The Countdown to 2050 podcast
Season 2, Episode 1

Building Water Resilience in Grenada: From Vulnerability to Vision
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This transcript has been edited for clarity while preserving the original meaning and tone of the conversation. Non-verbal audio elements are described in brackets.

Participants

- Ann-Kathrin Schloenvoigt (moderator, IKI interface project ACCION Clima, GIZ)
- Gennil Rueben-McGuire (co-moderator, G-CREWS project, GIZ)
- Whyme Cox, Manager of Planning and Development, NAWASA
- Ronald Layne, Assistant Manager of Planning & Development, NAWASA

Transcript

Host (Ann-Kathrin):
Imagine turning your tap on … and nothing comes out. No water for drinking, or cooking, or even cleaning.

For the islands in the Caribbean, this isn't just a scenario—it's increasingly becoming reality. Extreme weather events, such as Hurricane Beryl in 2024, are hitting more often and harder, putting critical water infrastructure under serious strain.

Damaged pipelines and storage tanks, as well as dry spells that leave communities scrambling for every drop of surface water are just a few of the challenges the islands face.

In Grenada, the National Water and Sewerage Authority (or NAWASA), is working to make sure communities still have safe, reliable water, especially in the face of climate change.

My name is **Ann-Kathrin Schloenvoigt**, and today, I'm joined by **Whyme Cox, Manager of Planning and Development, and Ronald Layne, Assistant Manager of Planning & Development at NAWASA**, to talk about how Grenada is facing this new reality—and what it takes to keep the taps flowing.

But before we dive in, let me hand over to my co-host for this episode,
Gennil Reuben-McGuire.

Gennil is a communications advisor for the G-CREWS project of the German Development Cooperation GIZ in Grenada. And she will guide us through today's conversation with our two experts.

And with that said, Gennil, over to you.

--- Segment 1: What resilience looks like today ---

Co-Host (Gennil):
Thanks, Ann-Kathrin, glad to be here. Let's start with a basic question: When people in Grenada turn on their tap today, what system is working behind the scenes to make that possible?

We'll take a look now at resilience – what does resilience look like. I ask Whyme Cox, when we talk about a "more climate-resilient" water sector, what does that actually mean?

Whyme Cox:
Right, thanks, Gennil and thanks for having us today. Always grateful to share and update the public and the nation as to what's happening at NAWASA and our takes and input as it relates to climate change and climate resiliency.

So, as it pertains to your question, what does resiliency look like? Putting it short, I'd say it is how water is planned, produced, protected, and delivered.

In the long context, it means preparation for longer dry periods, a more variable rainfall. We've seen stronger storms forming in the Atlantic every year. And it also looks at how we prepare our infrastructure as relates to our intake systems, how we look at water treatment, storage and all of the infrastructure as it relates to getting water and water supply to persons.

In addition to that, it has to be combined with policy reform to better deal with how we upgrade our infrastructure and how we monitor water and how we conserve water. So that in our opinion, in a nutshell, is what resiliency should look like in the Grenada context.

Co-Host (Gennil):
Okay. So based on what is going on already within Grenada, you would say that resiliency does exist.

Whyme Cox:
Definitely. And we have been preparing and making ourselves more and more resilient. Now, all of the assessments that have been undertaken here in Grenada have shown that Grenada is very vulnerable to the impacts of climate change.

And this is primarily so because 95% of our water supply is surface water, that means it comes from rivers and dams, etc. So, it makes it highly vulnerable when it rains, rivers get turbid, you cannot produce water when in the dry season the water table goes low and you do not have enough water to supply the nation.

Understanding and appreciating that year in, year out, decade in, decade out, we've been constantly improving the infrastructure, looking at different ways of ensuring that we can be resilient against these impacts based on our vulnerability.

Ronald Layne:
To add to what Cox just said, resilience is based on data, not guesswork. You ask what are we looking for or what we look forward for. Today we're talking about the resilience, in which we have visibility now to check our systems, like the use of automation, where we can now monitor our flows and pressures and all of that. So, just to add to what Cox had mentioned before about monitoring. And it shows that we now have a more holistic view on how we look at the monitoring part of our resilience, of how we look forward and move on.

--- Segment 2: Intervention of G-CREWS ---

Co-Host (Gennil):
Okay, so based on what both of you just said, I can see that NAWASA has done quite a lot in improving its system and its service overall.

So, now that we've covered what resilience looks like—but what's really changing the game? And this is where the *Climate-Resilient Water Sector in Grenada project or G-CREWS project* comes in, helping Grenada's water system move from being reactive to much more proactive.

The G-CREWS project is funded by the German Development Cooperation GIZ on behalf of the International Climate Initiative (IKI), the Green Climate Fund and the Government of Grenada. The project's objective is to increase climate resilience in the water sector on the island through a wholistic approach that involves the public and private sector organizations, and, of course, citizens.

So now as we look at some of the intervention methods, I would ask: from NAWASA's perspective, how exactly has G-CREWS changed the trajectory of Grenada's water system?

Whyme Cox:
The intervention of the G-CREWS project has impacted us majorly. We are ever so grateful to all of the players. You mentioned GIZ, the Green Climate Fund as the main sponsor or main donor and of course the government of Grenada. But I'll allow Ronald to start the ball rolling on this one and then I would come in with any additional things.

Ronald Layne:
So basically, I have categorized it in my head into three parts. G-CREW's program has strengthened NAWASA in three major areas to me.

One is an infrastructure upgrade. And when we talk about infrastructure upgrade, we talk about the replacement of aging pipelines. We talk about the protection of our systems. Like for example, as Cox had mentioned earlier, when we talk about hurricane, the installation of these water storage tanks to make sure that we always have a capacity of water stored in case anything happens.

We talk about system automization, which talks about hydraulic modelling and improved work planning.

We talk about data integration, as the third one, which talks about our EDAMS program that we have that is very critical. I have just mentioned a little bit about it when I talked about monitoring. This digital integration is how we start now to monitor our system, especially with the SCADA part of it. Which we'll talk about monitoring of plant performance in real time, identifying pressure drops immediately, remotely being able to operate pumps and valves or reduce response time during emergencies if we have any.

And then there's the digital part of it, which is the EDAMS program, which I'll let Cox talk a little more about when we come to talk about automation and integration, and he will explain that a little more in depth.

But I look at the intervention part as only three parts, which is infrastructure upgrade, system optimization, and digital integration.

Co-Host (Gennil):
So, based on what the G-CREWS project is doing in Grenada in terms of the water sector, would you say you are most confident in facing any major upcoming climate event? For example, we know we're not too far away from the start of another hurricane season.

Ronald Layne:

Of course, in that aspect, yes. We have already strengthened our operational resilience. So, I can say yes, we are ready for any natural disaster that we might face in the upcoming future.

Co-Host (Gennil):
Okay. Anything else you want to add to that, Cox?

Whyme Cox:
Yes, definitely. The G-CREWS project Ronald has summed it up nicely. It's intervention with a propelled NAWASA or placed NAWASA in a rather strategic position. It would have added or increased our storage or treated storage capacity tremendously. It is also impacting our raw water storage capacity and, as Ronald rightfully mentioned, the impact and that it has given us in terms of our infrastructure and infrastructural upgrade.

It has not solved all of the issues, obviously. But it has definitely propelled us tremendously towards all of what is required, or all of what I would have mentioned to what resiliency looks like today. The introduction of the surveillance, if you want to call it that, the oversight which is the creation of the Water Resources Management Unit to have better oversight of Grenada's water resources as a whole.

In the past, water resources management was under the umbrella of NAWASA and that would have allowed it to be somewhat limited from the standpoint that, you know, extraction was limited to NAWASA supply. Now the intention of the Water Resources Management Unit is to look at water resources management from an island-wide holistic standpoint and not just a utility standpoint, which is a major, a major step that any one country could take towards water security and water resiliency.

So, you know, the G-CREW's intervention was tremendous. You have programs under the G-CREW's that take into consideration change in legislation as it relates to rainwater harvesting. Now, every home in Grenada is now required to have some form of storage or rainwater harvesting and capacity. So, all of these interventions, it's what we consider strategic actions taken by the project to ensure general resiliency and a better protection and conservation of water across the island.

--- Segment 3: Automated and integrated systems ---

Co-Host (Gennil):
Okay, so we've just spoken about upgrades and infrastructure. Those are one side of resilience, but technology is another one as mentioned earlier. Let's now talk about how smart systems can help respond faster and be more efficient. How can automated or smart systems strengthen your work at NAWASA?

Whyme Cox:
Indeed, automation is key. One, it propels efficiency, and efficiency leads to better service. And of course, our overall aim of better conservation. The introduction of SCADA, which the project brought as part of its deliverables, is key simply because when we had Hurricane Beryl just a year and a half ago, or it's almost nearing two years now, right?

Co-host (Gennil):
Yes, two years.

Whyme Cox:
Yeah, almost nearing two years now. What you find is that at the 99th hour, if you want to call it that – because Ronald would probably come in on our disaster preparedness, because the

disaster preparedness plan has what you do at different stages before you have a storm or any major event like that hitting our shores.

And one of the things is that, if you understand our water architecture, most of our dams are located in the mountain. And part of the disaster plan includes the shutting off of cisterns, and rightfully so during hurricanes. And so, you tend to get slides and stuff like that that could sever pipelines, even though there are below ground. So, part of the disaster plan is that you shut off the system.

As it stands now, our system -because our workers oftentimes have to get to their home before the system hit landfall- you would find that sometimes six hours before, 12 hours before a storm, all of our systems are already shut down.

The introduction of technology like SCADA is now giving us the remote capabilities of shutting off our systems from our offices or from our homes. So, it means that we can now be far more efficient in terms of our shutdown time at the time of these major events, in that we can shut a system off an hour before a hurricane hit land.

And that time frame might just give an individual a chance to fill up some buckets of water, prepare themselves for what is to come. Because after the storm, you just don't know what is going to happen. You just don't know what systems are going to be impacted. You just don't know how long any one area is going to be impacted after the storm.

So, we see that as a tremendous plus because it gives the nation more flexibility, it allows for better preparedness. That is what SCADA is doing for us.

The project also would have allowed us to introduce the digitization of NAWASA's entire process. That is currently, whenever there is an issue, a leak or anything like that, the entire process is, if you want to call it analog. A phone call comes in, it's logged into our billing system and then thereafter it's a paper trail before it gets to the respective departments that deal with it. So from the time somebody reports a leak to the time that it gets to the transmission and distribution department or the projects department, whichever department that is handling it, it would sometimes take a day and a half, two days.

And again with processes like that of course it's for data management, you have to capture when the leaks come in so you know where they are and so on and so forth. Now we're in the process now of making that entire process digital. So that from the time a phone call comes in, the service rep is going to log that request and by the click of a button it would show up in a matter of seconds on the respective transmission and distribution supervisor's handheld device. So, a leak that now used to take two days before it reached a supervisor is now going to take minutes. So just imagine the level of efficiency that we've just added as a result of the introduction of that new digitized system. It's called EDAMS, so we're now in the process of implementing EDAMS.

In addition to that, we have two years ago also introduce our NRW department, a Non-Revenue Water department, our leak detection department. That department has the sole mandate to ensure that our already relatively okay NRW between 25% goes lower. So we want to be more prudent in our leak management, our leak detection. So we've introduced quite a bit of new devices as it relates to leak detection monitors and new flow meters and tracking devices so we could have a better appreciation in terms of how the system is performing and that is being tracked and mapped as we go along.

And critical to note that the EDAMS system is GIS based, so anything that happens on the system, it is logged and it is providing data to assist with NAWASA's decision-making.

Because all of that data is now logged in the system. Prior to that a lot of the data used to be just institutional knowledge in a supervisor head. He remembers how many times a pipeline is breaking here because the tracking and so has not been happening in a special way. But instead everything was physical papers flying all around the department.

Just one more point on that, we are also looking into from an automation standpoint looking at the introduction of ultrasonic metering, and again part of the NRW, we believe that with the analog meters now there are quite a bit of errors on the system with meters over reading, meters under reading in most cases. And there are significant data that is showing that the organization is losing quite a bit of financial resources as a result of the errors that is often found in our metering system.

So, one of the things that we're also looking into -it wasn't part of the G-CREW's project unfortunately- but we are keenly looking forward to how best we could introduce ultrasonic metering across the network in a sort of staging implementation manner in the coming years to better assist us with better billing and to further reduce our non-revenue water. Ronald, I know if you want to add anything else to that.

Ronald Layne:
No, that I think that covers everything.

Co-Host (Gennil):
Oh yes. Based on what we've just said, that looks like a 360-degree turn that is taking place there for NAWASA, all good, everyone benefiting, the facility, the workers, and even the citizens overall benefiting as well.

--- Segment 4: Overall disaster preparedness ---

Co-Host (Gennil):
So then as we just touch slightly again into the overall disaster preparedness. Because I mean resilience is just about pipes and technology but it's also about people, processes and planning. Now, when it comes to the overall disaster preparedness – beyond infrastructure upgrades and everything, how has NAWASA changed internally to improve disaster preparedness? And do we have a timeline based on all the things that you've spoken about, the SCADA, digitalization, EDAMS?

Ronald Layne:
Yes. So, basically what I can tell you is NAWASA has been continuously looking at disaster preparedness, right. They actually have a team in place for that. So, I can tell you that what we have done so far and the systems that we have put in place right now includes both physical and digital readiness. Some of these strengths that we have put in places like, for example, on some of the plants we have backup power supply, we have emergency repair protocols, we have actually put in place spare inventory management where that we have spare parts in case anything happens.

And because of the automation that Cox just talked about we have the introduction now of the SCADA system which is real-time system monitoring. And also the EDAMS, which is digital documentation. Now, *if* the infrastructure gets damaged, we also have things put in place for that. Because of these two new systems that will be rolled out before the end of the G-CREWS's completion, what we will now have is access to digital joints immediately. We will also have where that we can now identify valves, locate valves and automatically close all valves on certain key infrastructures. We'll be able now to track repair history or track repairs going forward with the use of the automation or the digital platform. And, also, we

know we'll be able to mobilize faster. Now, in a short: we are ready and we are getting there.

--- The Future of Water Resilience in Grenada ---

Co-Host (Gennil):
Good, good. So, now that we looked at disaster management, as we end off our podcast this evening, let's look to the future of water resilience in Grenada with all the improvements that are going to be taking place. What still keeps you up at night when it comes to water security in Grenada? Layne.

Cox: [laughs]

Co-Host (Gennil):
Yes. And then Cox, what keeps you all up at night?

Ronald Layne:
What keeps us up at night? Most likely when we get emergency calls or somebody calls for breakage or something. But to be honest with you, I am a bit more comfortable at night. The only time I will be a little uneasy is like if we have a…. [Cox laughs] No, I'm serious. It's only when we have a natural disaster on its way or we have, how to put it, unexpected occurrences that might happen. Works being done by maybe another organization or something and we have to come up.

But how I look at the future of water resilience, as I said before, I love the SCADA and I love the automation, I love the digital platform that we are growing. So, I'm like a little baby when it comes to that. And I'll be honest, we are learning with the SCADA because the SCADA is like a baby to us now. What I hope to see is that we grow with the SCADA and we eventually expand the SCADA network to all-year-round facilities eventually, so that we can have a more better, robust look and control over our facilities and assets. But I do sleep comfortable at night.

Whyme Cox:
Yeah, I am… That's the short answer that Ronald gives. So yes, we do sleep comfortable at night with the intervention of G-CREWS project and so. But I personally am still very uneasy in terms of the future of water supply.

So, our overall goal as an organization is an uninterrupted supply of water and we are not there yet. We're just about entering the dry season and even with the intervention of the G-CREWS project, although most of the or quite a bit of the interventions are not yet completed, we are still unable to give Grenadians water uninterrupted. You would have seen in recent days constant messaging from us about valve regulation in some places… that has to stop, that has to go away, one way or the other.

So, when you ask me what the future of water resilience in Grenada means, it means an uninterrupted supply of water. It means that our minds are still on the grind. We've just recently published our Strategic Plan 2025 to 2029 which is a short intervention. We are now vehemently looking at the creation of a master plan for water development for Grenada.

And now we're talking about a medium to long-term plan, a plan that is going to look at water resources management, treating resiliency as a whole-of-government climate agenda, but with the sole aim of ensuring that… rain, storm, sunshine, when a Grenadian open up their tap water should be coming out of it.

So, we have started preliminary assessment of our water resources and NAWASA has already started looking at our infrastructure in terms of redundancies. And Ronald would have mentioned it in a more scientific way, the system optimization, how we could move water from the north to the south, from the south to the north, depending on which area has more water, get water to the areas that are that are more vulnerable, like the elevated communities that tend to suffer during the dry season.

So, notwithstanding the interventions of the G-CREWS project, we're still quite a bit away off in terms of investment in our water infrastructure to bring us to that goal of uninterrupted supply of water or uninterrupted production of water so that Grenadians have water every day of the week, every day of the year. So that in my conclusion would be what the future of resiliency in Grenada means.

--- Thanks and sign off ---

Co-Host (Gennil):
And we end on that note. Thank you very much, Whyme Cox and Ronald Layne, both from NAWASA, for sharing your insights today. It's clear from what we've discussed that while climate challenges are real, Grenada is taking proactive steps to ensure that turning on the tap remains a simple, everyday reality.

And to all listeners: follow NAWASA on Facebook and Instagram @nawasagrenada, as well as G-CREWS on Facebook, Instagram and Youtube @gcrews473 for updates on future water projects.

Host (Ann-Kathrin):
And with that, we've come to the end of this episode of *The Countdown to 2050*.

Gen-NIL, thank you so much for guiding us through this conversation and for helping us take a closer look at what's happening in Grenada's water sector—it's been a really insightful discussion.

In this regional podcast we explore how countries across Central America and the Caribbean tackle climate change, protect biodiversity, and build resilience with support of the International Climate Initiative – or IKI.

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