# **Predictions of the End of the World, Redux**

Degrowth would be worse for humanity than any climate catastrophe it purports to prevent.

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The news of the impending end of the world reached a small European country first. On August 31, 1971, the Dutch newspaper *NRC Handelsblad* made headlines with a global scoop: "Disaster threatens the world." The article set a pretty grim tone in its opening sentence: "If the world carries on as we are doing now, there will be a huge catastrophe within a few decades." In case you've forgotten about the end of the world, or were too young to have lived through it, the news was about a draft version of *Limits to Growth*, the famous report commissioned by the Club of Rome that had circulated confidentially among Dutch journalists.

Before long, the alarming news spread across the rest of the imperiled world. More than 30 million copies of *Limits to Growth* were sold worldwide in over 30 languages. The report's aim was ambitious: to chart the current state and future of the world. Its credibility largely stemmed from its groundbreaking use of a technology that was still novel and awe-inspiring at the time: computer models. Developed by Massachusetts Institute of Technology computer scientist Jay Forrester, the "dynamic model of the world" in *Limits to Growth* used five basic parameters: population, food production, industrialization, pollution, and consumption of raw materials. The computer then projected the future state of the world using various assumptions about population growth and technological innovation. The journalists at NRC got the message: Unless humanity drastically altered its course, the world was on a path to total catastrophe—either mega-famines, catastrophic pollution, or depletion of resources, most likely all three at once.

These looming disasters had a single, fundamental root cause: unchecked growth. If you read the 1972 report, it's clear that the only scenarios promising a happy outcome involve curbing the growth of *both* the human population and the global economy. Time and again, the mighty machine spat out the same answer: Stop growing, or you're doomed. Thus warned the jacket flap of the first edition of *Limits to Growth*: "Will this be the world that your grandchildren will thank you for? A world where industrial production has sunk to zero. Where population has suffered a catastrophic decline. Where the air, sea, and land are polluted beyond redemption. Where civilization is a distant memory. This is the world that the computer forecasts."

## A Gloomy Era

If you think ours is a gloomy time, you haven't visited the 1970s lately. After the first Earth Day in 1970, the *New York Times* editorial board issued a dire warning: Rampant pollution and resource depletion were steering humanity toward "intolerable deterioration and possible extinction." In his wildly popular book, *The Population Bomb*, the biologist Paul Ehrlich famously proclaimed that "the battle to feed all of humanity is over." Despite any measures we might adopt, hundreds of millions would face starvation in the coming decades. Throughout the 1970s, Ehrlich continued to forecast one disaster after another. More than 20 times, the charismatic Stanford professor with his handsome sideburns appeared on *The Tonight Show* to preach hell and damnation. Much like the Club of Rome, Ehrlich predicted the exhaustion of resources within a few decades and the "end of affluence." And that's not even to mention the ozone problem. When Sherwood Rowland, the chemist who discovered the ozone hole, returned home one fine day in 1974, his wife asked how his work was

going. He replied: "It's going very well. It just means, I think, the end of the world."

This pervasive sense of gloom and doom reached the highest echelons of political power. At the end of his presidency, the late Jimmy Carter released *Global 2000*, a comprehensive assessment of the world's current state and future prospects that echoed the message of the Club of Rome's *Limits to Growth*. If prevailing trends continued, the report warned, the planet would be "more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now." Hardly an original take in the foreboding atmosphere of the 1970s, but as *Time* magazine pointed out: "For the first time, the US Government has added its full voice to the chorus of environmental Cassandras."

In Europe, no less, quite a few powerful people were swept away by the prevailing mood. A striking example is Sicco Mansholt, the socialist and architect of the European Union who had read a draft version of *Limits to Growth* and was converted almost overnight. In a long letter to the president of the European Commission in 1972 —just a month before he was to assume that very position —Mansholt made no bones about it: "It is clear that the society of tomorrow cannot be based on growth, at least not in terms of material goods." Mansholt's plans were far-reaching: Europe should prioritize food production and other basic provisions while imposing heavy taxes on nonessential goods. The ultimate goal was a "strong reduction in material goods per capita." Mansholt had grand plans to defuse the population bomb as well: imposing fiscal penalties on families with too many children and applying diplomatic pressure on poor countries to "stabilize" their "frightening" population growth. If we failed to act, he said, catastrophe was inevitable.

#### A Self-Defeating Prophecy?

And yet, amazingly, we're still hanging in here! Despite countless confident warnings, the catastrophes that were predicted in the 1970s have not materialized. In fact, by many measures, things have improved dramatically. Environmental pollution has dropped sharply in the past 50 years (certainly in rich countries), global poverty plummeted, and raw materials have actually become cheaper and more plentiful. Not only has the predicted mass starvation never materialized, but famines are almost a thing of the past. So, should we be grateful to the Club of Rome for sounding the alarm just in time? Is this a classic case of a self-defeating prophecy (also known as the "prevention paradox") where a major disaster doesn't happen precisely because people heeded the warnings? Not at all! As a matter of fact, humanity never changed course in the way the Club of Rome counseled. Global population and gross domestic product kept climbing, and people continued to deplete finite resources. It is true that a handful of developing countries like India and China, pressured by Western doomsayers, turned to harsh birth control policies, which led to disastrous humanitarian outcomes. But that didn't significantly alter their long-term demographic paths, and in any case, even in countries without such coercive measures, the forecasted famines never happened.

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Everyone was scared out of their pants for a while, but in the end, people carried on as usual, at least in the West. Whatever their true convictions, most European politicians understood that Mansholt's plans for mass impoverishment amounted to political suicide. In the United States, Jimmy Carter suffered a landslide defeat against Ronald Reagan, who had railed against Carter's environmental gloom in his presidential campaign and promised to usher in a new era of growth and prosperity. In the next decades, milder forms of growth skepticism—think sustainability, circular economy, soft energy paths, planetary boundaries, and environmental, social, and governance seeped into public discourse and were adopted by mainstream politicians, especially in Europe. But let's be real: Policymakers never really tried to hit the brakes on economic growth. A growing pie was just too important for maintaining social harmony and covering the rising costs of social security and pensions.

What happened instead is that humanity figured out smart solutions to our environmental challenges—ones that no doomsayers had anticipated. Just look at the supposed global food shortage. In 1972, Mansholt expressed doubts about whether we could "offer a population of six billion a reasonable level of comfort." Ehrlich was absolutely confident that "millions of people will starve to death" by the end of the decade. Fast-forward to today, and the global population stands at eight billion people. We're harvesting more food than ever, all while using less agricultural land, and more people are suffering from obesity than hunger. The massive famines were averted not because we took the doom-mongers' warnings to heart—like a self-defeating prophecy—but because we innovated our way out of trouble.

While Ehrlich was busy predicting millions of deaths on *The Tonight Show*, other scientists were rolling up their sleeves and finding solutions. In a backwater region in Mexico, agronomist Norman Borlaug dedicated years to developing new and improved varieties of corn, wheat, and other crops—first to make them resistant to blight and then to raise yields and improve taste. Thanks to fertilizers, modern irrigation, and mechanized farming, the Green Revolution led to a staggering increase in yields—at least doubling outputs, and in Mexico, the increase was sixfold. Ehrlich opined that India would never be able to feed itself and suggested tying food aid to forced sterilization programs. Less than two decades later, India became a net exporter of food, and Ehrlich still hasn't changed his tune. The Club of Rome warned that, even under optimistic land-use scenarios, we'd face "desperate land shortages" by the year 2000. Spoiler alert: None of this happened either.

The specter of resource depletion was also solved by human ingenuity. Though the Club of Rome's computer models may have looked fancy, they completely overlooked the magic of the price mechanism. When a resource becomes temporarily scarce and thus more expensive, the invisible hand prompts mining companies to dig deeper and find new reserves, encourages manufacturers to shift to more cost-effective alternatives serving the same purpose, and persuades consumers to switch to different products. All three of these responses occur simultaneously. Of all the predictions about resource depletion since the 1970s, not a single one has materialized. In fact, resources have grown more abundant, even as the global population has increased. In their book *Superabundance*, Gale Pooley and Marian L. Tupy argue, somewhat counterintuitively, that resources actually become more abundant with each percentage increase in population. The "ultimate resource" in our universe, and the only one that truly matters, as economist Julian Simon asserted, is human ingenuity. Ideas, after all, are inexhaustible.

A similar story can be told about environmental pollution. Instead of driving less, we banned lead in gasoline. Rather than shutting down industrial plants or having fewer babies, we installed scrubbers and filters on chimneys to capture soot and sulfur emissions. One of the most remarkable achievements in environmental policy was the 1987 Montreal Protocol, which phased out the chlorofluorocarbons responsible for depleting the ozone layer. While people continued to use aerosol sprays, companies switched to alternative substances that provide the same function—such as pressurizing aerosol cans—without harming the ozone layer.

Far from anticipating these technological developments, many catastrophists in the 1970s had expressly *warned* against relying on techno-fixes. As the authors of *Limits to Growth* cautioned: "Faith in technology as the ultimate solution to all problems can divert our attention from the most fundamental problem—the problem of growth in a finite system and prevent us from taking effective action to solve it."

The problem was not so much that prophets like Paul Ehrlich were overly pessimistic, as Jason Crawford writes. Pollution and food scarcity were genuine and urgent issues, and they would have spiraled out of control if left unaddressed. But rather than rallying people to take action, Ehrlich and the Club of Rome mostly took a defeatist stance, either suggesting remedies that were worse than the disease or standing in the way of real solutions. Instead of the false dichotomy between optimism and pessimism, Crawford calls for "solutionism."

## A New Generation of Degrowthers

The dark prophecies of the 1970s are not just instructive as yet another chapter in the long and embarrassing history of experts failing to predict the future. As you may have heard, we are currently threatened by a novel ecological disaster. When the Club of Rome was founded, global warming was not high on the agenda yet. *Limits to Growth* only briefly mentions the "greenhouse effect," and Ehrlich was still uncertain whether human industrial activity would end up cooling or warming on planet. Regardless, true to his style, he forecasted disaster.

Just as in the dark '70s, a generation of new doom-mongers has arrived on the scene, with a message that is virtually identical: We are heading for disaster *unless* we curb economic growth. If anything, the latter-day critics are more radical than their predecessors. Timid warnings about "limiting" growth have been overtaken by outright calls for *degrowth*, which means the wholesale reduction of economic or industrial output. Bizarrely, most of these advocates of mass impoverishment call themselves *progressives*—a real misnomer if there ever was one.

In his book *Less Is More*, the anthropologist Jason Hickel contends that only degrowth can save the planet. Nature imposes hard limits on humanity, which we are ignoring at our peril. In Hickel's generous reckoning, poorer nations are still permitted to grow a bit to alleviate the most extreme forms of poverty, but wealthier countries must dial back their current levels of prosperity. Just like the Club of Rome, Hickel compares growth to a "cancer" and warns against the false allure of technological innovation, which he likens to the "Get out of jail free" card in Monopoly.

In 2023, the prophets of degrowth convened in the buildings of the European Parliament in Brussels for the Beyond Degrowth conference. With more than 7,000 participants, it marked the largest gathering ever held in these venues (though fortunately not organized by the European Commission itself). The concept of degrowth has gained significant traction within the climate movement, with iconic activists like Greta Thunberg chiding world leaders about their "fairy tales of eternal economic growth."

To date, no mainstream political party has officially endorsed degrowth, as most recognize that doing so would amount to political suicide. Still, it would be a mistake to dismiss the movement as fringe. The UN's Intergovernmental Panel on Climate Change (IPCC), in its most recent report, references degrowth dozens of times, often in a favorable light. Many political parties, particularly green and left-leaning ones, have adopted what could be termed "degrowth light." While they do not entirely abandon the pursuit of economic growth, they are advocating for significant reductions in energy consumption through efficiency measures and energy conservation. Even French President Emmanuel Macron and the EU's climate czar Frans Timmermans now mouth pieties like, "The best energy is the energy not consumed" (a meme that, unsurprisingly, goes all the way back to the 1970s). In their climate action plans, many Western governments and scientific institutions increasingly rely on substantial cuts to final energy consumption. The mindset of degrowth is starting to catch on.

## A Self-Fulfilling Prophecy

These intellectual heirs of the Club of Rome have learned nothing at all. Growth is not the problem but the solution to our environmental problems. If we want to reduce  $CO_2$ emissions to zero, we need technological innovation and massive infrastructure projects. For every useful application of fossil fuels, we need to come up with a lowcarbon alternative. By continuing to innovate and grow, we can discover ways to decouple economic growth from carbon emissions. While it may seem intuitive to halt growth to curb emissions, as the embryologist Lewis Wolpert once said: "I would almost contend that if something fits in with common sense it almost certainly isn't science." By contrast, if we curb economic growth, we will lock in our current and relatively dirty technologies with no hope of ever reaching net-zero emissions (except by going extinct). Consider the spring of 2020, when the pandemic brought the global economy to a near standstill. People were working from their homes, millions of flights got canceled, global tourism was virtually suspended, and cars sat idle in garages. Yet, this involuntary experiment in degrowth resulted in a mere 7 percent reduction in global emissions. Significant, but still quite disappointing given all the hardships the world experienced, and which nobody would want to live through again.

Imagine if we had heeded the warnings of the Club of Rome 50 years ago and curbed economic growth. In doing so, we would never have witnessed the development of dirt-cheap solar panels, shale gas, lithium-ion batteries, or innovative nuclear reactors. These technologies, which represent our best hope for combating climate change, were either invented or significantly improved in the past five decades. The same principle applies to agriculture. Had we relied solely on 1970s agricultural technology without the advancements of the Green Revolution or genetic modification rainforests would be decimated, and millions would still face starvation.

If anything, calls for degrowth to save the planet threaten to become a self-*fulfilling* prophecy, the more famous cousin of the self-defeating prophecy. If our politicians are ever stupid enough to halt economic growth, we will hamstring our ability to tackle any challenges, including climate change. In a stagnant economy, there would be no new inventions or clever fixes to reduce emissions, capture already emitted  $CO_2$ , or artificially tweak the global temperature. Not only would we be stuck with our current and relatively dirty technologies, but we would become more vulnerable to the harmful effects of climate variability, whether natural or man-made. The "remedy" of degrowth would be worse for humanity than any climate catastrophe it purports to prevent. Thankfully, our grandparents didn't pay heed to the Club of Rome in the 1970s, and we owe it to our grandchildren to ignore the degrowthers today.