



Briefing Transcript

Federal Support and Local Action

<https://www.eesi.org/briefings/view/060220prusvi>

June 2020

Speakers:

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Daniel Bresette

Good afternoon everyone. Thanks for joining us this afternoon for the first in a three-part online briefing miniseries about coastal resilience and natural disaster recovery in Puerto Rico and the U.S. Virgin Islands. I'm Dan Bresette, the executive director of the Environmental and Energy Study Institute.

Before we start, though, let me take a moment to step back and offer a thought or two about the broader issues of environmental equity and justice. Just as it is difficult to talk about climate change against the backdrop of the awful spread of the coronavirus outbreak, it's hard to stay focused on these issues when inequality and injustice are taking lives and infringing on our right to assemble and protest peacefully. In fact, though, whether it's coronavirus or the events over the past several days, while our awareness is heightened, inequality and injustice are systemic and ever-present threats to the well-being of our communities. The challenges and risks of climate change are great. I hope we emerge from the outbreak better prepared and informed to make science-based decisions. And above everything else, I hope we finally have the strength to address inequality and injustice so we can take the steps we need to mitigate, adapt, and become more resilient to climate change together. In order to complete a transition to a decarbonized clean energy economy, we will need to find ways for everyone to contribute and ensure we leave nobody, or their communities, behind.

If you're joining us today for the first time, this week's online briefing miniseries is the conclusion of an extensive year-long effort to tell the stories of regional approaches to coastal resilience. In 2019, we brought together panels of expert practitioners and community leaders from the Gulf Coast, Northeast, New England, Louisiana, and the West Coast. Earlier this year we convened experts who discussed efforts around the Great Lakes, the southeast states, Hawaii, and Alaska, as well as the need for better climate adaptation data. Today's online briefing is part one of the miniseries *Federal Support and Local Action*. Tomorrow we will cover resilient

housing and communities, and on Friday we will learn about sustainable democratic energy and public health. And for the entire time the region of focus will be Puerto Rico, and of course the U.S. Virgin Islands.

If you've missed any of our briefings on coastal resilience, or on any other climate or clean energy policy topic, you can access briefing summaries and video recordings at www.eesi.org. When you visit us online, please take a minute to sign up for our Climate Change Solutions newsletter to learn about other resilience initiatives, clean energy legislation, and to stay informed about all manner of EESI goings-on, including our briefing schedule. Our online briefing today will cover coastal resilience in Puerto Rico and the U.S. Virgin Islands. Every region covered so far is different in terms of the challenges and the innovations of those who live there. The communities of our Caribbean neighbors have a special story to tell. Part of that story is rooted in the heritage and the history of its people, and part is due to the fact that they have done their best to build and live more resiliently in the wake of back-to-back category 5 hurricanes Irma and Maria that hit the islands in 2017, followed by hurricane Beryl in 2018, and Hurricane Dorian last year, as well as several other tropical storms. That story, how you can improve the resilience of communities while also recovering from unrelenting natural disasters, must be told, and unfortunately, as the storms are increasingly severe and frequent, the experience in Puerto Rico and the U.S. Virgin Islands will be increasingly relevant to more and more coastal communities on the mainland.

One last thing before we turn to our panelists. Because we're not in the same room today, I cannot call on you if you have a question, but we'd love to hear your questions, so please follow EESI on Twitter @EESIonline and send in your questions that way. Or, if you'd like, you can send an email to eesi@eesi.org. We will draw from your question submissions after we hear from our panelists.

Now, let's get to our panelists. We will hear first from Margarita Varela Rosa, who serves as Counsel to the U.S. House Committee on Natural Resources. In that role, Margarita helped advance legislation that pertains to the U.S. territories of Puerto Rico, the U.S. Virgin Islands, as well as the Northern Mariana Islands, Guam, and American Samoa. She has worked for the Departments of Homeland Security and Defense as an engineer, Margarita has been honored by the Maryland Society of Professional Engineers and the Society of Hispanic Professional Engineers for her contributions to the engineering field as well as her leadership. It is a special treat to hear directly from a policy expert on Capitol Hill and I am eager to hear about the status and prospects for legislation and appropriations this year. Margarita, thank you for joining us today. We look forward to your presentation.

Margarita Varela-Rosa

Thank you very much for the invitation. On behalf of the Natural Resources Committee, this is an important discussion for us, since it has been so difficult to ensure that resources that were created by Congress as a result of natural disasters are disbursed for Puerto Rico and the U.S. Virgin Islands. In addition, yesterday was the first day of this year's hurricane season, which NOAA predicts will be above normal, so we're eager to share with you information on what are our priorities to ensure that Puerto Rico and the Virgin Islands are prepared. The chair of the Natural Resources Committee, Congressman Raul Grijalva, has visited the Caribbean after hurricanes Irma and Maria with his team to assess the situation in the territories and have a first-hand experience of what the impact and the damage was in the year 2017. Some of that impact is still visible today. For example, the Puerto Rico energy grid is still very vulnerable. My plan today is to go over these natural disasters with you to let you know what the current situation is and what our policies are.

As most of you remember, the year 2017 was significant for the Caribbean—Hurricane Irma devastated the U.S. Virgin Islands. It was a category 5 hurricane with winds up to 178 miles per hour. It caused significant structural damage, including two police stations, airports, hospitals and also to the ferry. There was also death involved: there were four fatalities and damages up to \$1.1 billion. Two weeks after Hurricane Irma impacted the U.S. Virgin Islands, and also part of the north east of Puerto Rico, Hurricane Irma affected Puerto Rico and also the U.S. Virgin Islands, and specifically the island of St. Croix. Hurricane Maria cost almost \$90 billion in damages in Puerto Rico and the U.S. Virgin Islands, but most importantly, it also cost the lives of approximately 3,000 individuals in the island of Puerto Rico. The damage included the near destruction of the island's electric grid. For months, the population was without power. Schools were impacted, hospitals, the local airport. In the West Virgin Islands, Congresswoman Stacey Glasnost assessed that approximately 90 percent of the buildings of the island were affected. It was a major event for both U.S. territories that required a significant federal response.

Two supplemental packages were approved to address the destruction. Congress passed legislation to provide emergency funding that included Community Development Block Grants for disaster relief, and that was meant to help with the transformation of the electric grid of Puerto Rico and to rebuild homes and schools in the U.S. Virgin Islands and Puerto Rico, and also to create resiliency so that future natural disasters would not cause the same impact and devastation that they experienced. Those funds were approved by Congress; they were signed into law by the President. However, it has been extremely difficult to ensure that those funds are actually disbursed to Puerto Rico and the U.S. Virgin Islands. Congress has had to conduct a lot of oversight over the federal agencies that have that responsibility (in this particular case, HUD) so that notices and grant agreements are published and approved so that the money can be used by the local governments.

After these hurricanes affected Puerto Rico and the U.S. Virgin Islands, we also had to assist the local territories with other natural disasters that have impacted the region. Most importantly, there have been approximately 1,000 earthquakes that have impacted the southern region of Puerto Rico since late 2019, and that includes 13 earthquakes that were greater than five magnitudes and have resulted in devastation to schools, homes, roads and the economic development of that area. Thousands of people were impacted. Impacts were primarily on their mental health, since these were events that continue to affect them for several months and actually continue to affect them to this day. Unfortunately, these earthquakes have also affected the electric grid of the island, so currently the state of the Puerto Rico Electric Power Authority is unreliable. The grid is still unreliable and requires a lot of investment to ensure that the people of Puerto Rico stop experiencing frequent outages. As a result of these earthquakes, the House passed HR-56-87 to appropriate additional disaster funding to Puerto Rico. Since this was a major disaster, it was declared as such by the President, however, that bill that passed the House and hasn't been considered in the Senate, so we continue in the House to advocate for this legislation to be included in future legislation to ensure that the buildings and the infrastructure that need to be rebuilt to be resilient in the area can actually be addressed.

These are three major disasters that have affected Puerto Rico and the U.S. Virgin Islands. However, there are other threats that continue to affect the resiliency of their infrastructure, for example, coastal erosion, which I'm sure our next speaker will provide more information on. We will continue to advocate for resources to be disbursed (those resources that were already approved), and to ensure that additional resources are assigned to address these natural disasters. Those are the priorities you can help us with to make sure that the residents of the territories have the assistance that they deserve.

Bresette

Thank you, Margarita. Grateful that you could join us today. Thank you very much, and you'll be with us for the remainder of the hour, which is very generous. You have a lot to do and so it means a lot for you to be with us.

For anyone who might have joined us a little late, let me just make a quick reminder about questions. We'll be taking questions, but we'll be doing that at the end—so after our second panelist, who I'll introduce in just a moment. If you would like a question asked, please follow us on Twitter. That would be @eesionline. If you would like to send an email you can do that to eesi@eesi.org. And, like I said, we'll get to those when we are a little bit later in the presentation. And just as a reminder, in case you did miss anything, of course this is being webcast. All of the information that you'll hear today, including written summaries of both presentations, will be available online within a couple days at most. Our team does a really great job with getting those online, so if you missed anything, never fear, we've got you covered.

And now it's my pleasure to introduce our second panelist, Ernesto Diaz. Ernesto currently serves as Director of the Office for Coastal Management and Climate Change and Coordinator of the Puerto Rico Climate Change Council. He led the publication of the first state of the Puerto Rico Climate report in 2014, *The Road to Resilience: A Guide to Adaptation Strategies* also in 2014, and the first standalone chapter for the U.S. Caribbean as part of the Fourth National Climate Assessment in 2018. After Hurricanes Irma and Maria, he served as state on-site coordinator for various response and recovery efforts under the Emergency Support Function Ten, sunken vessel removal, and coastal and near-shore debris removal, and requested the first mission assignment to assess damages to coral reefs, wetlands beaches, and dunes under the Natural and Cultural Resources sector. Ernesto, it is great to have you with us today. I look forward to your presentation. Thank you so much.

Ernesto Diaz

Thank you so much and thanks to the Environmental and Energy Study Institute for inviting us to share part of our work with the colleagues and provide this briefing on our work. This afternoon I'll be speaking about the Puerto Rico Climate Change Council and the work we conducted under the U.S. Global Change research program. When we threw six key messages, I prepared the U.S. Caribbean chapter under the 4th National Climate Assessment Report. I'll be speaking also about effects and impacts on socio-ecological vulnerabilities of climate impacts in Puerto Rico and the Caribbean. I'll be also briefly referring to their recently adopted policy on mitigation, adaptation, and resilience: Law 33 of 2019. As it was discussed by our previous guests, I'll be referring a bit also to the hurricanes Irma and Maria, particularly from the response and damage assessments side and what we're trying to do in order to secure and effectively implement projects using public assistance (Section 428 and 406 of the *Stafford Act*) as well as a project that we have developed for the hazard mitigation grants program under section 404. I'll be also presenting something that we've been working intensely on, which is the use of nature-based features and trying to make them cost effective so that we have the ecosystem services employed for infrastructure protection and communities protection purposes, but also benefiting from the political side that they are intended to.

So next I'll talk about the Puerto Rico Climate Change Council. We're a voluntary association of over 150 members and collaborators gathered to assess the state of Puerto Rico's climate using the best science and knowledge available to understand political, social, and ecological building abilities and to develop adaptation strategies to build a resilient society. Representatives from federal agencies, commonwealth agencies, not-for-profit organizations, public and private universities, as well as colleagues from the Caribbean, the United States and Europe collaborate to jointly gather the best at your physical and chemical scientific knowledge and assess effects and impacts of those chains and changes on ecology and biodiversity as well as in society and economy. Obviously, an important component of this is how do we use that data and that information. Communicating climate change and ocean hazards is one of our key missions.

As it was mentioned during the introduction, we prepared and polished the first-ever *Puerto Rico State of the Climate* report; it was published in 2014. We also developed a document called *Ruta hacia la Resiliencia*, or *Road to Resilience*, which is a guide of adaptation strategies for the island-wide level, municipal level, the home level, and individual level. However, after severe droughts in 2014 and 2015, hurricanes in 2017, earthquakes, and COVID-19, we obviously have demonstrated that we have had a certain degree of resiliency. However, we needed to update this document and were working on it conducting a SWOT analysis and trying to integrate a multi-hazard approach. In 2018, we also published "Chapter 20: U.S. Caribbean" under the 4th and national climate assessment, and I'll be referring to this result throughout the presentation.

The key messages were fresh water marine resources, coastal systems, rising temperatures, disaster response, and adaptive capacity, in which we collaborated with colleagues from the wider Caribbean area. To conduct our work here in Puerto Rico, we have to take into account the context. 40 percent of the population worldwide live in the coastal areas, 54 percent of the population live in cities, where 70 percent of the energy is consumed and 75 percent of the greenhouse gases are emitted. The trend is that, by 2050, 68 percent of the people will be living in cities. So, the reality in Puerto Rico is even more dramatic. 61 percent of the population living in the coastal areas at 44 coastal municipalities. We have a coastline of 799 miles, 225 beaches, and, as it was mentioned earlier, 60 percent of those beaches exhibit certain degrees of erosion. Obviously for an island that relies on tourism, that's of great concern, but also beaches absorb energy and the reduction on the width of the beach creates an increased exposure to storm risks. So, we're not only studying those, but identifying adaptive strategies as well as alternatives to address these issues. We have two ongoing studies with the Army Corps of Engineers, two feasibility studies, that in the future will be probably presented to Congress for allocation of funding in terms of the construction phase of that study.

So, in our coastal areas, those 44 coastal municipalities, all of our airports are of course located in these areas. As well as thousands of miles of primary roads, we discovered some piers. Also, all of our current energy facilities, which are fossil fuel-powered, are on coastal areas. Also, our communications of the fiber optic cables land and [inaudible] at coastal areas, so dealing with resiliency and adaptation and addressing these issues in the coastal areas is of great concern and importance.

So, this is the reality that I had presented in terms of numbers and stats. A lot of new densely urbanized areas in the metro area with the main airport, the international Muñoz Marín Airport, as well as support and

energy facilities developed a very low elevation above mean sea level. Obviously, a sea level rise is of great concern.

During 2017, we had the most active hurricane season on record, and you can see Hurricane Irma impacting Florida as it had already exited the Virgin Islands and had affected northeast Puerto Rico. Hurricane Jose didn't make landfall, and then Hurricane Maria on its way to Puerto Rico. After we were impacted power went out. I was without power for only 34 days, but some people were without power for 10-11 months. The power grid is something and the transformation of the energy provision tool to home dwellers, commerce, etc., are obviously of great concern. I know that's going to be the subject of discussion tomorrow and Friday.

The second day after Hurricane Maria, my team and I went out and started documenting damages. We saw a lot of areas impacted by direct wave attack. The floods affected not only private and public properties, but also wetlands that were underwater for days, weeks. [inaudible] drowned, so a lot of biodiversity was lost.

One of the cases that I worked with immediately after the hurricane was the response to sunken vessels that, not only were a loss to the owners of the vessel, but were a hazard because those boats or vessels would be probably impacting coral reefs and other structures, as well as other boats that might have not suffered effects and impacts from the storm surge and the winds and the waves. It is important to emphasize that the U.S. Coast Guard came with a plan. They were really well prepared to respond. They set up their shop, and I worked as an on-site coordinator. There was no time wasted there, so I tip my hat off to the Coast Guard. That's something that should be used by other federal agencies in order to prepare their response procedures. That's my humble opinion. I worked also with other federal agencies during the response phase and currently during the recovery phase and definitely there is much room for improvement.

I know that, during 2017, federal agencies, particularly FEMA, had to work with other disasters: not only Maria, but also Harvey in Houston. They had to deal with the forest fires in California. But please take a look at the SOPs that the U.S. Coast Guard implements in order to respond to these events because that could help a lot, not only for the federal agents agencies to avoid some optimal use of funds and optimize their interventions but also for the people in need in those areas that have been affected by disasters.

I will also talk about this groundbreaking study. This is the first time ever that FEMA funded and a damage assessment on the work of natural resources that serve critical infrastructure. We requested a mission to be assigned to NOAA. It was approved. We conducted this fantastic work with the support from colleagues from the University of Puerto Rico, students and volunteers, obviously all experienced divers and marine scientists. This damage assessment has proven to be very useful in two subsequent requests that we have presented to FEMA for recovery purposes.

Why coral reefs are important. The pictures I showed earlier were those areas that were impacted by direct wave attack because they didn't have coral reef protection. However, the Sanwa metro area, which is where most infrastructure and economic activity occurs, didn't suffer from direct wave attacks, even though we got the floods. The waves were attenuated at the crest of those coral reefs that, even though they resulted with mechanical damage from 30 feet high waves and more, but they were attenuated up to 97 percent, so we are requesting from FEMA to invest on the repair of this critical infrastructure that happens to be natural, but more effective than any gray or man-made in infrastructure.

And what we're asking is also that we need to consider hurricanes of higher intensity, cat. 4 and cat. 5, are becoming more frequent, mostly due to increased sea surface temperatures and the coincidence of rains in northern Africa and the absence of an El Niño for example. So, the projections for this year, as it was mentioned earlier, are that close to 19 named storms will affect the Atlantic and Caribbean, and six of them might be of higher intensity, cats three four or five. So, the investment in coral reefs, nourishment of beaches, dunes, and wetlands as a means of ameliorating coastal hazards is something that would be a smart investment to reduce the cost of future disasters, because this is a trend and this is what we're going to be facing more often in the future.

How do we know that? These are the trends and the projections. These are published in our National Climate Assessment, chapter 20. So, the projection is that surface atmospheric temperature will be increasing by 2 to 9 degrees Fahrenheit. So, the best scenario is that we increase by 2 degrees. In terms of precipitation, we'll have 10 to 40 percent reduction in precipitation in the Puerto Rico area. In terms of CO2 concentration, I checked the Mauna Loa station a couple of days ago, and we're up to 416 parts per million, and that's obviously triggering ocean acidification and increased sea surface temperatures, which not only fuels hurricanes but also contributes

to bleach corals. So, see the integrated approach that we're taking to this: we're interested in protecting biodiversity but also life and property.

Sea level rise is our main concern because this exacerbates what happens regularly with tides, waves, and the intense hurricanes associated with storm surges. Storm surges riding on top of a higher sea level have the potential to impact the further inland. So, all these structures may be outside of a flood zone currently, according to FEMA or planning boards maps, will be probably affected by floods in the near future and will be exposed to wave attack and storm surges most certainly. So, our intermediate scenarios are between 3 to 4 feet increase by 2100, and between nine to 11 feet sea level rise by 2100 as an extreme scenario. Other scenarios by other colleagues are more dramatic and present a higher scenario of sea level rise.

These are some graphics of still water. It doesn't include tides, wave action or storm surge, even though we have modeled those. A one-foot sea level rise on the lower left corner would temporarily affect the International Airport as a landmark that we can use as a reference. A three-feet high sea level rise would be permanently affecting some areas of the airport, and a 10-feet increase will definitely be affecting international communications in Puerto Rico.

I mentioned that, in 2019, a statute was adopted by the legislature and signed into law by the governor. It's called the *Climate Change Mitigation, Adaptation and Resilience Law*, and establishes a public policy regarding the Puerto Rico power grid to progressively use less fossil fuels. It presents a coal phase-out, promotes clean energy, promotes energy efficiency to lower greenhouse gas emissions from other land uses and activities, such as agriculture, promotes the use of electric cars. In fact, it calls for the whole fleet of the government to be powered by electric or hybrid cars beginning this year. And it promotes reforestation and ecosystem system services improvement. It also creates an expert advisory committee that meets about twice per month. It calls for that committee to create a mitigation, adaptation and resilience plan. I know that the committee will be requesting an extension to deliver the plan, which is sectoral in nature, and has multiple requirements to be implemented by different agencies and sectors, including the private sector, commerce etc. It doesn't assign funding but provides opportunities for the committee and to tap into different funding mechanisms—that's a weak point of the statute. It also creates joint Puerto Rico Senate and House of Reps Commission, and, as in the Law 17 that was also adopted in 2019, it calls for renewal renewable energy goals, which are 100 percent clean energy production by 2050, 20 percent by 2022, 40 percent by 2025, and 60 percent by 2040. I must confess that I'm not an expert on mitigation issues, nor on electric power mitigation. I focus mostly adaptation and resiliency building efforts.

And this is what we have been working on more recently. Looking at what's being done worldwide by the World Bank and Swiss Re, which is a reinsurance company that has created very innovative products. It's very interesting because they are obviously concerned about most disasters that they have really insured will be ending on their desktops and they'll have to be addressing claims by those insurance companies that insured those properties that have been totaled or damaged by more frequent disasters occurring worldwide. So, it's important to take a look at what they are doing worldwide and this is what we are asking FEMA to do. I know that they have created a couple of programs that proactively bring these new opportunities to fund innovative projects to build resiliency and reduce the cost of future disasters, but we can do more, and we can do it better. So, I would urge you to take a look at the [inaudible] Army Corps of Engineers with nature approaches. Also, in terms of corals, the National Academy of Sciences put together an excellent product. Obviously for those jurisdictions, seven of ours in the United States have corals, but also in the wider Caribbean it is of great interest to build resilience through innovative interventions with these systems that are threatened by climate change but that also bring resilience and attenuate wave energy and absorb energy from storm surges. So I think that there is a great opportunity to embed some of these initiatives into coastal engineering approaches.

We need to continue fine-tuning our land use plans and zoning regulations by creating or integrating dynamic setbacks and coastal construction lines. Several states already have that—North Carolina and Hawaii for example. We need to increase the freeboard requirements and promote adaptive design so that, as sea level rises, structures can be retrofitted. I know that FEMA's community rating system provides incentives for this to be done, but we need to be more aggressive in terms of fostering this type of intervention.

We believe that there is a great opportunity through this recovery phase to create a new generation of Puerto Rican infrastructure. Particularly, in the coastal areas, it should be hybrid and nature-based. It should involve structural traditional protection adaptation measures, as well as to integrate nature-based solutions

(thinking of acreage, wetlands, beach dunes, restoration and creation, green swells, as well as horizontal levees, for example).

Typically, we hit a wall when we propose these types of interventions. The traditional benefit-cost analysis tools of the Army Corps of Engineers, FEMA, and HUD are built to favor rapid return on investment, while other sections, particularly those affected by disasters, inherit infrastructure that may require a higher operations and maintenance. In the case of Puerto Rico, for example, we are under tremendous fiscal constraint due to an economic crisis that we're experiencing, and we even have a fiscal website board. So, we need a sponsor and owner of the infrastructure to reduce our costs in the future. The agency that's funding the project is interested in the biggest bang for the buck, which is obviously the rapid return on investment. We need to discuss those issues—I think that's something that's very important for Congress to take a look at, and for other federal agencies to continue this dialogue.

In our case, we are sure that the infrastructure that we proposed has a longer design life and definitely is aesthetically more attractive and can bring up tourism and recreational opportunities. As such, we requested, under section 428 of the *Stafford Act*, an investment of \$31 million to restore those coral reefs that are attenuated 97 percent of the wave energy that otherwise would have impacted and increased the cost of Maria on the metropolitan area. But the question still remains, and this has not been decided, even though we started working on this project around December 2017, is the restoration of a coral reef by the Puerto Rico DNR eligible for public assistance? We still don't have an answer to that. However, we have worked, and I have many folders on the upper right-hand corner, where we have prepared 44 Hazard Mitigation Grants Program 404 projects totaling close to \$100 million, and still we're in the face of determining eligibility or desirability. And I know that there are discussions at a higher level where FEMA and Core 3, which is the office of the government dealing with these issues, where priorities are electric power and upward [inaudible] sewers. But, reminding my previous statements, let's take a look at what the Coast Guard does in terms of SOPs and try to bring it to other sectors and missions and discussions so that we can be more effective in getting this funding allocated.

These are, and it was mentioned by the previous speaker, there is a lot of funding available. I think we could use that to build resilient infrastructure and innovative infrastructure. I'm guessing around 85 plus billion dollars might be available through public assistance, hazard mitigation and supplemental funding, as well as CDBG-DR funding. But here in Puerto Rico we were not seeing that money being invested in a quick, effective manner.

That's what I have for this afternoon. I thank you. I'll take any questions from my colleagues. Thank you very much.

Bresette

Thank You Ernesto, great presentation. And we do in fact have time for questions, so this is where, in the online briefing, I turn it to my colleague, Ellen Vaughan. While Ellen is kicking off our Q&A, just a reminder: if you do have any questions ask us on Twitter @eesionline. You can also send us an e-mail at eesi@eesi.org. But, Ellen, I'll turn it over to you, and look forward to a great discussion.

Ellen Vaughan

Thanks, Dan, and thank you so much, Ernesto and Margarita, for your presentations. Fascinating information packed. I have a lot of questions, and so I'll just start with one for Margarita. I'm wondering about sort of how, you mentioned the legislation certainly the supplemental appropriations, and I'm wondering if you are engaged with sort of community organizations in the islands, how Congress might be working with the communities, and then, in turn, how those communities might be encouraged or able to engage with your committee and with Congress.

Varela-Rosa

Definitely. As Ernesto mentioned during his presentation, these natural disasters have resulted in an opportunity to invest in the resiliency of infrastructure and transformation of some of the institutions in the island. So, we have worked with many nonprofit and community organizations to ensure that they have a say on how these funds are going to be utilized. We think that is very important, and we have conducted several oversight hearings in which we provide them an opportunity to participate as panelists to share their concerns, their priorities so we can embrace them and follow up on them when we do oversight of federal agencies and when we

have conversations with local government officials. So, for the Natural Resources Community, engaging with local stakeholders and on its community organizations and leaders is definitely a priority.

Vaughan

Great, thank you. And, just to follow up quickly on that point on oversight, we were really glad to see the passage of the *Disaster Recovery Reform Act*, which amends the *Stafford Act*, and now, of course, FEMA being in charge of implementing a lot of that.

Ernesto talked about the value of nature-based solutions, and I'm wondering, I guess we're still seeing how FEMA will come out with its guidance on that and what projects will be eligible for funding, and I'm wondering if the committee will be doing any oversight on that in particular?

Varela-Rosa

I was excited to hear about the project Ernesto was describing. We're actually currently working on legislation. I work for the Office of Insular Affairs, which primarily deals with the issues that affect the territories, but we also have a Water and Ocean Subcommittee that focuses on the programs that, for example, Ernesto works with. And they are drafting language to also take into consideration the specific needs of Puerto Rico and the U.S. Virgin Islands, and also the territories in the Pacific. So, in terms of oversight of FEMA, specifically, we're not necessarily pursuing it that way. What we are doing is actually working on legislation to provide other mechanisms for the territories to have the resources to invest in those initiatives.

Bresette

So, I'm having a hard time hearing. I'm not sure if that's something that's just a me problem, or if it's an everyday problem. Hopefully it's just a me problem. But let's go to the audience. We do have a couple that have come in and, since we're a little short on time, I'm going to try to consolidate some of these so that, Margarita, you and Ernesto can both have an opportunity to answer.

This question is about barriers to spending the resources that have been provided by Congress, and I'm wondering if you could discuss for a moment one or the two of the key barriers that prevent projects from being implemented, and then specifically how the cost-benefit analysis either encourages or discourages the use of nature-based solutions? Margarita, happy to start with you, and then definitely want to make sure that Ernesto has an opportunity to provide his perspective as well.

Varela-Rosa

In terms of the barriers for utilizing the funds, the main barrier we have experienced has been cuts, procedures and the timeline to actually publish the notices that are required to disperse the Community Development Block Grants. That has taken approximately two and a half years for us to see progress, and that's only the first step for the process to move forward. We have also seen delays in the approval of grant applications, so we think it's essential to expedite that process, while ensuring that there are controls in place so that the people of Puerto Rico and the U.S. Virgin Islands also have the resource that that they need to rebuild and be ready for the possibility of other natural disasters.

Bresette

Ernesto, from your perspective, how does the cost-benefit analysis that's done for these projects, what kind of impact does that have on the types of projects that are selected, and what the barriers of implementation are?

Diaz

First of all, I agree with Margarita that the guidance and the compliance with the bureaucratic processes is what has stalled the process of effectively investing the funding where it is needed, which is at the community level where the damages occurred. So, the need is there, the funding is available, but the connecting vessels to try to effectively convert funding into solutions for the people and build resilience is not happening or happening at a very slow pace. That's one of the concerns we do have because we have to deal with the day-to-day of those communities that are facing the issues. I have many stories. In terms of the nature-based intervention, colleagues

from FEMA, as well as from the Army Corps of Engineers and different universities and organizations, are working to try to effectively communicate that these nature-based features, they need building codes standards that effectively attenuate, ameliorate and dissipate energy and can deal with forces and loadings that protect life and property. But when the decisions are made using the existing BCA tools, those investments that may be higher in the short-term, but with lower operations and maintenance in the mid- to long-term, as well as infrastructure that will have longer design life, are not favored. Obviously, there is still a discussion and dialogue that must happen. So, we move into this next generation of infrastructure particularly in the coastal realm.

Bresette

Okay, thanks. Well, this has been really enlightening and it's a great way to kick off our briefing miniseries for the week. I hope that all of our audience is able to join us for part two tomorrow at three o'clock to discuss resilient housing and communities, and then on Thursday at 3:00 p.m. we'll look at sustainable democratic energy and public health. But Margarita and Ernesto, we couldn't have asked for two better panelists to kick us off, so thank you very much. If we were in person there would be a thunderous applause, but unfortunately, we're not only able to do this virtually today.

Let me just reiterate one last time that the video recording of this will be available at EESI.org, as well as written materials and a written summary of everything that you just heard. Ernesto's slides will be available as well. Let me also just thank Troy who helps us provide or produce this webcast so that it looks so professional and looked so nice. He's a great friend to EESI. Thank you, Troy. Let me also thank Ellen for all of the hard work that went into organizing this briefing miniseries. Let me also thank Dan O'Brien, Anna McGinn, Amber Todoroff, Sydney O'Shaughnessy, as well as two interns—this is their first briefing—Maia Crook as well as Bridget Williams. So, thanks to everybody. A lot of work to go into these things and thanks to everyone on Team EESI.

Stay tuned for tomorrow and, if you have a moment, please fill out our survey. I think there may be a screen with a link. We'd love to hear your feedback. We're always trying to do better to bring information about climate change environmental and clean energy solutions to you and, if you have any feedback you'd like to share, we always read it. Until tomorrow, thank you so much, and I hope everyone has a great rest of your day. Thank you again.

The Environmental and Energy Study Institute (EESI) is a non-profit organization founded in 1984 by a bipartisan Congressional caucus dedicated to finding innovative environmental and energy solutions. EESI works to protect the climate and ensure a healthy, secure, and sustainable future for America through policymaker education, coalition building, and policy development in the areas of energy efficiency, renewable energy, agriculture, forestry, transportation, buildings, and urban planning.