

Six reasons to be hopeful about fighting climate change

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Himalayan glaciers are melting. Credit: [Pradeep Kumbhashi](#)

These days, it can be hard to keep a positive attitude when it comes to climate change. A new report warns that our warming climate could cause Himalayan glaciers to shrink by a third by 2100, jeopardizing the water supply to millions.

Another study found that oceans are absorbing 60 percent more heat than previously thought, which means that the rest of the planet may also be warming more than scientists realized. And last October, the Intergovernmental Panel on Climate Change (IPCC) asserted that the impacts of 1.5°C of warming will be much more painful than expected. This depressing news along with the Trump administration's continued

attempts to undo [environmental policies](#) may leave many of us discouraged about [climate change](#). But what about Earth Institute experts—what gives them hope and the courage to continue combating climate change?

1. Evidence of action all around

Robin Bell, a research professor at Lamont-Doherty Earth Observatory, and president of the American Geophysical Union (AGU), is encouraged by what she sees around her. "I'm very happy that Lamont has a solar farm to provide its electricity. At my house it's now really easy to buy renewable electricity. And I'm seeing AGU take really positive steps—we just opened a net-zero building in Washington D.C. In many parts of my life, I'm seeing people stepping forward, whether it's individuals or institutions, and solutions are within reach."

Scott Barrett, the Lenfest-Earth Institute professor of natural resources economics, doesn't describe himself as hopeful, but rather as very motivated and determined—he believes it's our generation's challenge to solve the problem of climate change. He is encouraged that the Earth Institute itself is a model for addressing climate change. "I think the Earth Institute as a concept is absolutely the right model," he said. "The Earth Institute has a mission to not just understand a great problem like this, but to bring all its talent to bear to try to propose remedies, solutions that will actually have a chance of being implemented and affect the outcome."

Climatologist Cynthia Rosenzweig from the NASA Goddard Institute for Space Studies at Columbia University does not share the doom and gloom perspective of many of her colleagues about solutions to climate change. This is because at the Climate Impacts Group at NASA GISS, which she heads, "We work with many different professional and citizens groups across agriculture and food systems, conservation and

development, and urban areas around the world. And I find there are significant numbers of groups in all these sectors and regions that are addressing climate change." For example, one of the main reasons for hope is the role that cities—which account for up to 75 percent of global CO2 emissions—are playing through the Global Covenant of Mayors.

Rosenzweig said, "They are rolling up their sleeves, making pledges, and implementing measures to fight climate change. They project a reduction of 1.4 billion tons of CO2 by 2030, and 2.8 billion tons by 2050 from their associated cities alone. These are significant amounts. And what's so important about cities is that they are cultural leaders as well—their leadership can motivate other sectors and regions to take similar steps."

2. Rapid advancements in technology and clean energy

"Some of the fastest growing businesses in America are actually energy efficiency and renewable energy," said Steve Cohen, director of the Earth Institute's Research Program on Sustainability Policy and Management. "Energy efficiency, in particular, is like finding money on the street—if I can produce the same output with half the energy, what's the argument against it?" Cohen maintains that we are already transitioning from fossil fuels to renewable energy, with solar and wind technology, battery technology, the development of micro grids, and smart grids. "The tipping point is going to come when the technology is so good that there's no reason to use fossil fuels since it will be more expensive and less convenient than the alternative."

Rosenzweig said that we often forget that "responses can have tipping points, too." Right now there is a great deal of clean energy technology in development, such as batteries or smart thermostats. "We don't know

what will go viral, what solutions are going to have that tipping point," said Rosenzweig. "Remember, there was a time when nobody had an iPhone and then all of a sudden, everybody had iPhones."

Michael Gerrard, director of the Sabin Center for Climate Change Law at Columbia University, is also encouraged by the advancements in clean energy. "There's been remarkably rapid progress in developing wind and solar technologies and the storage and transmission they require, and the costs are plummeting. This means that a fairly rapid transition to a [clean energy](#) economy can be envisioned if it has the right policy backing." In his new book, *Legal Pathways to Deep Decarbonization in the United States*, he and co-editor John Dernbach have determined that there are over 1,000 specific actions that can be taken by federal, state and local governments and the private sector to accelerate the transition away from fossil fuels, while preserving the reliability and services of the electricity grid.

3. Businesses get it

Considering the risks and costs of climate change has become part of business today. "If you're in the public marketplace, and you're raising capital, risk is part of the analysis," said Cohen. "So if you're subject to potential loss of profit, because of climate change, or toxics, or anything that you do, that has to be part of the strategy of people running the organization."

And from a positive perspective, businesses that practice sustainability can be more profitable. "When you insist on sustainability through the supply chain, as Walmart has, for example, you reduce your costs," he said. "In a sense, pollution is a form of waste, so an organization that doesn't waste anything is going to be more efficient and more profitable." These concepts are fast becoming basic business principles, essential to how organizations think about themselves.

4. Environmental protection will survive Trump

Cohen believes President Trump ultimately will not make much of a difference in the effort to fight climate change. This is because "the structure of American environmental law is very deeply embedded into the country," he said. He added that in the Environmental Protection Agency, most day-to-day decisions are handled by state and regional offices.

Moreover, there is "much less to Trump's regulatory rollbacks than meets the eye," Gerrard explained. "Several of them have been shot down by the courts; others are merely press releases that have not even begun the journey through the rule-making process. And the courts have taken a close look at whether the administration filed all the legally mandated procedures and has often found them wanting."

Even if one of Trump's rollbacks makes it through the court system, Gerrard said it could be easily reversed by a different administration, and regulations that have been scaled back can be reinstated. He is also encouraged because every single judge in the U.S. and around the world who has expressed a view in a judicial opinion on climate change has affirmed the reality of anthropogenic greenhouse gas emissions. "We're not seeing any judicial skeptics," he said. "Many courts have found ways not to confront the issue, but no courts have said they don't believe climate science, because they operate in a forum where truth and facts really matter and can be rigorously tested."

5. Ongoing international climate agreements

"Trump says he will withdraw from the Paris Climate Agreement, but he can't legally do it until the day after the 2020 presidential election," said Gerrard. "If the president who was elected the day before says the U.S. should stay in, the world community would welcome us back with open

arms, so there's nothing irreversible about that."

Barrett, however, questions whether or not the Paris agreement will be effective because it relies on countries to voluntarily give up cheap and abundant fossil fuels, with no consequences if they don't. His research attempts to identify strategies that can make global agreements work better, such as a "coordination" strategy.

"Coordination means you want to push enough countries to get a critical mass so that once a lot of countries are doing something, everyone else is going to want to join in," he said. An example of this is the 2016 Kigali amendment to the Montreal Protocol, which was an agreement that protects the ozone layer. The amendment was negotiated under the protocol to control the production and consumption of hydrofluorocarbons (HFCs), greenhouse gases that don't harm the ozone layer as much as they contribute to global warming. In addition to asking countries to cut back on their production and consumption of HFCs, the amendment asks countries not to trade HFCs or products containing them with countries outside the agreement, thus denying them their markets. "What this does is restructure the relationship among countries so that you want to join in and you comply," said Barrett.

6. More people are concerned, especially young people

Cohen explained that since the 1970s, environmental issues have evolved into public health issues as people came to realize that pollution could harm their health and that of their children. "In the 1980s, you suddenly saw community-based opposition and the development of 'not in my backyard,' NIMBY," he said. "That force is much more powerful than any central regulatory force could ever be. People don't want this stuff [pollutants] near them." He sees [environmental protection](#) in the West and in the U.S. as part of a growing general awareness about wellness and health. "People pay attention to these things in a way they didn't in

the 1950s and 1960s—that's a broad cultural change. And a lot of this has to do with science doing a better job of communicating with the average person," said Cohen.

He is also heartened by the attitude of young people towards the planet. Polling data shows that their concern cuts across ideologies and nationalities. He attributes this in part to the internet because everyone can instantly see the same images, for example, of environmental pollution—nothing can be hidden. "We live in an observed world now," said Cohen. "So in a political sense, that's actually useful because once the impact becomes visible, it's easier to justify action. I think we're seeing that now."

Rosenzweig said that her students give her hope. "When you look across the related programs at Columbia, you see the many students who come to Columbia to study climate change and find solutions—these students are the ones who will create the viral-ready tools we need."

Young people also give Gerrard and Barrett hope. "The young people are not cynical," said Barrett. "They do want to understand the problem and want to know what they can do. One of the reasons I love being at the School of International and Public Affairs is because I have students who will go out and try to make the world a better place."

Choose to be hopeful

In the face of news about droughts and floods, warming oceans and melting glaciers, it's important to look at the big picture, which now includes another reason to be hopeful in the form of the Green New Deal, a proposed plan to eliminate U.S. carbon emissions.

"People should be motivated that there are solutions," said Bell. "And they should start to take actions individually, they should start

demanding actions from wherever they work, demanding actions from the organizations they belong to and demanding action from their elected officials."

Being positive and hopeful is actually in itself an important way to combat [climate](#) change. "We have to look toward our positive shared future," said Bell. "The more we articulate the ability to get to that place, the more likely we are to get there."

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