usual." However, this same sentiment has driven political support towards Andrés Manuel López Obrador and his Movimiento Regeneración Nacional (MORENA, National Regeneration Movement) party. His leftist, populist, and nationalist orientation has resonated with many Mexicans, and he took the lead for president in national opinion polls in early September 2017 and has retained this ranking through March 2018.

A second way to look at the current juncture in the relationship is through the lens of recent history. Fernández de Castro sketched the trajectory of the bilateral relationship under the various post-Cold War U.S. presidents, particularly focused on trade and migration legalization accords. The trend he outlined over these decades is one of decline, with the recent G20 conference under the new Trump administration representing a symbolic nadir. While his rhetoric was initially shocking to many Mexicans, "Trump's threats to Mexico do not have the same value" after a few months in office demonstrated that the administration's policy seldom matched his bombastic rhetoric, although the threat of rhetoric and policy becoming more aligned remains real.

Finally, Fernández de Castro closed with a sobering reflection. While analyses of the U.S. and Mexico often focus on political or institutional instability in Mexico, concerns once thought implausible, if not impossible, now preoccupy diplomats and leaders the world over regarding such instability in Washington, D.C. "It is not about NAFTA or relations with Mexico," Fernández de Castro warned. "It is about American democracy; what is at risk is American democracy." Those things that cause friction in the U.S.–Mexico relationship can easily cause domestic and global turbulence, as well.

### Climate Change: Existential Threats in a Time of Denial

"A lot sooner than you think," cautioned Ram Ramanathan, Professor of Atmospheric and Climate Sciences at UC San Diego, about the arrival of drastic climate change outcomes. Ramanathan contextualized his dire future estimates by reviewing the track record of climate science in making such predictions in recent decades. "There are [many] predictions," he noted. "And they all came true."

In 1980, Ramanathan published an analysis predicting that by the year 2000, the statistical-empirical "signal" of climate warming would rise above the background "noise" of study methodologies, a prediction validated in 2001 when 1,000 scientists pronounced just such evidence at the third assessment of the UN Intergovernmental Panel on Climate Change. In the 1960s, a Russian scientist correctly predicted that warming would disproportionately affect

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Donald Trump descends an escalator in Trump Tower to announce his candidacy for president, June 2015.


Photo by Tom Briglia/Getty Images.

The view from an aerial tour of Hurricane Sandy damage to New Jersey's barrier beaches, November 2012.
(Official White House Photo by Sonya N. Hebert.)

the polar regions, which have indeed seen "two to three times the global mean warming." And, as far back as 1895, Swedish physicist and chemist Svante Arrhenius, one of the founders of physical chemistry, provided the first quantitative estimate of global warming from carbon dioxide and predicted that a warming world would also grow more humid, exactly the pattern we see today. Finally, Ramanathan observed that in the history of climate science, when such predictions have been in error, it has always been in the direction of effects even greater than those anticipated.

Ramanathan then moved on to some basic predictions about the next few decades. "Within 15 years," he warned, "the planet will pass the threshold [of so-called] dangerous warming." "I am predicting that by 2030, the planet will warm by a degree and a half [Celsius]," he continued, the warmest level seen in more than 130,000 years. In 30 to 35 years, the 2-degree mark will be passed, he predicted. He then addressed a lower probability but high-impact event in that same short time frame: in a more dire scenario, he foresees a 5-percent chance of "catastrophic warming," change so fast "very few of us could adapt to it." If that level is reached beyond 2050, a study indicates that 74 percent of the planet, nearly 5 billion people, would be exposed to deadly heat stress. The Max Planck Institute recently released a study suggesting that by this time, close to 2.5 billion people would be exposed to vector-borne diseases like dengue and Zika.

Not only would such catastrophic warming be "too fast for our social systems" to adapt, Ramanathan continued, it would also produce inter-related "climate catastrophes" at the level of the earth's ecosystem. First, Ramanathan pointed out, "the ocean is becoming acidic because it's taking 40 percent of all the junk we have put out" in the form of polluting gases. He explained that ocean acidification is a chemical process whereby carbon in the environment is recycled into the ocean, becoming carbonic acid. Ocean acidification also causes the deoxygenated patches of seas that have been observed along the California coast. Emissions have already added 2 trillion tons of carbon to the atmosphere and are currently adding another 50 billion tons each year.

Carbon forms a large part of this smog layer over Mexico City during a pollution crisis in 2006.

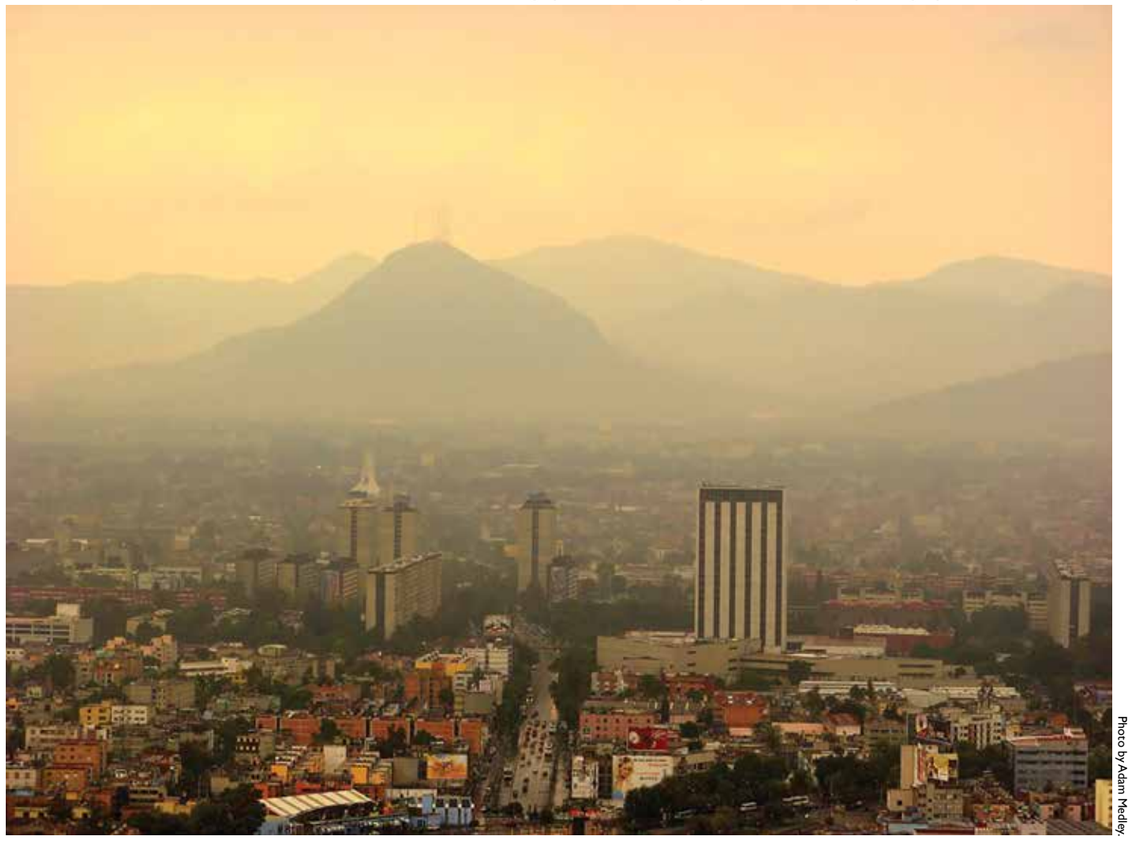

Photo by Adam Medley.






Photo by Fernando Vergara/AP Photo.

A demonstration in Bogotá, Colombia, with a quote from Pope Francis: "I ask you in the name of God to defend Mother Earth."

The combined effects of climate change, ocean acidification, and ocean deoxygenation put massive pressure on ecosystems and drive the related catastrophe of mass species extinction. Ramanathan noted that paleontologists, biologists, and other experts have predicted that a sixth mass extinction event in earth's history has already begun. In fact, the current extinction rate is perhaps 100 times greater than at any time since the extinction of the dinosaurs. This type of ecological and species collapse might even imply existential ecological pressures for human beings.

Despite the dire nature of the warnings, however, Ramanathan insisted the conversation move beyond this empirical level and speak directly to the moral dimensions of these climate change crises. Three billion people, he explained, have contributed only 5 percent of global carbon emissions. "They have not experienced fossil fuels… they burn wood and dung," Ramanathan continued. "These are basically the same 3 billion who will be most directly affected" by the many hardships and dangers that climate change will increasingly bring. "This is a huge moral issue," Ramanathan insisted. In this context, he explained how he had briefed Pope Francis on exactly these tragic moral dynamics of the causes and consequences of climate change.

In fact, Ramanathan's work as part of the Pontifical Academy of Sciences is emblematic of the good news he pointed to as suggesting pathways to change the trajectory of carbon emissions, climate change, and the attendant ecological damages and human harms. The Pope, he noted, has taken a moral leadership role on the issues. Pope Francis has put his voice and the resources of the Catholic Church behind the call for climate justice, particularly with the 2015 publication of his encyclical subtitled "On Care for Our Common Home," which called for "swift and unified global action" to address global warming and environmental degradation.

Ramanathan closed his talk with a rational case for optimism, notwithstanding the serious situation. "There is still time," Ramanathan argued. "It's in our hands." On a technical level, he explained, "the solution is remarkably simple." "All we have to do," Ramanathan said, "is electrify all of the end uses… and then generate that electricity" through non-carbon-emitting renewable sources, such as solar, wind, and hydro power. While acknowledging the challenge of storing such energy, he suggested this, too, was not a technological obstacle. "The solution is hydrogen," he said. In the "daytime, use the sun to generate hydrogen and burn the hydrogen in the night." In addition to stressing the technical feasibility, Ramanathan pointed out that the

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Photo by Cristel Heinrich Bertoni.

Ahead of the curve: Forum participants meet scientist Stan Ovshinsky (right), with his award-winning prototype hydrogen car, Detroit, 2008.

rate of growth of global carbon emissions has finally leveled out, the renewable energy industries have taken off, and many cities, states, and institutions are now on a carbon-neutral pathway. He particularly singled out California in regard to forward-looking policy in this area. "We have to keep the momentum going," Ramanathan concluded. "The key thing we have to remember, it's an urgent problem requiring urgent solutions."

Soffía Alarcón-Díaz, Director of Carbon Trust Mexico, then reviewed the Paris Agreement, the most significant effort in recent decades to implement just such changes in response to the climate change threat. The Paris climate accord, adopted by 196 countries in December 2015, is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gas emissions' mitigation, adaptation, and finance starting in the year 2020. Alarcón-Díaz explained that the convention was put together 20 years ago with the sole objective of keeping warming below 2-degrees Celsius temperature increase and that the governments party to the agreement fought over the eventual accord the entire course of those 20 years.

Alarcón-Díaz reviewed several achievements of the agreement that was finally adopted. First, the governments of the United States and China, the two largest emitters, made pledges to reduce carbon emissions within the agreement's framework in 2014. The European Union also pledged and "proved that it is possible to decouple carbon emissions from economic growth." Another positive aspect of the accord was that both developed and developing countries signed it, a rift that had haunted climate negotiations for two decades. The Paris Agreement instituted the principle of "common but differentiated responsibilities," wherein each country commits to its responsibility to reduce carbon emissions, but those reductions are defined within the capabilities of each party. The Paris Agreement, Alarcón-Díaz noted, was also the first such accord to include the topic of adaptation to climate change in its remit. Above all, she stressed, the agreement served to coordinate broad participation. "Now there are major emitter countries that are a part of it," Alarcón-Díaz highlighted.

Despite this success, however, Alarcón-Díaz reviewed several obstacles to the accord's ability to be more effective. First, she explained, "the Paris Agreement is a legal hybrid" that contains both binding and non-binding provisions. On the binding side, countries are supposed to report their emissions every two years. Furthermore, starting in 2020, countries will have to submit another Nationally Determined Contribution, which will include another commitment to reduce their carbon emissions. The reductions themselves, however, are nonbinding, the product of the real geopolitics of the agreement: the United States and China were not willing to back binding carbon reductions. "This is an opportunity area for the Paris Agreement," Alarcón-Díaz said. There is, however, a "no backsliding" provision, mandating that pledges from countries cannot retrogress, but each must build upon the last by pledging further reductions.

Finally, Alarcón-Díaz addressed the implications of the Trump administration's recent decision to withdraw the United States from the Paris Agreement. On November 4, 2016, she recalled, "the momentum was really high," as 55 countries representing 55 percent of global emissions ratified the agreement. However, she continued, "just four days later, Trump won the presidency in U.S. elections." On June 1, 2017, President Trump announced that the United States would cease all participation in the accord. He delivered on a campaign pledge, arguing that the Paris Agreement hurt the economy and disadvantaged the United States. In fact, Alarcón-Díaz suggested, Trump was "already acting like he [had] left the Paris Agreement" by cutting climate-related funding for NASA, the EPA, and other agencies, as well as by trying to "re-awaken" the carbon-based resource extraction industries of oil, gas, and mining.

Still, Alarcón-Díaz found a silver lining in the major backlash that Trump's action engendered. In 2016, at the 22nd session of the Conference of the Parties (COP22) to the UNFCCC, nearly 200 governments gathered for the release of the Marrakech Action Proclamation. This declaration affirmed their "commitment" to the "full implementation" of the Paris Agreement just days after the U.S. election. It stated that momentum on climate change action was "irreversible" and called for "the highest political commitment to combat climate change." This was "a call to Trump," according to Alarcón-Díaz.

The Marrakech Proclamation also highlighted another optimistic trend noted by Alarcón-Díaz: that progress "is being driven not only by governments, but by science, business, and global action on all types of levels." The Marrakech Partnership for Global Climate Action was launched to scale-up cooperative efforts with sub-national and local governments and civil society. Alarcón-Díaz also emphasized the more than 700 cities that are part of the agreement and the statements from political and business leaders in the U.S. rejecting Trump's course of action on climate diplomacy.

Finally, Alarcón-Díaz pointed out that on a legal and policy level, it would take four years for the United States to exit the Paris Agreement, a fact the Trump administration conceded when the White House clarified that it would abide by the four-year exit process. The earliest withdrawal date is therefore November 4, 2020, one day after the next U.S. presidential election. "It will take more than four years to undo everything that has been achieved," Alarcón-Díaz noted. "The technology and the policy instruments are already in place." One example she highlighted was the California emissions tax, a "sticky" policy unlikely to change despite Trump's actions.

Echoing this last insight, Rafael Fernández de Castro opened the discussion following the presentation by explaining that Mexico has been a leader in the complicated diplomacy around the issue. Alarcón-Díaz agreed, summarizing how the Cancun Agreement in 2010, aided by Mexican diplomacy as conference host, was a key moment in climate change negotiation. She also described how Mexico had been very active in climate change diplomacy since then, both in finding consensus as well as in making financial pledges and other concrete policy initiatives.

Ramanathan countered some of the optimism regarding the Paris Agreement, arguing that even though it is "the best thing that happened for the planet, it is not going to do much." He noted that he and others are predicting up to a 30- or 40-percent probability of "warming close to 5 to 6 degrees Celsius" by 2080 or the later part of the century. With the Paris Agreement, this would decrease to 4.5 to 5.5 degrees. This is a level, Ramanathan reiterated, that many experts associate with very large-scale catastrophic outcomes. Therefore, much more significant changes will be necessary.

Gordon Hanson, economist and Acting Dean at the School of Global Policy and Strategy at UC San Diego, spoke to the economic realities of just such a large-scale transformation. Noting that economists "are good at… outlining… the costs of changing how we consume energy, how to take carbon out," he then discussed how the issue of benefits is much more complex and difficult to quantify. He noted, however, that the military or security angle was one area in which benefits would be immediate. Like Ramanathan, Hanson highlighted that 3 to 5 billion people "are extremely exposed to the consequences of climate change" and that "many of those individuals live in the only parts of the world that are going to continue to see rapid population growth." In sub-Saharan Africa, North Africa, and the Middle East, a "perfect storm" of rising numbers of young people in regions where heat stress and drought will be acute under climate change will directly affect international security. Analogous dynamics apply to the U.S.–Mexico border.

Addressing policy more directly, Gerardo Esquivel, Professor at the Center for Economic Studies at the Colegio de México and the School of Economics at the Universidad Nacional Autónoma de México (UNAM), explained that from an economic perspective, a technical solution is already available. Along the engineering lines Ramanathan had laid out of end-use electrification with renewables-based power generation, Esquivel said, "Economists have a proposal of what to do with these sorts of problems … with collective action … taxing and subsidizing … that is the way to proceed."

Chris Edley, Professor of Law at UC Berkeley and former White House Senior Policy Advisor, responded, however, that "this is well understood by policymakers — the problem is politics … that is where we have been having trouble for … 40 years." Congresswoman Linda Sánchez, Representative for California's 38th congressional district and the fifth-ranking Democrat in the U.S. House, echoed this point, arguing that "public sentiment about this is essential" and "voting for the right people matters."

Paola Rojas, a Mexican journalist and presenter on television network Noticiero Televisa, addressed this issue. "I talk to people," she noted. "How would you share this message so that common people can be part of the solution? How would you do it in two to three minutes?" This question elicited a range of responses as to how a gap between public education and opinion and the technical solutions to such a large-scale problem might be bridged. Linda Sanchez recalled a memorable political ad about cleaning a California beach of litter and suggested showing extreme weather events and their impacts on everyday people.

Pete Gallego, former U.S. Representative for Texas's 23rd congressional district along the U.S.–Mexico border region, recalled an especially effective Mexican public education campaign about air quality that featured people wearing masks because of polluted air. Gallego also pointed to messaging that is personal and solution-oriented, giving as examples the concept of the carbon footprint and the consumer choice to forgo plastic bags at stores. Steve Silberstein, entrepreneur and conference host, suggested emphasizing greenhouse gases as "poison."

Finally, Alarcón-Díaz brought attention to the contributions by emissions from another industry. "The biggest source of greenhouse gas emissions comes from meat — the meat we eat every day," she noted. "It's all about decisions." As Shaiken commented, summing up the session, climate change "is a complex, long-term phenomenon, but it demands immediate, simple solutions to be effective at all."

Linda Sánchez (center) speaks with Steve Silberstein and Beatriz Manz at the Forum.

Photo by Perla Nation.