, b] RVIs incentivize baiting theory and prepping it out which leads to maximally abusive practices

## 3

#### CP text: The member nations of the WTO should:

#### ---Loan an additional 4 billion dollars of additional funding to close the pre-purchase gap of 350 million vaccines to achieve world-wide immunity

#### ---The World Bank should relax the conditions to receive a loan as per Goldberg 21

#### ---Eliminate export restriction on critical medicines during pandemics.

#### The CP solves pandemics better – the aff misidentifies the problem.

Goldberg 20 [PINELOPI KOUJIANOU; Former World Bank Group chief economist and editor-in-chief of the American Economic Review, Professor of Economics at Yale University; “Forget the Vaccine Patent Waiver,” Project Syndicate; 5/13/21; <https://www.project-syndicate.org/commentary/wto-vaccine-waiver-is-beside-the-point-by-pinelopi-koujianou-goldberg-2021-05>] Justin

What’s the issue, then? According to Agarwal and Reed, it is that companies are reluctant to activate their existing production capacity without pre-purchase commitments. There is currently a large gap between the number of doses that could be produced and the number that have been pre-ordered. And, as one would expect, this gap is unevenly distributed. High-income countries have ordered more doses than they need and thus will end up with a surplus, whereas lower-income countries are far behind in pre-purchasing vaccines.

Under these circumstances, efforts to increase capacity by relaxing patent protections would do nothing to accelerate vaccinations in lower-income countries. A far more promising strategy is to help lower-income countries purchase vaccines, while channeling surplus doses from richer countries to wherever they are needed most.

To a large extent, this strategy is already being implemented, thanks to the efforts of the COVAX Advanced Market Commitment facility, together with concessional loans by multilateral institutions such as the World Bank, and regional initiatives such as the one being led by the African Union. Remarkably, Agarwal and Reed show that the COVAX AMC facility and the AU initiative already have ensured that most African countries have ordered enough vaccines to cover at least 50% of their populations.

Still, three critical challenges remain. First, closing the pre-purchase gap of 350 million vaccines will requires an additional $4 billion – a trivial cost relative to the potential benefit of achieving worldwide immunity. Providing this support, either through additional funding for the COVAX AMC facility or by sending surplus vaccines to developing countries as soon as possible, should not be too difficult or costly for high-income countries to manage.

Second, the World Bank needs to relax its conditions for extending loans for vaccine pre-purchases. Currently, such loans can be used only for vaccines approved by three stringent regulatory authorities (SRAs) in three different regions. Among these are Japan and certain Western countries, which naturally prioritize approval of vaccines intended for their own populations. They have little incentive to grant emergency-use authorization to alternative vaccines that have shown high efficacy in Phase 3 clinical trials, such as Bharat Biotech’s Covaxin (India), and Gamaleya’s Sputnik V (Russia), and Sinovac Biotech’s CoronaVac (China). Extending the list of national regulators classified as SRAs would go a long way toward increasing lending for vaccine purchases.1

Finally, existing vaccine manufacturers will be unable to meet their production targets if vaccine nationalism gives rise to export restrictions on critical inputs and raw materials. We saw such behavior early in the pandemic with respect to personal protective equipment, but the resulting export restrictions proved short-lived. One hopes the same will be true for vaccines. International cooperation and coordination will be crucial in the coming months.

There are many ways for advanced economies to assist poorer countries in vaccinating their populations as soon as possible. But relaxing patent protections – however appealing the idea may be in other contexts – is not one of them. The focus should be on providing additional funding and less restrictive lending for pre-ordering vaccines, and on funneling surpluses from high-income countries to the rest of the world.