

Water security in Puerto Rico (Ep. 4)

Locutor Víctor Ramos [00:00:04]

Moving toward a sustainable and inclusive Puerto Rico. A special series from En Puerto Rico and GFR Media, sponsored by the Puerto Rico Community Foundation.

Luis A. Ferré Rangel [00:00:20]

Water security is humanity's ability to protect sustainable access to water to support livelihoods, well-being, and socio-economic development. Without water there's no health and there's no life. Welcome to the fourth episode of the series Moving toward a sustainable and inclusive Puerto Rico, sponsored by the Puerto Rico Community Foundation in collaboration with GFR Media. I am Luis Alberto Ferré Rangel and today we will be talking about objectives three and six: Health and well-being, and clean water and sanitation. To discuss the issue, we're joined today by Mr. José Ríos, president of the Puerto Rico Community Aqueducts Association. Welcome, José.

José Ríos [00:01:02] Thank you.

Luis A. Ferré Rangel [00:01:03]

José, we're talking about water security in Puerto Rico and this concept is closely related to health security, but also to energy security and food security. And they all comprise a path to achieving a much more equitable and sustainable society. Explain a little more about what a community aqueduct is and why it's so important to us.

José Ríos [00:01:27]

Community aqueducts arise from the need that communities have in areas where the Puerto Rico Aqueducts and Sewer Authority doesn't have the infrastructure to provide service. What do we define as not having the infrastructure to serve? It's those communities that have water one or two days a week and it's necessary to look for other alternatives to supply water, which is, as you have said, a vital resource for life. In other words, 60% of our body is made up of water. And in addition to that, without water there's no life. So, that's extremely important. The community aqueducts are a self-management project, where we come together and try to solve a problem that the government hasn't been able to solve for us. How do we do it? Through management. We organize ourselves; we create an organization that works as a corporation or a business and a service company where we search for the source of water supply, we lay the pipes. Obviously, we must comply with all state and federal requirements.

Luis A. Ferré Rangel [00:02:57]

Very interesting to note, José, what you just said about it being a community movement, it's a self-sustaining undertaking, too. So, let's talk a little bit then, José, can give us a little bit of the history of rural or community aqueducts in Puerto Rico. Where do they come from and where are we now? Because I understand that there's a newly formed community water association.

José Ríos [00:03:20]

Yes, that's right. As I said, PRASA's infrastructure doesn't exist. So, what does that mean? Most of our parents had to fetch water from wells and carry it in some way. So, what does that mean? It comes from the fact that having quality of life is having water. And water for us is much more important even than electricity. So, we've made it a point to try to have the service that the government, for different reasons, hasn't been able to provide for us. And we've grown and

oriented ourselves to be able to maintain that service and ensure that, since we're the consumers, it's of the highest quality possible.

Luis A. Ferré Rangel [00:04:15]

And José, how many community aqueducts are there in Puerto Rico and how many people do they serve?

José Ríos [00:04:19]

There are currently 242 community aqueducts registered with the Department of Health. Informally there are more. But there are 242 and they serve 120,000 people who represent 3% of Puerto Rico's population of the 3 million or so that we have.

Luis A. Ferré Rangel [00:04:41]

Are these aqueducts all over the island?

José Ríos [00:04:44]

They're all over the island. They stretch practically from the east to the west. They cover the entire island.

Luis A. Ferré Rangel [00:04:52]

What is the rural aqueduct that supplies the most, that you know of, and which is the largest?

José Ríos [00:04:56]

The largest rural aqueduct is the Guayabota aqueduct, which is in Yabucoa. And that aqueduct services about 1,575 houses. After that one, we have the Tejas Aqueduct, which is also in that vicinity.

Luis A. Ferré Rangel [00:05:14]

You recently organized, with the support of the Puerto Rico Community Foundation, under a group of all community aqueducts.

José Ríos [00:05:22]

Basically, we had... We held four meetings in the different regions, we took the island and divided it into four regions to make sure that we could have input from the communities, to be able to make sure that we were covering the needs and challenges of all the aqueducts throughout the island.

Luis A. Ferré Rangel [00:05:44]

What were the main findings when you talked to the communities?

José Ríos [00:05:48]

They mainly had an ownership problem. There's a problem with what we know as a franchise with the Department of Natural and Environmental Resources, and, in certain cases, we saw that people need to have more knowledge and a little more... have the opportunity to be more managerial. Obviously, the biggest challenge was meeting those needs.

Luis A. Ferré Rangel [00:06:22]

We're talking about water security, which is a concept that is known by some people, but isn't discussed much... There's a lot of talk about food security, energy security. How does community aqueducts help guarantee water security?

José Ríos [00:06:38]

The message that we're delivering is one, first, of education. The first thing to do is for the communities to have the ability to take over the aqueduct. Second, we must tell them that water is a resource that's in short supply. That, due to climate changes, the hydrological basins aren't the same and we no longer have the same availability of water. So, there's an educational process in place in which the community says 'Look, if we want to have water and this is ours, we have to make sure that we use it efficiently.' And we are, to a certain extent, blessed because we have seen how government agencies have to regulate water and most of our aqueducts have water seven days a week: 24/7.

Luis A. Ferré Rangel [00:07:33]

These lessons that you are learning when managing the aqueducts, managing the community, and managing the community around the aqueduct, what have you been able to learn as a community, no, as communities, when managing this water resource?

José Ríos [00:07:47]

Well, first, it has been a process of showing people the importance of the water resource. Tell them that water is scarce. Tell them that water must be used wisely. And when I say wisely, I mean that the resource isn't wasted. We also say that water is important to run the food chain because, if we don't have water, most of our crops, agriculture, depend on water. In other words, everything is an ecosystem where one relates to the other. And if for some reason there's a dysfunction in any of the systems, then we're going to have problems and it will be reflected in the community. In most communities, having water 24/7 becomes an attraction to keep our communities populated, to prevent people from moving. And we're using it to deliver that today. In addition to that, there are other advantages. In other words, we can use the aqueduct as a spearhead to create other initiatives that create socioeconomic projects, self-employment projects. And, in addition to that, projects in this case of even cooperatives that operate under... the same system that the aqueduct operates and there is a system of self-management and training. Specifically, we have many partners starting from the Department of State, of course, Treasury, the Department of Health, the U.S. Environmental Protection Agency and the Department of Natural and Environmental Resources. And those are players who are involved in our operation. It's important to tell people that the resources and the operation must be eco-friendly, they must be self-sustaining.

Luis A. Ferré Rangel [00:10:01]

How do you guarantee those last three conditions?

José Ríos [00:10:05]

Those conditions, first, when the system is designed, we make it as eco-friendly as possible. That's part of the system design.

Luis A. Ferré Rangel [00:10:16]

That means no waste...

José Ríos [00:10:18]

That there's no waste. The waste that comes out of the chlorination system, for example, is used in other types of services such as hydroponics, for example. And as for self-sustainability, we have to tell people 'Look... we have to be transparent in our accounting'. All the work we do is voluntary, but we must tell people, through information and meetings, what expenses we have so that they

can understand the reason for the system's maintenance fee. Because we do not charge a fee for water. The cost is the fee for the system maintenance. The other thing, we must do, in addition to having our mission, we must have a vision of always being in ongoing improvement, that we cannot stay where we are because, if we aren't agents of change, we tend to disappear and that's one of the things we're delivering to the communities. Why? Without mentioning the government, the Aqueduct and Sewer Authority produces water, but loses 60% of the capacity of the water it produces. If we had this problem, we would disappear. So, our leaks are practically zero. The other thing we provide to the community is the percentage of delinquencies. Pay your dues, it's important. That is, you pay for water in the same way you pay for electricity. And we do it in the best way possible. In other words, we have different means so that they can make their payments and make their lives much easier. But we make them understand all those things. The other thing is that the aqueduct does not belong to the person and the president who is in charge at that moment. The aqueduct belongs to the community and is there to provide a service and that service is theirs. In other words, an aqueduct, perhaps is an investment. Today, building a holding tank costs \$80,000 not counting all the waiting time to obtain permits. And we tell them 'Look, you're the owners of that aqueduct, you must defend it. If you don't defend it and aren't active members and are players in this process and are passive players, what's going to happen? The aqueduct is going to fail, there isn't going to be a succession plan and those who come may not take advantage of what has been done up to this point. And that's the scenario that we make very clear so that the community has empowerment in decision-making.

Luis A. Ferré Rangel [00:13:10]

The experience of community aqueducts has certainly been that a great focus of citizen empowerment where several other capitals of the community are leveraged. First, I wanted to ask you if there's a community that wants to come together and create a community aqueduct, what does it have to do?

José Ríos [00:13:28]

Well, the first thing is that they must go and learn all the requirements that are required to do to organize. The first thing is, they must meet, identify the community that is looking to establish community aqueduct, hold a meeting, form a corporation, and follow the incorporation process of going to the Department of State, registering to obviously be in good standing. After that, they're going to have to go and get a non-retaining merchant registration, because they're not really selling a service, and create a nonprofit corporation. With all that, with a duly constituted board, you're going to go to the bank and open a commercial account. And there the processes begin. After that, obviously you're already in that process, because you're going to contact the Treasury Department and you're going to follow the tax exemption process. And something that's very important: there is an award called SAM, from the federal government, that you must fill out to have access not only to grants, but in addition to that be able to even be a subcontractor if you eventually reach that level and want to achieve it.

Luis A. Ferré Rangel [00:15:00]

Interesting. And before we move on to the public health and environmental health aspects, I would like to talk again about the newly formed association. What are the Association's goals and where is it going?

José Ríos [00:15:12]

Well, the Association, first, it's for us to have, since Hurricanes María and Irma, which is now marking five years, the community aqueducts come out of invisibility. But we believe that, if we all work

toward the same goal and the same focus, we're stronger. The union... is much stronger. In addition to that, issues and problems and challenges that communities face are much easier to face together, not separately. In other words, we have to have unity of purpose and say 'look, we're going to have participatory governance in the island's problems. We cannot sit back and let the government solve everything for us and let them give and give. We want to provide and maintain a relationship where communities understand that the government is an entity, but who affects the quality of life are the residents of that community. And that we make a difference.

Luis A. Ferré Rangel [00:16:18]

To a certain extent it's a return to that agrarian economy, to that farming, family, agrarian system, where everyone helped each other.

José Ríos [00:16:27] Exactly.

Luis A. Ferré Rangel [00:16:28]

In the fields, because you had to depend on everyone, right? José, I wanted to ask you now also about health, because this podcast also integrates the health component from the perspective of water. How do community aqueducts guarantee the drinkability and health of the resource?

José Ríos [00:16:44]

Community aqueducts are regulated, not only by state agencies, but also by federal agencies. In addition to that, if you want to have an aqueduct, the first thing you have to know is that your first partner is health. You have to establish a system that guarantees that the water you serve is drinking water. And what happens? Since you're a consumer, your family are consumers and everyone in the community and your neighbors are consumers, what are you going to want? The best for your family. Then you will ensure that the water you serve is the best. That every day you have, first, not all aqueducts have them, but that we have a plant operator. If it comes from a surface aqueduct, chlorine samples must be taken every day, so that they're within the limits. That we have people, an external auditor, who looks at those results monthly and sends those results to the Department of Health. In addition to that, Health asks us to have some checkpoints in the community to ensure that we have and are within the established limits.

Luis A. Ferré Rangel [00:18:09]

And what happens when a community aqueduct does not meet certain parameters? Is it closed, submitted to an improvement plan?

José Ríos [00:18:17]

It depends. It depends on what the infraction is, let's say. There must be an improvement system and they have to find what failed and there has to be an introspection, if we know that this aqueduct cannot serve the community and that it runs the risk of being closed, and some that have a franchise, will also lose it. So, due to the material investment there is because an aqueduct, I'm talking about most of them, we're talking about more than \$250,000, at least. Well, we must make sure that doesn't happen and safeguard everyone's health. For example, we also monitor people who have cisterns, because we don't want the water from the cisterns to contaminate ours. In other words, it's very important that everyone in the community understands that if people's health is affected, the entire system is affected. And it's not the same as you turn around and saying, 'I'm going to go back 50 years when I didn't have water.' Why? There was negligence. So, it's very important that the people who operate the aqueduct understand that health comes first. That the only way you can maintain an aqueduct is by complying with all the requirements.

Luis A. Ferré Rangel [00:19:56]

These clients, the clients of the neighborhood and community aqueducts, are they all residential or are there commercial ones as well?

José Ríos [00:20:06]

Well, most of the aqueducts are all residential. There are some that have businesses and have churches. When you have businesses and you have churches, you have other more rigorous regulations to ensure that the system is complying. It's the same as if you have a nursing home, that happens too. Most of them are residential, right now, and have been growing gradually. But we have told people that the best way is for them to comply. In other words, there are non-negotiable aspects in life and compliance is one that's a no-no.

Luis A. Ferré Rangel [00:20:50] And that has a lot to do with the public health, obviously, of the community.

José Ríos [00:20:54]

It's health, the proper use of water, ensuring that infrastructure is maintained and, especially, training people. If we, for example, have a plumber who does the work, then they have to be a certified plumber. Why? Because there are copper regulations that we must comply with and then we have to have a log of everything we do. Because we're like, if you didn't write it down, you didn't do it.

Luis A. Ferré Rangel [00:21:26]

José, I wanted to ask you about the Association again. Going back to the Association, what are some of the plans to advance public policy, to be able to support the members of the Association?

José Ríos [00:21:36]

The first thing is to improve. Make sure everyone has ownership. We want to see and improve the infrastructure. Training. System management because there are people who, for x or y reason, lack that. In a virtual world like we live in today, we want to make sure that someone in the aqueduct has access and that there is visibility and that they know everything that's going on. So, one of the things we expect is for all aqueducts to have their email address. In addition to that, have their website where they express and post their ideas and share their successes and failures with the community. And if in any case there's a change, then it can be conveyed to the community, because we want the community to be a participant. And in a world today, that significantly feeds from the internet, it's important that we have those chats, both WhatsApp and interactive, where people know what's happening and why it's happening and that they help us and offer ideas and they be active players. We don't want passive players. Why? Because part of the community, especially young people, is reached through the internet, because many of them are not directly interested in what happens, unless the water goes out. Because if your service goes out, you can be sure that they will call to find out what happened, at any time of the day.

Luis A. Ferré Rangel [00:23:30]

We were talking at the beginning of the podcast about how water security is also related to energy security and certainly the experience of solar panels and community self-management in the energy field. I imagine that you've been observing and participating in that experience also parallel to yours.

José Ríos [00:23:51]

In the aqueduct where I serve as treasurer, we were the first aqueduct in 2014 that the Department of State chose to install solar panels. Fortunately, in September 2016, we had solar panels. I'm referring to the Pedro Calixto rural aqueduct.

Luis A. Ferré Rangel [00:24:15]

Which is in the Borinquen neighborhood.

José Ríos [00:24:16]

Which is in the Borinquen neighborhood, Pradera sector, and the president's name is José (Cheo) Oyola. The day before María, before María came in through Yabucoa, what was the first thing he did? He ordered lowering the solar panels because that was part of an emergency plan. That's another issue that we want to address with the current aqueducts. An emergency plan and a mitigation plan, to keep it in mind. What happened? María came. We all know that experienced 12 hours of more than 155 miles winds. And the next thing we did was implement our emergency plan. We did a full run through entire aqueduct and transmission lines to ensure and have access to the damage. The other thing was that we documented it, we documented it with photos and that helped us for a claim we had with FEMA, which wasn't for much, but at least we had the documentation and that we did the exercise for the people. We called the company that installed the panels for us and three days later the person arrived, installed them and we were providing water on the third day. We served as a community oasis because we had, in addition to the panels, we have batteries, which at that time weren't as modern as the ones we have now, which are lithium, but they served us well. We went from filtering 700,000 gallons a month to 1,000,002, because we were supplying water to our neighbors. And in that process, we lost an entire line of batteries. But it was either providing people or safeguarding the batteries and, obviously the priority was the people. That's why water is so important. And we serve, in addition to that, as a collection center. When the aqueduct was designed, the aqueduct had an integrated disinfection plant, which is one of the few [to have that]. Pedro Calixto and Río Blanco are some of the few that have an integrated disinfection plant.

Luis A. Ferré Rangel [00:26:36]

What does that mean?

José Ríos [00:26:37]

That means that if you're an aqueduct, in our case, an aqueduct that feeds from aquifers and runoff, when it arrives, we have a retention tank, and that retention tank sends it through a system of pumps to a filtration system. The filtration system is made of limestone, it filters the water and eliminates turbidity, water residue, anything else. And we also have an automatic chlorination system that controls, through a computer, the chlorine that you add to the water before going to the holding tank. And that's a way to ensure that the water that is reaching the holding tank is properly chlorinated.

Luis A. Ferré Rangel [00:27:32]

We have also talked about climate change and water insecurity. Have you noticed a drop in the source?

José Ríos [00:27:41]

In our case, our ancestors, our elders, for example, went and took advantage of the runoff that go by Highway 52 and our aqueduct begins at kilometer 29.6 and stretches to almost the last bridge on

the highway, where it has a retention box and from there it travels via gravity to another tank that we have, where we collect the water in a cistern before being processed. What's happening? Especially in the summer, we have noticed that our springs have reduced. Why? Because if it doesn't rain, since they're runoff plants, there's no such thing as water. We also see that the surrounding streams dry up and they didn't dry up before. And that's what we're telling our associates who must watch out for that. We look out for the same thing, monthly, we get to look at how much water we serve and our associates check day by day how much water they serve. On a Saturday, for example, water consumption is higher in all aqueducts. So, if you don't have statistics, you can't establish metrics. If you can't set metrics and you don't know what you have, you can't start measuring and you can't start making progress. So, metrics are very important.

Luis A. Ferré Rangel [00:29:13] José, what is the most hopeful aspect of the work you do?

José Ríos [00:29:18]

First, it's the satisfaction that you get from the goal you have reached. I arrived in a community where water, for example, started getting to me at 10 a.m. and I didn't know when it was going to come back. So, I came from the urban area, and I said, 'I want to help'. I went to the president and told him 'Look, I'm not here to complain, I'm here to make myself available to help.' And it just so happens that he had some ideas and he showed me the aqueduct and I was excited when I saw the aqueduct and I said 'look, this is super ahead of its time. And, obviously, the fact that the community changes the way it sees the people who are working on the aqueduct, I think that's the best satisfaction. Before they kind of saw us as the bad guys, well not now, now they see us as agents of change and that we really want the communities to grow. And that they're self-sufficient and that we can launch other alternatives. Starting from... I always say that in every time of crisis there's opportunity. During the energy crisis, in the neighborhood where I live, the Borinquen neighborhood, (there were) about 17 organizations that came together because we had been without electricity for six months. We went to the Puerto Rico Electric Power Authority. I remember that we went and spoke with General Lloyd and, from there, when we arrived at the community they were already repairing; the companies were there. What happened? That group remained together, and the group became what is called the Borinquen Bella Alliance. And that alliance has brought 12 communities, 12 leaders together under the same canopy. And right now, from being an aqueduct that had 180 houses and served perhaps 500 or 600 people, the entire Borinquen neighborhood has 8,800 resident that we're reaching. And there have been other initiatives. Right now, we have a collaborative model with the municipality of Caguas to clean the PR-765 and 763 highways. And we're delivering the message to the people that garbage doesn't get there by itself, it's the people who throw it there. So, what's happening? Every day we see how the total amount of garbage we collect is less and we're there as part of a social duty that began with the movement of water and the aqueduct.

Luis A. Ferré Rangel [00:32:11]

Community aqueducts have certainly become a great setting for citizen participation and citizen governance, showing where the island should move toward. José Ríos, president of the Puerto Rico Association of Community Aqueducts, thank you very much for being here on our podcast. We invite our audience to stay tuned to this special Sustainable Development series, where in the next episode, number five, we will be discussing Sustainable Development Goals number four — Quality Education — and number eight — Decent Work and economic growth. Until then.

Locutor Víctor Ramos [00:32:50]

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