



As the 21st Conference of the Parties comes to a close in Paris, much ink will be spilled analyzing the historic agreement that 195 countries have now reached. Some of that commentary will, undoubtedly, be cynical. The agreement is not in the form of a traditional treaty requiring country ratification. The country commitments to reduce greenhouse gases are too weak. The commitments are only voluntary, with no penalty for failing to meet them. The aspirational goals to limit warming to 2 degrees C and to strive for 1.5 degrees will likely never be met. The list of problems can go on and on. All of these critiques have some merit. And yet, it's worth stepping back to reflect on just how difficult the problem of climate change is to solve and, in turn, just how miraculous it is that the Paris Accord exists at all.

It's not for nothing that the problem has been called a ["super-wicked" one](#). Climate change deserves that label for a number of reasons. Many of its attributes make climate change extremely difficult to resolve. The worst effects of climate change will be felt not today but in the future. Yet political leaders must ask their constituents to solve a problem — through massive changes in our energy system that are likely to be quite expensive — that will largely benefit people who are not yet born. Indeed on a day to day basis we rarely see the direct and negative effects that climate change will bring (although floods, drought, heatwaves, superstorms, hurricanes, glacial melt, and rising seas are all increasingly visible). The countries that are most responsible for causing climate change - large, developed countries — are in the best position to adapt to increases in average temperatures so in some ways have the least incentive to solve it. Conversely, those in the developing world most vulnerable to the effects of rising temperatures can do virtually nothing to solve the problem since they contribute very little to it. Even worse and quite perversely, developing countries in the global south will experience more drought, more sea level rise, greater threats to public health, more intense heat and so forth than their counterparts in the north, while possessing far fewer resources to adapt. Greenhouse

gases are extremely long-lived, with some of them lasting in the atmosphere for a thousand years or more. Thus much of the harm from climate change — though by no means all — is already baked into the system because gases emitted decades ago still remain in the atmosphere. Thus our efforts to solve climate change today are really all about trying not to make the problem worse decades into the future, as opposed to trying to solve the problem to benefit us today. And fossil fuels, which are the principal though not the only contributor to climate change, have produced significant economic good, bringing electricity, better forms of transportation, industrial production, improvements in public health, refrigeration and much more to much of the world's population. The developed world has already achieved these benefits without having to pay for the damage fossil fuels have wrought on the global atmosphere, but must now ask developing countries — whose emissions are far outpacing the developed world's — to shift away from cheap and abundant fossil fuels even as these countries are beginning to reap the benefits of economic development, including lifting literally billions out of poverty, fueled by coal, oil and natural gas.

On top of all these problems, we have no binding, centralized government that can issue an edict to solve the problem. We know how difficult it is for a single country to solve an obvious environmental problem that is largely confined to inside its own borders — witness the air pollution that chokes many of the world's major cities in India, China, Indonesia and elsewhere. And air pollution is a problem that doesn't share many of the super wicked attributes that climate change does: it is visible; improvements can be felt immediately by those being asked to implement changes; it is a present, not future problem whose immediate harms are experienced by those being asked to solve it and so forth. Climate change is caused by the entire globe, with some countries larger culprits than others.

Classic environmental problems are often labeled tragedies of the commons because solving them requires overcoming collective action problems. Climate change is a super wicked tragedy of the commons and the mother of all collective action problems. We know we would all benefit from an agreement to solve the problem yet the incentives not to act are so strong and no individual country — let alone person — can solve the problem alone.

And yet, the global community has come together in a messy, inefficient, difficult process to adopt an agreement that, despite its flaws, makes real progress. It embraces significant ambition. It commits the globe's largest emitters to take real steps to reduce emissions. It contains mechanisms for transparency. It provides financing for the most vulnerable countries to adapt. It is not enough. We need to do more. But it also miraculous.