

**RECOVERY, RESILIENCY AND READINESS:  
CONTENDING WITH NATURAL DISASTERS  
IN THE WAKE OF CLIMATE CHANGE  
(CLIMATE CHANGE PART III)**

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**HEARING**

BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT  
OF THE  
COMMITTEE ON OVERSIGHT  
AND REFORM  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED SIXTEENTH CONGRESS

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**RECOVERY, RESILIENCY AND READINESS:  
CONTENDING WITH NATURAL DISASTERS  
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**Tuesday, June 25, 2019**

HOUSE OF REPRESENTATIVES  
SUBCOMMITTEE ON ENVIRONMENT  
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 2:55 p.m., in room 2154, Rayburn Office Building, Hon. Harley Rouda (chairman of the subcommittee) presiding.

Present: Representatives Rouda, Hill, Tlaib, Krishnamoorthi, Speier, Ocasio-Cortez, Comer, Higgins, and Armstrong.

Also present: Representatives Jordan, Plaskett, and Velazquez.

Mr. ROUDA. The subcommittee will come to order.

Without objection, the chair is authorized to declare a recess of the committee at any time.

This subcommittee is convening our third in a series of climate change hearings focusing on recovery, resiliency, and readiness, contending with natural disasters.

I now recognize myself for five minutes to give an opening statement.

As I mentioned, this hearing is the third in the series on climate change that the Committee on Oversight and Reform Subcommittee on Environment plans to hold this Congress.

After examining the history of the scientific consensus on climate change and the public health effects of climate change in our first two hearings, today the subcommittee turns to the impact of climate change on natural disasters.

This subcommittee has three goals today.

First, we are going to illustrate how natural disasters are made both more intense and more frequent due to climate change. Climate change is real and we are constantly reminded of that fact in terrifying ways. Just two weeks ago, it was reported that Greenland lost 2 billion tons of ice on one day alone, which portends a possible record-breaking season of ice melt this year. Two billion tons of ice lost in a day, and we have got people still telling us not to worry, that climate change is not a problem.

The American people know better, and they know because they are already suffering from the effects. Michael Mann, a renowned climate scientist, is here today to explain how and why we are seeing more intense hurricanes, more frequent wildfires, and more devastating flooding because of climate change.

Our second goal today is to examine how the Federal Government could have responded better to the 2017–2018 spate of natural disasters, steps the Federal Government has taken to address these challenges, as well as explore ongoing recovery challenges, not to point fingers and cast blame, but rather because the best way to improve performance in the future is to implement the lessons from past mistakes.

Third, we are going to assess how well FEMA and other Federal agencies, as well as regional and local governments, are prepared for not just the current hurricane and wildfire seasons, but also for the long term, given that climate change is causing more intense and frequent natural disasters. Every single one of us in this room wants FEMA to succeed, and we want to make sure that the agency has the tools and makes the changes necessary to do so.

This subcommittee planned to have the Acting Deputy Administrator of FEMA, Dr. Daniel Kaniewski, testifying here today. This past Friday at 7 p.m., FEMA informed us that they were uncomfortable with the structure of the witness panel and thus would not be able to make it to the hearing. When subcommittee staff contacted FEMA on Monday morning to try to work out a solution, we were then informed that the doctor was unable to testify due to medical reasons. We extend our sympathies to the doctor and wish him a speedy recovery. The subcommittee plans on having him before the subcommittee as soon as he is able.

We do not need to look very far to see the personal costs associated with natural disasters in the wake of climate change. A member of this subcommittee, Representative Katie Hill, was forced to evacuate her home last year as the Stone Fire ravaged her hometown. She and her husband were lucky enough to safely evacuate but, as we know, many were not so lucky. In fact, the past two seasons, 2017 and 2018, were the two deadliest wildfire seasons in U.S. history with major wildfires across at least nine states. It is also worth noting that these devastating fires also aggravate the impact of climate change through the release of large quantities of carbon dioxide and other greenhouse gases into our atmosphere.

Hurricanes Harvey, Irma, and Maria hit Houston, the U.S. Virgin Islands, and Puerto Rico within just a month of each other in 2017, and the consequences were devastating. You know, we often hear our colleagues on the other side of the aisle tell us that we act like the sky is falling. And in this case, the sky was literally falling. Hurricane Harvey was the wettest storm on record, dumping 33 trillion gallons of water on the greater Houston area. Harvey was also the second costliest hurricane on record, second only to 2005's Hurricane Katrina, inflicting approximately \$125 billion in damages.

Irma cost more than \$65 billion and knocked out power for as many as 16 million people. Maria was the deadliest storm in Puerto Rico since 1928, killing over 2,900 Americans and leaving the island without power. Puerto Ricans faced massive food shortages, and suicide crisis hotlines in Puerto Rico reported a 246 percent increase in suicide attempts from November 2017 through January 2018, compared with the same timeframe the previous year. Emails from the Department of Defense discuss the discovery of mass graves in areas hit by mudslides. The only hospital on one of the

islands was destroyed by Maria, and two years later, it still has not been rebuilt.

I could go on and on about the devastation wreaked by these disasters, and I know that every single person in this room's heart breaks at these stories. Many of us remember feeling the same way in August 2005, watching the shocking footage of the city of New Orleans after Hurricane Katrina. That was 14 years ago. I know some of us do not want to believe it, but these record-breaking storms and wildfires keep coming ever more often, ever more powerful.

Responding to natural disasters is a much different beast than it was when FEMA was founded back in 1979. And one of the reasons why response and recovery has gotten so much more challenging since then is, obviously, climate change.

In March 2018, FEMA removed all references of climate change from its four-year strategic plan. This decision is simply baffling. If we all know climate change is happening, surely it should factor into long-term strategic planning at our Nation's largest and most powerful disaster response agency. The Trump administration's own Fourth National Climate Assessment expects that the intensity of hurricanes, typhoons, wildfires and floods will increase as global warming continues. So we need to face the problem and help FEMA get the support it needs to adjust to this new reality and meet the needs of our fellow Americans.

We have here with us today top emergency management officials from Puerto Rico, the U.S. Virgin Islands, Houston, Texas, and California. And we are going to let them tell us what they have seen and learned firsthand. Almost two years after Hurricanes Harvey, Irma, and Maria and after the first record-breaking wildfire swept across the West, what do their communities look like? How are people faring? What more needs to be done? How can we in Congress help them get the money they need to recover? And how can Federal agencies help them not only respond to immediate needs in the aftermath of these disasters, but rebuild their communities to be more resilient, equipping them to better handle the next disaster? Because it is not a question of "if," it is a repeated question of "when," "when," and "when."

John Donne famously wrote that "no man is an island entire of itself; every man is a piece of the continent, a part of the main." When one part of America suffers, we all do. When people in Houston, in Puerto Rico, in the Virgin Islands, in California lose their homes, their loved ones and their sense of stability and community, we all feel it.

And so I want us to come out of this hearing today with a plan to diminish the suffering. We are dealing with massive stakes here. It is literally a matter of life and death. And at its core, that is exactly what this series on the effects of climate change is all about: life versus death. The choice is clear and we are determined to make the right one.

Thank you very much, and I now invite my colleague, the subcommittee's ranking member, Mr. Comer, to give a five-minute opening statement.

Mr. COMER. Well, good afternoon. And thank you, Chairman Rouda, for holding this hearing today.

This committee has a long history of bipartisan oversight when examining the Federal responses to major natural disasters. This includes work dating back to the examination of the response to Hurricane Katrina and more recent efforts just last year looking at reforms designed to enhance FEMA's ability to quickly and efficiently respond when disaster strikes.

In 2017, Hurricanes Harvey, Irma, and Maria hit the United States. Combined with wildfires in California, these natural disasters created an unprecedented demand for Federal disaster response and recovery resources. Geographical and other differences between the areas of the country most directly impacted by each event presented distinct challenges and required unique responses by local, state, and Federal responders.

Since 2017 hurricane season, officials from all levels of government, along with countless businesses and nonprofits, have worked to repair roads, remove debris, restore power, and rebuild communities.

I want to thank Mr. Currie from GAO for agreeing to appear today at this committee hearing. I look forward to hearing about changes and progress that FEMA has made in its effort to prepare for extreme weather events and help localities deal with their aftermath since Katrina and the 2017 hurricane season.

Of course, I am interested also in new steps at Federal agencies and we here in Congress can take to better prepare for and respond to natural disasters of all types, what policy changes will reduce future vulnerability, empower communities, and allow for quicker and more seamless recovery.

I also want to thank Dr. Curry and Dr. Mann for providing testimony to the committee today.

I think it is important to note it seems every major weather event in recent years is followed almost immediately by claims on cable news channels and social media that its occurrence is directly linked to climate change. This overheated rhetoric can serve as a distraction from focusing on the proper role of the Federal response to these disasters, which is why this hearing is convened.

It is clear from recent natural disasters that many parts of the country are very vulnerable to weather extremes. It is my hope that efforts to spur continued improvements in weather forecasting will lead to an ability for communities to better prepare. Still, natural disasters have been and will continue to be a reality of the world that we live in. Inevitably the United States will face another devastating storm or natural disaster. That is why advanced planning, informed by lessons learned from previous disasters is critically important.

With that, Mr. Chairman, I yield back.

Mr. ROUDA. Thank you.

Now I want to welcome our witnesses: James Lee Witt, former Director, Federal Emergency Management Agency; Christopher P. Currie, Director, Emergency Management Disaster Recovery and DHS Management Issues, Homeland Security and Justice Team, U.S. Government Accountability Office; Dr. Michael E. Mann, Distinguished Professor of Meteorology, Director Earth System Science Center, The Pennsylvania State University; and Dr. Judith Curry, President, Climate Forecast Applications Network.



Please stand and raise your right hands.

[Witnesses sworn.]

Mr. ROUDA. Please be seated.

Let the record show that the witnesses answered in the affirmative.

The microphones are sensitive, so please speak directly into them. Without objection, your written statement will be made a part of the record.

With that, Mr. Witt, you are now recognized to give an oral presentation of your testimony for five minutes.

**STATEMENT OF JAMES WITT, FORMER DIRECTOR, FEDERAL  
EMERGENCY MANAGEMENT AGENCY**

Mr. WITT. Thank you, Mr. Chairman, and Ranking Member Comer, thank you and the members of the committee. It is my privilege to appear before the committee today to talk about issues that are very important to our citizens and our communities. These issues involve how we work together to mitigate, prepare, respond, and recover from disasters. I have dedicated my professional and personal career working with communities on these issues. I had the privilege of serving as Director of FEMA from 1993 to 2001. President Clinton recognized that in the aftermath of a disaster, it was important that our citizens could count on the government to be there and help them when they needed it the most.

I came to FEMA during a time when this philosophy was not often followed. I was tasked to rebuild an agency that several Members of Congress called for abolishing after mismanagement and poor response performance in disasters like Hurricane Andrew and Iniki.

With strong support from Congress and the administration, we proceeded to reform and rebuild FEMA. We were immediately tested with the devastating Midwest floods of 1993. This flooding impacted nine states. We streamlined our operations. We responded well, but we want to engage individuals in a program that would prevent the economic and social dislocation caused by the flooding from ever happening again. With the support of Congress, we engaged local citizens in a voluntary program to buy out their homes in the floodplain. In Missouri alone, we bought out over 4,000 homes and one whole town. This town has flooded 41 times in its history. There were 18 businesses and 42 residences. And they all agreed to relocate on a hill. The only one that did not agree to relocate was the mayor. Throughout my time at FEMA, mitigation became the high priority. The idea was to prevent people and communities from becoming victims of disasters.

We initiated the program in 1997 called Project Impact: Building Disaster Resistant Communities. The program provided seed money to communities if they would take four simple steps: form a committee of all community-wide partners; identify their hazards; prioritize a plan to address each hazards; and communicate their actions to reduce the hazards. We started out with seven communities, and by 2000, we had 250 communities in this program. Congress gave me \$25 million for this program. We had communities wanting to join this program. They did not want any seed money.

They wanted us to help them build the public-private partnership to eliminate their risk.

The last summit we had in Washington for this program was in 2000, and there were 2,500 local officials and volunteers and partners that attended the summit. We had over 1,000 corporate and business partners participating like NASCAR, Home Depot, and many others. It was a very successful program. And one of the key supporters of this program was the private sector, and the financial support of mitigation projects was a major success.

And let me just say this in closing. When I was Director of FEMA working with all the state directors and we had 340 Presidential disaster declarations the eight years I was there, 93 floods, 94 earthquakes in California North Ridge, the 1995 bombing of the Murrah Building in Oklahoma City, plus numerous hurricanes and tornadoes in between.

And one of the keys that helped states move much faster in local communities was I put in a policy working with each of the state directors of emergency management where they would do their damage estimates and get them to us as quick as they possibly could with the request for a Presidential disaster declaration. We would advance them 50 percent of that estimate up front so they could get the debris removed, get contracts in place, and get to move because they are going to be audited anyway. And then we would go back in and work with them on damage assessments to see if it totaled to the amount that they gave us. It made a big difference in the recovery efforts. They could recover much faster and much easier.

One of the things that I think you could consider looking at because FEMA has a short-term housing program. HUD has the CDBG for the longer term. Look at how you could combine the CDBG program under FEMA—combine it with the short-term and long-term housing. I think that might help.

One of the things I would highly recommend, in closing, I that FEMA be brought out of Homeland Security as an independent agency again. There is too much red tape, too much bureaucracy, and it does slow down the process.

So thank you, Mr. Chairman and members of the committee.

Mr. ROUDA. Thank you, Mr. Witt.

And I would now like to recognize Mr. Currie for five minutes of oral testimony.

**STATEMENT OF CHRISTOPHER CURRIE, DIRECTOR, EMERGENCY MANAGEMENT, DISASTER RECOVERY AND DHS MANAGEMENT ISSUES, ON BEHALF OF U.S. GOVERNMENT ACCOUNTABILITY OFFICE**

Mr. CURRIE. Thank you, Mr. Chairman, Mr. Ranking Member. It is an honor to be here today to talk about GAO's past work on disaster preparedness, response, and recovery.

Since Katrina, we have done work in almost every area of FEMA's operations, and we have found that there has been major progress in a number of areas, but there continue to be some major challenges too. And unfortunately, the challenges and the risks we face as a country moving ahead are not going to make those challenges any easier. They are going to make them harder.

Two-thousand-seventeen was a historic year—that has been said many times—in terms of cost and impact. But I think it would be a mistake to look at that as a one-time event. Five-hundred-year floods seem to be happening every year. Wildfire seasons are getting longer. And frankly, our infrastructure is more expensive to repair. All of these things are leading to additional disaster costs.

Also, as state and local capabilities are overwhelmed by these events, the expectation for Federal assistance is only going up. Since 2005, we have found that the Federal Government has spent almost \$450 billion—that is approaching half a trillion dollars—on disaster response and recovery, and that is just not a sustainable path moving forward in the future, given our budget situation.

I would like to dive into some areas specifically on response. Our work on the 2017 disasters was a mixed story. In Texas, Florida, and California, what we saw was that years of reforms after Katrina, a lot of preparedness efforts and great coordination led to the ability to handle and deal with some very big challenges that happened with Harvey and Irma and the California wildfires. We were able to evacuate numerous victims out of wildfire zones, flood victims in Hurricane Harvey, and also restore power to 6 million people in Florida relatively quickly. That is the good news.

The bad news is in the territories and Puerto Rico and the Virgin Islands, we struggled. Frankly, FEMA struggled and the territories were overwhelmed and struggled themselves too. I want to be clear that FEMA has provided extensive levels of support in both places. They provided more dollars in Puerto Rico and the Virgin Islands together than all those other states I mentioned combined. But that just shows the size of the problem and the challenge that existed there.

So the other issue is the Federal work force that FEMA has had, longstanding challenges we have been pointing out for years on the inability to fully train the work force and retain the number of people we need to handle a situation. And 2017 really exposed some of those gaps. A number of our recommendations in that area continue to be open and are just as valid today as when we made them over five years ago.

I would also like to talk about recovery, which is where we are right now with the 2017 disasters. Anybody on this committee that has had a Federal disaster in their jurisdiction understands that these Federal recovery programs can be very complicated, time consuming, and frankly, very frustrating. We hear it all the time in our travels around to disaster locations and in talking to state and locals.

Just two weeks ago, we found in a report that FEMA could do a better job of helping elderly individuals and those with disabilities to more easily enroll in their programs.

And we continue to see problems and challenges with FEMA's public assistance grants. This is the largest pot of money that goes to rebuilding. It is one of the most complicated grant programs in government. It takes a long time for the money to get spent, and there is a lot of back and forth. So the lack of policies and procedures are confusing state and local officials and frankly delaying long-term public infrastructure projects from being implemented.

And I think this slowness is a frustration for both FEMA and the states and locals too.

The last piece I would like to end with is talking about what do we do moving forward with these major challenges. We and many others have talked about the importance of building disaster resilience. If we are going to spend this kind of money, how do we spend it in a way that we are not going to have to spend it again later rebuilding the same infrastructure, the same houses? But it has been a challenge. The Federal Government spends most of its disaster resilience dollars after a disaster, which means it goes only to locations impacted by that disaster and essentially means that mother nature dictates where we spend our resilience dollars. I think we need to change that.

There has been some progress in that area. The recently passed DRRR last year provided FEMA with an additional pot of money to allocate before a disaster hits so we can be more strategic about where we spend that money. Also, FEMA is starting to work on better plans to be able to invest those resilience dollars before the disaster hits so we know what to do and we are not just surprised after it hits.

So this completes my prepared remarks. I look forward to the questions.

Mr. ROUDA. Thank you, Mr. Currie.

Just a point of clarification. You said \$450 billion I think. What was that timeframe?

Mr. CURRIE. Since 2005.

Mr. ROUDA. Since 2005. And is that FEMA outlays only, or is that all costs associated with natural disasters in the U.S. during that timeframe?

Mr. CURRIE. That is Federal disaster recovery and response costs.

Mr. ROUDA. Okay. So no private insurance is involved—

Mr. CURRIE. Exactly, right.

Mr. ROUDA [continuing]. in that number whatsoever, as well as other infrastructure costs from local and state municipalities.

Thank you very much.

I now recognize Dr. Mann for five minutes of oral testimony.

**STATEMENT OF DR. MICHAEL MANN, DISTINGUISHED PROFESSOR OF METEOROLOGY, DIRECTOR, EARTH SYSTEM SCIENCE CENTER, ON BEHALF OF THE PENNSYLVANIA STATE UNIVERSITY**

Dr. MANN. Thank you, Mr. Chairman and members of the committee. My name is Michael Mann. I am Distinguished Professor of Atmospheric Science at Penn State University and Director of the Penn State Earth System Science Center. And I do have to say I feel a little bit today like I am at the center of curry sandwich.

[Laughter.]

Dr. MANN. Sorry.

The primary focus of my research is understanding earth's climate system. I am a fellow of numerous scientific societies. I was awarded the Hans Oeschger Medal of the European Geophysical Union in 2012, the Friend of the Planet Award from the National Center for Science Education in 2014, Stephen Schneider Award for

Outstanding Climate Science Communication in 2017, Award for Public Engagement with Science from the American Association for the Advancement of Science in 2018, Climate Communication Prize from the American Geophysical Union in 2018. And this year, I received the Tyler Prize for Environmental Achievement. I have authored more than 200 publications and four books. I am perhaps best known for my paleoclimate research two decades ago that produced the iconic or now iconic hockey stick curve, demonstrating the unprecedented nature of recent warming.

My research in recent years, however, has focused on extreme weather events. I would like to talk about the substantial progress that has been made in this area in recent years, and I would also like to emphasize we are using the term “natural disasters,” but in many cases there is absolutely nothing natural about the disasters we are talking about. We are not saying they have been caused by climate change. We are saying that climate change has worsened them. That is what the research says.

There is an emerging consensus, for example, now that we will see stronger and wetter hurricanes, and we are seeing them already. Hurricanes get their energy from warm ocean waters, and the oceans are warming from the buildup of greenhouse gases in the atmosphere from the burning of fossil fuels. The strongest hurricanes have gotten stronger. Over the past few years, we have witnessed the most intense hurricanes on record for the globe, both hemispheres, the Pacific, and as of the summer of 2017 with Hurricane Irma, the open Atlantic with Maria, a similarly strong and devastating storm coming just weeks later.

With the recent post-season upgrade and status, Michael, my namesake, is now established as the land-falling category 5 hurricane in U.S. history, having devastated parts of Florida, the Florida panhandle, when it made landfall last October. Warmer air holds more moisture. The amount of water vapor in the atmosphere has increased due to human-induced warming. That extra moisture leads to heavier rainfall. We know that rainfall rates and hurricanes are expected to increase in a warmer world, and we are living that reality now.

Sea level is rising because ocean water expands as it warms. Ice sheets melt as it warms. Sea level rise is accelerating, and storm surge from hurricanes now rides on top of higher seas to infiltrate further into our coastal cities.

Our own work has shown, for example, that the combined effect of global sea level rise and intensifying hurricanes has taken Superstorm Sandy—a Sandy-like storm surge from what would have been a 500-year event before we caused warming of the planet to a 25-year event. And if we continue with business as usual, burning of fossil fuels, by the middle of this century, it will become a five-year event. That means a Sandy-like storm surge on average once every five years.

Heavier rain and higher sea levels combine to cause compound flooding in major hurricanes. We saw this effect in play in the catastrophic flooding in 2017 with Harvey and in 2018 with Florence. Summer 2018 saw an unprecedented spate of extreme floods, droughts, heat waves, and wildfires break out across North America, Europe, and Asia. A warmer ocean evaporates more moisture

to the atmosphere, so you get worse flooding from coastal storms. Think again Hurricanes Harvey and Florence. Warmer soils evaporate more moisture into the atmosphere, so you get worse droughts.

Global warming shifts the extreme tail of the bell curve, so you get more temperature extremes, more frequent and intense heat waves. Think summer 2018 all around the northern hemisphere.

You combine heat and drought, it is not rocket science. You get worse wildfires, and think about what we are seeing in the western U.S.

Running climate models both with and without human impacts, we can investigate whether a particular event was likely to have been made more common, more frequent because of human-caused warming. And in that sense, we are able to attribute certain events to the extreme nature of these events to climate change. The scorching European heat wave last summer, according to one such attribution study, was made more than twice as likely because of human-caused warming. The record rainfall in North Carolina with Florence, according to another study, was increased by as much as 50 percent by human-caused warming.

Some of the impacts of climate change on extreme weather events, on the other hand, are too subtle to be captured by current generation climate models. In a study my co-authors and I published in the "Journal of Science Advances" recently, we identified a key factor behind the rise in extreme summer weather events, like the ones that played out in summer 2018. And it is not captured by current generation climate models. We showed that climate change is causing the meanders in the summer jet stream to become more pronounced, and they are tending to remain locked in place for longer stretches of time. Under these circumstances when, for example, a deep high pressure ridge, as we call it, is stuck in the western U.S., you get that extreme heat and drought and wildfires, while downstream you get a trough, what we call a trough, a low pressure center associated with the unprecedented rainfall that we saw over large parts of the eastern U.S. last year. We are seeing something very similar now happening right now this summer.

Well, climate change contrarians love to point to scientific uncertainty for justification for inaction on climate, but uncertainty is a reason for even more concerted action. We already know that the projections have historically underestimated the rate of ice sheet melting and the rate of sea level rise. And now it appears they are underestimating the increases in extreme weather associated with climate change because of processes that are not well captured in the climate models. Uncertainty is not our friend here.

The consequences of doing nothing grow by the day. The time to act is now.

Climate change is pain. Anyone who tells you differently is selling something, most likely fossil fuels.

Mr. ROUDA. Dr. Mann, I need you to conclude your comments.

Dr. MANN. Absolutely. There we are.

Mr. ROUDA. Excellent timing. And good luck with your new business venture of curry sandwiches, the next fast food trend.

Dr. MANN. I have two partners.

Mr. ROUDA. With that, I now recognize Dr. Curry for five minutes for oral testimony.

**STATEMENT OF DR. JUDITH CURRY, PRESIDENT, CLIMATE FORECAST APPLICATIONS NETWORK**

Dr. CURRY. I thank the chairman, ranking member, and the subcommittee for the opportunity to testify today.

I have devoted 4 decades to conducting research related to extreme weather events and climate change. As President of Climate Forecast Applications Network, I have been helping decisionmakers use weather and climate information to reduce their vulnerability to weather disasters.

The paradox of weather disasters is that they are at the same highly surprising, as well as quite predictable. We should not be surprised by extreme weather events when comparable events have occurred during the past century. The sense that extreme weather events are now more frequent or intense because of manmade global warming is symptomatic of weather amnesia.

The devastating impacts in 2017 from Hurricanes Harvey, Irma, and Maria invoked numerous alarming statements about hurricanes and global warming. However, it is rarely mentioned that 2017 broke an 11-year drought in U.S. major hurricane landfalls. This major hurricane drought was unprecedented in the U.S.'s historical record.

Of the 13 strongest U.S. land-falling hurricanes in the historical record, only three have occurred since 1970, Andrew, Michael, and Charlie. Four of these strongest hurricanes occurred in the single decade following 1926.

Recent international and national assessment reports acknowledge that there is not yet evidence of changes in the frequency or intensity of hurricanes, droughts, floods, or wildfires that can be attributed to manmade global warming. My written testimony cites chapter and verse from these reports regarding those specific conclusions.

The elevated wildfires in the western U.S. since the 1980's is partly caused by state and Federal policies that have resulted in catastrophically overgrown forests. Comparable levels of wildfire activity were observed earlier in the 20th century.

The U.S. National Climate Assessment Report recognized that the Dust Bowl era of the 1930's remains the benchmark period for extreme drought and heat in the U.S. historical record.

A few comments regarding projections of future extreme weather.

My company provides seasonal forecasts of extreme weather. For the 2019 hurricane and wildfire seasons, we expect an active hurricane season with substantial landfall risk, whereas we expect the western wildfire season to be relatively quiet. Up to at least 2050, natural climate variability is expected to dominate future hurricane variations rather than any warming trend. The most important looming factor is an anticipated shift to the cold phase of the Atlantic Multidecadal Oscillation. This shift is expected to overall reduce hurricane and wildfire risk for a period of several decades.

With regard to projections to 2100, models from the NOAA laboratory in Princeton show a substantial decrease in the number of hurricanes in response to global warming. Their models show an

increase of about 5 percent in the maximum intensity of Atlantic hurricanes. Owing to the large natural variability of Atlantic hurricanes, any influence of manmade global warming would not be noticeable for a number of decades.

Blaming extreme weather events on manmade climate change and focusing only on what to do after lives and property have been destroyed deflects from understanding and addressing the real sources of the problems, which in part includes Federal policies. Possible scenarios of incremental worsening of weather and climate extremes do not change the fundamental fact that many regions of the U.S. are not well adapted to the current climate regime. We have an opportunity to be proactive in preparing for weather disasters. Rather than focusing on recovering from extreme events, we can aim to reduce future vulnerability by evolving our infrastructures, policies, and practices. Adaptation strategies that promote probability protect against extreme weather events while at the same time providing other benefits to human or natural systems.

Apart from addressing infrastructure issues, improvements to Federal and state policies can substantially reduce the damage from wildfires and land-falling hurricanes.

Further, tactical adaptation practices incorporating tailored weather forecast products can help mitigate the damages associated with extreme weather events.

Places that find solutions to their current challenges associated with weather disasters will be well prepared to cope with any additional incremental stresses from future climate change.

This concludes my testimony.

Mr. ROUDA. Thank you, Dr. Curry.

At this time, the chair recognizes the Congresswoman from California, Katie Hill for five minutes.

Ms. HILL. Thank you so much, Mr. Chairman.

And thank you all for being here today.

In 2017 and 2018, California experienced the two deadliest wildfires in the state's history, and as the chairman mentioned, one of them was right in my district and in my back yard.

Due to climate change, these wildfires in the American West will burn longer and stronger as time goes on. Dan Costa, the former Director of the Air, Climate, and Energy Research Program at EPA has said—and I quote—there are no longer wildfire seasons. There are just wildfires all the time. And we see that at home every day.

And this reality brings with it unprecedented challenges for Federal disaster response.

So my question is, Mr. Currie, what challenges has FEMA faced that are unique to wildfire response as opposed to, say, hurricane response.

Mr. CURRIE. A great question. I think one of the things that has happened over the last five years, we have seen more actual Federal declared disasters for wildfires than we have seen in the many years prior to that. And so that just opens up a whole other level of programs and resources that FEMA brings to bear.

A great example is housing. FEMA is responsible in a federally declared disaster for providing short-term housing for survivors. In California, we had problems that we have not faced in other parts of the country. The traditional housing options like trailers, short-



term rentals, even hotels were just not an option because they do not exist. You cannot put them in those locations, or frankly, rental properties are extremely expensive. So the wildfire issue, particularly in California, is forcing FEMA and the rest of the Federal Government to rethink how it does post-disaster housing. That is just one example.

Ms. HILL. Thank you.

And then I guess, Mr. Witt, just to sort of followup on that, during your tenure as FEMA administrator, what role did the agency play in wildfire response, and what percentage of your resources would you say you spent on wildfire response? I am looking for kind of a comparison over time.

Mr. WITT. One of the things that we tried to do—I do not know how successful it was, but we started trying to implement a dead fuel brush removal program, which would eliminate the intensity of a fire. But most of the land out there is U.S. Government land with the exception around some homes.

One home in the Laguna Beach fire that Governor Wilson at that time and I was at was up on top of a mountain, and he had put clay tile roofs on. He extended the eave of the house over four feet out. He put fire-resistant siding on, and he planted fire-resistant shrubs with the rock and the gravel and stuff around his house. His house was the only house that survived that wildfire.

So there is ways we can mitigate it. There is ways that we can keep people from becoming victims. In one of the cities out there, Oakland, I was at with Mayor Brown at the time, there was a wildfire there that had burnt 300 homes, and this community came together and built back. And everything in that community was built fire-resistant, even less grass, more rock, more fire-retardant shrubbery. And they had a box at the corner of every block. And they did it right.

Ms. HILL. Thank you. I just do not have a whole lot of time left.

But, Mr. Currie, FEMA has issued an after-action report regarding the agency's preparations in response to the 2017 hurricane season. Are you aware of a similar report being done by FEMA regarding the agency's preparations in response to the California wildfires in 2017 and 2018?

Mr. CURRIE. Yes, ma'am, I am. I believe it was actually issued just last week or finalized last week.

Ms. HILL. Great. So we can expect to be seeing it soon.

Mr. CURRIE. Well, you have to ask FEMA for that, but yes.

Ms. HILL. But you believe it is important for that report to be released.

Mr. CURRIE. Absolutely because the after actions are going to be very, very different from the after actions from water-related events and hurricanes.

Ms. HILL. Of course. I want to make sure that we see that, and I do know that the GAO is also examining issues related to FEMA's response.

Mr. Currie, GAO is conducting a review of FEMA's response to six wildfires between 2015 and 2018. At the current moment, how would you assess FEMA's state of preparedness for the 2019 wildfire season?

Mr. CURRIE. Well, let me just say I think from a response perspective—and we have talked to—I know they are sitting behind me—the state of California about this and several counties in the fire-affected regions. You know, we hear great things about FEMA’s coordination and preparations and response. The state and local officials tell us that FEMA is there. They give them all the support and the help they need.

I think the challenge area that we see is really when you get into recovery. For example, I mentioned the housing issue earlier. Debris removal has been a massive challenge with fire because unlike on the east coast with hurricanes, you cannot just move the house and start rebuilding right away. You have to excavate. It is toxic soil after a fire. So the debris removal challenge was a huge problem. So I think they are still working through a lot of these recovery challenges.

Ms. HILL. I am all too aware of the housing crisis in California on so many fronts.

But anyway, thank you all so much for your time.

And I yield back.

Mr. ROUDA. Thank you.

I now recognize Representative Comer for five minutes of questioning.

Mr. COMER. Thank you, Mr. Chairman.

My questions will be directed to Dr. Curry. Dr. Curry, the majority released a memorandum explaining the purpose of this hearing, and it states the following. I want to read this to you. Quote: due to climate change, the number of hurricanes that reach categories 4 and 5 in strength has roughly doubled since the 1970’s. And, quote, there are no longer distinct wildfire seasons. There are just wildfires all the time. End quote.

Do you agree with the claims stated in the majority memo, and do you think the existing scientific evidence supports those claims?

Dr. CURRY. With regard to the doubling of the number of category 4 and 5 hurricanes, I was actually a co-author on that paper in 2005 by Webster, et al. Since that time, serious issues have been raised regarding the quality of the data in the earlier part of the record, particularly prior to 1988. So most scientists are disregarding that earlier data.

The big jump really occurred between the 1970’s and 1990’s. So if you throw out the earlier data, you no longer have much of a jump.

A recent article by Klotzbach and Landsea dated that with more 10 more years of data, and they found a very small increase in the percent of category 4 and 5. If you add 2015 and 2016, which their study did not include, the numbers bump up because of a very big El Nino year really juices the Pacific hurricanes, which are more than half.

So basically in understanding this we are hampered by not having a long enough data record to really interpret what is going on.

Mr. COMER. Dr. Curry, what do recent international and national climate assessment reports have to say about the links between manmade climate change and wildfires, hurricanes, floods, and droughts?

Dr. CURRY. Well, I cited this in my written testimony. Specifically with regard to the U.S., the National Climate Assessment based on the historical record did not find links between flooding, heat waves, hurricanes, wildfires, and so on basically by virtue of there being periods earlier in the 20th century with at least as bad statistics, in some cases much worse, like the 1930's for heat waves and droughts.

Mr. COMER. You have used the term "weather amnesia" as a way of describing the current public statements among some scientists and politicians that extreme weather events are now more frequent or intense and attributable to manmade global warming. Can you discuss what you mean when you use the phrase "weather amnesia"?

Dr. CURRY. Well, people forget, and it does not even take long for them to forget. We had a bad tornado spring this year, a lot of tornadoes, but nothing particularly unusual with regards to previous years. And between 2012 and 2018, the tornadoes were way below average. Then all of a sudden, we get one bad year and it is global warming. The 1980's and—the 1970's and 1980's was a very benign period for bad weather. But you do not have to go back too far to get some seriously bad stuff in the 1950's and the 1930's and so forth.

Mr. COMER. My last question on this series. I wanted to mention the California wildfires. I own a lot of forestland in Kentucky. It is private land. We manage our forestland. We do not have forest fires out there. I say that, and I will get a call saying I have got a fire on some of my land right now.

Many people have suggested that a big part of the problem in California wildfires is the lack of forest management, the fact that there is so much debris underneath the trees that fuels the intensity of the fire. Mr. Currie made the statement that most of that land is Federal land. So there are a lot of rules and regulations that prevent forest management.

I just wanted to know your thoughts on that.

Dr. CURRY. Well, I have heard—one of my clients, who is an emergency manager for a regional power provider, went out to California to consult with Pacific Gas and Electric after all that. And he said the whole state is a tinderbox. I mean, you cannot remove any—even if a tree falls over and dies, you cannot remove it. So all of that fuel builds up, and of course, it is going to blow. Okay. So there must be some regulations that can be changed so all that can be cleared out.

When I announced that I was testifying in this hearing, I got emails from several firefighters in California who emailed me and said tell them it is not climate change. It is these crazy regulations allowing people to build houses where they should not, allowing all this wood to buildup. We need to do something. I mean, blaming this on climate change is just sort of wasting everybody's time in trying to deal with this.

Mr. COMER. Thank you.

Mr. ROUDA. Thank you.

I now recognize Congresswoman Tlaib for five minutes of questioning.

Ms. TLAIB. Thank you, Mr. Chairman.

Thank you, the panelists, for being here.

In March 2018, under the leadership of former FEMA Administrator Long, FEMA eliminated all references to climate change from its four-year strategic plan.

Back in Michigan's 13th congressional district that I proudly represent, we know climate change is happening. We see it all the time. We have had one of the wettest years on record with widespread flooding across my district, which has, recently this year, forced the Governor to declare a state of emergency.

So just to make sure—this is a question for all of you all on the panel—is there anyone on this panel who believes climate change is not currently happening?

[No response.]

Ms. TLAIB. Okay. That is wonderful. Everyone on this panel believes climate change is occurring, and yet FEMA removed all references to it in its plan for the next four years. The decision concerns me greatly. An agency tasked with responding to natural weather-related disasters cannot remove all references to changes in climate and expect for you all to do your job or for the Department to do their job. FEMA pretending climate change does not exist is not an action plan.

So, Mr. Witt, as a former Director of FEMA, and Dr. Mann, as a climate scientist, does it concern you that FEMA removed climate change from its strategic plan? And is it important for FEMA to commit to incorporating climate change in their long-term planning?

Mr. WITT. I think climate change is a big part of what we are seeing today. Last month, the month of May, we had 500 tornadoes. A year ago May, there was 240. We just had a historic river flood on the Arkansas River. It was the biggest flood since 1945, 16 to 18 feet higher than it crested in 1945. We see at my farm we got 6 inches of rain in two hours, which has never happened. We have seen 10 to 20 inches of rain in Iowa and Oklahoma and in the Midwest. And it is causing an extreme amount of flooding. So we are facing the sea level rising, everything from California to the east coast. That is part of climate change. Our ocean is warming. We are having more hurricanes because the ocean is warming and they are much stronger and much more devastating.

So, yes, I believe it is happening.

Ms. TLAIB. Do you think this affected FEMA's effectiveness in responding to natural disasters when they chose not to consider climate change when developing a strategic plan?

Mr. WITT. I do not think it affected their response to disasters. I think it affects them in the way of the long-term planning and how to mitigate it for the future. So that has to be a qualifier.

Ms. TLAIB. And, Dr. Mann?

Dr. MANN. Yes. I wanted to correct a number of fallacies that we have heard today when it comes to the connection between climate change and extreme weather events.

First of all, you sometimes hear this myth about there having been a supposed hurricane drought, and there is some sleight of hand going on there because what is going on—Superstorm Sandy was a strong category 3 and then weakened to a category 2 hurricane off the U.S. east coast. Now, it did go, as they say, extra-trop-

ical. It technically was no longer a hurricane when it made land-fall, but it was spinning off the east coast for several days as a strong hurricane building up a very large storm surge. And as we know, it was the storm surge that was so devastating to the Jersey coast and to New York City. So it is extremely misleading when you hear statements like that.

And, of course, Michael, my namesake, is one of a very small number of land-falling category 5 hurricanes. It is the latest—the latest in the season we have ever seen that. So there is a clear climate change—

Ms. TLAIB. Absolutely. And thank you, Dr. Mann. I will tell you misleading comments seem to be a norm here, and I am making sure that I do not allow anybody to think it is normal to mislead. It is the same thing as lying.

On June 14, 2019, emails obtained by the Environmental Defense Fund clearly show the culture of climate denial in the Trump White House. William Happer, a member of the President's National Security Council and the chair of the reported White House Panel, convened solely to question the scientific evidence on climate change, sent emails to the Heartland Institute, a climate change denying interest group, that he wanted to figure out a way to make his ideas, quote, more useful to a wider readership.

Mr. Happer also emailed NASA Administrator Jim Bridenstine to say that NASA should, quote, systematically sidestep the science on global warming.

So, Mr. Chairman, if I may, I would like to enter these emails into the record.

Mr. ROUDA. So moved. Without objection.

Ms. TLAIB. I wish this was not shocking, but unfortunately, this is part of the course of this administration and the White House and the fossil fuel dark money groups conspiring to deny reality and build a misinformation campaign designed to threaten the future of our children.

And so with that, I yield the rest of my time and thank again all of you for your important conversation on this.

Mr. ROUDA. Thank you.

The chair now recognizes Congressman Higgins for five minutes of oral questioning.

Mr. HIGGINS. Thank you, Mr. Chairman.

Mr. Currie, you mentioned in your opening statement—you referred to disaster resilience and pre-mitigation investment. And, Mr. Witt, you strike me as a gentleman of great common sense and background.

I ask you each. Is it a wise investment of the people's treasure as we look forward regarding response to disasters, that as a nation we invest in pre-mitigation strategy and disaster resilience as opposed to a proactive response and a post-disaster response? Generally speaking, would it be a wise investment of the people's treasure for us to shift the strategy? Yes or no, you two gentlemen?

Mr. CURRIE. I can start. I think all of them are important, but I think what we have found—and I know it is something you understand living in Louisiana—that we are already spending the money as a Federal Government after the disaster strikes.

Mr. HIGGINS. And again, I thank you and I have limited time. But just, generally, do you agree that as a Congress, we control the people's treasure? We control the purse. Should we place a greater emphasis on pre-mitigation disaster resiliency preparedness?

Mr. Witt?

Mr. WITT. Yes, sir.

Mr. HIGGINS. Thank you very much.

Dr. Curry, you had explained your position on forest management. Many of us agree. Essentially we have allowed fuel to accumulate at the base of our forests, especially on Federal lands. And we are seeing tremendous forest fires as a result.

The reference reminds me of after Hurricane Harvey, I deployed with civilians into Texas in rescue operations. And the last gentleman that we rescued was on a Thursday night that I was able to participate in—I had to return to Louisiana. It was about 2 o'clock in the morning. We rescued an elderly gentleman. And when he found out that I was a Congressman, because I certainly did not look like one and needed to shower, he came to me and wept. He said, Congressman, I have lived in my home since 1968. He said we have never flooded. He said I have seen this much water fall, but I have never seen this much water rise.

And this made it crystal clear to me that as a Nation, at the local, state, and Federal level, we have failed to maintain our water management systems. My office has since placed a great emphasis on this successfully. God is not dropping more water on us it seems to me, but we as a nation have failed to maintain our systems.

In forest management, it is a similar story. You have homes burning not because lightning is striking more often or because people are more careless with fire. It is because we have allowed this fuel to accumulate, and we should respond to that as a nation with common sense.

Regarding the occurrence of natural disasters as is perhaps related to climate change, on a geological timescale I ask any of you, referring to my colleague's question, has there ever been a time in earth's history according to earth science—yes or no. According to the geological record and earth science, has there ever been a time in earth's history when the earth was not experiencing climate change? Is anyone going to say no to that?

[No response.]

Mr. HIGGINS. I will take that as a yes.

So there is certainly sufficient record to show that the window where we are looking at here—call it 100, 150 years—is very narrow. Regarding communications and awareness, right now, we all have instant communications worldwide. One-hundred-fifty years ago, how would an American in California know that Louisiana had experienced a hurricane? Or how would an American in New York 150 years ago know that Americans in California had experienced wildfires? There is a great deal of time difference regarding the acknowledgement of these events.

So as a Congress, it is our job to respectfully listen to the wisdoms that are presented to us from both sides of this argument. And I suspect that the truth lies somewhere within the middle.

Dr. MANN. Could I answer your question?

Mr. HIGGINS. Which question, sir?

Dr. MANN. You just asked about how we know about the past history of hurricanes and wildfires.

Mr. HIGGINS. No, I did not ask that.

Dr. MANN. You certainly implied that.

Mr. HIGGINS. It is my time and I reclaim it.

Dr. MANN. Thank you.

Mr. HIGGINS. So I would just say, Mr. Chairman, thank you for holding this hearing and let us move forward with sober minds as we invest the people's treasure and respond. Thank you, sir.

Mr. ROUDA. Thank you.

I now recognize Congresswoman Ocasio-Cortez.

Ms. OCASIO-CORTEZ. Thank you.

Dr. Mann, I will let you respond.

Dr. MANN. Thank you very much.

With regard to hurricanes, I actually co-authored an article in the journal "Nature" about 10 years ago where we used geological information from what are known as sedimentary deposits, overwash deposits left behind by ancient hurricanes. So we can actually reconstruct the history of land-falling hurricanes along the U.S. east coast, along the Caribbean. And so we have this rich archive of information that tells us that in fact the increase in intensity that we are seeing today does appear to be without precedent as far back as we can go.

With regard to wildfires, a group of tree ring specialists a few years ago reconstructed the history of wildfire as well as drought in California. And their finding is that both the increase in wildfire and the drought, the epic drought that we saw in California over the last decade, are without precedent as far back as those records go, more than 1,000 years.

Let me also, if I may, comment on this claim that—

Mr. HIGGINS. If the gentleman will yield, Mr. Chairman. Since Dr. Mann is responding to a question I did not ask—

Ms. OCASIO-CORTEZ. Sorry. I reclaim my time. It is my time. Thank you. I reclaim my time.

Mr. HIGGINS. I ask the gentlelady to—

Mr. ROUDA. The chair recognizes Ms. Ocasio-Cortez.

Mr. HIGGINS. I did not ask that question.

Ms. OCASIO-CORTEZ. Thank you. And, Mr. Chair, I would like to—

Mr. HIGGINS. Dr. Curry should be allowed to respond.

Mr. ROUDA. The chair recognizes Congresswoman Ocasio-Cortez.

Ms. OCASIO-CORTEZ. Thank you.

Mr. ROUDA. This is her time, and her time will be restored due to the interruption.

Ms. OCASIO-CORTEZ. Thank you so much, Mr. Chair. I appreciate it despite the attempts to take my time away where there is no statute in the rules where that is appropriate or acceptable.

Mr. HIGGINS. I believe that did not happen.

Ms. OCASIO-CORTEZ. I will move on.

So the Puerto Rican island of Vieques is located nearly eight miles from mainland Puerto Rico. In the aftermath of Hurricane Maria, my grandfather died. And the island of Vieques is where 9,000 American citizens live. These Americans are still suffering

today almost two years after Hurricane Maria devastated the island.

On November 29th, 2017, more than two months after Hurricane Maria, an individual whose name has been redacted emailed Michael Byrne, FEMA's lead official in Puerto Rico. This person wrote—and I quote—we have limited to no communications. Without the grid, no cell tower or land line is available. Internet service needs power, and like it or not, this is the means of global communication. Our water system is currently run on emergency generators. The key word here is “emergency.” They need regular power. Without potable water and proper sewage treatment, we will get sick.

This email was then forwarded to what appears to be a different individual's email address. And the FEMA administrator at the time, Brock Long, was copied on this email.

The second individual writes, I know you have had a rough time in Houston, but at least you had competent people in charge of the response. We have incompetent people in charge here and are getting no response to our urgent needs, first of all, restoration of power.

Mr. Witt, if you were leading FEMA's recovery to Hurricane Maria, what would have been your plan for addressing electrical outages on the island of Vieques?

Mr. WITT. Well, I was not in place at the time that it happened and was not coordinating in the response.

But let me just share this with you. Hurricane Marilyn that hit the Virgin Islands—I flew down there and it destroyed power, water, infrastructure, airport. And we were able to get things up and running extremely fast.

Ms. OCASIO-CORTEZ. Thank you.

I also want to ask you about the island of Vieques' only hospital, which was destroyed during the storm and to this day has not yet been rebuilt. The “New York Times” published a story in April of this year that reported that pregnant women in Vieques were forced to travel by boat or plane to the, quote, big island 8 miles away to give birth, while dialysis patients had to travel three times weekly by boat or plane for more than a year after Maria hit. According to that same “New York Times” report, the hospital remains to this day, quote, a shuttered wreck of rust and mold.

Mr. Witt, when you were the leader of FEMA, was it a priority for you to rebuild hospitals destroyed by hurricanes?

Mr. WITT. Yes, it was. Earthquakes as well. There is a company that we work with actually looking at Mozambique right now that can fly in a hospital that they set up. It is a 500-bed hospital, as well as mobile clinics.

Ms. OCASIO-CORTEZ. Thank you.

And is there anything FEMA could be doing now that it is not currently doing to help rebuild critical infrastructures like hospitals in Puerto Rico?

Mr. WITT. You know, I have been to Puerto Rico several times since the hurricane and done some work down there, particularly in the housing, as well as the energy side. You know, it hard for me to answer that question by not being there in the middle of it.



Would I have done it different? I do not know. I cannot tell you because I have not really looked at the problems or what happened there.

Ms. OCASIO-CORTEZ. I understand. Thank you very much.

I yield the rest of my time to the chair.

Mr. ROUDA. I am sorry. Did you yield back? The chair grants you an additional 30 seconds.

Ms. OCASIO-CORTEZ. Thank you very much.

Mr. Witt—or rather, Dr. Mann, as climate change worsens, we know through scientific consensus and modeling that more environmental disasters are to come. Correct?

Dr. MANN. Absolutely.

Ms. OCASIO-CORTEZ. And, Mr. Witt, FEMA is—as its name implies, it is the Federal emergency management agency. Its primary responsibility is in the short term and emergency management of natural disasters. Correct?

Mr. WITT. It is short-term and long-term.

Ms. OCASIO-CORTEZ. Short-term and long-term.

Do you believe that the agency is fully resourced and is actively planning for the full-term transition of the United States infrastructure to accommodate for sea level rises and other changes brought by natural disasters and climate change?

Mr. ROUDA. The time has expired, but you can answer the question.

Mr. WITT. I think that there is a lot that needs to be done, as Mr. Currie had said earlier, particularly on the training side of employees and new employees that has come on board. We had a very, very important training program when I reestablished FEMA and rebuilt it. And I think also that with the amount of people that they have on board now, which I had 2,600 employees, full-time employees—and I think they have got almost 9,000 now. But they have had 220 Federal disasters in two years. I had 340 in eight years. So you can tell that it is changing very quickly and climate change is a big part of it.

Mr. ROUDA. Thank you.

The chair now recognizes myself for five minutes of questioning.

And I would like to start with just making sure we level set here. There has been some discussion, as the ranking member suggested, that after a natural disaster or a significant storm, that there is media that says it occurred because of climate change. And hopefully that is not happening, and I have not seen anybody actually say that. So I would agree with him, if it is being said, that is incorrect.

But what is correct is that climate change is causing storms and weather events to be bigger, badder, meaner, and more often. Is there anybody on the panel that disagrees with that comment?

Dr. Curry does not agree with that comment. So, Dr. Curry, if I understand your testimony correctly, you are suggesting that there is either no evidence of human-caused climate change or insufficient evidence of human-caused climate change. Is that correct?

Dr. CURRY. No. I thought your question was specifically with regards to natural disasters and extreme weather events.

Mr. ROUDA. Well, let me ask you, do you believe that humankind is causing climate change?

Dr. CURRY. As a scientist "believe" is not in my vocabulary.

Mr. ROUDA. Do you have scientific data that supports the belief?

Dr. CURRY. No.

Mr. ROUDA. The outcome, the evidence.

Dr. CURRY. No. I provide assessments of—

Mr. ROUDA. Would you agree that if we doubled the burning of fossil fuels, that that would arguably increase temperatures faster in our atmosphere?

Dr. CURRY. Sure. The question is how much relative to natural variability. That is the big question.

Mr. ROUDA. Agreed. There is natural variability.

But, Dr. Mann, what would your take be on that? Is there a point where we can agree that burning of fossil fuels impacts climate change and global warming?

Dr. MANN. And despite what Dr. Curry has said, there is in fact a robust consensus, and the various assessment reports she referred to actually demonstrate that there is a detectable human impact on these natural disasters, on hurricanes, on wildfires, et cetera.

Now, when she talks about these natural cycles and she referred to the Atlantic Multidecadal Oscillation, well, I coined that term more than a decade and a half ago. And it is based on research that I published at the time.

More recent research by my group and myself has shown that what many of these scientists are attributing to a natural cycle is in fact just the impact of humans on the climate, but the irregularity—because we had an increase in blocking of sunlight from pollutants in the 1950's through the 1970's, so there was sort of a plateau in warming. Then it accelerated when we passed the Clean Air Act. So if you subtract off a line, you get what looks like an oscillation left over, but it is not a real oscillation. It is the irregularity of our impact.

Mr. ROUDA. You mentioned the Clean Air Act. I am just curious because I want to have the testimony here. Climate change, global warming aside, is there anybody here that does not think that renewables over fossil fuels would improve the air and the health of Americans?

[No response.]

Mr. ROUDA. Well, that is good to see.

So, Mr. Currie, let me turn to you next. Can you elaborate more on just a better understanding of the economic and human impact due to climate change and global warming as we continue with the hockey stick that Dr. Mann has pointed out?

Mr. CURRIE. Yes, sir. Well, at GAO, we are the auditors of the Federal Government. So we approach this from the issue or the perspective of the fiscal exposure that climate change risks present to the Federal Government. And when I say the Federal Government, ultimately I also mean the taxpayer. So I will give you a couple examples.

Disaster aid is one I talked about. I mentioned the \$450 billion, taxpayer money, that goes from the Federal Government to state and local entities to help response and recovery.

But it is not just disaster aid. National Flood Insurance is backed by the U.S. taxpayer. It is \$21 billion in debt. They owe the Treasury \$21 billion, and that is after almost \$16 billion was erased last year. It is an insolvent program. It does not take in enough money to cover its costs. The same with crop insurance.

The list goes on and on in terms of the Federal Government's stake in this from a financial perspective.

Mr. ROUDA. And we are actually seeing conversations taking place right now on Wall Street that is asking that certain bonds take into effect the inherent risk of climate change. So they certainly are seeing the impact that climate change, human-caused climate change, can have on municipalities.

We are also seeing the insurance industry and the real estate industry looking at the potential impact on future home sales, future home building, the ability to insure those homes in certain areas, which is going to layer in additional economic costs. Often it is not going to be factored in to what we look at when we look at the impact of these storms.

I have got a few seconds here left. Dr. Mann, I would just like to ask you are there any other inconsistencies in the testimony you would like to address?

Dr. MANN. Yes. I want to talk about the issue of wildfires because there was this claim made that most of the increase in wildfires—in fact, I believe it was our President who claimed that it was just a matter of needing more rakes at some point. And we heard sort of a semblance of that claim earlier here in this room today.

There are scientists who have very carefully looked at the impact of changing land use patterns, changing fire suppression practices, and the impact that both those factors and the human-caused factor of climate change has played. And what they conclude—if you look at the tripling—and yes, there has been a tripling in the extent of wildfire in the western U.S. over the past few decades—no more than half of that can be explained by any of these other factors. At least half of it is due to the warming and the drying and the perfect storm that that creates for these massive, very fast-spreading wildfires.

Mr. ROUDA. And prior to the invention of rakes, what did human-kind do with these forests?

Dr. MANN. Slash and burn.

Mr. ROUDA. Thank you.

That concludes my questions.

I would like to thank the first panel for their testimony, and you are free to go.

As the witnesses are switching out, please be aware that you may receive additional written questions for the hearing record, and we would appreciate your prompt and thorough response.

We are going to take a short break, and then we will welcome our final witnesses and get started again. So let us be back together in about two minutes.

Again, thank you very much for being here today.

[Recess.]

Mr. ROUDA. Well, good afternoon, everyone. Thank you for the quick change-around in the final witnesses here, and thank you for your patience.

We have with us Stephen Costello, Chief Recovery Officer of the city of Houston; Adrienne Williams-Octalien, Director, Office of Disaster Recovery, Virgin Islands Public Finance Authority; Mark Ghilarducci—hopefully I got that right—Director of California Governor’s Office of Emergency Services; and Omar Marrero, Executive Director, Central Office for Recovery, Reconstruction, and Resilience, Commonwealth of Puerto Rico.

Please stand and raise your right hands, and I will begin by swearing you in.

[Witnesses sworn.]

Mr. ROUDA. Let the record show the witnesses answered in the affirmative.

Microphones are sensitive, so please speak directly into them.

Without objection, your statement will be made part of the record.

With that, Mr. Costello, you are now recognized to give an oral presentation of your testimony for five minutes.

**STATEMENT OF STEPHEN COSTELLO, CHIEF RECOVERY  
OFFICER, CITY OF HOUSTON**

Mr. COSTELLO. Thank you. Good afternoon, Mr. Chairman and honorable committee members. My name is Stephen Costello for the record. I am the Chief Recovery Officer for Houston’s Mayor Sylvester Turner. Thank you for the opportunity to testify today.

I have provided the committee written testimony. As such my statement today is really going to be some highlighted issues.

First of all, to talk a little bit about Houston. Houston historically has experienced flooding generally six to eight years on occasion and isolated because Houston is such a very large city of over 620 square miles. As such, because of the infrequency of flooding, drainage infrastructure investment was never a priority until 2015, 2016, and Harvey in 2017 where Houston had experienced 500-year floods all three years. The hurricane particularly had impacted not just an isolated area of the city of Houston but the entire city. And now our people live in fear every time there is a forecast of rainfall.

This leads us to the main question of today’s panel. Are we safer today than we were pre-Harvey? And the answer is a resoundingly no. This assessment is based on recovery efforts and the Federal process that I will highlight in my testimony.

But in the interim, the city has taken the lead toward resiliency consistent with Mayor Turner’s goal, and I quote. We cannot just build back for future failure. We must build forward for more resilience.

And before I expand upon the challenges of recovery and Federal process, I want to highlight what the city has been doing since Harvey.

So post Hurricane Harvey, we have implemented some of the most restrictive flood plain development ordinances in the Nation, requiring all new structures to be constructed 200 feet above the 500-year flood plain, which is contrary to FEMA’s minimum standards of 1 foot above the 100-year flood plain. If these rules were

in place prior to Harvey, over 84 percent of the homes that flooded during Harvey would have been protected.

We have also revised our design criteria relative to detention and drainage for future development and its impact on its neighbors. In 2018, the voters of the city of Houston passed and reauthorized a \$6 billion funding for urban infrastructure, specifically geared toward drainage. And in that same year, \$2.5 billion was approved by the residents of Harris County of which encompasses the city of Houston for flood damage reduction.

The city has also developed a green infrastructure incentive program to encourage developers to build green infrastructure. We are in the process of preparing a climate action plan, and we are working on a citywide resiliency plan.

So those are what the city is doing to try to get to resiliency because we know we have to do our part. We cannot rely on the Federal Government.

My following comments, however, are going to relate to the progress of recovery.

Houston interfaces with two primary Federal agencies in the recovery process: HUD and FEMA. And my comments now are just going to be focusing on FEMA. But I do want to say this on behalf of Mayor Turner. We really appreciate the role the Federal Government plays during a disaster, and we want to thank FEMA for everything that they have done.

But I want to talk specifically about public assistance. FEMA's public assistance program allows for reimbursement of debris removal, emergency response activities, repair, reconstruction, and mitigation efforts on city-owned facilities. However, multiple reviews, extensive document verification on concurrence of dollar amount and scope of work presents major delays in obtaining these dollars for recovery. We have estimated over \$2 billion of impact to our facilities, and as of today, only \$336 million are in process. But please note that of the \$336 million, \$160 million was advanced to us immediately after Harvey for debris removal and for sheltering, which is what Mr. Witt had described that FEMA had changed their policies years ago for that, and we appreciate that. But that being said, in 22 months, we have only processed an additional \$22 million of recovery. So when we talk about FEMA long-term, we describe it to our community as long-term investment. It is not going to be 1 or two years. It is going to be five or six.

The other program that FEMA has is the hazard mitigation grant program. And in September 2017, FEMA had given the state of Texas \$870 million for hazard mitigation grant projects. To date, we have yet to get \$1 for the city of Houston. We have three projects that have been in the process of getting work done, getting scopes approved so that we can start the work effort. The way the Federal Government can help in this process is to allow applicants to do pre-award activity, to allow applicants to do phasing of construction because the process in hazard mitigation is focused primarily on two phases. You design an entire project and permit it, and then you go to construction where a lot of these projects can be phased, particularly when you are in the time zone relative to getting these projects done within a 36-month period, particularly when you are seeking right-of-way and acquisition of property.

So I will conclude my testimony there and look forward to further questions. Thank you, Mr. Chairman.

Mr. ROUDA. Thank you, Mr. Costello.

The chair now recognizes Ms. Williams-Octalien for five minutes of oral testimony.

**STATEMENT OF ADRIENNE WILLIAMS-OCTALIEN, DIRECTOR,  
OFFICE OF DISASTER RECOVERY, ON BEHALF OF VIRGIN ISLANDS PUBLIC FINANCE AUTHORITY**

Ms. WILLIAMS-OCTALIEN. Good afternoon, Chairman Rouda, Ranking Member Comer, and members of the committee. I am Adrienna Williams-Octalien, and I am the Director of the Office of Disaster Recovery in the Virgin Islands. And I do thank you for the opportunity to provide testimony this afternoon on the status of the recovery from our 2017 Hurricanes Irma and Maria and the challenges that climate change poses to preparedness and recovery.

The 2019 hurricane season is one that is being faced with great trepidation, and the residents of our territory are armed with a greater understanding of preparedness. We are still vulnerable and aspects of the infrastructure are still compromised.

The Virgin Islands Territorial Emergency Management Agency, VITEMA, began preparedness efforts and they have validated shelters and confirmed the availability of commodities and delineated plans for dissemination of resources in the aftermath of any event that we may face. Governor Albert Bryan, Jr. has issued a directive to all of the agency heads, particularly the leads of the emergency support functions, to ensure readiness for this hurricane season.

The Virgin Islands Office of Disaster Recovery was established in February 2019 and serves as the center of coordination for all recovery efforts. Efforts are at full bore to bring our critical infrastructure and facilities online. To date, we have opened the temporary facilities at the Myra Keating Clinic on the island of St. John. We are working to finalize the temporary facilities at the Juan F. Luis Hospital on St. Croix and completing the damage descriptions to finalize funding for the repair of the Roy Lester Schneider Hospital on St. Thomas. Residents are still, however, being flown off-island to access critical care that otherwise cannot be provided by our health care facilities. This has a detrimental financial impact to the territory's public health system as much needed revenue to support our institutions leave with these patients.

All our schools were put back in session by incorporating the usage of temporary modular classrooms and the consolidation of schools. We continue to work with FEMA to approve industry standards to finalize our fixed cost estimates and for the replacement or repair of all our schools.

The greatest progress has been made in the area of energy. Over 1,100 composite poles have been installed to date and engineering work has commenced for the undergrounding of power lines. Plans are also underway to help build photovoltaic plants with battery storage with the micro grid concept in mind.

Housing, though, remains an area of great concern, as we still have families with compromised roofs covered with tarpaulins which have exceeded their life expectancy. Through the FEMA

STEP program, the territory has been able to repair 7,200 homes with over 3,500 homeowners still in need of repairs. The EnVision program funded through CDBG-DR is slated to address the remaining homes.

The territory appreciates the efforts of Congress and the provisions of the Bipartisan Budget Act of 2018 that provided special considerations for the complexities of recovery efforts in Puerto Rico and the Virgin Islands.

The additional assistance of \$27 million, along with the special considerations for inclusion of additional damages in the repair versus replacement calculations, and the Additional Supplemental Appropriations for Disaster Relief Act, 2019, will prove invaluable in our efforts toward resilience.

The territory is working to understand its vulnerabilities and devise strategies to mitigate the effects of climate change.

VITEMA, in conjunction with the University of the Virgin Islands, is developing a comprehensive hazard mitigation and resilience plan for the territory. The plan will be the result of a multi-sectoral effort that integrates the principles of resilience, sustainability, and climate adaptation.

The territory understands the potential for the intensification of storms and through legislation mandated the auto adoption of the IRC and IBC building codes. This will ensure that the territory is building to the latest standards. FEMA provided recovery advisories after the storms to offer additional guidance for reconstruction.

And for the first time, the Virgin Islands was added to the U.S. Drought Monitor map. Drought monitoring began this month.

The territory is still a long way from recovery. Navigating through the bureaucratic maze of the available Federal funding is daunting, and relief is never provided as quickly as needed. The 2017 hurricanes not only wreaked havoc on our critical infrastructure but to the treasury of the Virgin Islands as well. The financial impact of the back-to-back storms was \$11.25 billion, and the projected revenue loss from the storms is \$576 million. Projects funded under FEMA's public assistance program are expected to cost \$5 billion with a 10 percent match, requiring total, approximately \$500 million.

We thank you for this opportunity, and we look forward to working closely with our Federal partners to continue to move our recovery forward. Thank you.

Mr. ROUDA. Thank you, Ms. Williams-Octalien.

And, Mr. Ghilarducci, you now have five minutes for oral testimony.

**STATEMENT OF MARK GHILARDUCCI, DIRECTOR, CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES**

Mr. GHILARDUCCI. Okay, great.

Good afternoon, Mr. Chairman and members of the committee. Thank you for inviting me today to provide you all with both context and perspective of California's challenges as we continue to recover from a series of climate-driven catastrophic disasters.

California has been severely impacted by the effects of climate-driven events in the form of drought, tree mortality, atmospheric

rivers, floods, debris flows, and of course, major wildfires, all record-setting events and all of those in the last two years.

In 2017 and 2018, we had over 3 million acres burn in California, roughly 17,000 wildfires, eight of those resulting in catastrophic losses. As well, that resulted in 160 fatalities due to these disasters. The Camp Fire alone in 2018 in Butte County was the most destructive wildfire in California's history: 19,000 homes and businesses destroyed, more than 30,000 people displaced, more than \$12 billion in insurance losses, 85 fatalities, the loss of generally an entire town, including the critical infrastructure, the services, and the businesses.

It is important to note that California's wildfire season is now almost year around. Climate change acts as a force multiplier. The state's most impactful drought in modern history occurred between 2011 and 2017, resulting in long-lasting environmental impacts that have set up dynamics for ongoing fire situations.

For example, the tree mortality phenomenon that has killed over 147 million trees throughout the state has compounded the risk of mega-fires.

Overall, 15 of the 20 most destructive fires in California have occurred since 2000, 10 of the most destructive since 2015. This trend is expected since 2015. This trend is expected to continue, as outlined in California's Fourth Climate Change Assessment, which projects the estimated burn area for fires to increase by 77 percent by 2011—2021. Sorry.

And 25 million Californians live in the wildland area, which are considered either very high or extreme in this area in what we call the urban-wildland intermix.

Since 2017, we have received nine major Presidential disaster declarations since 2017. Those six were for fires; three were for atmospheric rivers and storms. 55 of 58 counties in California were included in these major disaster declarations, and for California to receive a major disaster declaration, there needs to be at least \$60 million in public infrastructure destroyed, as well as other eligible costs.

One significant challenge, of course—and it has been mentioned earlier—is the issue of debris and debris management after these fires. Debris management after these catastrophic fires is not like hurricane debris. The debris here includes massive amounts of toxic materials, asbestos, and the material of the homes incinerate down to the ground. It includes concrete, steel, cars, fuels, and other kinds of hazardous materials.

Debris removal is essential, however, for the economic and overall recovery of disaster-affected communities. So far more than 4 million tons of debris have been removed from public and private properties since 2017. And the October North Bay fires alone, 2017 constituted the debris operation since the 1906 earthquake. That was a big deal until 2018, which we were followed by Butte County's Camp Fire, which resulted in now the single largest debris mission ever managed by the state, over \$2 billion in cost to clear more than 22,000 sites.

And the impacts to individuals have been profound as well. Cumulatively across the counties, more than 83,000 Californians have been assisted by disaster recovery centers.



And I do want to thank FEMA for their tremendous partnership, FEMA region 9, and FEMA has been a great partner for us. In 2017, more than 28,000 households were approved for FEMA individual assistance, totaling more than \$23 million in aid. And in 2018, more than 31,000 Californians were eligible for individual assistance registration.

Following both 2017 and 2018 disasters California established the long-term housing task force to address the complexities that we have with housing. As you know, California already has a housing shortage. Disasters make that much worse, and when you lose an entire town in an area with less than 1 percent vacancy prior to the fire, you have a major problem. You actually have a homeless problem. It exasperates the situation dramatically.

Housing solutions for survivors need to be scalable and flexible to diverse populations and geographics, environmentally sustainable, and cost effective to the impacted local and state governments.

FEMA's direct housing program revolves around manufactured housing units. It is an old-school approach. It needs to be modernized. Local ordinances and public health and safety hazards often prevent survivors from placing these MHUs on their own property. Identifying suitable locations for group sites is time consuming, is costly and in fact, the cost to deliver and hook up a single mobile home ranges from \$100,000 to \$500,000 a unit. That is just crazy. Right? So this money could be better spent expanded into other more flexible areas.

Mr. ROUDA. If you could wrap up your testimony, please.

Mr. GHILARDUCCI. Great.

Last, let me talk about quickly some key lessons learned and one of them is in the area of emergency communications and sharing information with the public.

Our cellular networks are not hardened to withstand natural disasters. This was highlighted in 2017 during the fires, which we saw a total of 341 cell sites go offline. And in 2018, we saw a total of 489 cell sites go offline. They were off for many days, not available during the initial hours of the fires, and they hindered the ability to get in the 911.

Mr. ROUDA. Mr. Ghilarducci, I will bring that up in my questions with you. I need you to wrap up.

Mr. GHILARDUCCI. With that, I will stop there, and then be open for questions later.

Mr. ROUDA. Okay. Thank you.

Mr. Marrero, you have five minutes of oral testimony. Thank you.

**STATEMENT OF OMAR MARRERO, EXECUTIVE DIRECTOR,  
CENTRAL OFFICE OF RECOVERY AND RECONSTRUCTION OF  
PUERTO RICO**

Mr. MARRERO. Thank you, Chairman Rouda, Ranking Member Comer, and members of the committee. Thank you for the opportunity to discuss Puerto Rico's recovery, resilience, and readiness in the aftermath of Hurricanes Irma and Maria. On behalf of Governor Ricardo Rossello, it is my honor to be here today.

Certainly Hurricanes Irma and Maria presented Puerto Rico with several very serious challenges. The impact to the island and our unique environment was catastrophic. Our bioluminescence bays, El Yunque National Forest, our amazing beaches, our agriculture, and our extraordinary geographical features were all devastated.

Given the role of tourism and agriculture in the economy, billions of dollars of revenue were lost just as Puerto Rico was beginning to address a manmade disaster: its bankruptcy.

Just as importantly, the hurricanes exposed the vulnerability caused by decades of under-investment and deficient maintenance in our critical infrastructure, a vulnerability this body addressed with a one-time allowance in the legislation to reset our most critical infrastructure to industry standards. We cannot thank you enough, and we recognize the importance of being good stewards of this taxpayer investment.

These catastrophic storms taught us that the lives, safety, and security of our residents, as well as the environmental state of our island, depends as much on our local capacity to respond to the immediate emergency as it does in the capacity to master a proportionate and timely response from the Federal Government. We continue to build and develop, in coordination with FEMA, these capabilities.

Let us be honest but clear. We are much appreciative of the help that we have received from the Federal Government, including FEMA and HUD.

Twenty-one months into our recovery with over \$100 billion in damages, we are keenly aware that climate change is making natural disasters more frequent, more damaging, further underscoring the need to build back in a more resilient and intelligent manner.

Puerto Rico remains especially vulnerable to the impact of climate change-enhanced disasters due to our unique geographical position. And, unfortunately, a series of decisions by Federal agencies have slowed our post-disaster recovery compared to the post-disaster recovery in other jurisdictions stateside. This includes, among others, inconsistencies in FEMA's guidance with respect to the implementation of section 428, a very recent change in the way FEMA will perform its role in the management and recovery funds, causing additional delays, reducing Puerto Rico's ability to lead the recovery, and further impeding our ability to meet FEMA's October deadline for the fixed cost estimates, a failure to agree on a definition of industry standards and a refusal to allow Puerto Rico to use its own licensed engineers, as was done in New York and New Jersey, and less significant obstacles continue to create the impression that we are neither trusted nor permitted to lead our own recovery. FEMA says that recovery is federally supported, state managed, and locally executive process. Unfortunately, this has not been the experience of Puerto Rico.

The island depends on FEMA, and while we remain a territory on the good will of this hallowed body, despite every effort of Congress to help us recover, today Puerto Rico has only 46 permanent work projects approved. Forty-six. In contrast in the same time-frame, over 13,000 projects were approved for Louisiana and Mis-

Mississippi in the wake of Hurricane Katrina, certainly a figure that is mind-blowing.

Despite the challenges, Puerto Rico is optimistic, determined, and full of potential as we consider our ever-changing global environment and how we must work together to protect our planet. I am proud to report that Puerto Rico is emerging as a leader in sustainability and renewable energy of the United States. For us, it is not an option. It is not a luxury. We have a social responsibility for future generations to do so.

Our goal is simple, is to avail ourselves of this moonshot opportunity to re-imagine, revitalize, and rebuild Puerto Rico so it can develop its full capacity for the benefit of the 3.2 million U.S. citizens who live there and for America as a whole, a responsibility we share with the Federal Government. And we are fully committed to execute it.

Thank you, and I look forward to your questions.

Mr. ROUDA. Thank you, Mr. Marrero. Can you clarify one thing? You said the number of projects that have been funded for Puerto Rico—

Mr. MARRERO. I am sorry. When I referred to the 46 figure, I am referring to the fixed cost estimates that we have agreed with FEMA up to this date.

Mr. ROUDA. And you compared it to the Mississippi and—

Mr. MARRERO. And Louisiana.

Mr. ROUDA [continuing]. Louisiana. What are those numbers again? One more time.

Mr. MARRERO. 1,300 projects compared to 46 fixed cost estimates that we have finalized right now for permanent work under section 428.

Mr. ROUDA. Thank you very much.

Mr. MARRERO. You are welcome.

Mr. ROUDA. At this time, the chair would like to recognize Congresswoman Tlaib for five minutes.

Ms. TLAIB. Thank you, Mr. Chairman.

As our communities increasingly face threats from natural disasters and the destruction that comes with them, we know that local and state governments alone are not equipped to handle the response. My residents in Dearborn Heights need more help than that to rebuild after their homes flooded. We need Federal resources to respond to the crisis at their scale. And the good news is that we, indeed, have specific Federal agencies and programs designed to do just that. But the system breaks down when the Federal Government refuses to do their job.

One of those concerns I have is that FEMA and HUD are holding onto billions of dollars in aid that have yet to reach our communities.

To the panel, I would like to ask each of you how much money from FEMA's public assistance grant has been awarded to your community and how much have you actually received.

Mr. COSTELLO. Congresswoman, I will start first.

So we received \$160 million immediately post Hurricane Harvey for debris removal, which was what we called expedited funding. Post that allocation, we have only received \$23 million to date.

Ms. TLAIB. If you all can answer that question, if you do not mind.

Mr. ROUDA. Can you also say how much was allotted?

Mr. COSTELLO. So on public assistance, this is a 90 percent Federal share, 10 percent local share. So what happens is each project we negotiate with FEMA on what the recovery cost is. So similar to what Puerto Rico was describing, we anticipate somewhere north of 460 projects, individual projects like, for instance, city hall flooded. That is one project. Our wastewater treatment plant—that is another project. So we have probably somewhere around 25 projects we have agreed to resolution on cost. The balance of them are still in the negotiation process two years post the event.

Ms. TLAIB. Two years.

Mr. COSTELLO. Yes, ma'am.

Mr. MARRERO. Well, if you go recovery.pr, which is one of the initiatives that we have implemented in order to provide timely information to all stakeholders, of the \$55 billion that FEMA has estimated for the public assistance program in Puerto Rico, only roughly 10 percent has been obligated, 5.6. Of that amount only 3.6, roughly 65 percent, has been disbursed. If you take into consideration the fact that we are operating under section 428 for permanent work, that is—essentially 97 percent of that funding is only for emergency work. So having in mind in Puerto Rico we have been operating under categories A and B for the last 21 months. That is roughly where we are at.

Mr. GHILARDUCCI. So, Congresswoman, I would just answer it this way. Given the fact that since 2012 we have had 16 Presidential disaster declarations across the board, I could not tell you today exactly where and how much. I could tell you from the standpoint of working with a public assistance program that has changed in the middle of these disasters, which has resulted in a lot of complexities and has drawn out the time in which we were able to get reimbursements. And typically it is a situation where I would either have to lean in or work with the regional administrator to accelerate a particular project or highlight a particular project. There is a lot of work that can be done to streamline the recovery process by really cutting through a lot of the bureaucracy.

Ms. TLAIB. So how much in community development block grants, CDBG-DR, whatever funds, have you been awarded with and how much have you actually received as well? If you can be specific. One of my colleagues is asking if you could be specific of what you are asking for and what the relief is for.

Mr. COSTELLO. So on the HUD side—

Ms. TLAIB. Yes.

Mr. COSTELLO [continuing]. you are referring to the HUD side—we received \$1.3 billion on housing recovery from HUD. We are waiting for the new guidelines to NOFA for the mitigation dollars. The state of Texas is anticipating \$4.3 billion in HUD mitigation. We understand there are some delays in getting the NOFA out, and one of those reasons is that HUD is a housing agency not a mitigation agency. So we understand there is a delay.

Ms. TLAIB. Mr. Costello, one of the things that always gets lost in committee hearings is the human impact. What has this done

on the ground for families in Houston? What are some of the impacts in recovery efforts to the families in Houston?

Mr. COSTELLO. So generally what happens is on the community development block grant side, we are getting our moneys now to families in need of home repair, home reconstruction. The HUD mitigation dollars that we are waiting for will be moneys that we can do capital projects to provide flood protection to the investment of those housing dollars.

Ms. TLAIB. So are they living with mold?

Mr. COSTELLO. No.

Ms. TLAIB. Are they homeless?

Mr. COSTELLO. So some of these people are either living in homes that have not been repaired that we are going out and knocking on doors because they are not familiar with the program. We have reached out to over 15,000 people post the event knocking on doors. We have knocked on over 100,000 doors to get them to see if people are interested and need the help they need. So we are doing an active role in actually reaching out to these people.

Ms. TLAIB. I am sorry I ran out of time, but thank you so much. Thank you, Chairman.

Mr. ROUDA. Thank you.

The chair now recognizes Congressman Higgins for five minutes of questioning.

Mr. HIGGINS. Thank you, Mr. Chairman.

Mr. Costello, are you familiar with the Institute for Rehabilitation Research, Memorial Hermann Hospital in Houston?

Mr. COSTELLO. Yes, I am.

Mr. HIGGINS. After Hurricane Harvey, did Memorial Hermann flood, sir?

Mr. COSTELLO. I do not believe so, sir.

Mr. HIGGINS. Would you explain to America why the hospital right there in Houston did not flood?

Mr. COSTELLO. Well, if you look at Hurricane Harvey, there are areas of the city that did flood tremendously and areas of the city that did not. I will highlight one Federal project that was recently completed, which was Sims Bayou on the southeast side of town that had virtually no flooding in the entire watershed. So it is really a function of where the rainfall occurred, the intensity of the rainfall, and the capacity of the existing stream to receive it.

Mr. HIGGINS. Just in the interest of time—I appreciate your very thorough response, but does Memorial Hermann have a flood wall and flood gates built around the hospital? Do they have a helipad? Did they assist first responders with their own communications center in the wake of Hurricane Harvey?

Mr. COSTELLO. So, Congressman, if you are referring to the entire medical center, they did not flood because of the improvements they did post tropical storm Allison in 2001.

Mr. HIGGINS. Thank you. That is just what I am getting at.

And I thank you for your service, sir.

We have to constantly remind ourselves and our colleagues that there is no such thing as Federal money. It is the people's treasure. Every dollar we have has been seized from the paycheck of a working American. So as we invest the treasure in disaster recovery, it is important that we consider pre-mitigation efforts we discussed in

the first panel and that there was no right or wrong answer to that question. Just the point is that there is a hospital in the middle of Houston that had taken efforts upon its own to protect itself from future flooding, and it was very helpful in the wake of Hurricane Harvey. And I would suggest that we all consider things like this.

Mr. Marrero, when there is a disaster in the continental United States, wherever it is, south Louisiana—we are no stranger to hurricanes. There is always a way to get to the impacted area because it is on the continental United States. But when Puerto Rico was hit in such a devastating manner, it struck me, and many of my friends and colleagues in Louisiana wanted to help. We were prepared to help. We were there to help. And yet, the ports were locked up with aid that could not make it inland in Puerto Rico because of the damage to the roads, et cetera. And there was no means by which to make beach landings. There was no specialty barges standing by to make beach landings to bring supplies that had been sent immediately and were stacked up in the ports. There was no way to get them across the beachheads onto the areas that were impacted through roads that were usable.

Long ago, the Lake Pontchartrain causeway was built in the 1960's. It has been long referred to as the world's longest bridge, 24 miles long. And because of the construction of this bridge in south Louisiana, occasionally a section will get knocked out by a barge. Tragically cars would drive right into it. So it did not take long. Two or three times this happened, and now it is mandated on both sides of this bridge—there are segments of that bridge standing by ready to be installed because of previous loss. And this is the kind of common sense that we need.

So my question to you, sir, is for obvious reasons, Puerto Rico, our brothers and sisters whom we love—we need to help to assist, respond. But please give us an answer regarding this. Is Puerto Rico considering measures to take to be prepared to better receive the good will and assistance of the world in the wake of a future disaster in the form of having access by beachhead?

Mr. MARRERO. Well, sir, first of all, thank you very much for the people of Louisiana and the American people that helped the people of Puerto Rico in the most dire times.

One of the strategies that we were assessing with FEMA—it was the fact we are a multi-port destination. I know that we are a small island, but we have port facilities not only in San Juan but also in Ceiba, which is not only we have the deepest seaport in Puerto Rico in the former Rosie Roads base, but also we have the longest runway there. We also have the support in the south. We also have the Mayaguez ports.

So part of the after-action assessment—it was the fact that we have the facilities across the island. We just have to coordinate in a more effective and efficient way not only with the state agency but also with the Federal agencies.

Even though we had the impacts of Hurricanes Irma and Maria, we were able to open the ports 48 hours after. We had a bottleneck. Yes, we had a bottleneck because not only we were receiving the relief supplies, the high season of Christmas, and also several ships

that had to stay at the bay when the Coast Guard closed the San Juan Bay.

The simple answer is, yes, sir. We have multiple facilities across the island that we need to use in a more holistic way. And we are working with the Federal partners. We are working with the state partners to make sure that we can use, for example, the Rosie Roads base not only for receiving reconstruction materials, but also could be a platform for help neighboring island, not only USVI and the BVI, but also other islands.

So, yes, the answer is that we are working and making sure if something happens—thank God the navigation channel of the San Juan Bay was not obstructed. Thank God. But if that happened, the story will be either further exacerbated.

Mr. HIGGINS. Thank you for your very thorough answer.

Mr. Chairman, I yield. Thank you for your indulgence, Mr. Chairman.

Mr. ROUDA. Thank you.

The chair now recognizes Congresswoman Speier for five minutes of questioning.

Ms. SPEIER. Mr. Chairman, thank you.

And thank you all for being here.

I guess I would like to start with you, Mr. Marrero. We hear a lot about Puerto Rico and yet we do not, I think, know precisely the condition of the island as it relates to the people. How many people are still homeless?

Mr. MARRERO. 20,000.

Ms. SPEIER. Did you say 20,000?

Mr. MARRERO. 20,000 families. 20,000 families are right now still with blue tarps. That number is being revised with the mayors across the island to make sure that they are prioritized through the R3 program of the CDBG. That is repair, rehabilitation, and relocation of families.

Ms. SPEIER. How many hospitals are still inoperable?

Mr. MARRERO. Let me make it a little bit easier. Right now, there is no hospitals, schools, roads or houses being built as a permanent work. No permanent work is being done in Puerto Rico. So a thousand schools are still waiting to be repaired.

Ms. SPEIER. A thousands schools are in disrepair.

Mr. MARRERO. Yes, ma'am, as well as the hospital, the hospital in Vieques, we are still waiting a final determination in order to move forward with those projects.

Ms. SPEIER. So FEMA has kind of failed. Has it not? Those are my words. Maybe you should not even answer it.

Mr. MARRERO. I think that to be completely honest and objective, I think that Puerto Rico's recovery has been the most complex response in U.S. history. The fact that we are an island has been even more complex. So I think that the challenge has been present not only on the mainland but also in Puerto Rico, and obviously, FEMA has not been able to manage.

Ms. SPEIER. Mr. Ghilarducci, one of the things the President said was that California does not manage its forest lands well. And if I remember correctly, the U.S. Government owns most of the forest lands in California. Is that right? Could you give us the specific numbers?

Mr. GHILARDUCCI. Yes, that is correct, Congresswoman. Roughly 70 percent of the lands are Federal lands in California, and they are managed by a number of Federal agencies.

Ms. SPEIER. So if you were to assess the condition of those various Federal lands as to their preparedness for yet another firestorm, how would you rank them? A, B, C, D, E—well, I guess E does not count. A, B, C, D, F.

Mr. GHILARDUCCI. I think probably different parts of the state have different threats. Some of them are F's, particularly in the high tree mortality area driven by the drought and the number of dead trees. Some of them are in the C minus to D level. There is very few that I would say were in the A or B level.

Ms. SPEIER. So if we asked you to give us a list of preparatory steps that the Federal Government should be taking to manage its forest lands, would you be able to do that?

Mr. GHILARDUCCI. Well, I would just say efforts that we have undertaken—you know, Governor Newsom—it started with Governor Brown, now Governor Newsom—of actually investing a significant amount of resources to go in and do defensible space clearing, making sure that we have—

Ms. SPEIER. On Federal lands?

Mr. GHILARDUCCI. Well, no, this is on state land. On the Federal—

Ms. SPEIER. No. I understand that you are doing a lot on the state side. I am trying to figure out—what will potentially happened this summer is that a fire will break out on Federal lands and then gravitate to state lands potentially.

Mr. GHILARDUCCI. Yes. I think the Forest Service and the Federal agencies are doing some work in the area. They are simply not resourced appropriately and lack the funding to be able to do anything very significant.

Ms. SPEIER. All right. If you could provide us with the steps you think that the Federal Government should be taking to manage the 70 percent of the forest lands that it has in California, that would be helpful.

Could you tell us a little bit more about how you are adapting your wildfire preparedness and response strategies to the new conditions introduced by climate change in California?

Mr. GHILARDUCCI. So there is a number of initiatives that we have underway. The first is that we took a very aggressive assessment of the state looking at the highest threat areas, the tier 1 and 2, which are high and extreme fire threat areas, how they correspond with the urban-wildland intermix, and really leveraged all resources, all hands on deck to come together working with those local governments to begin forest clearing and building in defensible space, doing evacuation planning. We have been working on—we put out new guidelines for alert and warning capabilities so that all local jurisdictions within the state have a common platform for doing alert and warning to the public. And we have increased the number of resources, whether it is hard fire fighting assets, engines, helicopters, and personnel, as well as funding community groups like fire safe councils and other preparedness groups to build capacity within their communities to buy down the risk of wildfire.



Ms. SPEIER. My time has expired. But if you could put a number on that for us, either now or later, that would be helpful to us.

Mr. GHILARDUCCI. Okay, great.

Ms. SPEIER. Thank you. I yield back.

Mr. ROUDA. Thank you.

The chair now recognizes the Ranking Member Comer for five minutes of questioning.

Mr. COMER. Thank you, Mr. Chairman.

I would like to followup on what Ms. Speier was talking about in California.

Mr. Ghilarducci, are you familiar with the bill that passed out of the House last year pertaining to forest management? It was sponsored by, if my memory is correct, Congressman Westerman from Arkansas. It dealt with forest management and how to potentially alleviate the problems with the lack of forest management in California. And that bill, for whatever reason, did not make it through the Senate. I was on the farm bill conference committee, and we tried to put that language in the farm bill to allow better forest management practices in California. And there was intense opposition for that language being added by several members of the California delegation. You were not in Congress, Mr. Chairman, so I am not talking about you.

I did not know if you were familiar with that bill and if you had any thoughts on that bill because we had people that were coming in to testify to us with utility companies saying that there is a theory that the big Camp Fire started because a limb was struck by lightning. It ignited the fire. With all the lack of forest management, it quickly spread. But there are regulations in California that do not allow utility companies to cut limbs along the lines of utility lines and just a lot of excessive, unnecessary regulations that have unintentional consequences.

Mr. GHILARDUCCI. Well, there is a lot in that question. And let me just say that on the Camp Fire, which—it has not been determined that that fire was started by a downed power line.

The conditions is what we kind of have to look at it. It is more just what the status of the forest is. In the case of the Camp Fire, the Town of Paradise and the surrounding communities had been awarded several recognition awards for being the most fire-resilient communities in the wildland-urban interface. The fact is that the fire started in the upper canyon, and the conditions that night were so extreme, in fact, the most extreme that many of us in the fire service had seen in our entire career, where literally it blew that fire into a community that was managed appropriately. So I think you have to take each one of these—it has its own signature to it—and look at it.

I would say that we would agree in California that there have been some regulations that have been restrictive, and they have been being looked at. And many of them have been changed. Both Governor Brown and Governor Newsom have instituted executive orders to streamline the issue of being able to go in and do some forest management and with the utilities, working with them to be able to clear back defensible space along their power lines.

It is a new norm, and it is something that we all have to look at in a broader context with regards to both pre-event and then post-event hazard mitigation.

Mr. COMER. I think you would find bipartisan support in Congress to try to work with California to reduce the regulatory burden to try to better manage the federally owned forest lands there.

The next question I want to ask—Mr. Costello, I share your frustration with FEMA being slow on paying their bills and obligations. I represent the western Kentucky area along the Mississippi River that has experienced flooding and get a lot of calls from disgruntled local officials that have not received their FEMA funding. So I share your frustration with that. I think historically that has been a problem with FEMA.

What are some things FEMA can do besides the point that you make, which I agree, trying to process their transactions quicker and besides more funding? What are some things FEMA can do to better serve the needs of people that have been negatively affected by disasters?

Mr. COSTELLO. Congressman, I was hoping someone would ask me that question.

So I have a little chart here. I know it is very hard to see. It has 45 separate steps associated with one project on public assistance, and within those 45 steps, you go through two separate audits inside FEMA, and then it goes to OMB for an audit. If it is over a million dollars, it goes to a congressional group. After that, it then flows back down to the state who is a recipient for a fourth audit before the city even gets the funds. So it is not the people that work within FEMA. They really want to help the communities. It is the process. There is something wrong with the process specifically on the public assistance side. And that is really the problem that we are having.

Mr. ROUDA. Thank you.

The chair now recognizes myself for five minutes.

Mr. Ghilarducci, as you know, I am from southern California and obviously very concerned about wildfires not just in southern California and Orange County, but throughout California and the west. But I do want to make sure that we clarify a couple points here.

My understanding—you mentioned earlier that 70 percent of California are federally controlled lands. But my recollection on the fires, that it was approximately 90-plus percent was Federal lands that burned. Am I correct in that number?

Mr. GHILARDUCCI. Many of the fires that we saw these past two years were on Federal lands. They may have started on Federal land as well and then rolled into a state responsibility area. So there were a number of state lands as well that burned.

Mr. ROUDA. And I just want to make sure too that we have the proper narrative here because sometimes we see in the press and some of the comments and some of the tweets that California laws and regulations are the ones that are causing some of the issues here. Are you aware of any California State law that usurps the Federal management of the Federal-controlled lands in California or anywhere else in the United States?

Mr. GHILARDUCCI. No, I am not.

Mr. ROUDA. That is what I thought.

So we recognize that the Federal Government has control over Federal lands both in California and 49 other states in the management of those lands. Is that a correct statement?

Mr. GHILARDUCCI. I believe so.

Mr. ROUDA. Thank you.

And I also want to talk a little bit about—you and I had a chance to talk earlier today about an area of concern for all of us in the U.S., and that was you talked a bit about the ability for proper communication during natural disasters and making sure that we have appropriate fortifications for communication systems. I would love for you to elaborate on that and what we experienced in California when those communication systems go down.

Mr. GHILARDUCCI. Thank you, Mr. Chair, on addressing it because it is something that we need to really think about. We as a society generally are moving 100 percent onto these devices. We are off of land lines. We are on to the cellular network. And as such, we have become dependent upon getting all of our information on these devices. And really the system that manages these devices is not government-owned or controlled. It is privately owned and controlled. Yet, we really depend upon this for our life-saving operations.

And so as we move forward, we are finding in these catastrophic events—and it is really not just California and the wildfires. I have talked to my colleagues in hurricane-prone states and tornado-prone states where they have seen similar kinds of failures. The resiliency of the system, the cell sites, the back haul—we are talking about the fiber lines—is not as hardened as it needs to be, something I call public safety grade.

Mr. ROUDA. And it is not just the people living there. It is actually the first responders who are relying on that communication foundation as well.

Mr. GHILARDUCCI. Of course. We all are depending upon this.

And look, let me say that AT&T and Verizon and all the other major—they are partners with us, and they do provide resources when we need them. But that is different than what we are talking about. When we talk about making forests more safe or doing hazard mitigation or home retrofitting, we also need our infrastructure to be as hardened as possible. And we are seeing too many failures in this system that we count on the most. And I would just say that it is an area that needs to be improved and it has to be done very fast because we are seeing too many numbers of cell sites go down. And this is a time when we are trying to get evacuation information out, fire data. All of that is getting to the public, and we have a public that is not being able to get that information.

Mr. ROUDA. Well, as Mr. Higgins testified earlier or questioned earlier, it is important that we make sure that we have the appropriate infrastructure in place to better address these events.

Mr. Costello, I want to go back. That chart was fascinating. And I want people to have a better understanding that when FEMA does come in and provides immediate support, that is important. That is lifesaving support right then and there. But there is a long process to get back to normal times for these communities. And it sounds very much, from the testimony here today, that it is taking

years to get proper funding in place to get back to normal. Am I correct?

Mr. COSTELLO. Yes, sir, Mr. Chairman. We anticipate this is probably a five to eight-year program to recover on the public assistance side. That is correct.

Mr. ROUDA. And, Mr. Marrero, I think you said a thousand schools have not been reconstructed or are still—

Mr. MARRERO. Still waiting. To give you some perspective of the money that has been disbursed for Puerto Rico, only \$25 million has been disbursed for permanent work. And that is essentially A&E, architectural and engineering design. No school has been permanent fixed. No house has been permanent fixed.

Mr. ROUDA. And when did that hurricane occur?

Mr. MARRERO. Twenty-one months ago, September 20.

Mr. ROUDA. Twenty-one months ago.

Mr. MARRERO. Yes, sir.

Mr. ROUDA. Thank you.

I now want to turn it over to vice chair, Congresswoman Tlaib to take the chair.

Ms. TLAIB.

[presiding] I would like to now recognize my good colleague, Congresswoman Ocasio-Cortez.

Ms. OCASIO-CORTEZ. Thank you, Madam Chair.

Mr. Marrero, are there patients in Puerto Rico still receiving medical care in temporary facilities?

Mr. MARRERO. Yes, ma'am. Vieques island.

Ms. OCASIO-CORTEZ. Why has it taken so long to rebuild these facilities?

Mr. MARRERO. The process, section—I do not know if you are familiar, but in Puerto Rico, we are implementing for the first time in FEMA history what is called section 428. Section 428 was added to the Stafford Act after Sandy, with the Sandy Recovery Improvement Act. That is essentially the alternative procedure that we need to follow in order to get the reimbursement processed with FEMA. In essence, in general terms, the big difference is that before you can initiate any permanent work or permanent fix, FEMA and the state and the sub-recipient—they all have to agree on the fixed cost estimate because, in essence, it works like a cap grant. So the state and FEMA has to agree how much money you are going to have before you can essentially start work.

Ms. OCASIO-CORTEZ. I see.

Mr. MARRERO. And also I am sorry to add the fact that section 428 is a pilot program. There is no clear guidance in writing. So we are essentially designing the plane as we fly it.

Ms. OCASIO-CORTEZ. And picking up on what my colleague said earlier, you said there were 20,000 homes still using blue tarps?

Mr. MARRERO. That is an estimate, ma'am, yes.

Ms. OCASIO-CORTEZ. How many roads still need to be repaired?

Mr. MARRERO. The entire 16,000 miles. There is no permanent road—there is no road that has been permanently fixed.

Ms. OCASIO-CORTEZ. Not a single road in Puerto Rico has been permanently fixed.

Mr. MARRERO. Yes, ma'am. Under FEMA, no.

Ms. OCASIO-CORTEZ. And you said not a single home either?

Mr. MARRERO. Yes, ma'am. The 108,000 families that participated in the STEP program, it was only a temporary roof or temporary repair.

Ms. OCASIO-CORTEZ. So not a single home has been permanently fixed. Not a single road has been permanently fixed.

Mr. MARRERO. Not through the public assistance program or FEMA.

Ms. OCASIO-CORTEZ. Through the public assistance program.

Mr. MARRERO. We received some aid from a not-for-profit to help people, but not under the P8 program under FEMA, you are correct, ma'am.

Ms. OCASIO-CORTEZ. And not a single school has been permanently fixed under the FEMA program as well. Right?

Mr. MARRERO. Unfortunately so.

Ms. OCASIO-CORTEZ. I wanted to clarify some inconsistencies because I think it is very important for the American people to understand the correct facts in this situation on the state of recovery.

We heard the President say last month—he tweeted that Puerto Rico has been given more money by Congress for hurricane disaster relief, \$91 billion. Mr. Marrero, yes or no. Is this figure accurate?

Mr. MARRERO. Ma'am, I have my one-pager of that in order to make sure that I have the correct facts. \$91 billion was an internal estimate by the Office of Management and Budget. So that was just an estimate of how much it will cost the recovery—

Ms. OCASIO-CORTEZ. That was an estimate of the cost, but—

Mr. MARRERO. For the 10–15 years.

Ms. OCASIO-CORTEZ. But they have not been given \$91 billion.

Mr. MARRERO. No, ma'am. Only of that, \$41 billion has been appropriated by Congress. Unfortunately, only \$11.2 billion has been disbursed, and essentially that is only for emergency work.

Ms. OCASIO-CORTEZ. So the answer is no, the figure is not accurate.

How much of the aid allocated to Puerto Rico have actually reached the territory?

Mr. MARRERO. \$11.2 billion. That includes—

Ms. OCASIO-CORTEZ. And it is emergency only. Right?

Mr. MARRERO. Essentially, ma'am.

Ms. OCASIO-CORTEZ. And last, when I was last on the island, I visited communities that developed sustainable recovery plans on their own because there has been no kind of long-term permanent recovery investment that has effectively reached many communities on the island.

So I saw that solar panels were ensured—I see that people started installing solar panels to ensure that if another hurricane were to come, the community would have an energy resource.

Could you share with us about how the people of Puerto Rico have responded to this disaster on their own, like some of these ad hoc methods that are being used on the island?

Mr. MARRERO. Well, I think that, first of all, when you talk about Puerto Rican people, the only word that will come to your mind is resiliency. Even though that we have faced so many challenges and even those children still waiting for the schools to be repaired, thank God no riots, no looting happened in Puerto Rico. The people of Puerto Rico—we help ourselves. You will see across the island

people with a lot of electric cords to help their neighbor and help the neighbors. So essentially the people of Puerto Rico—they did not wait for the government to respond. The government itself was a casualty because of the magnitude of the disaster. So people starting helping each other. Not-for-profits start getting to Puerto Rico and Puerto Ricans just became what we are: Puerto Ricans. And we are resilient. We help each other.

Unfortunately, that may not be an excuse to delay the process, to delay the recovery process. So they are still waiting. People are still waiting very patiently.

Unfortunately, I think that we just are at the juncture in which we cannot wait. We are talking about people. We are talking about children without a playground area, children that are not able to learn in a healthy environment, and 20,000 families still waiting for decent housing to protect their families.

Ms. OCASIO-CORTEZ. Thank you. Thank you very much.

I yield back to the chair.

Mr. COSTELLO. Excuse me, Madam Chair. With all due respect to the members, I have to catch a plane. Is that okay? May I be excused?

Ms. TLAIB. Oh, yes. I was like who is talking.

[Laughter.]

Mr. COSTELLO. I am sorry. May I be excused?

Ms. TLAIB. Of course, yes. Thank you so much for joining us.

Without objection, the Representative Plaskett from the full committee who represents the Virgin Islands and Representative Velazquez from New York is authorized to participate in today's hearing.

And with that, I would like to recognize Representative Plaskett.

Ms. PLASKETT. Thank you very much, Madam Chair.

And I would thank the witnesses for being here today.

I just wanted to get straight to the questions. I wanted to ask Ms. Williams-Octalien some information about the recovery process in the Virgin Islands. If you could tell us—now, we know that we had damage to both of the hospitals. Can you tell us what the assessment is? There are only two hospitals and one clinic in the Virgin Islands. And what is the assessment of those three facilities and where are they now?

Ms. WILLIAMS-OCTALIEN. So the Juan F. Luis Hospital on St. Croix has gotten authorization for replacement, and St. Thomas, the Roy Lester Schneider Hospital—we are still working on getting our damage descriptions being worked through with FEMA. And we have the temporary facilities over in Myra Keating on St. John. The clinic is now performing services there.

One of the key issues that we are having, basically as much as Puerto Rico has stated, we are waiting on several things from FEMA that will allow us to move forward. So we are really in a holding pattern.

One, cost escalation factors. In order to complete the fixed cost estimates, we must agree on what the cost escalation factors would be over the life of the disaster and the recovery because once we agree to the fixed cost estimate, that is the cost that we will have to live with throughout the disaster until the project is finished. We are still waiting for FEMA to provide that to us, and until we

are able to do that, we are unable to move forward any of our permanent work in the territory.

Ms. PLASKETT. So let us go to one of those hospitals. Let us talk about Juan F. Luis Hospital. You stated that FEMA has agreed that it needs to be replaced, which means that it was more than 50 percent damaged. Correct?

Ms. WILLIAMS-OCTALIEN. Correct.

Ms. PLASKETT. When did that agreement take place of the 50 percent damage?

Ms. WILLIAMS-OCTALIEN. We only agreed to that last month.

Ms. PLASKETT. So they just agreed 20-something months after the hurricane that in fact the only hospital on St. Croix was damaged more than 50 percent.

Ms. WILLIAMS-OCTALIEN. Correct.

Ms. PLASKETT. And in the interim, because there was more than 50 percent damage, which means that it must have difficulty in performing its functions, we understand that there was supposed to be a modular unit, which was agreed upon, that would take the place. Is that modular unit in place?

Ms. WILLIAMS-OCTALIEN. No. The modular unit is still being worked on to be put in place. So we are still working on that as well.

Ms. PLASKETT. So there is no modular hospital on one of the major islands, and that modular unit is estimated to be in place at what time?

Ms. WILLIAMS-OCTALIEN. The rate that we are going at this pace right now, it would not be until spring of next year.

Ms. PLASKETT. So another year before the temporary modular to await the hospital would be in place. So you obviously have a hospital that is not functioning entirely as it should.

How many operating rooms at the hospital right now?

Ms. WILLIAMS-OCTALIEN. We have one functional operating room.

Ms. PLASKETT. So I recall this weekend—and St. Croix is the island that I live on. I know that we had a major car accident where there was one fatality. People were brought to the hospital, as well as a shooting where individuals were eventually—they succumbed to the shooting. How does a hospital function in that manner when there is one hospital and one operating room?

Ms. WILLIAMS-OCTALIEN. The situation is very grave and very critical. And as you mentioned, if we have more than one emergency at one time, we are really at a loss to be able to provide those services. Hence, we continue to airlift our residents to other facilities in order to get acute care. You know that cannot happen quickly. The nearest destination would probably be Puerto Rico or Miami.

Ms. PLASKETT. So I am going to use this time, rather than asking you questions, just outlining for my colleagues the kind of situation that Virgin Islanders face to allow you to use the rest of my time to tell us what would be best for us to help you to facilitate this because you and I have spoke, Adrienne, a saying that we have in the Virgin Islands, a closed mouth does not get fed.

Ms. WILLIAMS-OCTALIEN. Absolutely.

Ms. PLASKETT. So Virgin Islanders have a habit of just muddling through things, being proud, and not really being the type to com-

plain. But if there are challenges that you are facing, if you could enlighten my colleagues as to what we as Members of Congress can do, what those challenges are so that we could figure out how we can facilitate moving things along a little faster.

Ms. WILLIAMS-OCTALIEN. And thank you for that.

The overall pace of the recovery has been very, very slow. And it is really the ability for us to move forward in that process. Whether it is the FEMA funds or it is the hazard mitigation funds or the CDBG-DR funding, overall the process is absolutely frustrating, confusing, and slow.

And we have been asking FEMA and working with FEMA to allow us to move forward on some of the issues that we have over the time that it takes for approvals for certain things that we have asked for, strategies that we have developed in the territory to move forward. We request those strategies—an approval for those strategies to a Federal agency, and it takes an inordinate amount of time for us to get a response back, sometimes making that strategy null and void because we have missed the window of opportunity. And we are continuing to see that.

Also the fact that we are not able to get any of our projects moving forward, whether it is our schools, our roads, our critical facilities, the hospital, as you mentioned, even our housing communities. We are still at the point where we are waiting on cost escalation factors from FEMA. We are waiting on information regarding cost share. All of those factors and the timeline for the guidance that has been given—we continue to expound the importance and the appreciation that we have for all of the legislative reform regarding disaster relief. But until we get guidance from either HUD or FEMA, we are unable to access those new authorities that are provided through the legislation. So when we have these have legislations go forward, we ask if there are specific timelines that can be put in place to ensure that these Federal agencies do things in a timely manner, thereby allowing us to really access the authorities that have been granted.

Ms. PLASKETT. Thank you very much for that response.

And thank you, Madam Chair, for your indulgence in allowing her to respond.

Ms. TLAIB. Thank you.

With that, I would like to recognize Congresswoman Velazquez for five minutes.

Ms. VELAZQUEZ. Thank you, Chairwoman and thank you for allowing me to be part of this important hearing for some of us who come from the islands. I come from Puerto Rico. I live in Puerto Rico, and I grew up in Puerto Rico. I was working for the former Governor of Puerto Rico when Hurricane Hugo impacted the island.

And I am amazed, frustrated. Just I do not understand why it has taken this long, two years, and the hurricane season is right—it started in July. To see that not a single permanent project is in the pipeline to be rehabbed.

Homeland Security held a hearing just the other day, and we had the Acting Administrator, Peter Gaynor, indicating that the responsibility for the delay in the reimbursement to municipalities in Puerto Rico or the effective implementation of FEMA from the programs was due to our three's lack of capacity and communications.



So, Mr. Marrero, can you please explain to me what type of communications do you maintain with FEMA, and what have been the challenges in the coordination of processes between both agencies?

Mr. MARRERO. First of all, Ms. Velazquez, thank you very much for all the work for the people of Puerto Rico and relationship that you have with the people of Puerto Rico.

Well, first of all, I am a little bit appalled with those declarations. I am going to be honest. Since day one, we have been working very diligently in making sure that what we have been request, we deliver and excel. That includes the document that we provided back in November 2017 while we were responding to the immediate needs of the people of Puerto Rico.

Not only that, with approval of the BBA back in February 2008, we were required to develop a full recovery plan, and we did it in a timely fashion, and we also did it not only with the collaboration of FEMA, other agencies. We made it also consistent with the fiscal plan certified by the oversight board. Not only that, we were required to establish a centralized oversight authority with the Central Office of Recovery. We did it based on the model of Louisiana, New York, New Jersey, Mississippi, and many other locations.

Not only that, we were also required to hire third-party experts because we did not have the knowledge and expertise, even though we have managed Federal funding in the past without any finding. We conducted a very robust procurement processes, and we ended up having a top notch team that includes Deloitte for the financial controls—

Ms. VELAZQUEZ. So are you telling me that there is no reason as to why the money has not made it to Puerto Rico?

Mr. MARRERO. The reason why the money has—by the way, we did all that. And because of that, we were able to take over the reimbursement process. I know that you remembered that since day one, FEMA controlled the reimbursement process in Puerto Rico as opposed to other states. We developed the policies, procedures—

Ms. VELAZQUEZ. And why is that?

Mr. MARRERO. Because of the fiscal condition of Puerto Rico. They thought—

Ms. VELAZQUEZ. So you have done everything that you have been asked.

Mr. MARRERO. Yes, ma'am.

Ms. VELAZQUEZ. And yet, the people of Puerto Rico are subjected to the delay, putting lives at risk once again.

So let us talk about Vieques, the hospital in Vieques. As we know, the Navy used Vieques for military practices. There is environmental contamination in Puerto Rico. The Navy was out of Vieques under George W. Bush. Promises were made, and still here we are with a hospital that is not operational, with the challenge of the lack of transportation for the people of Vieques to go to the mainland Puerto Rico to get medical services.

Have you received—because all I have seen is a press release that was put out by FEMA. After first they say we going to rebuild—we going to build a new hospital, then they came back and they say we going to rebuild whatever you have left of a hospital in Puerto Rico. I complained and I demanded a new facility, and

just recently they issued a press release saying that they concurred that they should have a new hospital.

Have you received any form of communication from FEMA?

Mr. MARRERO. No, ma'am. We are still waiting for the formal determination letter, as well as the final number.

Ms. VELAZQUEZ. My next question is considering that 90 percent of Federal contract spending for disaster relief and recovery has been awarded to firms on the mainland, I would like to know what you are doing and what plans do you have to facilitate local contracting? We have the best engineers. We have great construction companies in Puerto Rico that have done work in other Caribbean islands. We need to promote economic development. We have to provide a level playing field for those Puerto Rican contracting firms to be able to get into the Federal—

Ms. TLAIB. Thank you so much, Congresswoman Velazquez.

You can go ahead and answer those questions.

Mr. MARRERO. Sure, I could not agree more with you. I come from a family with a pop and mom shop. That is the reason how we were able to move forward.

So definitely, even though there is some constitutional limitation, Congresswoman, we really want to make sure that this is not about disaster recovery only. This is about economic recovery. This is a moonshot opportunity for the people of Puerto Rico to make sure that we do it the right way.

So what we have done. Well, first of all, we increased the minimum wage in the construction industry to make sure that we have more folks in the construction industry.

Second, as part of the action plan that we developed for the CDBG funds, we also included construction loans and other mechanisms in order to allow local companies to have the financial bandwidth in order to participate in the processes because many of the requirements on the FEMA and HUD side will require some bonding requirement a local company will not be able to satisfy. So that is why we are really making sure that we use not only the FEMA program but also CDBG programs to make sure that the local companies are well equipped because, as you mentioned, we have to make sure that we get it right.

So once the significant funding is used, what is going to happen? Well, we have to make sure that the people of Puerto Rico are trained. And I agree. They are top notch professionals. Not only to help in Puerto Rico, but if something happens somewhere in California, New York, Florida, or Texas, the Puerto Rican companies can also participate.

Ms. TLAIB. Thank you so much.

I would like to thank all of our witnesses for testifying today.

And without objection, all members will have five legislative days within which to submit additional written questions for the witnesses to the chair, which will be forwarded to the witnesses for their response.

I ask all our witnesses to please respond as promptly as you are able to.

Again, this hearing is adjourned.

[Whereupon, at 5:24 p.m., the subcommittee was adjourned.]