Building a Resilient Tomorrow

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Greg Dalton: This is Climate One, leading the conversation about energy, the economy, and the environment.

Climate-fueled floods, fires and droughts have devastated America's cities and rural areas. Our natural response is to regroup, recover and rebuild. But should we instead be preparing for managed retreat?

Alice Hill: Well, we will be in an era of retreat; whether it's managed or chaotic will be up to us.

Greg Dalton: As the disasters accumulate, the costs of rebuilding homes and restoring communities are soaring.

Alice Hill: If we want to keep building infrastructure to keep homes right next to the sea, we're gonna pour a lot of money into places that will wash away.

Greg Dalton: And as local resources are strained to the breaking point, cities and towns turn to Uncle Sam to help out.

Sherri Goodman: We used to think our military was primarily for the away game, but now they are backup for these first responder missions whether it's wildfires floods or extreme events.

Greg Dalton: Building a resilient tomorrow. Up next on Climate One.

Greg Dalton: What can we do to prepare for climate disaster?

Climate One conversations feature oil companies and environmentalists, Republicans and Democrats, the exciting and the scary aspects of the climate challenge. I'm Greg Dalton.

Climate fueled floods, fires, droughts and hurricanes are on the rise. As severe weather hammers

our cities and devastates our wilderness, who will pay to shore up infrastructure and rebuild communities?

In her book Building a Resilient Tomorrow: How to Prepare for the Coming Climate Disruption, Alice Hill warns that the consequences of failing to prepare for further global warming will be staggering.

Alice Hill: Unfortunately, the events are occurring so quickly and we're going to see storm surge greater on the East Coast, more intense hurricanes on the West Coast, sea level rise causing erosion, that even if people don't choose to retreat things are just gonna fall into the sea.

Greg Dalton: On today's program, we'll talk about managing the costs and consequences of the growing climate threat. My guests on the Climate One stage are Alice Hill, Senior Fellow for Climate Change Policy at The Council on Foreign Relations, and Janet Ruiz, Communications Director at the Insurance Information Institute. Joining us from Washington, D.C. is Sherri Goodman, Senior Strategist at the Center for Climate Security and former Deputy Undersecretary of Defense under President Clinton.

During the Obama administration, Alice Hill served as Senior Director for Resilience Policy at the National Security Council. She admits that it was a job nobody wanted.

Alice Hill: Well, it was the job of looking at whether the Department of Homeland Security this huge sprawling security agency essentially, one of the largest law enforcement agencies there is, whether that conglomeration born out of the events of 9/11, an anti-terrorism mission needed to care about climate change in 2009. And the reason for that is because President Obama had signed an executive order requiring all agencies to plan for climate change sustainability as well as adaptation. I was the new kid, I just joined the department, and at that time and there still probably a little bit of truth to this right now, climate change was not viewed, working on climate change was not viewed as a career enhancer.

So I recall that the other leaders within the department sort of leaned back and they weren't volunteering. So somebody said, "Oh she's new give it to her." And that's how I embarked on climate change and just as you I had that moment where I realized it affects everything and that there really is no more important issue that I could spend my time on.

Greg Dalton: And so what was the process of sort of persuasion, conversion, awakening that you saw in that time going to people. Tell us about sort of seeing the lightbulb go on or did it never go on for some people.

Alice Hill: Well, the department which has Coast Guard, FEMA, TSA of course all the immigration agencies there. So it's looking at a whole host of missions. The question that we asked, we assembled a task force we copied work from the Department of Navy, they had done a task force on climate change. And looking back on it, probably it wasn't a very savvy way to phrase it but our task force did just say we need to answer the basic question. Does this department need to care right now? Given this whole host of other missions that we're responsible for. And so we pulled in scientists from across the federal government at that time there were still many scientists within the federal government as well as national security experts, including Sherri. She helped us with our understanding of the risks. We worked together cross agency, all these different components and collectively we each had an aha moment where we said, "This affects everything. We need to care deeply we need to plan forward. We need to consider it account for it and get ready."

Greg Dalton: Sherri Goodman, you perhaps even further were involved in connecting environment and national security, things that were considered in different realms. So tell us about that kind of reframing, I believe it was 20 years ago or more where there was kind of this connection between environment actually as a national security issue.

Sherri Goodman: Well, thank you in welcoming me. It's a pleasure to join you all remotely. I wish I were there in person. Back in 1993 I became the first Deputy Undersecretary of Defense for Environmental Security. And I actually spent a lot of time in California in that era because we were closing a lot of military bases and so we had to clean them up responsibly. And that was a big commitment of President Clinton at the time was to fast-track the cleanup at the many military bases, particularly in the Bay Area from former Naval Air Station Alameda to the Presidio Treasure Island and many others that are now important lifelines for economic and social and community activity in the area. In that era at the end of the Cold War we were trying to understand the connections between global environmental change and national security. Everything from helping the former Soviet Union and Russia denuclearize in a responsible way to understanding how changes in the ozone hole through the Montréal Protocol and changes we had to make would affect military institutions, which actually became engines of finding the new technologies that have allowed us to find substitutes for ozone-depleting chemicals.

So those were some of the issues as well as global conservation issues. Many some militaries around the world are responsible for conserving lands. In fact, the United States military has many islands of nature among many of its bases now. Think of Camp Pendleton in Southern California, which is the largest stretch of green spatial fine between Los Angeles and San Diego and that's because it's been protected from development and now harbors many endangered species and important ecosystems. So that in many ways was the first chapter of connecting environment to security issues.

The next chapter came in the 2000's when we began to understand that climate change could impact security and that there were national security implications to climate change. And that in 2007, I formed a military advisory board of retired senior military leaders working with the Center for Naval Analysis, a respected think tank in Washington, and we released in 2007 our first report on national security and the threat of climate change where we characterized climate change is a threat multiplier for instability and fragile regions of the world. We now know, of course, that it's not only in fragile regions, but it's right here at home where Alice has written now a very important book connecting the dots between climate change resilience and our homeland.

Greg Dalton: Janet Ruiz, the insurance industry has been out front cause it looks at data and it's kind of early on in this. When did the industry really realize like, oh this is something that's gonna affect us and really put some resources into, we gotta understand this.

Janet Ruiz: Well, risk is what the insurance industry is all about, right. So we're always looking at risk we're always looking at how to manage it. We're putting money in reserves and then paying claims and helping people recover. But I like the focus now on resilience because it's even a little broader than that. So you asked me, you know, when did the insurance industry start paying attention, well I think, it's always been part of what we do. It used to be that cities like San Francisco the whole town would burn down or Chicago, etc. So it wasn't just the insurance industry but the insurance industry had a big part in stabilizing how we manage urban fires, floods, etc.

But, you know, we are seeing changes in the climate you can't deny that. And the other part of it is we also now have a lot better technology to collect data and then process it. So as an industry we've always been huge data collectors, right. We know where people live, we know what their jobs are. We have all this data but now we're able to manage it quite a bit better. And I would say the

modeling for like flood and hurricane probably really started getting more sophisticated in the 90s after Hurricane Andrew. And so it began with hurricane was really the one we looked at first. And as we've gone along we've had an earthquake, flood, wildfire is probably the most recent one that we've been collecting data and really been able to model as an industry

Greg Dalton: And wildfire has really been the breakthrough climate story of the last couple of years. And, Alice Hill, really the state has been rocked by the couple of years of tragic devastating wildfires. A lot of people didn't see this coming. But you said California should have seen this coming because you looked at it when you are in the White House. Tell us what you saw from Washington DC looking at California's wild fire future.

Alice Hill: When I was in the White House I had spent 24 years in Los Angeles. I knew that wildfire was a risk just basically actually from my own home. I'll tell you a little story that when California start mapping it's wildfire risk, my husband, this is maybe 2008 or 07 we got a notice from our small town saying we will not defend your home if there's a wildfire you are in extreme hazard area. News to me, I of course thought well I hope they didn't tell us our insurance company that. So I knew that wildfire was a growing risk. And then as I became more educated about what was occurring in the drought risk the hotter temperatures and that we were seeing fires as we saw in Colorado Springs that just were igniting entire subdivisions where they were burned within five hours.

You talk to the researchers they say we don't really know fully why that thing burn so quickly. And then we convened the fire chiefs from across the nation, you may not appreciate this but more wildfires occur in the East Coast. And what's really happening in the United States is just as we all want to live along the coast, turns out a lot of us also want to live in the mountains in the wildlands right up next to the wildlands or right in the middle of them. And we are developing at a very rapid rate and this is particularly true in California homes in these areas, but those are combining with fire risk, particularly in the West.

And then I learned from the fire chiefs that they know how to fight urban fires but really have deep expertise in that and they know how to fight wildland fires because we do that. But that model doesn't fit for this wildland urban interface. And the story I remember is you have these mutual aid agreements so California will call Oregon and say hey, can you send a bunch of firefighters down here we had a what fire in our big forest down here. Sure, we'll be there in 24 hours. 24 hours, the subdivisions are all gone; that model doesn't work anymore. So it's clear and they at that time requested training they wanted more understanding of what was at risk. The research has improved but certainly there's a lot more to learn.

Greg Dalton: So California should have been better prepared. We should have known, that's what you're saying?

Alice Hill: Well, I think that this is not, it was predicted. In fact, all of the climate events that we're experiencing the scientists have been telling us. So it's really a matter of our leadership having their aha moments and realizing this is a big risk that we have a lot of political debate here where there's some people think it's a question of belief whether these impacts are occurring even though they're well documented. So that affects the decision-making and there's a lot of discounting of the risk because it's so unfamiliar. We tend to judge risk based on what we've experienced, or someone close to us has experienced. By definition climate change brings ever more extreme events. So don't be surprised when you hear after every event I've never heard of such a thing I've never seen it in my community. That's what happens with climate change. So we're working against those cognitive biases the political debate and just general discounting of risk when it's on this seems far-off and unlikely to affect us. We're all optimists we believe it won't affect us.

Greg Dalton: FEMA maps and insurance premiums all that's rear looking, it's not looking at the road in front of us. Sherri Goodman, I wanna ask you about the Norfolk Naval base. What's going on in terms of the risk and they're already kind of preparing and responding to climate change that's here and now at the largest naval base in the world?

Sherri Goodman: Well, let me start with picking up on that question by picking up where Alice left off because, you know, our military leaders when we formed the military advisory board and military leaders in general, are trained to anticipate risk. That's what we always you know any threat that we look at around the world whether it's nuclear terrorist, chemical, biological the next health pandemic, it's a risk. So what do we plan and prepare for? And we said in general, our first chairman of the military advisory board, General Sullivan said, if we wait for 100% certainty we know something bad is going to happen on the battlefield, okay. And that's basically how we have to think about climate risk. All of our military leaders have had their aha moments too and they've become to realize many of them started as climate skeptics but now they realize that climate is one of the most fundamental risks which we as a society and which our military and our leadership, our national leadership needs to prepare.

So at Norfolk Naval base to take and the Norfolk in general to take an example, we have the largest complex of military facilities in the United States, perhaps in the world. We've got naval shipyards. We have a naval base. We have a NATO command. We have Coast Guard bases and Army and Navy and Marine Corps and Air Force, we have a major air combat command and we have a NASA facility as well.

So we have a large complex of facilities in an area that where the seas are rising in Southern Virginia, seas are rising, storm surge is coming in, the coast is naturally sinking anyway. You have coastal inundation, storm surge and subsidence of the land across the East Coast. So today already in Norfolk, you have sunny day flooding that happens on a regular basis, sunny day flooding, i.e. the skies can be blue and there's flooding in the streets and people can't get from their home in one part of the community onto the base or wherever they might be working. So this is happening now on a daily basis. So what is the community doing about it? Well, the shipyard is trying to raise the seawall so they can continue to do the important work of making some of our most critical military capability there. We have dry docks for nuclear submarines and for aircraft carriers and these are some of the most fundamental tools in the military toolkit and there are not many places. There's one East Coast shipyard there's one West Coast shipyard. So we have to reinforce the seawalls we have to raise the dry docks we have to change how we manage the critical infrastructure. We have to reinforce in many ways and we have to also think about natural infrastructure.

But this is not simply for the military it has to be done with the community there are actually 17 local communities there. It's not just one big city. So it's a very complex task. Now what's happening to the military? Now on a regular basis whenever there's an extreme storm coming up the East Coast and there are many more of them now, many more intense. We actually have to send parts of the fleet out to sea the ships and the aircraft to protect them from the storm. So we're actually sending our in many ways our own capability out to sea to protect them from the local threats, the homeland threats. It's a very complex and unusual challenge, but it shows you the nature of what we're dealing with here as we try to reinforce and make more resilient our military capabilities at the military ground zero for climate change.

Greg Dalton: You're listening to a Climate One conversation about protecting our homes and communities from climate-fueled disasters. Coming up, it's all about being a good neighbor.

Janet Ruiz: Yes, I'm responsible for my home and yes I live in a fire wise community. But…if I'm the only home that's fire resistant I have a less chance of surviving a wildfire.

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. I'm Greg Dalton, and we're talking about building ever more resilient communities in the face of climate change. My guests are Sherri Goodman of the Center for Climate and Security, Janet Ruiz of the Insurance Information Institute, and Alice Hill, co-author of Building a Resilient Tomorrow.

As the number and intensity of climate change disasters rise, so does the cost of restoring the homes that have been lost. Insurance rates are on the increase and policies are getting canceled. Elected officials are pondering how to manage and price that growing risk. But while some see managed retreat from vulnerable areas - near forests, along rivers and coasts - as a more realistic solution, Alice Hill says it's also something of a political football.

PROGRAM PART 2

Alice Hill: Well, we will be in an era of retreat whether it's managed or chaotic will be up to us. And you are absolutely right the timeline of these things is not favorable for political elected officials. Someone who is looking at a reelection campaign first of all probably may not want to invest money in resilience when he or she could build a community center. We find that those investments are more popular. There is an expression NIMT, "not in my term" and we see that it's often those politicians with a much deeper experience in the community and at the tail end of their careers who are willing to take on these long-term risks. So that is a challenge upfront

And then of course managed retreat has become two dirty words. Communities have fought back vigorously here in California you have a number of examples including Del Mar one of your most affluent beach towns which after the coastal commission and their purview of looking at public access to the beach told all coastal communities, you need to at least have thought about managed retreat. Eventually Del Mar said, we don't want to have any mention of managed retreat. And you understand property values are at stake and so if your home falls into that area where you may have to pull back, you might not want to talk about it because that could reduce your value. Unfortunately, the events are occurring so quickly and we're going to see storm surge greater on the East Coast, more intense hurricanes on the West Coast, sea level rise causing erosion that even if people don't choose to retreat things are just gonna fall into the sea. So if we want to keep building infrastructure to keep homes right next to the sea, we're gonna pour a lot of money into places that will wash away. And so that's why it's desirable to think about a plan for how you're going to pull back and make sure that people are safe and that we don't waste money, which is really what's at stake if you think that you can keep the sea at bay on these kinds of coastlines that the United States enjoys.

Greg Dalton: Janet Ruiz, is the insurance industry happy to ensure those mansions on the cliffs that are gonna wash into the sea and just charge high rates or?

Janet Ruiz: Well, we have a lot of underwriting guidelines for coastal risks. And so we will ensure the ones that adhere to those. But even in any catastrophe one of the things that does happen quite a bit that sometimes is viewed as the bad thing by maybe local leadership like you are talking about is that people are able to take the money and they can move if they'd like to. So you don't have to rebuild on the property you're on. What happens is a good percentage of people do that but the

local levels don't like it because then they're losing the tax base.

So what we're seeing now is communities and government looking at these issues to try and decide what does make sense. And in California they've actually given some of the communities money to infill the tax issues so that it's okay for people to move. And when it makes sense it's like you said it's not managed retreat they are retreating because they want to but at least some of that is happening.

Greg Dalton: When Jessica Sager moved into a new house in Austin she had no idea the neighborhood had flooded many times over the years, most recently in 2013. In fact it was on a 25-year floodplain and the situation was so dire that the city of Austin bought out more than 50 local residents and demolished their houses. It's one of a series of buyouts Austin is conducting in flood prone neighborhoods. The repeated destructive flooding coupled with an exodus of residents left an emotional hole in Sager's new community. Her idea was to reuse some of the newly vacant land to bring people back together.

[Start Playback]

Jessica Sager: There was a lot of sense of helplessness about the flooding itself, a sense of sadness about seeing the neighborhood slowly become demolished. And there was this one stretch in particular just down from my house that I would pass literally every day. It was across the street from the creek side and it was a corner lot there's big open space there's this beautiful mulberry tree. And I every day would drive by that and just thought that is just a beautiful lot, a beautiful space and I think it really needs a garden. And there was a lot of concern on turning it into a garden too, it was a lot of red tape. And I'm not exaggerating when I say that the process of it brought me to tears at different times.

But I stayed in communication and I just kept talking to people about it and we put in a 28-plot garden with a big community herb wheel. Gardening together has helped build the community too in a way that it's not just people living in houses nearby but it's people who then now talk to each other and gather and look out for each other and care. I got really moving feedback from neighbors about how meaningful it was to bring people together again and bring people together again on this land that had been part of the neighborhood and then sort of look out for them.

[End Playback]

Greg Dalton: That was Jessica Sager who helped create the Heartwood Community Garden in Austin, Texas. Alice Hill, there's two points there I wanna pull out. One is the importance of connectedness in communities after a tragedy or trauma. And number two, the buyouts of the government coming in and just buying land, are we gonna see more of that and where's the money going to come from?

Alice Hill: Well, you're absolutely right. On the first issue of social connectedness that is one of the things that we know most makes communities resilient is social connectivity. This is really on display when you have extreme heat events which we are experiencing already and we will experience more of. When you look at the excess deaths, the people who die as a result of suffering to an extreme heat event we know that those who are connected to the community are much less likely to die. It's the socially isolated people living alone, the elderly, who die or those communities that don't have the kind of opportunity to share together as we just heard about.

The question on the buyouts is gonna be a very difficult one for the nation. Right now these buyouts are often largely funded through federal taxpayer dollars and they are done on a voluntary basis. So

for example, in New Jersey after Sandy they had the Blue Acres problem -- Blue Acres program. But it did turn into a problem. Chris Christie had promised that he was just gonna take care of that land get rid of the homes that are flooded and open green space

Well, if you have a voluntary program there are a lot of people who don't want to move. And that's understandable; there's emotional attachment to your house may be you raised your family you've been there forever. You hear people are gonna -- I'm gonna go out feet first on so they don't want to sell. So sometimes you can't get even that little open space you just have a patchwork and then the town still has to maintain the infrastructure. If not everybody moves that's a problem. And then we have simply the demand is too great, you know, before Houston had 4-feet of rain dumped on it they had a buyout program. But the waiting list - this is before Harvey hit - was 3,000 homes. And just it takes about five years or at least that's what the studies to get to a buyout of a home. And by that time the home could be further damaged. And then if we're going to buy it out at pre-damage prices that gets to be pretty expensive. Canada has an interesting program they have a one and done. You get $250,000, you can decide to leave or not, but the next time your house floods that's it. And that's important for us here because a lot of our flood insurance is through the federal government.

And that program is deep in the hole, over $20 billion having been replenished over and over again by the federal government and we still ensure homes in the floodplain that repeatedly flood plus reinsuring new development in the floodplain. I'm talking about floodplains of 100 years, which is probably getting closer to one in 25 years. We're still as taxpayers subsidizing that. So we have a lot of issues about how do we pull out investment in development and then how do we do this equitably so that the people in Missouri aren't funding all the coasts that need to be bought out. Plus, we may need buyouts in wildland fire areas because some of those areas that are burned will burn again. We don't have a building code that makes sure they won't burn the houses won't burn. We may have to also develop programs to get people out of those very high risk areas. The answers aren't easy.

Greg Dalton: Janet Ruiz, what are some tips for homeowners who are in wildfire risk areas. What are some basic things that people can do and should do to manage their risk?

Janet Ruiz: That's a great question. There are many things that people can do and I'm pleased that now all the industries are coming together to simplify the messaging and make it consistent. So you know there's home hardening, there's land clearing, we see the fire services doing more preventative work. They have more money to do that now rather than just putting fires out. And we see programs like say Boulder, Colorado put together the wildfire partners program. It has the insurance industry, the realtors, the utilities, the government leadership all talking to each other to help people work as a community. And like Alice mentioned it is all about communities working together. Yes, I'm responsible for my home and yes I live in a fire wise community. But I'm also responsible to work in my community because if I'm the only home that's fire resistant I have a less chance of surviving a wildfire.

So I think that those are the things that you can do but really paying attention and working in your community the insurance industry supports the Insurance Institute for Business and Home Safety, IBHS.org and they have all the good tips on how embers travel and what you can do to prepare your home. So check in your community and see what's available.

Greg Dalton: If you're just joining us we're talking about resilience in the age of climate change with Alice Hill, co-author of the new book, Building a Resilient Tomorrow: How to Prepare for the Coming Climate Disruption. She's a former staffer on the National Security Council in the Obama administration. And Sherri Goodman, Senior Strategist at the Center for Climate and Security. And Janet Ruiz, Communications Director at the Insurance Information Institute. I'm Greg Dalton.

Sherri Goodman, what's happening now in the military in the Trump administration where I think the word climate is unofficially banned. Is there a kind of quiet under the radar work going on on these things or is it using different language? What's going on because the military in many ways the Navy in particular was leading for a while. What's happening now?

Sherri Goodman: Well, the military still doing a lot to protect both its bases its infrastructure it's rebuilding and off it. It's rebuilding Tyndall Air Force Base in Florida, which got severely damaged in Hurricane Michael last year. It's rebuilding at Camp Lejeune, which also got damaged in Hurricane Florence. And it's reassessing how it operates, I mean some of our bases overseas like Diego Garcia, which is a critical facility in the Indian Ocean from which we dispatch naval and air assets into the Middle East and other theaters of war today and every day could be underwater within the next decade or so. And we learned the hard way that in parts of the Pacific Islands where we placed at the Kwajalein Atoll in the Marshall Islands where we placed the space radar to track incoming missiles, now, that facility could also be underwater a billion-dollar facility within the next decade or could lose its ability to support the humans that need to be there because its water supply will suffer from saltwater intrusion.

So there's a lot of work going on to understand those risks and reposition our forces to one, you know, we found that in the last five years or so we're actually having to deploy our military to support civilian and homeland security activities in the U.S. like those hurricanes I mentioned on the East Coast. Think of Hurricane Harvey and all the hurricanes that have hit Florida and Puerto Rico. They have taken military as back up to our first responders to the point that we had to slow the flow of our forces overseas.

We used to think our military was primarily for the away game, but now they are back up for these first responder missions whether it's wildfires floods or extreme events.

I wanna share with you, Greg and others, I think there are some models from the defense sector that can be useful as we think about how to build resilient societies in the future. And I go back to the year I started in 25 years ago that also affected California very much, which was the closing of military bases. We had a lot of excess military bases in that era, we still have them. It took a very some farsighted leadership in the U.S. Congress and others to create a law that got beyond some of the local politics it takes to shut a military base or to change how we manage at the local level. And it was that farsighted base closure law that enabled us to close some of that excess military infrastructure which is now to the benefit of all the communities, including California and elsewhere. And we're going to need that farsighted leadership at the national and the local level again.

And then one other I think important example: in Denver, Colorado we use to manufacture chemical munitions and we had an explosive ordinance training center that today - it was the former Rocky Mountain Arsenal today is the largest urban wildlife refuge in the country. It's the Rocky Mountain wildlife refuge. We converted a former chemical weapons facility into an urban wildlife refuge. And the story that we heard about the Austin repurposing of the homes to an urban garden struck me as very similar. We have done this at various times in our American history we can do this again. We have to be creative from the federal to the local level to think about how we repurpose our lands into other uses.

And finally, on the wildfire front I'd say that the military has long thought about how to do control burns on military lands because if you don't manage the wildfire the ecosystem many ecosystems as Alice pointed out on the East Coast they burn regularly. And we have a lot of training ranges in Southeastern U.S. and also in the Southwest and in the Northwest that are at risk of burning. And the military has long used controlled burn techniques in conjunction with conservation organizations

to manage for healthy ecosystems that also allow for the training to continue. So we're going to need to step up our game on that particularly at that urban wildland interface and be able to take away some of the fuel of the fires the lands they build up there in this excess heat era.

Greg Dalton: You're listening to a Climate One conversation about ways to combat the fallout from climate disaster. Coming up, looking at climate change through the lens of gender inequality.

Alice Hill: Women often are the fetchers of water; they'll have to go further, they are more vulnerable in an acute event. We see human rights violations human trafficking occurs and often it's women and girls who are trafficked first.

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. I'm Greg Dalton. Climate One records many of our conversations with a live audience at our modern and green new home on the waterfront in San Francisco. When you are in town come check us out. Our programs are open to the public and listed on climateone.org.

We're talking about climate resilience, with my guests Janet Ruiz of the Insurance Information Group, Sherri Goodman of the Center for Climate and Security, and Alice Hill, Senior Director for Resilience Policy on the National Security Council during the Obama administration.

One area that sometimes gets overlooked in the disaster preparedness conversation is the healthcare system. Alice Hill recalls how a lack of planning left hospitals in the dark during one catastrophic event.

PROGRAM PART 3

Alice Hill: When Sandy hit in 2012, we learned that if your electric grid fails your health care system fails. And unless we plan for that we will have cascading events occur. And in Sandy, Manhattan had not planned for about a foot of sea level rise that had been suffered or experienced since the turn-of-the-century since 1900. And so they planned for maximum storm surge of 12 feet. When Sandy hit at a full moon high tide, it came in at 14 feet. It blew out the electric substation in Manhattan, the city that never sleeps plunges into darkness.

Greg Dalton: I remember vividly hospitals being evacuated like ambulances lined up and people being taken out of hospitals. It was quite chilling.

Alice Hill: So it turns out we'd put our generators in the basement. And if we hadn't put the generators in the basement we'd put the fuel in the basement so they had to hand carry fuel. We put our ICU units at the top of the building so when we had no power we're taking people down with handheld flashlights. So we evacuated about 6,500 people in Manhattan during the loss of power for 8 million people in the East Coast. But we also learned and this was an aha moment I think collectively for the federal government that much of our health care is now decentralized. So you have people getting care in a small shopping center. Maybe it's dialysis. Maybe it's something else. And those places were shut because everything's flooded nobody can get around there's no fuel. And then you saw with the preemptive power outages here as well as in Florida during some of our hurricane events there. No backup generator systems for heat for people in nursing care.

We need to make sure that we are paying attention to how we can deliver healthcare a very, very basic need and consideration. If we can't deliver healthcare we're really failing at the very critical time when people need us most. And they're great stories, the Texas Medical Center suffered a terrible event with Tropical Allison; they have a two square mile facility some 50 hospitals within that area. They couldn't operate and they invested deeply in flood protection hardened themselves. When Harvey hit with 4-feet of rain, only one of their buildings shut down. They had personnel that kayaked in to be able to treat people and they were able to continue to operate. That's the kind of thing we need across the United States and honestly across the world because if we can't deliver healthcare you really see a disintegration of the community sense and social norms.

Greg Dalton: I always think of the Cajun Navy. There's a lot of pain thinking about these climate things, but every time the Cajun Navy rise and those people those heroic you see them pulling elderly people out of their homes putting in their boat, Cajun Navy is, that's the bright side of these things when people come together.

Alice Hill, another thing that was really interesting in your book is you talk about gender inequality and how people in the Philippines and Indonesia there's a couple of studies about what happens to girls early in life depending on when they're born. Tell us about gender inequality and climate resilience.

Alice Hill: Well, we know that in many societies girls are the last to eat and given fewer resources. And this becomes particularly acute when you have these extreme events and the girls may be fed during extreme events, but in the subsequent years as either crops are disrupted or the fisheries are down or whatever's happen, the girls suffer. And so they suffer from stunting and they just simply don't have the same opportunities as before. With all of the climate change impacts they will hit the most vulnerable hardest. They have the least means, fewer resources to deal with what's ahead. And that has to remain a focus as we go forward. A focus within our own nation but also the nations that will suffer almost the most it's not like these impacts come in evenly, it's a geographic lottery. There are some places that will suffer a lot more and they off happen to be very poor areas in the world that ironically have had nothing to do with the carbon emissions that are causing all of this but we need to pay attention to them. Obviously it's the right thing to do and there'll be great suffering and there are also national security reasons to make sure that we're helping these communities so that they can thrive at home and are not subject to insurgents recruiting them, terrorists recruiting them which we have seen in certain areas as resources become constricted. So we know there'll be gender inequality in terms of when resources are reduced. Women often are the fetchers of water they'll have to go further, they are more vulnerable in an acute event. We see human rights violations human trafficking occurs people need help and often it's women and girls who are trafficked first. So many issues for us to examine and gender has to be one of the lens that we placed on what we do about climate change.

Greg Dalton: And I'll put on that also that educating girls empowering women is one of the best levers for addressing climate change. The positive side of the gender issue is keeping girls in school and family planning that sort of thing is one of the best positive levers as well.

We're gonna invite your participation with a few minutes left that we have. Welcome to Climate One.

Male Participant: I'm John Kelly. My question is for Alice and Sherri. I think this building that we're in right now tonight is probably less than 10 feet above sea level. And one of the facilities that is all over the country is municipal water facilities. I'm just wondering if the two of you could comment upon the unique threats that global warming poses to municipal water facilities and what communities should be doing to increase resilience for those specific types of facilities?

Alice Hill: Well, wastewater treatment and water treatment plants are at great risk, John, because many of those are right at sea level. We saw with Sandy when we lost power another aha, was that the wastewater treatment plants because they couldn't pump and for a variety of reasons they just overflowed. And that went straight into the rivers, billions of gallons of untreated water and that flooded into the streets of Manhattan, flooded their tunnels. Very serious problem. And we do not have solutions; a lot of these facilities were built a long time ago. One of our largest challenge is that we have right now is that our infrastructure is not resilient it's already graded at D+ or something by the American Society of Civil Engineers. And we do not have building standards that require it to be raised at the moment. FEMA is trying to work with communities to get them to do a better job. You can find examples of recent infrastructure across the United States, including wastewater treatment particularly that is not resilient. And then when you get into the wildfires where we're storing a lot of water that's for drinking purposes and you get the landslides. These areas are very vulnerable for serious disruption as a result of cascading impacts. Absolutely we need to look at these issues

Greg Dalton: Sherri, any more optimism from this?

[Laughter]

Sherri Goodman: Well, we have the same problem in Washington DC of combined sewer overflow we've had that even before the climate era in which we now live in; now it's worse. Although there have been some investments to improve the infrastructure for water treatment here. I'd say the good news you know, we can look around the world. There are some countries, Israel, for example, is a country that has always thought about water as an important strategic and national asset. And one of the ways it's done that which we will never have was because we decentralized management of water. But what Israel has done is they use a lot of recycled water much more recycled water in their agricultural and other sector than we do in the United States. And we can reduce some of our water challenges as our lands become drier and more subject to drought by moving towards more recycled water for greater variety of uses.

Greg Dalton: Thank you. Next question.

Male Participant: My name is John Ertee. You've given some fine examples and I'm personally aware of fine examples of communities that prepare for extant disasters. My question to you is get a kit, make a plan, be informed is fatigued, it's flat. How do we do a better job of socially normalizing people like me and the people in this room at the individual level to be better prepared because in the end, it's they that are the ones that will be confronted?

Greg Dalton: Janet Ruiz.

Janet Ruiz: I think one of the things that we're fortunate to have now that is making a difference is technology and things like apps. So if you use your smart phone, you know, I know all my kids, grandkids do, they are much more prone if it's on an app and it's simplified. So one of the programs we're working on at the Insurance Information Institute is the resilience program for all types of catastrophes. We're working with FEMA, ABHS and several other partners to make it so that you as an individual can put your address in, you can look at the risks so you wouldn't get the surprise like Alice did when she moved into the Hollywood Hills and find out oh my gosh, I've just moved into a wildfire flood hurricane, you name it area.

And then what are some things that you as an individual can do and how much would it cost and are there grants available and how do you get those. So, you know, while you said that basic message falls flat and you also rightly said because it can get overwhelming. So what we need is using

technology for good, you know, things like an app, you know, information on the Internet but personalized so that you can decide and look at what is my risk, you know how I'm I going to manage my particular risk. Because if you do it then you can help the community. But if you're not doing that you're not gonna be working in the community.

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Greg Dalton: You've been listening to Climate One. We've been talking about communities working together to build resilience in the face of growing climate-fueled floods, fires and other extreme events. My guests were Janet Ruiz, Strategic Communication Director for the Insurance Information Institute, Sherri Goodman, Senior Strategist at the Center for Climate and Security, and Alice Hill, senior fellow at the Council on Foreign Relations and author of Building a Resilient Tomorrow: How to Prepare for the Coming Climate Disruption.

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Greg Dalton: Kelli Pennington directs our audience engagement. Tyler Reed is our producer. Sara-Katherine Coxon is the strategy and content manager. The audio engineers are Mark Kirchner, Arnav Gupta and Justin Norton. Anny Celsi edited the program. Dr. Gloria Duffy is CEO of The Commonwealth Club of California, where our program originates. [pause] I'm Greg Dalton.