

## AFRICA

# Nations, Fighting Powerful Refrigerant That Warms Planet, Reach Landmark Deal

By CORAL DAVENPORT   OCT. 15, 2016

KIGALI, Rwanda — Negotiators from more than 170 countries on Saturday reached a legally binding accord to counter climate change by cutting the worldwide use of a powerful planet-warming chemical used in air-conditioners and refrigerators.

The talks in Kigali, the capital of Rwanda, did not draw the same spotlight as the climate change accord forged in Paris last year. But the outcome could have an equal or even greater impact on efforts to slow the heating of the planet.

President Obama called the deal “an ambitious and far-reaching solution to this looming crisis.”

Secretary of State John Kerry, speaking to fellow negotiators in Kigali, said, “It is likely the single most important step we could take at this moment to limit the warming of our planet and limit the warming for generations to come.”

“It is,” Mr. Kerry added, “the biggest thing we can do in one giant swoop.”

While the Paris agreement included pledges by nearly every country to cut emissions of heat-trapping carbon dioxide from the fossil fuels that power vehicles, electric plants and factories, the new Kigali deal has a single target: chemical coolants called hydrofluorocarbons, or HFCs, used in air-conditioners and refrigerators.

HFCs are just a small percentage of greenhouse gases in the atmosphere, but they

function as a sort of supercharged greenhouse gas, with 1,000 times the heat-trapping potency of carbon dioxide.

The Kigali deal was seven years in the making, and is a compromise between rich nations and poorer, hotter ones, including some where rising incomes are just starting to bring air-conditioners within reach. Wealthier nations will freeze production of HFCs more quickly than poorer countries, though some nations, including those in Africa, elected to phase the chemicals out more rapidly than required, citing the grave threats they face from climate change.

While the Paris pledges are broad, they are also voluntary, often vague and dependent on the political will of future world leaders. In contrast, the Kigali deal includes specific targets and timetables to replace HFCs with more planet-friendly alternatives, trade sanctions to punish scofflaws, and an agreement by rich countries to help finance the transition of poor countries to the costlier replacement products.

So, narrow as it is, the new accord may be more likely to yield climate-shielding actions by industry and governments, negotiators say. And given the heat-trapping power of HFCs, scientists say the Kigali accord will stave off an increase of atmospheric temperatures of nearly one degree Fahrenheit.

That would be a major step toward averting an atmospheric temperature increase of 3.6 degrees Fahrenheit, the point at which many experts think the world will be locked into a future of rising sea levels, severe droughts and flooding, widespread food and water shortages, and more powerful hurricanes.

Over all, the deal is expected to lead to the reduction of the equivalent of 70 billion tons of carbon dioxide from the atmosphere — about two times the carbon pollution produced annually by the entire world.

The Kigali accord is “much, much, much stronger than Paris,” said Durwood Zaelke, the president of the Institute for Governance and Sustainable Development, a research organization. “This is a mandatory treaty. Governments are obligated to comply.”

The deal is an amendment to the Montreal Protocol, the landmark 1987 pact designed to close the hole in the ozone layer by banning ozone-depleting coolants called chlorofluorocarbons, or CFCs. That means the Kigali amendment

maintains the legal force of a treaty, even if that treaty was ratified by the Senate during the Reagan administration.

Chemical companies responded to the 1987 agreement by developing HFCs, which do not harm the ozone layer but do trap heat in the atmosphere.

The Kigali deal came about in part because Mr. Obama, as he sought to build a legacy of tackling climate change, elevated the obscure effort to amend the Montreal Protocol to a top White House priority. The final agreement is also consistent with the president's efforts to push his climate change agenda while using creative ways to bypass a hostile Congress.

Mr. Obama began paving the way to the HFC deal at a 2013 get-acquainted meeting with the Chinese president, Xi Jinping, at the Sunnylands golf estate in California. The two leaders agreed to make a deal to reduce the use of HFCs a priority, a major concession from China, the world's largest HFC producer.

Since then, American and Chinese companies have increased production of HFC replacement chemicals, and major chemical makers in both countries stand to emerge as winners in the deal.

Top officials from the chemical industry were in Kigali to push for the deal. "Our industry is hard at work doing the research on the HFC alternatives," said Stephen Yurek, the chief executive of the Air-Conditioning, Heating and Refrigeration Institute, an advocacy group. "Getting that right is certainly as important as reaching agreement."

The Kigali amendment adds momentum to a series of new global climate change agreements. The Paris agreement entered into legal force this month, and governments from 190 countries adopted a deal to curb planet-warming emissions from the aviation industry.

"This will be the trifecta of international climate agreements," said Andrew Light, a former State Department climate change negotiator. "It's just extraordinary."

In each case, the new climate deals have been criticized by scientists for being too weak, and together they do not add up to the solution to global warming. But each accord will make significant inroads on different parts of the

problem.

Negotiators in Kigali conceded that the final deal was much less stringent than some had originally hoped. The United States and other rich countries had pushed a plan that would freeze the use of the heat-trapping chemicals by 2021, reducing them to about 15 percent of 2012 HFC levels by 2046. That plan would have eliminated the equivalent of about 90 billion tons of carbon dioxide pollution from the atmosphere by 2050.

Negotiators from India and some of the world's other hottest and poorest countries pushed back hard at that proposal. In India, millions of people are on the verge of being able to afford air-conditioners cooled by HFCs.

The final deal will divide the world economy into three tracks. The richest countries, including the United States and those in the European Union, will freeze the production and consumption of HFCs by 2018, reducing them to about 15 percent of 2012 levels by 2036.

Much of the rest of the world, including China, Brazil and all of Africa, will freeze HFC use by 2024, reducing it to 20 percent of 2021 levels by 2045.

A small group of the world's hottest countries — India, Pakistan, Iran, Saudi Arabia and Kuwait — will have the most lenient schedule, freezing HFC use by 2028 and reducing it to about 15 percent of 2025 levels by 2047.

After arriving in Kigali on Wednesday, the Environmental Protection Agency administrator, Gina McCarthy, and her counterparts spent hours locked in meetings, working on Excel spreadsheets to try to find a compromise. But no one could agree on the numbers. In contrast to many other environmental negotiations, it was possible for negotiators to calculate the exact effects of their proposals in real time, down to numbers of tons of planet-warming pollution avoided.

"It became clear that to get everybody to the same place was not possible," Ms. McCarthy said. "It was not going to be a one size fits all."

Mr. Kerry arrived on Thursday, and his talks with officials from India, Pakistan and China went late and grew contentious.

"We wanted a deal," said Shri Manoj Kumar Singh, an Indian negotiator.

“India is a hot country, a poor country, and we needed a deal that would work for us.”

After details were hashed out Friday night, the deal was gaveled in at 7 a.m., and the exhausted but exultant negotiators gathered for an impromptu Champagne breakfast.

Environmental advocates and countries that had pushed for a more stringent deal still called the Kigali amendment a significant step forward.

“It’s a step toward ensuring the survival of our island,” said Mattlan Zackhras, the climate change minister of the Marshall Islands, a low-lying Pacific nation threatened by rising seas. “But we need to take further steps.”

Negotiators noted that many of the hottest, poorest countries, including the entire African bloc, had decided not to join India on the least ambitious timetable, but rather signed on to the midlevel one. While most Africans lack air-conditioning, African negotiators said rapidly battling climate change was a higher priority.

“Africa is a continent that is deeply vulnerable to climate change,” said Vincent Biruta, Rwanda’s minister of natural resources. “We are witnessing disastrous droughts — our people are losing lives. We need to address climate change if we are to address poverty.”

Rwanda, which has worked to emerge from the shadows of its 1994 genocide, hopes to become known as well for the forging of a major climate deal. Negotiators met in the sparkling new Kigali Convention Center, and the night the deal was completed, it was illuminated in green.

A version of this article appears in print on October 16, 2016, on page A1 of the New York edition with the headline: Nations Agree to Cut Use of a Harmful Coolant.