

Climate Change in the News

A4 Y
THURSDAY, MAY 19, 2016

International

The New York Times



ERANCA JAYAWARDENA/ASSOCIATED PRESS

Survivors of a landslide in the Aranyake region of Sri Lanka on Wednesday. Torrential rains battered the island nation just days into the monsoon season.

Sri Lanka Is Hit by Deadly Landslides and Floods

By DHARISHA BASTIANS

COLOMBO, Sri Lanka — At least 37 people were killed in landslides and flash floods and hundreds of thousands were displaced, Sri Lankan officials said on Wednesday, as torrential rains and gusting winds continued to lash the country just days after the beginning of the monsoon season.

Rescue workers recovered at least 15 bodies from two major landslides in the Kegalle district, about 75 miles east of the capital, Colombo, said Pradeep Kodippili, a spokesman for the Disaster Management Center of Sri Lanka. Officials said the death toll from the flooding was likely to rise.

One of the landslides buried three villages in the mountainous region of Aranyake, claiming at least 14 lives, with more than 130 people still missing

and feared dead, said Maj. Gen. Sudantha Ranasinghe, the commanding officer in charge of the rescue operation.

"Military personnel and medics are still digging through the rubble from the mudslide to find survivors despite the risk of further landslides in the area," General Ranasinghe said.

Earlier, the Sri Lanka Red Cross Society had said that 200 families remained unaccounted for after the Aranyake landslide, though Mr. Kodippili said the government was unable to confirm that figure.

President Maithripala Sirisena toured the landslide area on Wednesday and said the government's priority was locating the missing and providing relief and shelter to the displaced. "The loss is devastating," he tweeted from his official account after the visit.

While little is known about what happened in the landslide areas, Red Cross

that the country's disaster management agencies had failed to issue any alerts or evacuation warnings.

"The Disaster Management Center does not have the resources and manpower to go door to door in the endangered areas," said Mahleash Johnney, a senior manager at the Sri Lanka Red Cross Society. "It relies on getting these messages across to residents at risk from landslides, by using loudspeakers and megaphones. These warnings don't always get transmitted in time."

Meteorologists had predicted a stronger-than-average monsoon season in Sri Lanka this year, the effects of a waning El Niño. Though the tropical island nation in the Indian Ocean frequently experiences intense monsoons and flooding, this year's devastation was unusually fierce for so early in the rainy season.

The Sri Lanka Meteorological De-

come a tropical depression by Wednesday had caused the rains, but that it moving away from the island.

The Sri Lanka Red Cross was making one of at least four camps near Aranyake landslide to provide relief survivors, Mr. Johnney said.

The Red Cross said 19 of Sri Lanka's 25 districts had experienced flash flooding, a result of ceaseless rains across most parts of the island since Monday.

Three hundred members of the military were deployed in a huge rescue operation to find survivors in Aranyake early on Wednesday. Thirteen bodies were recovered from the rubble, a military spokesman said, adding that most of the victims had been buried in their homes by the mudslide Tuesday night.

By early Wednesday morning, the Disaster Management Center had recorded 23 injuries related to flash flooding in the southwestern parts of the

Meteorologists had predicted a stronger-than-average monsoon season in Sri Lanka this year, the effects of a waning El Niño. Though the tropical island nation in the Indian Ocean frequently experiences intense monsoons and flooding, this year's devastation was unusually fierce for so early in the rainy season.

Climate Change in the News

THE NEW YORK TIMES INTERNATIONAL THURSDAY, MAY 19, 2016

A7

City in Canada Could Reopen Even as Fire Keeps Raging

By IAN AUSTEN

OTTAWA — Even as a huge wildfire continues to rage nearby, some residents of Fort McMurray, Alberta, may soon be allowed to return to their city, the province's premier said on Wednesday.

About 88,000 people fled Fort McMurray, the hub of Canada's oil sands industry, on May 3, when the wildfire escaped the surrounding forest and ravaged several of the city's neighborhoods.

Their return is contingent on the restoration of a variety of basic services, and, of course, the fire must no longer pose an imminent threat.

"These timelines — and this is really important — are contingent on these conditions' being met," the premier, Rachel Notley, said at a news conference in Edmonton, Alberta. "If conditions change, as they did this week, the voluntary re-entry may be delayed."

Efforts to get residents back were postponed when a branch of the fire, which now blankets about a million acres, moved up the western side of Fort McMurray earlier this week, then crossed north. Hundreds of people working to reopen a hospital were pulled out. Efforts to restore natural gas lines were also suspended after an explosion that wrecked 10 more homes.

Ms. Notley, however, said that the 911 system was fully operational again, that many shops were free of damage and that electricity had been restored to most areas.

To avoid traffic jams and confusion, people will come back in phases, with those living in neighborhoods with the least amount of damage returning first.

Residents of neighborhoods like Beacon Hill, which was largely wiped out, will be allowed to search the ruins of their homes for items like fireproof strong-boxes.

Schools are not scheduled to reopen until September.

Melissa Blake, the city's mayor, who has been back several times over the past week, warned residents, "What you're returning to is not what we've seen before."

About 88,000 people fled Fort McMurray, the hub of Canada's oil sands industry, on May 3, when the wildfire escaped the surrounding forest and ravaged several of the city's neighborhoods.

Their return is contingent on the restoration of a variety of basic services, and, of course, the fire must no longer pose an imminent threat.

Climate Change in the News

The New York Times

© 2016 The New York Times

WEDNESDAY, MAY 18, 2016

Fire Upends Plan to Restart Oil Sands Operations

By IAN AUSTEN

OTTAWA — Rapidly changing winds brought Alberta's huge wildfire to the perimeter of two of the oldest and largest of Canada's oil sands complexes on Tuesday, posing a new threat to an industry that just a day earlier had been preparing to resume full-scale operations.

And hopes that residents of the city of Fort McMurray, or at least those whose houses were not destroyed, might soon be able to return similarly waned. While the huge firestorm's new path largely bypassed the city on Monday night and early Tuesday, two explosions added another 10 houses to the tally of destruction. An estimated 2,400 buildings have been destroyed, officials said.

As the raging blaze, now more than a week old, turned north skirting the western edge of Fort McMurray on Monday afternoon and evening, a series of small camps holding about 600 oil sands workers were evacuated. By Tuesday, according to Rachel Notley, the premier of Alberta, about 6,000 workers had been moved to the north while an additional 2,000 fled south. Thousands of the

northern escapees then made their way back south to Edmonton, the nearest major city to Fort McMurray, by air on Tuesday.

The workers had mainly come from the big open-pit mines and processing facilities owned by the companies Suncor and Syncrude. Over the past week, workers had been gradually traveling north from Edmonton and elsewhere to restart those operations. Some of them had just returned only to quickly find themselves again boarding an evacuation bus.

By midday on Tuesday, the provincial government said that just eight employees remained at Suncor and 78 at Syncrude. In normal times, up to 7,400 people work at Syncrude, producing up to 350,000 barrels of oil a day. Most of the holdouts are members of the two companies' fire brigades.

Chad Morrison, the head of Alberta's wildfire service, said that the fire was now close to the Syncrude and Suncor oil sands plants. As it made its way there overnight on Monday, the flames devoured a 665-room work camp that had been evacuated hours earlier.

But Mr. Morrison added that "we feel there's good resilience

with the industrial sites." In addition to having well-trained and well-equipped fire brigades of their own, a wide band of gravel surrounds the oil sands operations as a fire break. Both companies have been extending the size of those barriers since the outbreak of the wildfire.

If the fire nevertheless finds a way to enter the open pit mines where gigantic excavators scoop up tar like bitumen and place it in similarly oversized dump trucks, Mr. Morrison said that the province's experience during a 2011 fire suggested that the oil-bearing bitumen is unlikely to ignite.

The plants where the bitumen is separated from sand and then converted into a synthetic crude oil present a potentially greater fire risk. Yet they are located well away from the fire and the forests.

While firefighting efforts have been concentrated on preserving the undamaged parts of Fort McMurray, reopening the oil sands plants, which generally lie to the north, has also been a priority. In an analysis written just before the latest setback, the Conference Board of Canada estimated that 14 days of shutdown would mean a

loss of production valued at 985 million Canadian dollars, about \$762 million. Royalties from the oil sands are also an important part of the provincial budget.

Some oil sands operations, like those of Shell Canada, are well north and were not affected on Tuesday.

There were no estimates late Tuesday afternoon about when the re-evacuated workers might be able to give restarting the operations a second try.

On Monday, smoke was clearly as big a problem as the fire. Video made by evacuating workers showed that the atmosphere had turned a dull Mars-like red.

Normally, Alberta's poorest air quality ranking is 10, with 1 being the cleanest. Ms. Notley said that the rating hit 38 on Monday and was still at 13 on Tuesday.

The cause of the two explosions remained under investigation, Ms. Notley said.

After a round of setbacks, Ms. Notley's one bit of good news was not unalloyed.

"The more that's burned around the edge of Fort McMurray," she told a news conference, "the safer it becomes."

While firefighting efforts have been concentrated on preserving the undamaged parts of Fort McMurray, reopening the oil sands plants, which generally lie to the north, has also been a priority. In an analysis written just before the latest setback, the Conference Board of Canada estimated that 14 days of shutdown would mean a

loss of production valued at 985 million Canadian dollars, about \$762 million. Royalties from the oil sands are also an important part of the provincial budget.

Climate Change in the News

The New York Times

© 2016 The New York Times

WEDNESDAY, MAY 18, 2016

THOMAS L. FRIEDMAN

Donald, Save Your Greens, and the Planet

MEMO TO: DONALD TRUMP

FROM: TOM FRIEDMAN

SUBJECT: GOLF COURSES

Dear Donald,

It's been a while since we talked on the practice tee at Doral. (Nice course you built.) I am only going to do this once, but I am going to offer you some free advice — and it's about all the things you love most: yourself, your kids, winning, money and golf. Have I got a deal for you ...

You see, Donald, I was looking at all the golf courses you own. Some of them are real gems, like Doral, Turnberry, Doonbeg, Palm Beach, Aberdeenshire. But you know what else I noticed? How many of them are on or near coastlines. And do you know what's going to happen to those golf courses, Donald, if the climate scientists are even half right? They're going to go from oceanfront property to ocean-floor property. Because ice melt and sea level rise are going to threaten all of them. Here's a July 21, 2015, story from Weather.com:

"As our seas continue to rise, some cities, like Miami, are planning to spend billions on revamping infrastructure. But some scientists say sea level rise will lead to another phenomenon in South Florida, and local leaders need to start preparing for it now. The region that's home to thousands of high-priced homes nestled against the water is expected to be threatened directly by the rising seas in the coming decades, and when the harsh reality sets in, a mass exodus could commence. ... In short, there's no way to save South Florida, and lawmakers should start to prepare for millions to move north. ... More than 2.4 million people live within 4 feet of the local high-tide line, and according to Climate Cen-

tral, the risk of storm surge flooding will be far higher by 2030. ... 'This is not a future problem. It's a current problem,' Leonard Berry, director of the Florida Center for Environmental Studies at Florida Atlantic University, told PBS."

In other words, Donald, there is no candidate in this race who is more exposed to climate change than ... you. And I am not talking only about your coastal golf courses. Global warming doesn't mean the weather, on average, just gets hotter. It means the weather gets weirder. You get more weather extremes — hotter hot days, wetter wet ones, longer droughts, fiercer storms, heavier snows.

The Climate Wire quoted a United States Golf Association turf expert in August 2014 as saying that "individual golfers and club leadership are becoming aware that these are real issues." I can only imagine what this will mean for insurance rates for golf course. And that was before Nature magazine published a new study in March indicating that sea levels could rise almost twice as much as previously predicted by the end of the century — "an outcome that could devastate coastal communities around the globe," as The Washington Post noted, unless we curb emissions of greenhouse gases. Ask your golf course greens keepers how many of them think climate change is a hoax?

So here's the advice: I know that you've tweeted that "the concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." (Just as an aside, Donald, that's incredibly stupid. The Chinese are ahead of us in putting a price on carbon because they can't breathe.) But let's put that aside. We both know that you know as much about climate change as you did about abortion rights and the nuclear triad. It was just one of those things you put out there to

keep you looking like a Republican good ol' boy.

Donald, you've done something truly revolutionary: You've single-handedly reshaped the agenda of the Republican Party, mixing some left-of-center and centrist positions with the G.O.P.'s traditional right-of-center stuff. You should do the same now, embrace the reality of climate change and vow as president that you will be "huge, huuuuuge" on this issue — that "I'll make the whole planet great again."

It would be in your financial interest, America's interest and your grandkids' interest. Nobody who voted for you in the primaries did so because of climate, except maybe coal miners in West Virginia. Your base does not care about this issue, and, by the way, all their kids are telling them climate change is real. The reason the G.O.P. has its head in the sand on climate is the oil companies force it to. But you don't need Big Oil's money.

Here's what you need: some Bernie Sanders voters. You can't win without some of them. And they're all greens. If you promised to take climate change seriously, you'd make it much easier for some of them, who dislike Hillary, to hold their noses and vote for you. You'd also get a lot of other people to give you a second look. Most important, it would tip the G.O.P. on this issue.

Cards on the table, Donald, I won't be voting for you. But if you really want to make this race interesting, continue to reshape the G.O.P., raise the odds of winning Florida, preserve your wealth and do something to make America great again, tweet this: "Talked to some scientists, smartest in the world, changing position on climate change. Feeling the burn. Gotta protect our kids."

After all, Donald, you don't want to be remembered as the politician who'll be the answer to the question, "Who lost Florida?" □



Climate Change in the News



The D
© 2016 The New York Times

THOMAS L. FRIEDMAN

Donald, Save Your Greens, and the Planet

MEMO TO: DONALD TRUMP
FROM: TOM FRIEDMAN
SUBJECT: GOLF COURSES

Dear Donald,

It's been a while since we talked on the practice tee at Doral. (Nice course you built.) I am only going to do this once, but I am going to offer you some free advice — and it's about all the things you love most: yourself, your kids, winning, money and golf. Have I got a deal for you ...

You see, Donald, I was looking at all the golf courses you own. Some of them are real gems, like Doral, Turnberry, Doonbeg, Palm Beach, Aberdeenshire. But you know what else I noticed? How many of them are on or near coastlines. And do you know what's going to happen to those golf courses, Donald, if the climate scientists are even half right? They're going to go from oceanfront property to ocean-floor property. Because ice melt and sea level rise are going to threaten all of them. Here's a July 21, 2015, story from Weather.com:

"As our seas continue to rise, some cities, like Miami, are planning to spend billions on revamping infrastructure. But some scientists say sea level rise will lead to another phenomenon in South Florida, and local leaders need to start preparing for it now. The region that's home to thousands of high-priced homes nestled against the water is expected to be threatened directly by the rising seas in the coming decades, and when the harsh reality sets in, a mass exodus could commence. ... In short, there's no way to save South Florida, and lawmakers should start to prepare for millions to move north. ... More than 2.4 million people live within 4 feet of the local high-tide line, and according to Climate Cen-

tral, the risk of storm surge flooding will be far higher by 2030. ... This is not a future problem. It's a current problem," Leonard Berry, director of the Florida Center for Environmental Studies at Florida Atlantic University, told PBS."

In other words, Donald, there is no candidate in this race who is more exposed to climate change than ... you. And I am not talking only about your coastal golf courses. Global warming doesn't mean the weather, on average, just gets hotter. It means the weather gets weirder. You get more weather extremes — hotter hot days, wetter wet ones, longer droughts, fiercer storms, heavier snows.

The Climate Wire quoted a United States Golf Association turf expert in August 2014 as saying that "individual golfers and club leadership are becoming aware that these are real issues." I can only imagine what this will mean for insurance rates for golf course. And that was before Nature magazine published a new study in March indicating that sea levels could rise almost twice as much as previously predicted by the end of the century — an outcome that could devastate coastal communities around the globe," as The Washington Post noted, unless we curb emissions of greenhouse gases. Ask your golf course greens keepers how many of them think climate change is a hoax?

So here's the advice: I know that you've tweeted that "the concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." (Just as an aside, Donald, that's incredibly stupid. The Chinese are ahead of us in putting a price on carbon because they can't breathe.) But let's put that aside. We both know that you know as much about climate change as you did about abortion rights and the nuclear triad. It was just one of those things you put out there to

keep you looking like a Republican good ol' boy.

Donald, you've done something truly revolutionary: You've single-handedly reshaped the agenda of the Republican Party, mixing some left-of-center and centrist positions with the G.O.P.'s traditional right-of-center stuff. You should do the same now, embrace the reality of climate change and vow as president that you will be "huge, huuuuuge" on this issue — that "I'll make the whole planet great again."

It would be in your financial interest, America's interest and your grandkids' interest. Nobody who voted for you in the primaries did so because of climate, except maybe coal miners in West Virginia. Your base does not care about this issue, and, by the way, all their kids are telling them climate change is real. The reason the G.O.P. has its head in the sand on climate is the oil companies force it to. But you don't need Big Oil's money.

Here's what you need: some Bernie Sanders voters. You can't win without some of them. And they're all greens. If you promised to take climate change seriously, you'd make it much easier for some of them, who dislike Hillary to hold their noses and vote for you. You'd also get a lot of other people to give you a second look. Most important, it would tip the G.O.P. on this issue.

Cards on the table, Donald, I won't be voting for you. But if you really want to make this race interesting, continue to reshape the G.O.P., raise the odds of winning Florida, preserve your wealth and do something to make America great again, tweet this: "Talked to some scientists, smartest in the world, changing position on climate change. Feeling the burn. Gotta protect our kids."

After all, Donald, you don't want to be remembered as the politician who'll be the answer to the question, "Who lost Florida?" □

"As our seas continue to rise, some cities, like Miami, are planning to spend billions on revamping infrastructure. But some scientists say sea level rise will lead to another phenomenon in South Florida, and local leaders need to start preparing for it now. The region that's home to thousands of high-priced homes nestled against the water is expected to be threatened directly by the rising seas in the coming decades, and when the harsh reality sets in, a mass exodus could commence. ... In short, there's no way to save South Florida, and lawmakers should start to prepare for millions to move north. ... More than 2.4 million people live within 4 feet of the local high-tide line, and according to Climate Cen-

Climate Change in the News

The New York Times

© 2016 The New York Times

WEDNESDAY, MAY 18, 2016



THOMAS L. FRIEDMAN

Donald, Save Your Greens, and the Planet

MEMO TO: DONALD TRUMP
FROM: TOM FRIEDMAN
SUBJECT: GOLF COURSES

Dear Donald,

It's been a while since we talked on the practice tee at Doral. (Nice course you built.) I am only going to do this once, but I am going to offer you some free advice — and it's about all the things you love most: yourself, your kids, winning, money and golf. Have I got a deal for you ...

You see, Donald, I was looking at all the golf courses you own. Some of them are real gems, like Doral, Turnberry, Doonbeg, Palm Beach, Aberdeenshire. But you know what else I noticed? How many of them are on or near coastlines. And do you know what's going to happen to those golf courses, Donald, if the climate scientists are even half right? They're going to go from oceanfront property to ocean-floor property. Because ice melt and sea level rise are going to threaten all of them. Here's a July 21, 2015, story from Weather.com:

"As our seas continue to rise, some cities, like Miami, are planning to spend billions on revamping infrastructure. But some scientists say sea level rise will lead to another phenomenon in South Florida, and local leaders need to start preparing for it now. The region that's home to thousands of high-priced homes nestled against the water is expected to be threatened directly by the rising seas in the coming decades, and when the harsh reality sets in, a mass exodus could commence. ... In short, there's no way to save South Florida, and lawmakers should start to prepare for millions to move north. ... More than 2.4 million people live within 4 feet of the local high-tide line, and according to Climate Cen-

tral, the risk of storm surge flooding will be far higher by 2030. ... 'This is not a future problem. It's a current problem,' Leonard Berry, director of the Florida Center for Environmental Studies at Florida Atlantic University, told PBS."

In other words, Donald, there is no candidate in this race who is more exposed to climate change than ... you. And I am not talking only about your coastal golf courses. Global warming doesn't mean the weather, on average, just gets hotter. It means the weather gets weirder. You get more weather extremes — hotter hot days, wetter wet ones, longer droughts, fiercer storms, heavier snows.

The Climate Wire quoted a United States Golf Association turf expert in August 2014 as saying that "individual golfers and club leadership are becoming aware that these are real issues." I can only imagine what this will mean for insurance rates for golf course. And that was before Nature magazine published a new study in March indicating that sea levels could rise almost twice as much as previously predicted by the end of the century — an outcome that could devastate coastal communities around the globe," as The Washington Post noted, unless we curb emissions of greenhouse gases. Ask your golf course greens keepers how many of them think climate change is a hoax?

So here's the advice: I know that you've tweeted that "the concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." (Just as an aside, Donald, that's incredibly stupid. The Chinese are ahead of us in putting a price on carbon because they can't breathe.) But let's put that aside. We both know that you know as much about climate change as you did about abortion rights and the nuclear triad. It was just one of those things you put out there to

keep you looking like a Republican good ol' boy.

Donald, you've done something truly revolutionary: You've single-handedly reshaped the agenda of the Republican Party, mixing some left-of-center and centrist positions with the G.O.P.'s traditional right-of-center stuff. You should do the same now, embrace the reality of climate change and vow as president that you will be "huge, huuuuuge" on this issue — that "I'll make the whole planet great again."

It would be in your financial interest, America's interest and your grandkids' interest. Nobody who voted for you in the primaries did so because of climate, except maybe coal miners in West Virginia. Your base does not care about this issue, and, by the way, all their kids are telling them climate change is real. The reason the G.O.P. has its head in the sand on climate is the oil companies force it to. But you don't need Big Oil's money.

Here's what you need: some Bernie Sanders voters. You can't win without some of them. And they're all greens. If you promised to take climate change seriously, you'd make it much easier for some of them, who dislike Hillary to hold their noses and vote for you. You'd also get a lot of other people to give you a second look. Most important, it would tip the G.O.P. on this issue.

Cards on the table, Donald, I won't be voting for you. But if you really want to make this race interesting, continue to reshape the G.O.P., raise the odds of winning Florida, preserve your wealth and do something to make America great again, tweet this: "Talked to some scientists, smartest in the world, changing position on climate change. Feeling the burn. Gotta protect our kids."

After all, Donald, you don't want to be remembered as the politician who'll be the answer to the question, "Who lost Florida?" □

tral, the risk of storm surge flooding will be far higher by 2030. ... 'This is not a future problem. It's a current problem,' Leonard Berry, director of the Florida Center for Environmental Studies at Florida Atlantic University, told PBS."

Climate Change in the News

"All the News
That's Fit to Print"

The New York Times

OL. CLXV No. 57,238

© 2016 The New York Times

FRIDAY, MAY 20, 2016

Big Mexican Farms Suck Up Water, Leaving Villages High and Dry

By ELISABETH MALKIN

SAN ANTONIO DE LOURDES, Mexico — In the dappled shade of mesquite trees by the side of a pale yellow schoolhouse, the children finished a song and waited for the priest's blessing.

The Rev. Juan Carlos Zesati began with a gentle exhortation, citing Pope Francis. "Water is part of God's creation," he said as he traced the connection from God to the earth, to life, to community and ultimately to every individual. "We have to respect that connection."

But the well in San Antonio de Lourdes, a village in Guanajuato State in central Mexico, went dry years ago. The village itself, depleted by poverty and migration, seems to be drying up, too, and only 29 children are left in the primary school. But a half-hour's drive away, fertile farms pump water from deep underground to irrigate fields that grow broccoli and lettuce for American supermarkets.

"Your communities are suffering," Father Zesati told a group of mothers and children before delivering his indictment. It is the farms that "are sucking up the water — but just for themselves."

Then he turned to face a white-washed water tank, built by the people of San Antonio de Lourdes to collect rainwater from the school roof, raised his right hand, and blessed it. "This seems small for all the problems there are — but it's a sign of hope."

It was the first of a day of such blessings in a hilly arid pocket of central Mexico where farmers wait for rain to bring subsistence crops of corn and beans to life.

When Father Zesati arrived in northern Guanajuato four years ago, he quickly learned that he was at the heart of a water crisis, one that is playing out over much of agricultural Mexico.

"What the pope emphasizes is that those who most suffer from the pressure on the earth and from ecological destruction — the first who suffer its effects are the poor," Father Zesati said. "They are made poor by those who follow an economic model that throws its costs at them."

The farms in Guanajuato count as one of the great success stories of that model, codified in the North American Free Trade Agreement, or Nafta. Every day workers stack crates of fresh



The Rev. Juan Carlos Zesati, center, reflecting on the importance of water while blessing a recently built rainwater cistern at the home of Teresita Aguila hat in foreground. Top right, Gloria Villanueva Rodríguez, whose kidneys failed a year ago. Above right, murky water being discharged in Guanajuato State

in the Guanajuato wells, and designs and pays for cisterns and other methods to collect clean drinking water.

As far back as the 1980s, even before the free trade agreement, the government imposed a ban on most new wells in Guanajuato. But water extraction increased exponentially. What allowed that to happen is "a pretty well-known system of bribes and corruption," Mr. Terrell said.

Every year, farms bore farther into the aquifer, and scientists warn that as they go deeper they are reaching tainted water deposited between 10,000 and 35,000 years ago.

"Here is the challenge for the authorities," said Marcos Adrián Ortega Guerrero, a hydrogeologist at the National Autonomous University of Mexico. "It is to administer water that is thousands of years old, water that is contaminated with arsenic and fluoride which is causing great harm and that they have never wanted to acknowledge."

accumulates in the bones.

"My husband can't bear the pain in his feet," said Guadalupe Mata, 39, a mother of three in Rancho Nuevo, the second village on Father Zesati's route of cistern blessings. "He gets injections, but the pain just comes back. But he still goes to work in the fields to plant chile."

Her 16-year-old daughter has been hospitalized for kidney trouble, she said. Buying bottled water is far beyond the family's means; her husband earns about \$33 a week.

There have been no formal studies of the effect on health caused by excess arsenic and fluoride in the community wells of Guanajuato, but recent tests carried out by Northern Illinois University for Caminos de Agua show levels that are many times higher than levels recommended by the World Health Organization.

According to the W.H.O., long-term exposure to arsenic at those levels can cause skin, lung and other cancers, and

Rodríguez, whose kidneys failed a year ago. Three sons left to join three more who were already working in the United States and who send money to pay for her dialysis treatments.

"They are working to cure me," said Mrs. Villanueva, 51.

Few question that Guanajuato's water supply is under acute pressure. Farms account for about 82 percent of all water use and do not have to pay for it.

"The available studies are more than enough to state that the aquifers are subject to destructive overexploitation," Victor Hugo Alcocer Yamanaka, the technical subdirector for the National Water Commission, or Conagua, wrote in response to questions.

He denied allegations that Conagua, which has only 10 inspectors for the entire state, had granted illegal water concessions.

Dr. Alcocer also confirmed that excess levels of fluoride had been detected in a number of sites in the north-

The farms in Guanajuato count as one of the great success stories of that model, codified in the North American Free Trade Agreement, or Nafta. Every day, workers stack crates of fresh produce aboard giant refrigerated trucks that roar straight to the Texas border.

law, in bringing technology to the countryside and improving efficiency."

Alvaro Nieto, a farmer who sells broccoli, lettuce, kale and brussels sprouts to California distributors, said most Guanajuato farmers were uninterested in conservation. And the government has been unwilling to crack down on illegal wells and overpumping, he added.

Mr. Nieto said he had cut water consumption to 40 percent of what it was two decades ago by using soil conservation techniques. "I don't pump more water because I want my business to last many generations," he said. "We are many people all drinking with the same glass."

Jaime Hoogesteger, a researcher at Wageningen University in the Netherlands who has studied Guanajuato's water problem, predicted that the agricultural boom would eventually use all the water that feeds it. "The question is how long it will take," he said. As evening approached, Father Z

Climate Change in the News

"All the News
That's Fit to Print"

The New York Times

OL. CLXV . . . No. 57,238

© 2016 The New York Times

FRIDAY, MAY 20, 2016

Big Mexican Farms Suck Up Water, Leaving Villages High and Dry

By ELISABETH MALKIN

SAN ANTONIO DE LOURDES, Mexico — In the dappled shade of mesquite trees by the side of a pale yellow schoolhouse, the children finished a song and waited for the priest's blessing.

The Rev. Juan Carlos Zesati began with a gentle exhortation, citing Pope Francis. "Water is part of God's creation," he said as he traced the connection from God to the earth, to life, to community and ultimately to every individual. "We have to respect that connection."

But the well in San Antonio de Lourdes, a village in Guanajuato State in central Mexico, went dry years ago. The village itself, depleted by poverty and migration, seems to be drying up, too, and only 29 children are left in the primary school. But a half-hour's drive away, fertile farms pump water from deep underground to irrigate fields that grow broccoli and lettuce for American supermarkets.

"Your communities are suffering," Father Zesati told a group of mothers and children before delivering his indictment. It is the farms that "are sucking up the water — but just for themselves."

Then he turned to face a white-washed water tank, built by the people of San Antonio de Lourdes to collect rainwater from the school roof, raised his right hand, and blessed it. "This seems small for all the problems there are — but it's a sign of hope."

It was the first of a day of such blessings in a hilly arid pocket of central Mexico where farmers wait for rain to bring subsistence crops of corn and beans to life.

When Father Zesati arrived in northern Guanajuato four years ago, he quickly learned that he was at the heart of a water crisis, one that is playing out over much of agricultural Mexico.

"What the pope emphasizes is that those who most suffer from the pressure on the earth and from ecological destruction — the first who suffer its effects are the poor," Father Zesati said. "They are made poor by those who follow an economic model that throws its costs at them."

The farms in Guanajuato count as one of the great success stories of that model, codified in the North American Free Trade Agreement, or Nafta. Every day workers stack crates of fresh



The Rev. Juan Carlos Zesati, center, reflecting on the importance of water what in foreground. Top right, Gloria Villanueva Rodríguez, whose kidneys failed

in the Guanajuato wells, and designs and pays for cisterns and other methods to collect clean drinking water.

As far back as the 1980s, even before the free trade agreement, the government imposed a ban on most new wells in Guanajuato. But water extraction increased exponentially. What allowed that to happen is "a pretty well-known system of bribes and corruption," Mr. Terrell said.

Every year, farms bore farther into the aquifer, and scientists warn that as they go deeper they are reaching tainted water deposited between 10,000 and 35,000 years ago.

"Here is the challenge for the authorities," said Marcos Adrián Ortega Guerrero, a hydrogeologist at the National Autonomous University of Mexico. "It is to administer water that is thousands of years old, water that is contaminated with arsenic and fluoride which is causing great harm and that they have never wanted to acknowledge."

accumulates in the bones.

"My husband can't bear the pain in his feet," said Guadalupe Mata, 39, a mother of three in Rancho Nuevo, the second village on Father Zesati's route of cistern blessings. "He gets injections, but the pain just comes back. But he still goes to work in the fields to plant chile."

Her 16-year-old daughter has been hospitalized for kidney trouble, she said. Buying bottled water is far beyond the family's means; her husband earns about \$33 a week.

There have been no formal studies of the effect on health caused by excess arsenic and fluoride in the community wells of Guanajuato, but recent tests carried out by Northern Illinois University for Caminos de Agua show levels that are many times higher than levels recommended by the World Health Organization.

According to the W.H.O., long-term exposure to arsenic at those levels can cause skin, lung and other cancers, and

Every year, farms bore farther into the aquifer, and scientists warn that as they go deeper they are reaching tainted water deposited between 10,000 and 35,000 years ago.

"Here is the challenge for the authorities," said Marcos Adrián Ortega Guerrero, a hydrogeologist at the National Autonomous University of Mexico. "It is to administer water that is thousands of years old, water that is contaminated with arsenic and fluoride which is causing great harm and that they have never wanted to acknowledge"

concessions.

Dr. Alcocer also confirmed that excess levels of fluoride had been detected in a number of sites in the north-

cultural boom would eventually use all the water that feeds it. "The question is how long it will take," he said. As evening approached, Father Z

Climate Change in the News

"All the News
That's Fit to Print"

The New York Times

OL. CLXV No. 57,238

© 2016 The New York Times

FRIDAY, MAY 20, 2016

Big Mexican Farms Suck Up Water, Leaving Villages High and Dry

By ELISABETH MALKIN

SAN ANTONIO DE LOURDES, Mexico — In the dappled shade of mesquite trees by the side of a pale yellow schoolhouse, the children finished a song and waited for the priest's blessing.

The Rev. Juan Carlos Zesati began with a gentle exhortation, citing Pope Francis. "Water is part of God's creation," he said as he traced the connection from God to the earth, to life, to community and ultimately to every individual. "We have to respect that connection."

But the well in San Antonio de Lourdes, a village in Guanajuato State in central Mexico, went dry years ago. The village itself, depleted by poverty and migration, seems to be drying up, too, and only 29 children are left in the primary school. But a half-hour's drive away, fertile farms pump water from deep underground to irrigate fields that grow broccoli and lettuce for American supermarkets.

"Your communities are suffering," Father Zesati told a group of mothers and children before delivering his indictment. It is the farms that "are sucking up the water — but just for themselves."

Then he turned to face a white-washed water tank, built by the people of San Antonio de Lourdes to collect rainwater from the school roof, raised his right hand, and blessed it. "This seems small for all the problems there are — but it's a sign of hope."

It was the first of a day of such blessings in a hilly arid pocket of central Mexico where farmers wait for rain to bring subsistence crops of corn and beans to life.

When Father Zesati arrived in northern Guanajuato four years ago, he quickly learned that he was at the heart of a water crisis, one that is playing out over much of agricultural Mexico.

"What the pope emphasizes is that those who most suffer from the pressure on the earth and from ecological destruction — the first who suffer its effects are the poor," Father Zesati said. "They are made poor by those who follow an economic model that throws its costs at them."

The farms in Guanajuato count as one of the great success stories of that model, codified in the North American Free Trade Agreement, or Nafta. Every day workers stack crates of fresh



The Rev. Juan Carlos Zesati, center, reflecting on the importance of water while blessing a recently built rainwater cistern at the home of Teresita Aguila hat in foreground. Top right, Gloria Villanueva Rodríguez, whose kidneys failed a year ago. Above right, murky water being discharged in Guanajuato State

in the Guanajuato wells, and designs and pays for cisterns and other methods to collect clean drinking water.

As far back as the 1980s, even before the free trade agreement, the government imposed a ban on most new wells in Guanajuato. But water extraction increased exponentially. What allowed that to happen is "a pretty well-known system of bribes and corruption," Mr. Terrell said.

Every year, farms bore farther into the aquifer, and scientists warn that as they go deeper they are reaching tainted water deposited between 10,000 and 35,000 years ago.

"Here is the challenge for the authorities," said Marcos Adrián Ortega Guerrero, a hydrogeologist at the National Autonomous University of Mexico. "It is to administer water that is thousands of years old, water that is contaminated with arsenic and fluoride which is causing great harm and that they have never wanted to acknowledge."

accumulates in the bones.

"My husband can't bear the pain in his feet," said Guadalupe Mata, 39, a mother of three in Rancho Nuevo, the second village on Father Zesati's route of cistern blessings. "He gets injections, but the pain just comes back. But he still goes to work in the fields to plant chile."

Her 16-year-old daughter has been hospitalized for kidney trouble, she said. Buying bottled water is far beyond the family's means; her husband earns about \$33 a week.

There have been no formal studies of the effect on health caused by excess arsenic and fluoride in the community wells of Guanajuato, but recent tests carried out by Northern Illinois University for Caminos de Agua show levels that are many times higher than levels recommended by the World Health Organization.

According to the W.H.O., long-term exposure to arsenic at those levels can cause skin, lung and other cancers, and

Rodríguez, whose kidneys failed a year ago. Three sons left to join three more who were already working in the United States and who send money to pay for her dialysis treatments.

"They are working to cure me," said Mrs. Villanueva, 51.

Few question that Guanajuato's water supply is under acute pressure. Farms account for about 82 percent of all water use and do not have to pay for it.

"The available studies are more than enough to state that the aquifers are subject to destructive overexploitation," Victor Hugo Alcocer Yamanaka, the technical subdirector for the National Water Commission, or Conagua, wrote in response to questions.

He denied allegations that Conagua, which has only 10 inspectors for the entire state, had granted illegal water concessions.

Dr. Alcocer also confirmed that excess levels of fluoride had been detected in a number of sites in the north-

"What the pope emphasizes is that those who most suffer from the pressure on the earth and from ecological destruction — the first who suffer its effects are the poor," Father Zesati said. "They are made poor by those who follow an economic model that throws its costs at them."

law, in bringing technology to the countryside and improving efficiency."

Alvaro Nieto, a farmer who sells broccoli, lettuce, kale and brussels sprouts to California distributors, said most Guanajuato farmers were uninterested in conservation. And the government has been unwilling to crack down on illegal wells and overpumping, he added.

Mr. Nieto said he had cut water consumption to 40 percent of what it was two decades ago by using soil conservation techniques. "I don't pump more water because I want my business to last many generations," he said. "We are many people all drinking with straws from the same glass."

Jaime Hoogesteger, a researcher at Wageningen University in the Netherlands who has studied Guanajuato's water problem, predicted that the agricultural boom would eventually use all the water that feeds it. "The question is how long it will take," he said. As evening approached, Father Z

Climate Change in the News



Last October

Exxon's Climate Concealment

By Naomi Oreskes

MILLIONS of Americans once wanted to smoke. Then they came to understand how deadly tobacco products were. Tragically, that understanding was long delayed because the tobacco industry worked for decades to hide the truth, promoting a message of scientific uncertainty instead.

The same thing has happened with climate change, as Inside Climate News, a nonprofit news organization, has been reporting in a series of articles based on internal documents from Exxon Mobil dating from the 1970s and interviews with former company scientists and employees.

Had Exxon been upfront at the time about the dangers of the greenhouse gases we were spewing into the atmosphere, we might have begun decades ago to develop a less carbon-intensive energy path to avert the worst impacts of a changing climate. Amazingly, politicians are still debating the reality of this threat, thanks in no small part to industry disinformation.

Government and academic scientists alerted policy makers to the potential threat of human-driven climate change in the 1960s and '70s, but at that time climate change was still a prediction. By the late 1980s it had become an observed fact.

But Exxon was sending a different message, even though its own evidence contradicted its public claim that the science was highly uncertain and no one really knew whether the climate was changing or, if it was changing, what was causing it.

Exxon (which became Exxon Mobil in 1999) was a leader in these campaigns of confusion. In 1989, the company helped to create the Global Climate Coalition to question the scientific basis for concern about climate change and prevent the United States from signing on to the international Kyoto Protocol to control greenhouse gas emissions. The coalition disbanded in 2002, but the disinformation

Naomi Oreskes is a professor of the history of science at Harvard and the author, with Erik M. Conway, of "The Collapse of Western Civilization: A View From the Future."

continued. Journalists and scientists have identified more than 30 different organizations funded by the company that have worked to undermine the scientific message and prevent policy action to control greenhouse gas emissions.

These efforts turned the problem from a matter of fact into a matter of opinion. When the Exxon chief executive, Lee Raymond, insisted in the late 1990s that the science was still uncertain, the media covered it, business leaders accepted it and the American people were confused.

For people close to the issue, it was never credible that Exxon — a company that employs thousands of scientists and engineers and whose core business depends on their expertise — could be that confused about the science. We now know

The oil giant saw the warnings decades ago.

that they not only understood the science, but contributed to it.

As early as 1977, one of Exxon's senior scientists warned a gathering of oilmen of a "general scientific agreement" that the burning of fossil fuels was influencing the climate. A year later, he had updated his assessment, warning that "present thinking holds that man has a time window of five to 10 years before the need for hard decisions regarding changes in energy strategies might become critical."

In the 1980s, Exxon scientists collaborated with academic and government researchers to build climate models and understand their implications. When one researcher expressed the opinion that the impacts would be "well short of catastrophic," the director of the Theoretical and Mathematical Sciences Laboratory at Exxon Research responded in a memo, "I think that this statement may be too reassuring." He said it was "distinctly possible" that the projected warming trend after 2030 "will indeed be catastrophic (at least for a substantial fraction of the earth's population)," a conclusion that most climate scientists now hold, assuming we continue business as usual.

What did Exxon executives do with this information? Until 1989, they circulated reports summarizing it inside the company. They allowed their scientists to attend academic meetings, to participate in panels, and to publish their findings in peer-reviewed journals — in short, to behave as scientists. And they did acknowledge the "potentially catastrophic events that must be considered."

Then corporate executives turned about face. As the scientific community began to speak out more strongly, first about the risks of unmitigated climate change and then about the fact that it was underway, Exxon executives and organizations funded by them embarked on a campaign designed to prevent governments from taking meaningful action. These activities continue today.

Exxon (whose spokesman has disputed the Inside Climate News reporting) had a choice. As one of the most profitable companies in the world, Exxon could have acted as a corporate leader, helping to explain to political leaders, to shareholders and institutional investors, and to the public what it knew about climate change. It could have begun to shift its business model, investing in renewables and biofuels or introducing a major research and development initiative in carbon capture. It could have endorsed sensible policies to foster a profitable transition to a 21st-century energy economy.

Instead — like the tobacco industry — Exxon chose the path of disinformation, denial and delay. More damagingly, the company set a model for the rest of the industry. More than 30 years ago, Exxon scientists acknowledged in internal company memos that climate change could be catastrophic. Today, scientists who say the exact same thing are ridiculed in the business community and on the editorial page of The Wall Street Journal.

We have lost precious time as a result: decades during which we could have built a smart electricity grid, fostered efficiency and renewables and generated thousands of jobs in a cleaner, greener economy. There is still time to prevent the worst disruptions of human-driven climate change, but the challenge is now much greater than it needed to be, in no small part because of the choices that Exxon Mobil made. □

Climate Change in the News

THE NEW YORK TIMES NATIONAL FRIDAY, MAY 20, 2016

Dueling Climate Change Inquiries as Lawmakers Take On State Officials

By JOHN SCHWARTZ

Since last November, a growing number of state attorneys general have been pointing their fingers at Exxon Mobil, investigating whether the energy company's research about climate change conflicted directly with its public statements on the issue.

But now the accusers are being accused, with a battle being waged over principles of free speech, government overreach and collaboration with activist organizations.

Representative Lamar Smith, Republican of Texas, sent a letter on Wednesday to the New York attorney general, Eric T. Schneiderman, demanding all communications since 2012 between his office and climate change activist organizations.

The attorneys general, Mr. Smith said, are doing the bidding of environmental activists who set out to make pariahs of Exxon Mobil and its industry in pursuit of policies to limit climate change.

Those activists and the attorneys general, Mr. Smith said in the letter, have secretly collaborated in the years since a two-day workshop in 2012 "to act under the color of law to persuade attorneys general to use their prosecutorial powers to stifle scientific discourse, intimidate private entities and individuals, and deprive them of their First Amendment rights and freedoms."

The 2012 workshop among climate activists was held in the San Diego community of La Jolla, and its report can be found online. Those attending included representatives of the Union of Concerned Scientists, the Climate Accountability Institute and the Massachusetts-based Global Warming Legal Action Project.

Over time, discussions of legal action involved the Rockefeller family philanthropies, the environmental campaigner Bill McKibben's 350.org, the Al Gore-founded Climate Reality Project, Greenpeace, and eventually, representatives of Mr. Schneider-



Mr. Walker has gone beyond New York's efforts by including subpoenas to private organizations like the free-market oriented Competitive Enterprise Institute, looking for evidence that the company funded such groups to spread its message to oppose regulation and sow doubt about climate science.

Noting that the company has "physical presence" in the Virgin Islands, Exxon Mobil called Walker's actions a "flagrant misuse of law enforcement power."

The new letter from Mr. Smith comes as Exxon Mobil's attorneys have intensified their own attack on the attorneys general.

This week, Republican attorneys general of Texas and Alabama filed motions to block Walker's inquiry. The Competitive Enterprise Institute also took

An Exxon Mobil refinery in California. Representative Lamar Smith, left center, is investigating state attorneys general who are investigating the oil company's climate change research.



An Exxon Mobil refinery in California. Representative Lamar Smith, left center, is investigating state attorneys general who are investigating the oil company's climate change research.

He added, "Anyone who thinks that Attorney General Schneiderman will be intimidated by this effort has no idea who they're dealing with."

Mr. Schneiderman, a Democrat, announced his investigation of Exxon in November, and by March had been joined by at least four other attorneys general. The Democratic presidential candidates, Hillary Clinton and Senator Bernie Sanders of Vermont, have each called for a federal investigation of Exxon's climate change research.

Exxon Mobil, said he had no comment on the letter from Mr. Smith. When several attorneys general announced at a news conference in March that they were joining Mr. Schneiderman's investigation, the company called the accusations "politically motivated, and based on discredited reporting by activist organizations."

The company also said that it "recognizes the risks posed by climate change," and the accusations are based on the "preposterous

also received copies of the letter demanding that they turn over documents related to their effort.

The Rockefellers, whose patriarch John Rockefeller built his family fortune with the company that is now as Exxon Mobil, have been increasingly critical of the company and its industry.

In 2014, they announced they would remove fossil fuel stocks from the portfolio of the Rockefeller Brothers Fund, and this month said they would remove fossil stocks from their Rockefeller Family Fund as well. They called the conduct by Exxon Mobil "under investigation" by the attorneys general "morally reprehensible."

Climate Change in the News

THE NEW YORK TIMES NATIONAL SATURDAY, MAY 21, 2016

ELECTION 2016

What Are Trump's Views on Climate Change? Some Clues Emerge

By ERICA GOODE

So far, Donald J. Trump has said very little about climate change and energy policy beyond his Twitter posts on the issues.

He has called global warming a "hoax," for example, and claimed that the Chinese fabricated climate change (just a joke, he later said). And in an interview this week with Reuters, he said that he was "not a big fan" of the Paris climate accord, and that "at a minimum I will be renegotiating those agreements."

But more clues about Mr. Trump's views on environmental issues emerged this week from a four-page briefing on energy policy prepared for the presumptive Republican nominee by Representative Kevin Cramer, Republican of North Dakota and an early supporter of Mr. Trump.

Mr. Cramer, who defines himself as a climate change skeptic, discussed in his briefing paper a variety of government regulations that Mr. Trump might do away with if he were president.

They included the Obama administration's Clean Power Plan, currently pending in the courts, as well as a federal rule intended to protect waterways and wetlands, and a regulation setting standards for methane emissions that the Environmental Protection Agency completed last week.

In an interview, Mr. Cramer said he wrote in the briefing paper that a growing number of Americans wanted action to reduce carbon dioxide emissions from fossil fuels. And he outlined a broad energy policy that embraced all types of fuel sources — including coal, oil, solar, wind and hydropower — that he called an "all-of-the-above, America-first energy message." Mr. Cramer, from a

heavy coal- and oil-producing state, said it was important that any policy does not "punish coal" or other fossil fuels.

Mr. Trump may soon share more of his views. His press secretary, Hope Hicks, said that the campaign "will have more to say on the topic soon." He is scheduled to speak at an oil conference in North Dakota on Thursday.

Whenever Mr. Trump does fill in more details on the topic, he will have eager audiences both inside and outside his political party.

Republican leaders worry that Mr. Trump's views, his climate-denying Twitter messages notwithstanding, could end up somewhere left of the party's mainstream.

"I think there is concern about where he stands because he hasn't come out strongly one way or another," said a Republican aide who insisted on anonymity because she was not authorized to speak publicly about the matter.

Environmental groups, for their part, have seized on each new scrap of information to warn of disastrous consequences should Mr. Trump be elected.

"Trump and Cramer are two peas in the climate denial pod, who would make reckless attacks on the progress we have made in the fight against climate change," Seth Stein, a spokesman for the League of Conservation Voters, said in response to news reports Thursday afternoon about Mr. Cramer's briefing paper.

If Mr. Trump were to acknowledge the reality of climate change, that might provide some Republican politicians with political cover to do so as well.

Since 2010, when a Republican member of Congress, Bob Inglis, lost his re-election bid after saying he would favor a carbon tax, many in the party have regarded any

and that the government should take action to reduce carbon dioxide emissions.

Anthony Leiserowitz, director of the Yale program on Climate Change Communication, said that a nationally representative survey of 1,004 registered voters, con-

to the Yale/George Mason poll. But the jump among those who believe in global warming was steepest among Republicans, with a 16 percent increase in two years among all Republicans, and a 19 percent increase among conservative Republicans.

Republican candidates to address climate change, said that a platform that emphasized clean energy solutions could make a difference of 1 or even 2 percent in close elections — "which decides a whole lot of elections."

Like many on both sides of the

Clinton could use that to claim that Republicans were anti-science and out of touch with reality. "Climate contributes significantly to the poor branding of the Republican Party," he said, adding that just because an issue was low priority to voters "does

He has called global warming a "hoax," for example, and claimed that the Chinese fabricated climate change (just a joke, he later said). And in an interview this week with Reuters, he said that he was "not a big fan" of the Paris climate accord, and that "at a minimum I will be renegotiating those agreements."

Climate Change in the News

MEDICINE | TECHNOLOGY | HEALTH

ScienceTimes

The New York Times

TUESDAY, MAY 17, 2016 D1

GROWING ASSETS

In Brazil, Forests Rise to Challenge Of Carbon Dioxide

A new study reports that recently established forests on abandoned farmland in Latin America, if allowed to grow for another 40 years, would probably be able to suck at least 31 billion tons of carbon dioxide out of the atmosphere.

That is enough to offset nearly two decades of emissions from fossil-fuel burning in the region. Abandoning additional pastures and allowing them to revert to tropical forest could soak up another seven billion tons of the gas, the scientists found.

Their paper offers the most detailed estimates to date for a promising approach to combating climate change. Many Latin American governments have promised to encourage forest regrowth, as well as to combat the destruction of existing forests, in their long-term climate plans. But how hard they will push on either issue is unclear.

"This is a potential contribution that is sitting right under our noses," said the lead author, Robin L. Chazdon, a University of Connecticut ecologist who is working at the International Institute for Sustainability in Rio de Janeiro.

JUSTIN GILLIS

A new study reports that recently established forests on abandoned farmland in Latin America, if allowed to grow for another 40 years, would probably be able to suck at least 31 billion tons of carbon dioxide out of the atmosphere.