

Center for American Progress



SPECIAL PRESENTATION

“FORECAST: STORM WARNINGS”

MODERATED BY:

**DANIEL J. WEISS, SENIOR FELLOW AND THE DIRECTOR OF
CLIMATE STRATEGY, CENTER FOR AMERICAN PROGRESS**

FEATURED PANELISTS:

MAYOR RICHARD T. CROTTY (R), ORANGE COUNTY, FLORIDA

**PETER WEBSTER, PROFESSOR IN EARTH AND ATMOSPHERIC
SCIENCES AND ENVIRONMENTAL ENGINEERING, GEORGIA
INSTITUTE OF TECHNOLOGY**

**JOHN B. COPENHAVER, PRESIDENT AND CHIEF
EXECUTIVE OFFICER, DRI INTERNATIONAL**

**JANE BULLOCK, FORMER CHIEF OF STAFF, FEDERAL
EMERGENCY MANAGEMENT AGENCY DIRECTOR
JAMES LEE WITT**

**1:00 PM – 2:00 PM
MONDAY, AUGUST 27, 2007**

**TRANSCRIPT PROVIDED BY
DC TRANSCRIPTION & MEDIA REPURPOSING**

MR. DANIEL WEISS: Hi, everybody. Welcome to the Center for American Progress' forum "Forecast: Storm Warnings" on preparing for more severe hurricanes due to global warming. My name is Daniel J. Weiss. I'm a senior fellow and director of climate strategy here at the Center. By now you're I'm sure familiar with this request: please turn off all cell phones, pagers, Blackberries, and ankle monitoring bracelets so that it doesn't interrupt the speakers. Thank you.

Today the Center is releasing its report "Forecast: Storm Warnings" and today's forum occurs two days before the second anniversary of Hurricane Katrina hitting landfall on August 29th, 2005. This storm left permanent scars in Mississippi and Louisiana. Thousands of residents have yet to restore their homes, businesses, and lives and some may never do so. The first major hurricane of 2007, Dean, roared through the Caribbean and Mexico with winds greater than 155 miles per hour, killing at least 11 people and causing hundreds of millions of dollars of damage. And future storms are going to be fiercer due to warmer ocean temperatures caused by global warming, and global warming may even increase storm frequency.

In short, the global warming forecast is for more severe storms. It's imperative to immediately adopt global warming pollution reductions to slow and eventually halt the warming that's underway. In addition, we must make communities in hurricane alley more resilient to the damage from the gale force winds and slashing rains brought by more severe storms.

To discuss global warming hurricanes, and preparedness I'd like to introduce the following panelists who will speak in this order. To my immediate right, Dr. Peter Webster. He's a professor in earth and atmospheric sciences and environmental engineering at the Georgia Institute of Technology. He has a Ph.D. in meteorology from the Massachusetts Institute of Technology. Dr. Webster's research includes the investigation of hurricanes and the climate of the planet and the forecast of their intensity. Dr. Webster will discuss the scientific evidence linking global warming to more severe and perhaps more frequent hurricanes.

To his right is Mayor Richard Crotty of Orange County, Florida. Orange County has 1.1 million residents and includes the city of Orlando and Disney World. He was appointed mayor in 2001, elected in 2002, and reelected in 2006. Mayor Crotty focuses on the improvement of transportation and increase of school capacity, while working to protect Orange County's valuable water supply and diversify the local economy. Mayor Crotty will discuss the steps taken by Orange County to mitigate the damage from future hurricanes.

John B. Copenhaver, to his right, is the president and chief executive officer of DRI International, overseeing an organization that administers the industry's premier educational and certification programs for those engaged in business continuity planning

and management. Previously, John was the Region IV director of FEMA, appointed by President Clinton in 1997. He directed the federal government's response to the 58 disasters declared by the president in his region. Mr. Copenhaver will discuss the role that business can play to make communities more resilient to hurricanes.

To his right is Jane A. Bullock. She's a partner in Bullock & Haddow, a disaster management consulting firm and is adjunct professor at the Institute for Crisis, Disaster, and Risk Management at George Washington University. Previously, she was chief of staff at the Federal Emergency Management Agency. She was the chief architect of Project Impact: Building Disaster Resistant Communities, a nationwide community based program to implement prevention and risk reduction programs. In 2000, she received the Presidential Rank Award, the highest award presented to a career civil servant. Jane is a co-author of "Forecast: Storm Warnings." She will speak about the role that the federal government should play to reduce the damages from future, more severe hurricanes related to global warming.

We are honored to host all of these experienced, knowledgeable panelists. They will each speak for five minutes, and then we will take questions and answers from the audience. So hold your questions until everyone's done speaking.

Thank you very much, and I turn it over now to Dr. Webster.

MR. PETER WEBSTER: Thank you. I'd like to thank the Center for American Progress for giving me the opportunity to speak today. As was mentioned before, I'm a professor at Georgia Tech. I spend my time working on tropical meteorology and oceanography, hurricanes, and also about half my time working on disaster problems in places like Bangladesh, who have less capacity to respond than we do. I'm going to spend a few minutes talking about the science. I'm then going to close with two suggestions.

During the last 100 years, the sea surface temperatures of the planet have increased by roughly 1 degree Fahrenheit and many, many changes that we're all aware of have taken place, including the retreat of ice glaciers and so on. But changes have occurred many, many times and the question you have to ask, "why are these different now?" There're a number of differences. We have interdecadal variability, which is often thought by many people to explain variations in temperature and – but in those one part of the ocean heats or another part cools down and it's really global.

On the other hand, most of the changes that we have seen in the past can be attributed to variations in the – variations of the orbit of the planet around the Sun or wobbles in its axis of rotation. During the last 100 years, there've been no way that we can attribute to changes in the surface temperature of the planet to anything but the increasing amount of greenhouse gases and these correlate, of course, in turn to man's activities.

The immediate question we discuss here is, what are the implications of this warming on the United States? Will change in the beta be slow migration of climate

zones? Will climate five become climate zone six? Or are there more impacts that might portend to have a more immediate risk? While the number of hurricanes, and major hurricanes in particular, have increased since 1990 especially, as demonstrated by Katrina in the 2005 season, our nation must confront a growing threat equal to that posed by all other manmade and natural disasters combined and there's a nice table in the report by the Center for American Progress which lists the greatest disasters, all of which – except one – is hurricane damage.

So that we know in a sense from our science from both the – such laws as (unintelligible) relationship and so on that we do expect the hurricanes to increase in their intensity. So what we have to do then is work out what, in particular, this will mean to the United States.

The studies by many scientists over the past few years have shown that North American hurricanes have increased both in number and intensity in association with global warming, and we feel quite comfortable about that association. In terms of intensity, this trend is probably global, although the data is insufficient to be able to say too much more than that.

So one of the important things is that there're two things we can do. We have substantial greenhouse warming contribution – if the current spate of hurricanes were simply due to natural variability, we might be tempted to just hold fast and hope. We might at best be lucky enough to survive the next Katrina and so on over the next – the increase in hurricanes until the next downturn. But any increase in global warming will be with us for a long, long time. In fact, even if we were to agree internationally on the decrease of carbon dioxide emissions, it will be a long, long time before we will get cooling sea surface temperatures.

The impact of rising hurricane activity is compounded by spiraling development and population increases in vulnerable coastal areas and we'll hear more of that in a little while. The problem is not going to go away and the association between numbers and intensity in sea surface temperature continue, it may get worse. A single storm can lay waste a city, endanger citizens, and paralyze economies. Federal and local government have to recognize that adapting the nation's vulnerable and aging infrastructure to mitigate the effects caused by more and stronger hurricanes is an investment worth making.

We must improve our understanding also – the second point – of hurricanes and our ability to predict critical aspects of hurricane activity on both the short term and the long term. In particular, we must increase our ability to forecast intensity, improve projections combined with objective engineering surveys to enable us to identify areas and cities that are at greatest risk, and to develop strategies.

I'd like to say that we have a choice in the sense of being able to take hits like Katrina for – and pay the \$200 billion – \$150-\$200 billion dollars and lose many, many lives. Or we have the choice of perhaps spending one-tenth of that or one-twentieth of that per year in hardening our infrastructures.

The second thing is the science. It is very important that the science be improved. Over the last many years, the amount of science funding into hurricanes has gone down. Vital observational platforms have been ignored. So what we are hoping for in this bipartisan legislation – the National Hurricane Initiative, which costs one-tenth thousands of the damage that has occurred in Katrina in order to be able to increase our scientific knowledge and our ability to forecast.

Thank you.

MR. RICHARD CROTTY: Well, first let me start by thanking the Center for American Progress for having me here today because what I'm here is to give a little bit of a local government perspective on the issue. I'm going to do an overview of the 2004 hurricane season, which was impactful on Orange County where I'm mayor. I also have some remarks that maybe during questions and answers we'll have an opportunity to address with activities at a local level to address the global warming issue along with any needs that might be there in terms of disasters for support from the federal government.

In an overview of the 2004 hurricane season, let me just suggest that it had been since 1964, since the state of Florida was hit by multiple hurricanes – and Orange County, centrally located, has usually been a host county; in other words, from the coastal counties we would wind up been the host. And that's something that we're good at. We've got 50 million visitors come to our community each year, so we kind of rocked along for a whole number of years in that regard. And then something happened that hadn't happened since 1960, and that was a hurricane called the Hurricane Donna came from the southwest coast of Florida right straight with a bull's-eye on Orlando, something that Hurricane Charlie wasn't supposed to do. It was supposed to go to the Tampa Bay area. But when that wobble took place and Charlie came on that same course, in a six week period, we experienced in Orange County and Orlando three hurricanes. And I think what makes that significant is that if you look at those three hurricanes over a six-week period, how impactful that was to our community and how we responded to it in that regard.

So I want to just spend a moment talking about the preparation, response, and something that turned out to be a much bigger issue that we had anticipated, which was the recovery. I'll give you some quick examples of what took place. Sixty percent of our pump stations were out of business because of the lack of power. Think about the mess – no pun intended – with sewage backup, and things of that nature. Forty percent of our traffic signals were out – a huge danger – and we had to act very extemporaneously how to address those issues, even putting up four way stops in major intersection.

The utility companies reported 85 percent of their customers in Orange County were without power. And the big issue really turned out to be the 2.6 million cubic yards of debris generated, which required collection and processing. And I will tell you when I talk about debris in this case, remember that 1960 hurricane that I talked about? Well, since then, a lot of trees grew. We have very lush tree canopies and so on. And that was

the big issue. Some of those older species of oaks and other things came tumbling down and it was a big issue for us.

As far as financial impacts and FEMA reimbursement, we spent about \$100 million from the county government's perspective. We got about \$85 million back of that, or at least were projected to get. Now, think about this because it was 2004 and we haven't fully received the reimbursement of \$85 million. Expenses in the first 72 hours – we were reimbursed at the 100 percent level and the old formula had been 75 percent federal, 12.5 state, and 12.5 local. Former Governor Jeb Bush was able to get that formula changed to 90, 5 and 5, which was very helpful.

But as you look at the breakdown and how that money was spent, it's interesting that about \$54 million was in the area of debris removal. And it got as mundane as things like – and something that you always think about, but think about August in Florida with no power and lots of standing water. Even some of it had to do with mosquito control, so it went from the obvious, which were stacks of debris that were being collected, on down to mosquito control.

I will tell you that we have received today about \$78 million of the \$85 million. That means three years later we still have not fully realized FEMA reimbursement. And I will tell you from the perspective of how to do it in the future. I can tell you there's two areas that are really important. One is having strong reserves to be able to come up with those monies before you get reimbursed, and we do that in Orange County. We were fortunate. But also, the finance department became, I believe, as important in the recovery as first responders were in terms of responding, and that is documentation, documentation, documentation that had to take place.

We had a firm commitment in terms of preparedness, shelter management. We had pre-identified shelters for general population, people with special needs, pet friendly opportunities. And one of the things that we did was went into manufactured housing communities and hardened those communities because we have a lot of seniors and a lot of folks that live in manufactured homes and there're some interesting stories of going to some of those and standing in a lady's manufactured home with no top on her home, or a guy who'd actually spent the whole hurricane inside his refrigerator in a manufactured home. But we're there when it comes to training and expertise. We monitor and work, obviously, very closely with the National Weather Service and others.

And I know I've got to wrap up here pretty quick, but there's three basic times that you look at, and that's everything, of course, in preparedness up to the event. The first 24 hours, the first responders were out there. A lot of times, we have our first responders go back to the station for their own safety. And then of course the next 48 to 72 hours different things take place, like the restoration of essential government services, opening points of distribution for things like ice and water and generators.

The list goes on and on but debris has been pushed off the roadways and we find it absolutely critical to communicate with our citizens and we do it to a 311 system advisories. We had press conferences. We have Orange TV, which is our country TV

station. Getting the word out to people what's going on is just absolutely critical and we have made some improvements as it relates to that for any future events.

We continue to improve communication with enhancing our 311 and our 911 system in training people that if it's true emergency, call 911, but if you want information call 311, but we're able to identify where those calls are coming from. And then we also came out with something called Orange County Alert-Net, which lets people get bulletins on the internet.

So with that I will wrap up those comments and look forward to any question that you might have as we proceed.

MR. JOHN COPENHAVER: My name's John Copenhaver, as you heard. I am the president and chief executive officers of the Disaster Recovery Institute International. I'm also from Atlanta, so if you'll forgive me a few moments mourning for the Falcon season ticket holders among us. I represent the private sector here. I feel a little bit like Rudy Giuliani asked to describe his worst mistake and what he learned from in 30 seconds. That's going to be a little bit difficult. But what I want to emphasize is why is the private sector important?

The private sector is important because it contains the great majority of this nation's jobs and the great majority of this nation's wealth. Eighty-five percent of this nation's critical infrastructure resides within the private sector. So how the private sector does things and what it does are both critical issues, specifically with regard to hurricane preparedness and response. It is one of the keys that we must continue to focus on. And I was very pleased to see that recent legislation highlighted the need for private sector preparedness. Title 9 of one of the bills that was just passed in fact is specifically about private sector preparedness.

There're three things I want to emphasize today. The first is that in any given community individual businesses must prepare. The business themselves, from the smallest to the largest business must take the time and expend the effort to prepare. There are ways that they can prepare, but there are two specific areas that they need to prepare in. First is in business continuity, looking to find out what their critical functions in the processes are and making certain that the things that they need to be able to do, either to resume very quickly or to continue doing, to stay in business are addressed. That's a key issue. It's called business continuity planning. It also goes under the name of continuity of operations planning in certain government sectors.

The second is emergency response. For those people that work in their buildings and their facilities, for the people that are visiting, for their suppliers, there need to be plans made to take care of those people, to make sure that if they need to be evacuated that they can be evacuated on a timely basis. If they need to shelter in place, then they can be advised to shelter in place. These are called emergency response plans and all businesses have to have some form of emergency response plans, whether it's responding to a natural or a manmade event.

Businesses must also address the fact that they have an obligation to make certain that their employees are planning, that they have home emergency plans, that their employees have access to information that helps them to prepare individually and as homeowners. That's an absolute key. There's an obligation that a business has to make sure that its employees are well prepared and are taken care of.

And then finally, businesses should look at their suppliers and should either recommend or should mandate that their suppliers have some kind of contingency plans. That way, this wealth can be spread.

The second point is that businesses need to work together to be prepared. No business functions completely in isolation. Businesses are a part of the community, and businesses working together – small businesses being mentored by larger businesses that typically have greater resources to be able to plan, larger businesses that are able to provide resource to user groups such as here in Washington the Contingency Planners Exchange or the Association of Contingency Planners. This is key. Businesses need to work together, whether it's with small informal groups of businesses or through the chambers of commerce. Businesses also need to identify their common needs in the event of a disaster. They need to understand what those needs are and how they can work together to satisfy them.

Businesses also, and this is my third point, need to be prepared to work with their governments, with the local governments, with the state government, and in some instances with the federal government because they are going to be a part of a government response in a large-scale disaster. Businesses are going to have to understand what they will be asked to do, what they will be required to do, and how they can help governments and work with those governments in the event of a large event such as a hurricane landfall. It's incumbent on businesses to understand those requirements.

The bottom line here is that if you look at communities, you can't sink half a ship. Communities have to be prepared together. Businesses are integral parts of that community. Businesses have to step up to the line. The private sector has to be prepared and be a part of community preparedness to work for all of us. And believe me, it needs to work for all of us.

Thank you.

MS. JANE BULLOCK: Good afternoon. My name is Jane Bullock. I spent 22 years working at the Federal Emergency Management Agency, FEMA, and had the pleasure in the last eight years to be chief of staff to James Lee Witt, who was director of FEMA at that time. I'm very happy to be here today to be part of this very esteemed panel but also because I want to compliment the Center for taking on an issue that proves there's something we can do about global warming now. And what we can do about global warming now is mitigate the impacts, and mitigate the impacts of future hurricanes.

As Dr. Webster talked about, the science is showing they're going to be more severe and possibly more frequent. What can we do as a nation now to address that? What we are proposing as part of this report is that we address it through community-based mitigation. What does that mean? What it means is that communities get together and they form a partnership, bringing together everybody in that community: elected officials, environmentalists, academicians, business sector, nonprofits. They look at their community and they assess their vulnerabilities.

After they do the assessment, they look at what they can do to address that either structurally or non-structurally. And then finally they generate the political support and will to do it along with resources. And as part of that, as Mayor Crotty said, they create local community emergency networks that basically funnel information up the chain during an event, but more importantly, work to implement mitigation before the event and after the event during recovery.

Now, why are we proposing this? We're proposing it for several reasons. Number one, we know it works. It worked in the '90s under Project Impact when 250 communities participated and created more disaster resilient communities.

Number two, it saves money. All of the studies prove that for every one dollar invested in mitigation, there's \$4 in benefits. And it saves money at the local level, the state level, and the federal level, and in the private sector.

The other thing is it promotes economic stability within those communities, so communities don't lose their tax base because businesses go out of – can't function during the disaster. It provides stability for the recovery. Recovery is much more quickly achieved when you've got a strong mitigation program going.

And then finally, it can provide incredible collateral benefits. For example, one of the good mitigation projects coastal communities can do is make sure that they keep and/or restore their wetlands. We all know if the wetlands were in place off the coast of Louisiana when Katrina came through, we wouldn't have seen the level of damages that we saw after Katrina.

Other things beside the community network and the community mitigation program that we're talking about require a very strong federal support. It requires strong leadership at the local, state, and federal level, but there are also other things that could be done at the federal level, which is what I'm basically going to be talking about. Let me give you some ideas of what we think could be done now with Congress and the federal government.

First of all, we could look at revising our existing disaster legislation that would allow communities to build back better. Current legislation says that the communities will be reimbursed for building back to as it was before the disaster, and while there is some mitigation that could be added, it's not universal. So we're saying the federal government should provide the leadership and support to build back better. We're also talking about the fact that the federal government puts enormous amounts of money out

in capital funds. What we need to do is look at how that capital fund – how those capital fund programs can be used to incorporate mitigation. In the – in the Intermodal Surface Transportation Emergency Act – I probably got that wrong, excuse me.

MR. CROTTY: Easy for you to say.

MS. BULLOCK: Yes. That was passed in 1991. There was very dramatic language put into that act that said anyone living in an earthquake prone area with a capital improvement had to consider the earthquakes and mitigate them.

We're also looking at the state catastrophic insurance funds that currently exist. Why not – and there is a lot of interest in a federally backed reinsurance program – well, why not take that reinsurance program and with the federal backing require that some of those state funds go to mitigation?

Other ideas that are in the report, and I would really encourage you to read it, is talking about smart grids. It was mentioned that infrastructure is the real problem in the aftermath. Let's look at a new way of doing smart grids so that we can bring the source of generated – generations of electricity closer to home. We can create a global disaster – warning disaster mitigation fund by looking at fees from existing permits such as storm-water drainage permits, such as construction permits. And also we need to create an investment a mitigation investment bank, and this would be something that could be contributed through the private sector, as well as the public sector.

In closing, there's a lot that we can do, but we cannot do it without the partnership that you see on this panel – without businesses, without local leaders like Mayor Crotty, and without good solid science that we've heard from Dr. Webster. It's very important. There is cross dependencies. It's the only way it's going to work.

The bottom line is we know this will work. We have to find sources of funding. In the report you'll see some very creative ideas for how these programs could be funded and I think the bottom line is what we need now is we need political leadership, like we see with Mayor Crotty here. We need it at the federal level. We need support from the federal government and to utilize all the resources that exist in terms of legislation, regulation, programs. And we need a good partnership with business and the nonprofits.

Thank you.

MR. WEISS: Thank you very much out panelists. We keep mentioning the report "Forecast: Storm Warnings." It's available online at americanprogress.org. American progress is one word in the URL.

We're going to take questions now. The procedure is to raise your hand and a CAP staff member will bring you the microphone to ask your question. Please state your name and affiliation for our transcript, and as moderator I get to ask the first question. And I will throw this open to all of you. If you could pick out one thing that would help mitigate damages from the future, more severe hurricanes that we're going to be seeing

under global warming, what would be that one thing that you'd urge a community to do? Anyone?

MS. BULLOCK: Well, I'd be happy to answer that. I would say create what we're talking about, a community partnership to assess your vulnerabilities. And it becomes very clear that there are easily one or two things that can be done, such as enforcing your building code so that new construction is built to withstand hurricane winds, or, as I mentioned earlier, restore your wetlands.

MR. COPENHAVER: I would say the one thing that would have a tremendous impact would be for all employers in a given community to step up to the fact that they have an obligation to ensure that their employees have the information that they need to plan and access to that information, that they encourage their employees to be a part of the solution rather than a part of the problem, and encourage them to plan.

MR. CROTTY: I would say to look at areas that have gone through this experience and see what lessons were learned from that. And there were some things in Florida, I know, looking back to Hurricane Andrew. Our building codes – there's actually a pre-Andrew and a post-Andrew building code in the state of Florida. It really was pretty good in terms of that, but also having a strong policy group and the way that you do it in preparedness as you have these ESFs which is Emergency Support Functions. That's where the community comes together.

You have somebody from the power industry, it might be public and private, from places you wouldn't even think of, local governments sitting around the table. And in the case if Orange County I, as mayor, appointed the county administrator to chair the policy committee during the event, and it might be – the decision might be made like the mayor's got to declare a curfew. County attorney have the documents ready in a half hour to be signed, and we were kind of calling audibles as we went.

And another thing is pre-approved situations. For example, we had hired a company to do debris removal before the hurricane, and they were on standby. All it took was a phone call and they were getting their subcontractor who turned out to be really nothing more than a bunch of guys with pickup trucks from around the South that came in to help them get that debris removed. Of course we hired an engineering company to oversee that, but what you can do in advance in terms emergency generators, ice and water, debris removal – those things – having a plan in place upfront, it's really critical.

MR. WEISS: Okay. Questions?

MR. WEBSTER: Can I just add one – no, no, no because it's a very important point and I think it is that one needs to be able to provide the communities with the best forecasts that are available and a longest lead time possible to allow them to determine the risk to their communities. And that's going to require an investment and it's going to require the building up of trust so that Orange County, for example, knows the degree

of probability of what category a storm it will be and the degree of probability of where it will make landfall, and I think that's something which is very, very important.

MR. WEISS: Thank you.

Yes?

Q: Thank you. My name's Todd La Porte. I'm a faculty member at George Mason University and I can't thank you enough for this report. I think this is a fabulous initiative. My question is – and perhaps, Jane, you're the person to answer it first – is Project Impact was, as you said, a big success and yet the political will to sustain it past one administrative regime wasn't there.

We all respond to the latest disaster and then over time our attention drifts. We find it difficult to sustain our anxiety about something that hasn't occurred for a very long time. How – what sort of incentives do you or any of the panelists think need to be put in the place that would make for a stronger institutionalization at a more permanent level of the kind of attention to these kinds of infrequent or low probability/high impact events so that this kind of sporadic attention is sustained over longer periods of time?

MS. BULLOCK: That's an excellent question. I think there's three things that come to mind. Number one is – and Peter touched on it as well – is a lot of communities don't really know how vulnerable they are. And the fact that our coast – huge amounts of our population are moving to the coasts. We've got increases in coastal population in double digits in a lot of the states that are vulnerable. So they really have to know their vulnerability, but they also have to know they can do something about it through mitigation, but that mitigation action they take will start paying off on day one.

So they don't have to wait to get their return on mitigation for the next earthquake or the next hurricane. And we have not done a good job talking about the collateral benefits of putting – for example if you put film on your windows, it helps in a hurricane. It also helps if you happen to have a fire next door or a bomb blast. We have not done a good job communicating that and we have to. We also have to recognize that unless we can prove that mitigation starts paying off politically and financially to the business sector and the political sector from day one, we're going to have a hard time with the sell.

MR. WEISS: Any other panelists want to address that?

One of the things that is a problem is that a lot of the resources for addressing natural disasters are taken up in the recovery phase and that it is the mitigation phase that is given short shrift even though in the long run they will save money by producing the damages. So one of the things we propose in our report is either through FEMA or some other entity is to make sure that there are mitigation resources adequate enough to get the job done and not have that be another part of money that gets stolen away to deal with recovery because that in the long run will save resources.

Other questions? Yes.

Q: I'd like to address just that –

MR. WEISS: Name and affiliation, please.

Q: Yes, Valerie Crotty, late of Daytona Beach. Hello, Mr. Mayor. (Laughter.)

MR. WEISS: Is there any relationship?

Q: I was married to the Democratic side of the family, but yes, cousin Richard, good to see you. One of my many volunteer jobs there was as chairman of the board of the Red Cross in Daytona Beach, so of course I participated in evacuations and opening shelters and going in afterwards to various areas. This is going to be very lengthy.

Florida knows how to do hurricanes. We really are very good. We're very well prepared. The communities work very tightly together, and as I see other areas, particularly Arlington County, where I live now, preparing for disasters, either natural or manmade, they have a lot to learn. It was just a year ago, for instance, that Arlington County put out a call for hand radio operators which we've used in Florida for years and years in communicating. So many counties around this area do not have good communication systems that interface. So we're strung up there.

For those of you who worked for FEMA under Jamie Lee Witt, you're to be complemented. He was terrific – really good guy. Three years ago I called a friend at Homeland Security and said Melbourne's evacuating their hospital. You need to send someone down there to see how it's done, and the response was "duh." We're not interested in that. We don't need to do that. But I think that lives could have been saved in Mississippi and Louisiana if that protocol was already in place.

So now you're talking about what can we do to get prepared, and I would suggest to Mayor Crotty – I also worked with Katherine Harris in FAVA/CA in the Caribbean. They've done a lot of work preparing the Caribbean nations in disaster preparedness, but I'd love to see the state of Florida get something very similar that would go out to other not only coastal communities, but communities that are particularly threatened by terrorism incidents and other things where we're using volunteers, but the state of Florida coordinates, and I think Governor Crist would certainly be amenable to this –

MR. WEISS: Thank you.

Q: – based on the FAVA/CA model to help these people get prepared and show them what can be done.

MR. WEISS: Thank you. Mayor Crotty, what do you think of that idea?

MR. CROTTY: I think it's a good idea. It's been a little bit more I guess extemporaneous. Some of those kinds of activities seem to take place when there is a disaster like officials in Florida certainly chipped in like a lot of people from around the

country in terms of helping Katrina, but the point that I would make is one that I think you made, too. We – I guess the way you put it is we know how to do hurricanes. And if you look at the structure and the preparedness and the tabletop exercises and the leadership that's there and you look at the situation in Katrina, it just was kind of day and night, with all due modesty. So you ask the question, do these people own a TV? Do they watch the news? I mean, there's things that can be learned just by staying informed and maybe a more formalized way of communicating that or sharing information outside. We kind of think – in Florida as the region and then the state. And I think you're right: it kind of ends at the state border, so it's certainly something that ought to be pursued.

MR. COPENHAVER: Let me comment just briefly. As the former regional director for FEMA, for the Southeastern region, including Florida, one of the things that we encouraged, and we need to continue to encourage and to provide vehicles for it is information sharing and experience sharing. And that's not just a government. That's the private sector as well.

Collectively we have done so many things that have worked and a few things that haven't worked. We need to have the capability to gather that information and to disseminate that information amongst the communities that are potentially going to be impacted by the same kinds of threats that many communities have already experienced. And that's going to be one the things that you're going to see a focus on, is collecting that information – those experiences – and learning from them.

MR. WEBSTER: That sounds like a good role for the federal government to play actually.

MS. BULLOCK: Can I comment on that?

MR. WEISS: Sure, of course.

MS. BULLOCK: Exactly, that's one of the recommendations that you'll see in the report. I don't know if the audience realizes that there's not one single place in the federal government where all of the costs of any disaster are accumulated. So when you see the charts, you notice we're very clear in saying these are FEMA costs. There's no clearinghouse for disaster information that currently exists within the federal government. And I guess the logical thought is this should be something that FEMA will do.

I'd like to add on to something that Dan said. We need an organization, a separate entity. FEMA in its current construct is not going to do what we're talking about doing in this report and what you were talking about needing. We need an entity that can handle mitigation and focus on long-term recovery, and it's not just us saying this. There's been legislation put forth – introduced in the Senate to take recovery out of FEMA. So there's a need to focus the federal effort on mitigation comprehensively and it won't happen as long as it sits within the Department of Homeland Security.

MR. WEISS: Other questions?

Q: Hi, Sarah Wartell from the Center for American Progress. Hi, Jane. I just wanted to ask each of the panelists if they could talk a little bit about how climate change and global warming affects the prospect for increasing readiness or not. I concede, conceivably it's a little bit of a two edge sword. On the one hand, it may help to create more of a sustained willingness on the part of the public to invest in preparation. On the other hand, there's a little bit of a mixed message that we're sending to people on the one hand that we need to avoid the climate change and lower our carbon emissions, and on the other that we need to prepare for its impact. And just in each of the different audiences that you're working with, if you could talk a little bit about how the elevation of climate change as an issue has changed the dynamics around the readiness.

MR. WEBSTER: I think sometimes global warming is looked upon as a very, very slow process, but not all natural systems respond in a linear fashion. They sometimes respond by jumping. And in the study that Greg Holland and I did, we found over the last 100 years that there have been steps.

So it's important, I think, to make sure that the public understands that the responses to warming sea surface temperatures can be a lot greater than it might imagine. A lot of people don't worry. What's another one degree or two degrees? But the real worry is what can happen to these extreme events.

So I think it's important to – in education to make sure that two things are understood. One is that global warming isn't a simple process. It's a process that we have some understanding of, not total. The second thing is that we need to understand the risk of these events as we move into the future. And I think being able to establish risk is the most important thing because without risk the other members of the panel here can't do their work, unless they can establish what the risk is.

MR. CROTTY: I think one of the things about the linking of these two issues, which is hurricanes and global warming, and the reason that I was so interested in being here – and I think Todd from the audience mentioned that sometimes you lose memory as events get farther and farther apart, and that's exactly what happened in Orange County. It'd been 40-some years till there was a hurricane and people kind of always took a very lax attitude. And I think that this global warming – and by the way, we're seeing some of that memory loss even since 2004. But I think this is a great opportunity for us to use this issue to keep public awareness very high; not just that it's a major issue that we should be focused on for generations to come, but that it may have some implications on our weather patterns and that we need to capitalize on that to keep people vigilant as they prepare for hurricanes.

Now, what we're doing in Orange County next month on the 25th of September is having a regional summit on climate initiatives and global warming, and we hope that raises the level. And we're going to talk about petroleum consumption and we're going to talk about our environmental land purchases, which are now at about 22,000 acres and other things – one of the things I'm really excited about is we have the biggest convention center – the second biggest convention center in America in Orange County. And we have applied for a grant for a \$7 million project of photovoltaic technology. It

would be one of the biggest buildings in the country and the biggest public building in the country as far as we can tell that use that kind of technology. And we're doing other things. The list kind of goes on and on. We just recently approved a commuter rail system.

Well, that's the beginning maybe of something. We don't have much mass transit or multimodal approaches to – we've grown like this with a huge dependency on the automobile, so it's just a mindset changing and as we raise that level of public awareness on the climate change issue, I think an important part of that public awareness is going to help people at least have some memory of what takes place with hurricanes.

MR. WEISS: Anyone else wants to answer?

MR. COPENHAVER: Yes. To your point of the duality of those two approaches. First, we do need to do everything that we can do to reduce carbon emissions, to address the problems of global warming. Hurricanes are basically heat engines. They're very simple. They thrive on warm water and they take the energy from warm water and they transform it into atmospheric energy and kinetic energy. So clearly the warmer ocean waters are, the more likely you're going to have hurricanes that are substantially greater in intensity as the ocean water's warm.

And we've seen that. That's not a revelation of any kind. So that is something that we are going to continue to need to address because if we do everything that we can do in our power today, global warming is going to continue for some time, which leads to the necessity for preparedness. Given that there are going to be hurricanes, given that there are going to be both natural and manmade disasters for the rest of our lifetimes; and given that, some of the research indicates that these disasters may very well come with greater frequency and greater intensity, it becomes something that our culture needs to focus on to be prepared for these disasters, to reduce the impact of these disasters, and to be able to respond and recover more effectively. And that's what we're here to talk about today.

MR. WEISS: I want to thank everybody for attending. Unfortunately, several of our panelists have to go catch airplanes, but "Forecast: Storm Warnings" is online at americanprogress.org. I appreciate everyone attending and especially the participation of our excellent and well-informed panelists. Thank you very much.

(Applause.)

(END)