# Why humanity can't be trusted to repair its own environmental damage

In 'Under a White Sky,' Pulitzer winner Elizabeth Kolbert argues that even well-intentioned technological fixes risk making matters worse.

A man walks along Rajpath amid smoggy conditions in New Delhi on January 28, 2021. (Jewel Samad/AFP via Getty Images)

By Carlos Lozada
Book critic
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Elon Musk's recent announcement that he will donate $100 million to whomever develops the most promising technologies to remove carbon dioxide from the atmosphere is both exciting and depressing. Exciting because such incentives could galvanize new innovation. Depressing because, well, we're officially in the billionaires-hoping-for-miracle-tech-fixes stage of the fight against climate change — desperation gussied up as a call to arms.



The quest for technological solutions to problems created by people who were seeking technological solutions to earlier problems is the preoccupation of Elizabeth Kolbert's riveting and pessimistic new book, "Under a White Sky." I would say it flows naturally from her two most recent books, but, as Kolbert might put it, who knows what even counts as natural anymore? Still, if "Field Notes From a Catastrophe" (2006) chronicled the onslaught of climate change and "The Sixth Extinction" (2014) detailed the crushing of biodiversity beneath the human footprint, "Under a White Sky" examines the arduous efforts to stave off all that damage. Except these new efforts, in her telling, often risk making matters worse. "Solving one set of problems introduces new ones," Kolbert warns. That is because, rather than reconsider our behavior, we prefer to seek workarounds for the symptoms and consequences of that behavior; new fixes for the ill effects of old fixes, or as Kolbert puts it, "not so much the control of nature as the control of the control of nature."

Kolbert reveals the Anthropocene at its most absurd. For instance, chugging through the Chicago Sanitary and Ship Canal we

encounter electric barriers, which were deemed necessary to keep out certain species of voracious fish, which had been deliberately introduced to curtail aquatic weeds in the Mississippi River basin, which connected to the Chicago River basin thanks to the canal, which was built to better dispose of all the human waste flowing into the Chicago River. Such incremental steps, each seemingly logical on its own, somehow lead to the U.S. Army Corps of Engineers managing the electrification of a major waterway. Similarly, the city of New Orleans struggles to coexist with the Mississippi River through an ever more elaborate system of levees and drainage, an arrangement that can prove self-defeating. “The more water that’s pumped, the faster the city sinks,” Kolbert explains. “And the more it sinks, the more pumping is required.” Hydrologists now describe the Louisiana delta as a “coupled human and natural system,” she reports, because “there’s no simple way to talk about the tangle we’ve created.”
Mother Nature has had a lot of work done, and it’s starting to show.

The impulses of preservation and conservation are, ironically, behind some of the weirder interventions that Kolbert recounts. The quest to protect the tiny Devils Hole pupfish of Death Valley — perhaps the rarest fish on the planet, the author writes — prompted the U.S. Fish and Wildlife Service to construct an entirely fake replica of their habitat (“a kind of fishy Westworld,” Kolbert calls it). The pupfish has become one of many “conservation-reliant” species, those that humans have propelled to the edge of extinction and now hope to haul back.

*Review of Simon Winchester's "Land: How the Hunger for Ownership Shaped the Modern World"*

Coral reefs, imperiled because of overfishing, pollution, spiking water temperatures and increasingly acidic seas, are now part of an experiment in "assisted evolution," Kolbert explains, with scientists attempting to produce hardier variants that can withstand the ravages of humanity. Changing our own destructive behavior has proved too difficult, so we've resorted to transforming the reefs themselves. On Australia's eastern coast, researchers with the National Sea Simulator breed coral variants from different water temperatures, or consider matching up different coral species. "Some of the offspring of these unnatural hookups would — so the thinking went — be more resilient than their parents," Kolbert writes. It takes several days for the coral colonies to get in the mood, but once they do: "Coral sex is a rare and amazing sight," Kolbert reports. (Based on her depiction, I don't know; maybe you had to be there.)

She also describes efforts to curtail rodent infestations — enabled by commercial shipping — by gene-editing mice so that they produce only male offspring and thus breed themselves out, or by spraying them with anticoagulants that induce internal hemorrhaging. "First you ship a species around the world, then you poison it from helicopters!" Kolbert deadpans.

"Under a White Sky" expertly mixes travelogue, science reporting and explanatory journalism, all with the authority of a writer confident enough to acknowledge ambiguity. "What's the alternative?" Kolbert asks herself about all these layers of human intervention. "Rejecting such technologies as unnatural isn't going

to bring nature back. . . . The issue, at this point, is not whether we're going to alter nature, but to what end?"

Nowhere are such questions more vital than in Kolbert's discussion of climate change (listen up here, Elon Musk). She highlights the work of companies such as Reykjavik Energy, which attempted to scrub its carbon emissions, dissolve the gas in water and then inject it underground, where it eventually becomes rock. "A process that would ordinarily take millennia to unfold was being compressed in a matter of months," she explains. And fighting climate change through what is known as "solar geoengineering" is particularly unnerving to Kolbert. "Even in an age of electrified rivers and redesigned rodents, solar geoengineering is out there," she writes. Here's one version: "Throw a gazillion reflective particles into the stratosphere," she explains, so that less sunlight reaches the planet and temperatures stop rising. They could be delivered via airplane, or what is known as a stratospheric aerosol injection lofter (SAIL). The thing is, once you start doing it, you have to continue indefinitely. "If the SAILs flew for a few decades and then, for whatever reason — a war, a pandemic, unhappiness with the results — they stopped, the effect would be like opening a globe-sized oven door," Kolbert warns. "All the warming that had been masked would suddenly manifest itself in a rapid and dramatic temperature run-up." That outcome is known as a "termination shock," and, yes, it's as bad as it sounds. No wonder Kolbert likens geoengineering to treating a heroin habit with amphetamines.

Also, if we embark on solar geoengineering to the extent required to offset expected future levels of carbon dioxide, the side effects

would be stark, including changing the appearance of the sky. “White would become the new blue,” Kolbert writes. (All along I’d been hoping her book title was a metaphor of some kind.) Our environmental damage has already left too many skies gray; now our environmental protection could finish the job.

Reading “Under a White Sky” can be inspiring. Kolbert meets many creative and dedicated scientists, researchers and conservationists, even if they work at places with blandly ominous names like the Center for Climate Repair at Cambridge University (where they’re dreaming up ways to “refreeze” the Earth’s poles) or the Solar Radiation Management Governance Initiative. Yet Kolbert is consistently skeptical; perhaps being the premier chronicler of humanity’s thoughtless destruction of our habitat leaves you susceptible to some eye-rolling at the thought of technological cures. Some of her interlocutors push back against those biases. “To people who say most of our technological fixes go wrong,” a Harvard physicist offers, “I say, ‘Okay, did agriculture go wrong?’ ” Sure, reading “Under a White Sky,” one could wonder if Kolbert is implicitly bemoaning, say, the wheel, or anything emerging from the basic human impulse to control and shape our natural environment. But this is more than techno-fatalism or the fear of unintended consequences. Kolbert is bemoaning humanity itself, fearing that we can’t be trusted with the abilities we develop. “You have to imagine not only that the technology will work according to plan but also that it will be deployed according to plan,” she points out. “Scientists can only make recommendations; implementation is a political decision.” Though one can hope

political leaders will proceed wisely and with future generations in mind, “let’s just say the record here isn’t strong,” Kolbert concludes.

And there’s no $100 million prize to make that record stronger.