2024 ISSUE 3

RCAP
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The magazine of the Rural Community Assistance Partnership

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ceo letter

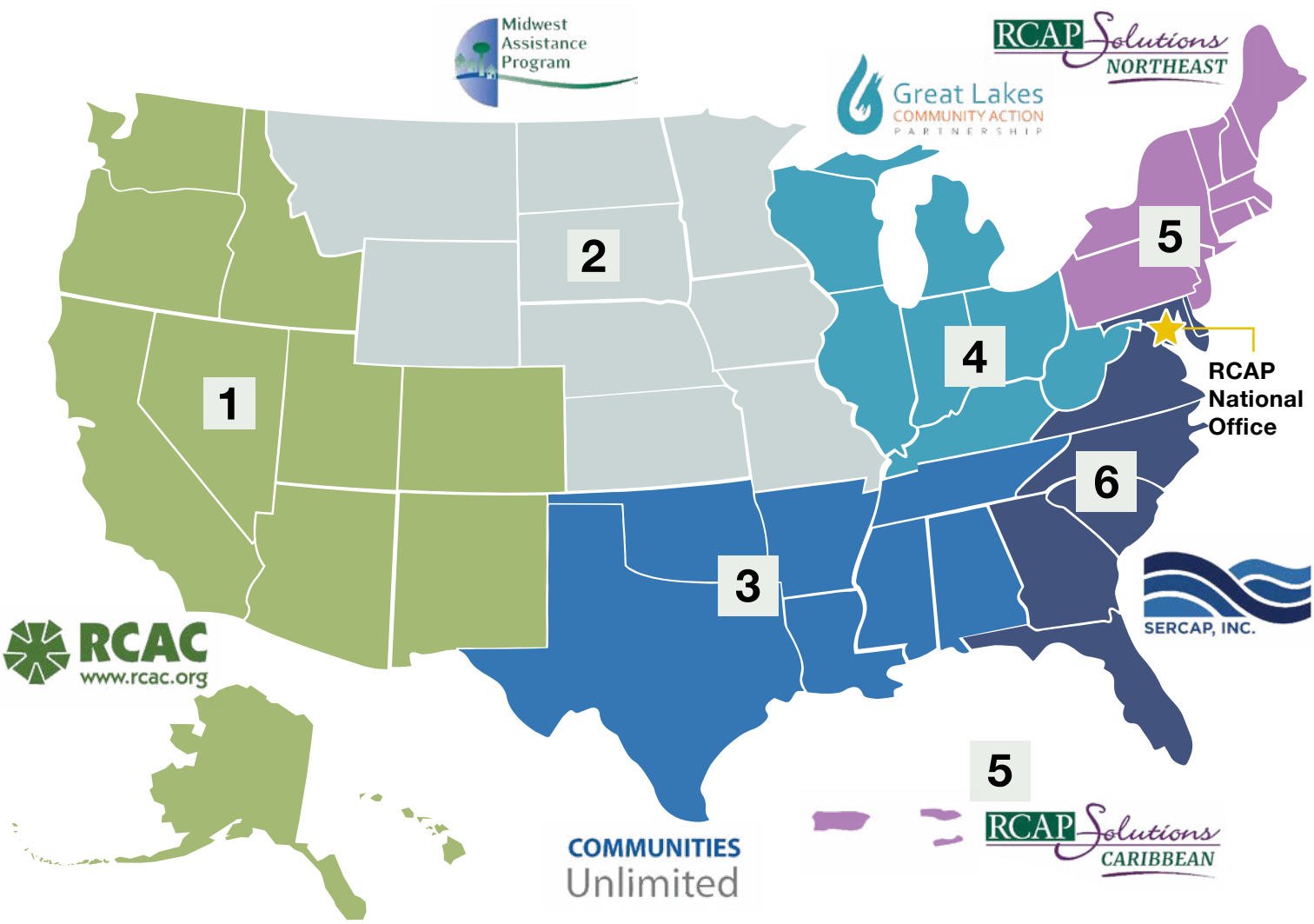
Technical assistance is the cornerstone of what RCAP has provided for rural and Tribal communities for more than 50 years. Far from simply identifying problems, fixing them, and moving on, RCAP builds deep, long-term relationships with the people and communities we work in. As you will see in this issue, our work in the field is varied and changes based on the community and the situation, as no two towns are the same. Whether it is helping a utility set up a sustainable fee structure, rebuilding water security in the U.S. Mariana Islands through operator training, improving disaster resilience in Puerto Rico, or helping a small water system map its components, bring a second water source online, and attract large commercial customers, our TAPs are making a huge difference on the ground.

As our recent Annual Impact Report states, RCAP in FY2023 served more than 3 million people in all 50 states and five territories. Through technical assistance and capacity-building services, these communities in turn were able to leverage more than $440 million in funding. These programs included 183 wastewater projects through EPA Treatment Works, 42 projects through USDA Solid Waste, and the start of our work as a national EPA Environmental Finance Center (EFC) helping to connect small communities with critical infrastructure funding.

Despite living in a time where record funding has been made available, the need for intensive technical assistance and capacity building, especially for human infrastructure, will necessitate having a long-term vision for partnering with communities. As RCAP begins making progress on a new strategic plan, our commitment to Community-Led Rural Development (CLRD) will enable our network to continue building and sustaining relationships with communities for the next 50 years.

Thank you for your interest in our work and for partnering with us to ensure that more rural and Tribal communities are able to enjoy and maintain the quality of life that their residents deserve.

Olga Morales-Pate
Chief Executive Officer, RCAP



Rural Community Assistance Partnership

The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit partners with over 350 technical assistance providers across the country. RCAP works to improve the quality of life in rural America starting at the tap.

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6. Southeastern RCAP
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WHAT Matters

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LUMIN OSITY ON UNSPLASH

"Every community deserves access to safe, clean drinking water."

EPA Administrator Michael S. Regan

Talk to Us!

Visit us on the web and tell us what's on your mind.

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RECENT WINS
and Happenings

RCAP was recently awarded $830,000 by the United States Department of Agriculture (USDA) to fund the Solid Waste program for the 2024–2025 year. As RCAP has done in the past, this funding will be used to continue assisting rural communities with solid waste removal, providing technical assistance to reduce the amount of solid waste coming into landfills, and related projects.

RCAP staff recently participated in a lead Memorandum Of Understanding (MOU) meeting at the U.S. Environmental Protection Agency (EPA) headquarters and discussed RCAP's work under the Water Infrastructure Improvements for the Nation (WIIN) program to #GetTheLeadOut in schools and childcare facilities.

RCAP also received exciting news as EPA announced that the organization was awarded $16.4 million under two grants to assist communities in conducting lead service line inventories, provide training on cybersecurity, and to work with private well owners on improving water quality and testing for per- and polyfluoroalkyl substances (PFAS) contamination.

RCAP hosted a disaster planning train the trainer workshop in Portland, Oregon, for TAPs from across the country. In partnership with EPA and USDA, staff learned about climate impacts and resiliency and disaster planning and met agency representatives from USDA, EPA, FEMA and Oregon primacy to learn about funding mechanisms.

RCAP also hosted a train the trainer workshop for TAPs on leadership in St. Paul, Minnesota. The second year of this Rural Leadership Institute for Water through Spring Point Partners provided the opportunity to revise the materials and translate for Spanish-speaking communities. This year's pilots will be held in Puerto Rico and Texas.

More exciting news on the funding front: RCAP was awarded $1 million through the EPA's Innovative Water Workforce Development Grant Program. This three-year grant is Phase II of RCAP's plan to complete a management and leadership education and certificate program for drinking water and wastewater administrative professionals, an often overlooked but critical component to system compliance and sustainability.

RCAP

RURAL ROUND-UP

Recent wins and happenings

In early August, RCAP submitted official comments to the U.S. Environmental Protection Agency (EPA) on its proposed Water System Restructuring Assessment Rule (WSRAR), which would provide a regulatory framework for states, public water systems (PWSs), and the communities they serve to identify and assess restructuring options for systems that struggle to provide safe drinking water. The proposed regulation includes three main elements: a new mandatory assessment authority for states; requirements for performing mandatory restructuring assessments to help the water system sustainably provide safe, affordable drinking water; and eligibility requirements for three incentives for public water systems to restructure. EPA indicated that it would like to have the rule finalized before the end of the year. A copy of RCAP's comments to the proposed rule can be found here.

IRINA IRISER ON UNSPLASH

TIPS from a TAP (Technical Assistance Provider)

David Bullington, Technical Assistance Provider, SERCAP

Water pollution occurs when harmful chemicals or microorganisms get into a river, lake, ocean, or aquifer, making it toxic to humans or the environment. Water is known as the **universal solvent**: it dissolves more substances than any other liquid, including those harmful to life.

What can we do to help prevent water pollution? We can reduce our plastic consumption and reuse or recycle when we can. We can dispose of chemicals, oils, and non-biodegradable items properly. We can avoid applying pesticides or herbicides to our lawns and not flush our old medications down the toilet but dispose of them properly. Those are just a few ways to help prevent water pollution.

Implementation of new regulations could alleviate today's challenges to chemicals such as microplastics, PFAS, and pharmaceuticals that wastewater treatment plants were not built to handle.

Click here to learn more about water pollution.

Training Calendar

RCAP hosts free webinars on topics ranging from capacity building to wastewater treatment. **Sign up for an upcoming webinar here!**

We have an e-Learning platform that is self-paced and covers topics such as rates, board responsibilities and regionalization in a time of crisis.

Not All Heroes Wear Capes

The Starrville Water Supply Corporation in Texas has risen through a quarter century of obstacles.

Irma Schultz, Community Environmental Management Technician, and **Ben Smith**, Staff Writer, Communities Unlimited (CU)

This article is funded by USDA under RCAP's Technitrain 2023–2024 Grant

Winona is a small town three miles north of Owentown in northeastern Smith County, Texas. The town has a population of around 576 residents and dates back to 1870, when it was established along the old Shreveport–Dallas Road. Later that decade, Winona became a stop on the railroad, with a branch line running to Tyler, Texas.

Winona residents depend on the Starrville Water Supply Corporation (WSC) for safe and clean water. The Starrville WSC started on April 24, 1998, when General Manager Hattie Miller moved to the area and noticed that the town needed a water company. With faith in her own tenacity, Miller took it upon herself to create a water supply company and educated herself on how to run a water system properly. Residents of the

area started to depend on Miller for clean water and trust her as they were coming to her home to pay their bills and take care of their accounts. For two decades, Hattie Miller was synonymous with Starrville WSC and the residents of Winona.

The Water Supply Corporation eventually moved out of Miller's home and is now located half a mile from Interstate 20. It currently serves 351 customers.

Staying Safe

To maintain operations and stay compliant with Texas safety requirements over the years, the Starrville WSC has taken advantage of technical assistance from Communities Unlimited (CU).

When Starrville grew to 250 connections, a Texas Commission on Environmental Quality (TCEQ) requirement stated that the town must have a second water source, either as an interconnection with a neighboring system or by drilling a second well. After researching the options, CU and Hattie decided to drill a new well. In 2015, CU started working with Starrville WSC on a Letter of Conditions (LOC) to the United States Department of Agriculture, Rural Development (USDA RD) to assist with a deep well and pump project. The LOC broke down project costs and provided a funding structure, which included a $223,000 loan and a $137,000 grant.

In committing to the well project, Starrville WSC was planning for the community's future and knew that it would need technical and financial assistance from CU. The first step was to scope drilling on the new well. Miller and CU continued to work together so the community could continue to rely on Starrville WSC. Just as she had done many times before, Miller took responsibility for the well-drilling project, and Starrville began construction on the new well in the fall of 2016 and completed it in early 2017.

Drilling this new well allowed Starrville WSC to support upcoming projects in the community. In April 2021, CU East Texas Regional Coordinator Tom Fulton and Environmental Services Area Director West Region Harold Hunter worked with Starrville WSC to add an RV park/resort and a Love's truck stop to its system, both of which brought new revenue opportunities to the community. "CU provided stellar technical assistance, which allowed for the development of a commercial rate structure that has revolutionized Starrville WSC's income," Hunter says. The RV park is located on Interstate 20 and has 171 RV spaces, an office, and a concession setup. The convenience store offers Subway and Godfather's Pizza. "It will be a good partner for the community," Fulton says.

Professionalizing the Operation

Starrville WSC's relationship with CU expanded beyond technical assistance from the Environmental Team. During the COVID-19 pandemic, the WSC worked with CU's director of lending, Bryn Bagwell, to complete a Paycheck Protection Program (PPP) Loan.

In April of 2022, CU worked with Starrville WSC on its board training, and it later helped it get funding to paint its water tank. In early 2023, the WSC received a loan to paint the tank.

In a project that began in September 2021, the CU Geographic Information System (GIS) Team worked with Miller on a program to receive GIS services. In June 2022, CU Community Environmental Management Technician Irma Schultz and the GIS team visited Starrville WSC to complete its water system mapping project.

In July 2022, Miller raised some safety concerns with Schultz. Heavy traffic flows were constantly going east and west, close to the WSC. The busy intersection made Miller nervous about being alone at the remote water supply company location. She had experienced groups of individuals stopping by her office and asking for directions. She feared the busy area, including two picnic areas, could lead to equipment theft or vandalism, and she was also concerned about being alone and robbed with no one to help her.

In August 2022, CU attended a monthly meeting, discussed the dangerous area along the interstate, and suggested security doors and a camera system. The Board discussed the safety of members and agreed to check into pricing for upgraded security. In September, the Board voted to install security doors, windows, and cameras at the WSC office building.

Miller was beyond excited about the increased safety measures and credits CU's work in researching the proper equipment for her peace of mind at the water supply office building. Starrville WSC staff are now safe and secure to work on their daily duties of providing safe drinking water for their community.

A Hero Without a Cape

While Miller is one of the founders of Starrville WSC, she has no plans to halt her duties any time soon. Her meter-reading routine shows her ongoing commitment to her community. For nearly 20 years, she drove her personal vehicle to take meter readings on very rough roads, because there was no company vehicle to rely on. It was not until 2022 that 16 radio meters were approved. With the installation of these remote meters, Miller may now avoid the labor-intensive journey of meter reading and has greatly reduced the wear and tear to her personal vehicle.

"Hattie is a superhero," Shultz explains. "She may not wear a cape, but that is what she is. She is a one-of-a-kind woman. She is phenomenal—her spirit is always upbeat. You give her a problem, and she works on finding a solution."

Starrville WSC recently celebrated its 25th anniversary with a picnic for customers. "Communities Unlimited has always been supportive. They've always been there from day one," Miller said.

Starrville WSC has come a long way from its beginnings in Miller's home to where it is today. It now has GIS maps of its system, remote meters, a security system, and a second water source, and is supplying water to two major commercial customers. Miller's dedication to the people of her community has allowed Starrville WSC to support growth of the community.

"Hattie and I both grew up in this area," Robert Brooks, president of Starrville WSC, shares. "I never dreamed we would have the luxury of a community water system. I look for us to keep growing into the future with residential and commercial customers."

CU continues to work with Starrville WSC to ensure it has everything in line for its community's future success. CU's Harold Hunter summarizes the success of SWC best: "I continue to say that Starrville is one of the best-managed small rural water systems in Texas with a desktop computer and flip phones."

Using Fee Structure to Impact your Utility

Fort Smith Water & Sewer District in southeast Montana plans for growth.

Devin Beal, Montana State Field Manager, Midwest Assistance Program (MAP)

This article is funded by EPA under RCAP's NPA 1 2022-2024 Program

In recent years, particularly following the COVID-19 pandemic, many areas of the country have seen dramatic population shifts as remote work has allowed people to live where they want to without the constraints of their office. Many communities throughout Montana saw significant population growth, and their utilities struggled to accommodate the additional customers and demand. This necessitated capital improvements to increase the capacity of the utilities. Seeing these struggles, some communities proactively undertook projects to increase capacity in anticipation of increased demand for water and wastewater services.

MAP, DEVIN BEAL

These communities saw the significant government infrastructure funding as an opportunity to both replace aging infrastructure and build for the future. One such utility was the Fort Smith Water & Sewer District (WSD).

Growth in a Seasonal Community

Fort Smith is a small fishing community at the base of the Yellowtail Dam and Bighorn Canyon in southeast Montana. The town is seasonal, with many residents leaving during the winter, while there is increased demand and activity during the summer. When any community or utility faces changes, it is important to revisit current financial policies and ensure that the utility can remain viable into the future. Two major areas of focus for Fort Smith WSD were rate and fee structures.

In recent years, the district underwent a total overhaul of its drinking water system, and it is currently constructing a new wastewater system. In late 2023, the district reached out to Midwest Assistance Program (MAP) to review the district's policies and help research different fee structures. The current residents have been paying off the loans taken out for the new drinking water system that facilitated growth, and the board was specifically looking for a way to share that cost amongst new residents. MAP began researching different types of fees to find the best fit for the district. One challenge is that the fees are regulated by state law and go by different names in different parts of the country. This can lead to confusion and miscommunication when discussing rules across different states.

Some examples of different fees include tap fees, connection fees, impact fees, shut-off fees, and system development fees. Each category has a specific purpose, though some are quite similar and are sometimes used interchangeably. Many utilities will use multiple fees in conjunction with their larger fee and rate structure. MAP and the board decided that an impact fee would best suit their needs. Generally speaking, utilities have broad authority when it comes to setting rates and fee structures. There have been many court cases where utilities have been sued by residents over their fee structure. So long as the utility has justified the fee structure and provided a methodology for how it was developed, the courts have sided with the utility. It is important to be familiar with the laws in your state and how they relate to utility finances.

MAP, DEVIN BEAL

The purpose of an impact fee is to recover capital costs associated with providing additional system capacity, such as system expansion. This is often known as "growth paying its own way." Impact fees are governed by state law in Montana, and there are several restrictions on them. Impact fees cannot be used for operation and maintenance (O&M) activities, such as taking samples or performing upkeep on a pump, nor to address deficiencies in the system, and they must be used for "system-wide" benefits, or those that affect all system users. This means that items such as service lines and hydrants, which benefit a single house or a small number of homes, cannot be included in the impact fee. The proceeds from the impact fee must also be kept in a special fund, separate from other monies.

Montana requires that any utility wishing to implement an impact fee must develop a service area report. This is applicable to drinking water, wastewater, streets, and other services provided by the municipality or district. The service area report must establish the existing level of service (LOS), describe the existing conditions of the system, and

establish the methodology used to calculate the impact fee. It must also project future demand and the capital improvements needed to meet that demand. New customers cannot be held to a higher LOS than existing customers. Impact fees are also required to be revisited at a minimum once every five years.

Calculating a Just Impact Fee

The first step in calculating an impact fee is to determine the utility's capacity. In Fort Smith's case, the capacity is governed by the water rights held by the district, limiting the total volume that can be pumped from the district's wells each year. MAP analyzed several years' worth of water usage data to determine a peaking factor for the system, and thus an average maximum capacity. Using the peaking factor ensures that the utility does not exceed its permitted capacity during the high-usage summer months. MAP then used the historical water usage data to determine the LOS for existing customers, or the amount of water per day the district provides to each equivalent dwelling unit (EDU). The LOS is very important because it determines how many new customers the utility can support. Typically, customer water usage over summer months is used to determine the LOS. This is particularly important for Fort Smith, as it has above-average seasonal demand impacts. Using the wrong time frame in calculating the LOS can lead to an overestimate of the utility's growth potential, which could lead to water shortages during summer months if the district were to grow beyond its means. After determining the LOS, the total capacity can be divided into that used by current customers and remaining capacity available for new customers. Using the capacity available for growth as well as the LOS, the number of new growth EDUs can be found. This is the number of new customers the utility can support based on its current capacity and water usage trends.

After finding the number of new growth customers, the next step is to add up the capital costs that are applicable to the impact fee. This must exclude the items that do not provide system-wide benefits, such as hydrants and service lines. Distribution mains are an exception, because while any individual main only serves a portion of the utility, the layout of the distribution system influences water quality that affects the utility. Once all of the relevant costs have been compiled, they must be apportioned between the current customers and new growth customers as determined previously. The last step is to take the portion earmarked for growth and divide it by the number of growth EDUs supported by the system. In addition, Montana allows a 5% administrative fee to be added.

Now that the impact fee has been calculated, the service area report must be written and adopted by the utility. Anytime you are changing or adjusting rates or fees, it is good to take a holistic approach and ensure that the changes make sense and align with the financial goals of the utility. Rates and fees should be set at levels such that the utility can remain viable and financially sustainable for the foreseeable future. With MAP's assistance, the board has voted to accept the impact fee and move forward with implementation.

MAP, DEVIN BEAL

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Modern Technology Finds Rust and Damage Faster

Flying a drone to inspect elevated water tanks in Florida.

Joseph Gonzalez, Technical Assistance Provider, Southeast Rural Community Assistance Project (SERCAP)

Funded by USDA under RCAP's Technitrain 2023–2024 Grant

If you ever drive across the state of Florida, there is a good chance you will see one of 24,000 elevated water tanks standing proudly with their cities' names emblazoned across their surfaces. Florida Department of Environmental Protection (FDEP) completed approximately 11,000 inspections in 2022 to ensure compliance of regulatory standards and the safety of drinking water standards for millions of Floridians. The Southeast Rural Community Assistance Project (SERCAP) has begun system inspections of these water tanks in small, rural communities with drone technology. This is a distinct change from hiring someone to climb up the stairs of a 150-foot tank.

A week before the beginning of another long, hot summer in Florida, SERCAP technical assistance provider (TAP) Joe Gonzalez arrived at Farm Hill Utilities (FHU) a few miles north of Pensacola Beach to assist with an impromptu system inspection of its recently painted elevated water tower. Plant Manager Shawn Condon expressed concern about possible rust spots he'd seen on the bottom half of the tank when looking with binoculars. Fortunately, Gonzalez had the SERCAP-issued drone with him and assured the plant manager that he would be able to safely provide drone footage around and above the entire tank.

Within an hour, drone footage was provided, and rust was shown to be prevalent around the hatch area as well as in several other areas that would need to be touched up before the rainy summer season near the Gulf of Mexico. Gonzalez captured 360-degree video footage around the tank as well as still shots from several angles and forwarded those shots to his cell phone. This drone footage enabled FHU to contact the water tower painters, who were less than a mile away painting another water tower. Corrosion control is a vital responsibility for water treatment plant managers, utility directors, and city managers. This was the first time a drone had been used to benefit a small system by a TAP and ensure that timely steps could be taken to rid the tank of corrosion.

Although thunderstorms were threatening to roll in from the Gulf, the painters wasted no time in tackling the areas that needed attention. Because the drone pictures showed them the exact

SERCAP, JOSEPH GONZALEZ

locations of the problems they had to address, the work was completed quickly, and the rusted areas were no longer a problem for FHU management.

Other Beneficial Uses of Drones

Another huge benefit to utilizing drones comes when severe storms and flash floods cause devastating damage to a small town's economic structure and physical infrastructure. SERCAP has been able to fly into areas where manned vehicle or aircraft cannot, such as roads that have been closed due to downed power lines. Drones from SERCAP have been able to offer a bird's-eye view of where water is flowing and can help to predict where it will rise, as well as spot people in distress once the storm passes. Although SERCAP has assisted in a limited role thus far, its future roles will expand tremendously regarding assessing damage from tropical storms, tornadoes, and hurricanes once more experience has been obtained. Drone inspections have already helped in small towns such as Lee in Madison County, Florida, to check for damage to the elevated water tower from 2023 Hurricane Idalia. According to the National Oceanic and Atmospheric Administration (NOAA), it has been estimated that Hurricane Idalia caused between $12 billion and $20 billion in damage and lost output. Gonzalez arrived as soon as it was safe to drive around towns in the Big Bend area, such as Steinhatchee and Cross City, located in Taylor County, Florida. The ability of SERCAP drone operators to provide aerial footage in times of distress and uncertainty provides real assistance when it is needed the most.

SERCAP has also provided drone footage to inspect water towers and other publicly owned structures—fire stations, public libraries, schools, and others—in order to expedite grant writing via Story Maps under Community Facility (CF) grants. Story Maps has used drone footage in order to show aerial images of physical structures that need to be upgraded or completely replaced. This has proven to be very effective in areas that are difficult to get to until uprooted trees are removed for easier access routes. Expediting the cumbersome application process for funding can be critical towards advancing the rebuilding process

SERCAP, JOSEPH GONZALEZ

Future Opportunities in Drone Operation

Moving forward, there will be training of other operators with on-site training, YouTube videos, and one-on-one practice sessions. By addressing complex environmental conservation challenges, SERCAP drone operators can fly drones to monitor marine life and water quality in protected bodies of water and protected oceans and to track forest health. Drone technology can also be used to accurately map the climatic conditions of often-inaccessible tropical rainforests and wetlands, which are abundant throughout a state that has 65,758 square miles and is home to nearly 8,000 lakes and 1,700 rivers and streams, along with thousands of miles of man-made canals and extensive wetlands. Additionally, drones can be used to reseed deforested areas affected by the massive amount of new construction due to the population explosion in Florida. Many small towns along the panhandle have grown by over 40% and are planning new water towers to be able to provide clean drinking water to all of their residents and visitors.

The opportunities are rich for future drone operators to assist in many ways that help small, rural communities in their quest to provide safe drinking water and sustainable wastewater systems. Gonzalez is proud to lead the charge into the future of SERCAP and pave the way for future success by using drone technology.

Note to the reader:

This article is designed to serve as an introductory exploration of the pressing issue of PFAS contamination in wastewater. It offers a comprehensive overview of the sources, fate, transport, health implications, remediation techniques, and regulatory frameworks surrounding this environmental concern. However, given the complexity and technical depth of the subject, this article is only the beginning. We plan to develop a more detailed case study with the support of technical experts in the near future. This forthcoming study will provide an in-depth analysis and explore advanced solutions to this critical issue.

Tackling PFAS Contamination in Rural Wastewater

Risks, remediation, and regulatory challenges.

James D. Kubisz, Rural Development Specialist, INRCAP/Great Lakes Community Action Partnership (GLCAP), Indiana

This article is funded by USDA under RCAP's Technitrain 2023–2024 Grant

Per- and polyfluoroalkyl substances (PFAS) have emerged as a significant environmental concern due to their persistence, bioaccumulative nature, and potential adverse health effects. In the picturesque landscapes of rural America, where communities thrive amidst natural beauty, PFAS loom as a hidden threat in the water. These persistent and pervasive chemicals, once heralded for their industrial and commercial utility, now pose a significant challenge to environmental and public health. While much attention has been paid to urban centers and industrial hubs, rural areas face their own set of unique challenges when it comes to PFAS contamination in wastewater. In this article, we delve into the complexities of PFAS in rural wastewater, exploring their sources and impact and strategies for mitigation.

Sources of PFAS in Rural Wastewater

PFAS comprise a diverse group of synthetic chemicals characterized by their unique fluorinated carbon chains. These compounds have been widely used in various industrial and consumer products due to their exceptional water and oil repellency, non-stick properties, and resistance to heat and chemicals (Grandjean & Clapp, 2020). PFAS are ubiquitous contaminants found in water, soil, air, wildlife, and human tissues globally, presenting significant challenges for environmental management (Hu et al., 2016).

Rural communities may not have the industrial footprint of urban areas, but PFAS find their way into rural wastewater through various channels. Agricultural activities, such as the use of PFAS-containing pesticides and fertilizers, contribute to contamination (Strynar et al., 2020). Additionally, rural firefighting operations, often reliant on PFAS-based foams, can introduce these chemicals into wastewater systems (EPA, 2020). Domestic sources, including household products like non-stick cookware and stain-resistant fabrics, further exacerbate the issue (Sunderland et al., 2019).

One of the primary pathways through which PFAS enter the environment is wastewater discharge. Municipal and industrial wastewater treatment plants receive effluents containing PFAS from various sources, including industrial

PETER ROBBINS ON UNSPLASH

discharges, landfill leachate, and domestic products (Ahrens & Bundschuh, 2014). Despite advancements in wastewater treatment technologies, conventional treatment processes are often ineffective in removing PFAS, leading to their release into receiving water bodies (Sun et al., 2020). Consequently, PFAS contamination in wastewater has become a pressing environmental and public health issue.

Fate and Transport of PFAS in Wastewater

Once introduced into wastewater systems, PFAS exhibit complex fate and transport dynamics influenced by their physicochemical properties and environmental conditions. PFAS are highly soluble in water and resistant to degradation, allowing them to persist throughout various treatment processes (Mao et al., 2019). Furthermore, PFAS tend to adsorb onto organic matter and particulate solids present in wastewater, leading to their accumulation in sludge and biosolids.

During wastewater treatment, PFAS can undergo partitioning between aqueous and solid phases, with some compounds being removed via sorption, precipitation, or volatilization (Chen et al., 2019). However, conventional treatment methods such as coagulation, sedimentation, and activated sludge processes often exhibit limited efficacy in removing PFAS due to their unique chemical properties (Weinberg et al., 2021). Consequently, treated effluents may still contain detectable levels of PFAS, posing risks to downstream ecosystems and water supplies.

Impact on Rural Communities

PFAS in rural wastewater has far-reaching consequences for the environment and public health. Rural residents, who often rely on private wells and untreated surface water for drinking, are particularly vulnerable to contamination (Hu et al., 2016). Chronic exposure to PFAS has been linked to adverse health effects, including developmental delays, immune system disorders, and certain types of cancer (Grandjean & Clapp, 2020).

Moreover, wastewater irrigation of agricultural lands can lead to the uptake of PFAS by crops, resulting in potential human exposure through the food chain (Fenton et al., 2021). Wildlife inhabiting contaminated environments

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may also experience toxicological effects, including reproductive impairments, altered behavior, and decreased survival rates (Fenton et al., 2021). Therefore, mitigating PFAS contamination in wastewater is essential for safeguarding environmental and public health.

Mitigation Strategies for PFAS in Rural Wastewater

Addressing PFAS contamination in rural wastewater requires a multifaceted approach that encompasses prevention, detection, and remediation. Source control measures, such as the regulation of PFAS-containing products and the promotion of safer alternatives, can help reduce the influx of these chemicals into wastewater systems (Hoffman et al., 2018). Enhanced monitoring programs, leveraging advanced analytical techniques, are essential for early detection and mitigation of PFAS contamination (Nguyen et al., 2021).

When it comes to treatment, rural wastewater facilities can benefit from the adoption of advanced technologies designed specifically for PFAS removal. Granular activated carbon (GAC) filtration, ion exchange, and membrane processes have shown promise in effectively reducing PFAS concentrations in wastewater (Sun et al., 2020). These treatment methods, when coupled with proper operation and maintenance practices, can significantly mitigate the impact of PFAS contamination on rural communities.

Regulatory Frameworks and Challenges

Addressing PFAS contamination in wastewater requires robust regulatory frameworks at the national and international levels. While some countries have established regulatory limits for PFAS in drinking water and ambient environments, regulation of PFAS in wastewater remains limited (Post et al., 2021). Developing comprehensive guidelines for PFAS monitoring, treatment, and disposal in wastewater is essential for protecting human health and the environment.

However, regulatory efforts are hindered by several challenges, including the lack of standardized analytical methods for PFAS detection and quantification, uncertainties regarding toxicity thresholds for different PFAS compounds, and the complexity of assessing cumulative risks associated with exposure to multiple PFAS (Sun et al., 2020). Additionally, the global nature of PFAS contamination necessitates coordinated efforts among governments, industries, research institutions, and civil society to address this complex issue effectively.

Despite the availability of treatment technologies, several challenges hinder efforts to combat PFAS contamination in rural wastewater. Limited financial resources and technical expertise pose barriers to the implementation of advanced treatment systems in smaller, rural facilities (Mao et al., 2019). Moreover, the lack of regulatory standards specific to PFAS in wastewater complicates compliance and enforcement efforts (Post et al., 2021).

However, amidst these challenges lie opportunities for innovation and collaboration. Public–private partnerships can facilitate the sharing of resources and expertise, enabling rural communities to access innovative treatment technologies (Chen et al., 2019). Furthermore, continued research into PFAS fate and transport mechanisms, as well as the development of cost-effective treatment solutions, holds promise for addressing this pressing issue (Weinberg et al., 2021).

Conclusion

In rural areas of the United States, where life moves at a more leisurely pace and the landscapes are expansive, the risk of PFAS contamination in wastewater is a significant concern. Exposure to PFAS via contaminated wastewater may result in adverse health effects in humans and wildlife, necessitating stringent regulatory measures and remediation strategies. Advanced treatment technologies such as GAC adsorption, ion exchange, and membrane filtration offer promising solutions for reducing PFAS concentrations in wastewater. This effort should include techniques for prevention, detection, and remediation that are adapted to the specific issues that rural communities face.

However, addressing PFAS contamination in wastewater requires coordinated action among policymakers, regulators, industries, and communities to mitigate risks and protect environmental and public health for future generations. We can improve the quality of life for people living in rural areas of the United States by tackling the problem of PFAS pollution in wastewater today.

LIU JIAWEI ON UNSPLASH

References

Ahrens, L., & Bundschuh, M. (2014). Fate and effects of poly- and perfluoroalkyl substances in the aquatic environment: a review. Environmental Toxicology and Chemistry, 33(9), 1921-9. https://doi.org/10.1002/etc.2663

Chen, D., Luo, Y., Wei, R., Long, Y., & Guo, R. (2019). Perfluoroalkyl substances in surface waters and WWTPs in a highly industrialized area: mass flows, removal efficiencies, and source contributions. Environmental Science and Pollution Research, 26(8), 7905–7916.

Fenton, S. E., Ducatman, A., Boobis, A., DeWitt, J. C., Lau, C., Ng, C., Smith, J. S., & Roberts, S. M. (2021). Per- and polyfluoroalkyl substance toxicity and human health review: Current state of knowledge and strategies for informing future research. Environmental Toxicology and Chemistry, 40(3), 606-630. https://doi.org/10.1002/etc.4890

Grandjean, P., & Clapp, R. (2020). Perfluorinated alkyl substances: Emerging insights into health risks. New Solutions: A Journal of Environmental and Occupational Health Policy, 30(3), 179–204.

Hoffman, K., Garantziotis, S., Birnbaum, L., & Stapleton, H. (2018). Monitoring indoor exposure to organophosphate flame retardants: hand wipes and house dust. Environmental Health Perspectives, 126(4), 047013.

Hu, X. C., Andrews, D. Q., Lindstrom, A. B., Bruton, T. A., Schaider, L. A., Grandjean, P., ... & Sunderland, E. M. (2016). Detection of poly- and perfluoroalkyl substances (PFASs) in US drinking water linked to industrial sites, military fire training areas, and wastewater treatment plants. Environmental science & technology letters, 3(10), 344-350.

Mao, Y., Liu, X., Xu, J., Gu, X., Qian, Y., Song, Z., & Yan, H. (2019). Rapid removal of perfluoroalkyl substances (PFASs) from water by highly efficient nanofiltration membranes. Journal of hazardous materials, 380, 120846.

Nguyen, T. D., Reinhard, M., & Gin, K. Y. (2021). A Critical Review on Per-and Polyfluoroalkyl Substances (PFAS) in Wastewater Treatment Plants: Sources, Fate, and Removal Strategies. Environmental Science & Technology, 55(1), 8–26.

Post, G. B., Louis, J. B., Cooper, K. R., & Boros-Russo, B. J. (2021). Occurrence and potential significance of perfluoroalkyl substances in treated wastewater. Environmental Science & Technology, 55(1), 42–55.

Strynar, M. J., Dagnino, S., McMahen, R. L., Liang, S., Lind

Strom, A. B., Andersen, E., ... & Bräunig, J. (2020). Identification of novel perfluoroalkyl ether carboxylic acids (PFECAs) and sulfonic acids (PFESAs) in natural waters using accurate mass time-of-flight mass spectrometry (TOFMS). Environmental science & technology, 54(1), 219-229.

Sun, M., Arevalo, E., Strynar, M., Lindstrom, A., Richardson, M., Kearns, B., & Pickett, A. (2020). Legacy and emerging perfluoroalkyl substances are important drinking water contaminants in the Cape Fear River Watershed of North Carolina. Environmental science & technology letters, 7(10), 754-760.

U.S. Environmental Protection Agency (EPA). (2020). PFAS in Agriculture. Retrieved from https://www.epa.gov/pfas/pfas-agriculture

Wang, X., Yin, H., Zhang, L., Chen, M., Hou, M., & Zhao, S. (2021). Per- and polyfluoroalkyl substances in wastewater treatment plants: Occurrence, distribution, removal efficiency, and environmental risk assessment. Journal of Hazardous Materials, 404(Pt B), 124004.

Webber, D., Grandbois, M., Van Dyke, M., O'Neill, E., Howard, D., & Barlaz, M. (2018). Fate of per- and polyfluoroalkyl substances (PFASs) in a wastewater treatment plant with aerobic sludge digestion. Environmental Science & Technology, 52(21), 12403–12411.

Weinberg, H., Johnson, A., Singer, H., & Vergania, T. (2021). Using per- and polyfluoroalkyl substances (PFAS) in papermaking and their environmental impacts: A review. Journal of Hazardous Materials, 408(Pt B), 124555.

Sunderland, E. M., Hu, X. C., Dassuncao, C., Tokranov, A. K., & Wagner, C. C. (2019). A review of current understanding of the human health risks posed by PFASs. Current environmental health reports, 6(4), 340-358.

Growing Island Self-Sufficiency

RCAC builds Saipan's capacity, one water operator at a time.

Elliott Bochstein, Staff Writer, Rural Community Assistance Corporation (RCAC)

Funded by USDA under RCAP's Technitrain 2023–2024 Grant

VINCENT CAMACHO ON UNSPLASH

For Tasi Corpuz, a trade assistant with the Commonwealth Utilities Corporation, doing things by the book is a luxury his team often can't afford. Limited resources and a seemingly endless barrage of challenges mean that too many of his work days consist of finding creative, if occasionally unorthodox, solutions to keep the water taps flowing. "We don't always do things right," Corpuz admits, noting the bare shelves of local hardware stores. "It's tough when you know there's a better way, but we do the best we can. You learn to be resourceful and rely on your skills and the support of your team."

For millennia, the Indigenous Chamorro people thrived in Saipan—the largest of the Northern Mariana Islands, a western Pacific Commonwealth of the United States—skillfully managing the island's resources and cherishing its freshwater springs. These springs were communal hubs where stories were shared, traditions passed down, and community bonds strengthened. The Chamorros' sustainable practices enabled them to weather typhoons and droughts with remarkable resilience. However, successive colonial powers—the Spanish, Germans, and Japanese—disrupted this balance. Each regime imposed new socioeconomic structures and resource extraction practices that strained Saipan's fragile ecosystem. New diseases ravaged the population, while foreign agricultural and industrial methods supplanted traditional ecological knowledge.

The devastation of World War II, culminating in the 1944 Battle of Saipan, decimated the island. The subsequent establishment of Saipan as part of the U.S. Commonwealth of the Northern Mariana Islands and the influx of military installations further strained the island's limited water resources. "The lingering effects of war are echoed almost everywhere you look," says Joy Gannon, a regional field manager with Rural Community Assistance Corporation (RCAC), citing the M4 Sherman Tanks that are partially submerged off the island's western coast and serve as solemn memorials scattered throughout the islands. These tanks aren't the only reminders of the past; much of Saipan's water infrastructure dates to around World War II. The systems' age, along with a changing climate and growing population, have intensified the island's water security challenges, making the need for trained and certified water operators more critical than ever.

PETER ROODON WIKIMEDIA

Daily Battles for Saipan's Water Ops

The Commonwealth Utilities Corporation (CUC), established in 1987, serves approximately 50,000 residents across the islands of Saipan, Tinian, and Rota with essential water, sewer, power, and stormwater systems. Since 2021, CUC has provided 24-hour water services amidst challenges such as water loss, power outages, typhoons, and widespread contamination from PFAS, the dreaded "forever chemicals."

"Our location is our main problem," Corpuz says. "My coworkers from the mainland say their jobs were much easier there, where they had immediate access to what they needed." Meanwhile, leaks and theft result in a staggering 65% water loss, further straining the limited supply. Meeting stringent U.S. drinking water standards, especially new PFAS regulations, is a logistical nightmare, given Saipan's median household income of a little under $24,000. The islands' isolation—hundreds of miles from major supply chains and labs—exacerbates these problems. "They're so remote, it's impossible

ROBERT POSEGATE ON UNSPLASH

to find a nearby qualified lab," says Brian McKee, a Rural Development Specialist with RCAC. "In a lot of cases, they have to mail out water samples, which adds to the costs."

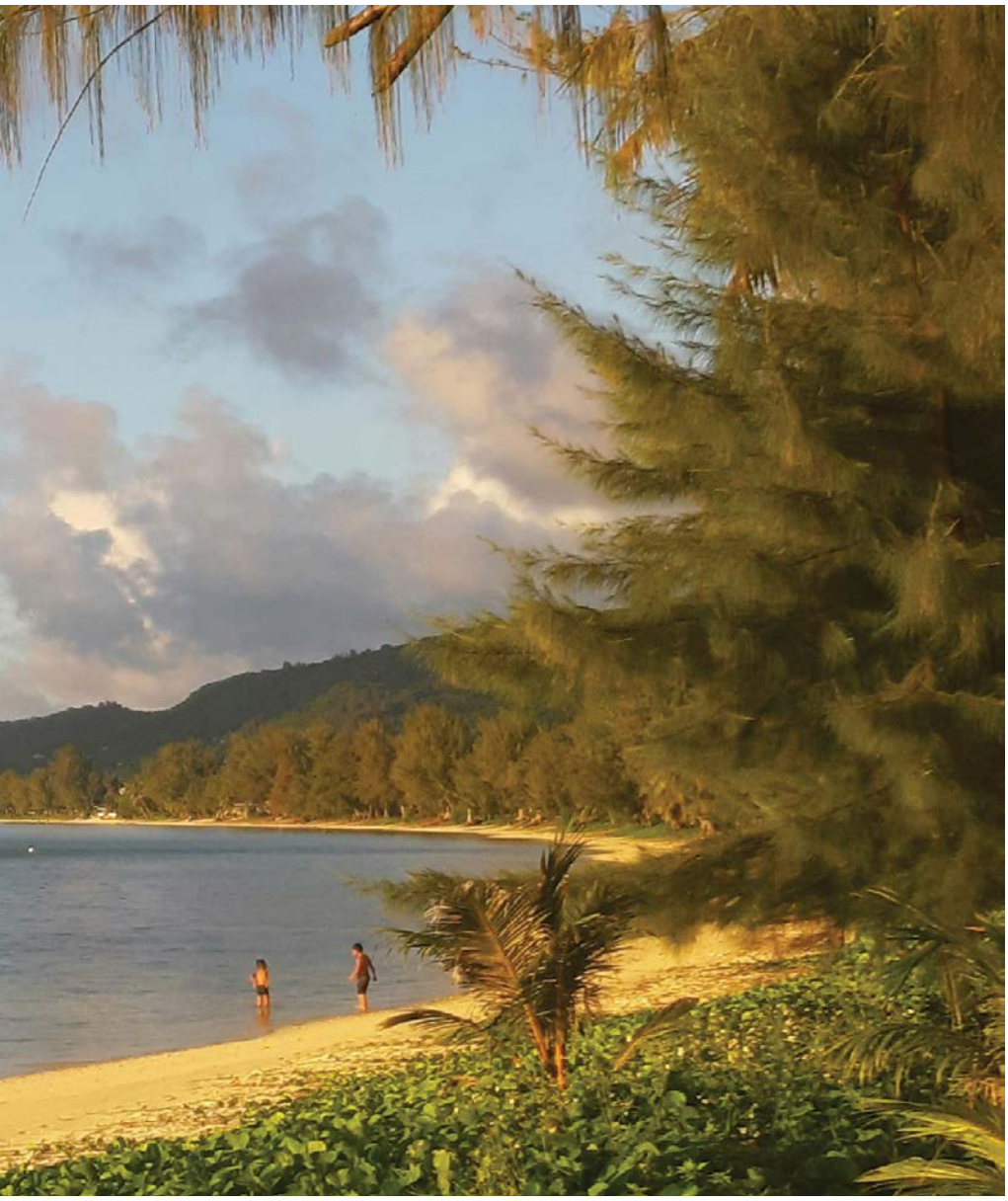
Attracting and retaining skilled workers is another uphill battle. Salaries for specialized roles, like geographic information systems (GIS) analyst begin around $20,000, a fraction of mainland pay. This fuels a chronic brain drain, as experienced workers seek better opportunities elsewhere, leaving the islands with a dearth of expertise.

"There's a huge need to train and certify newer operators," explains Lennie Okano-Kendrick, State Engineer and Environmental Coordinator for Hawaii and Western Pacific Interests. "Without outside expertise, they're forced to rely on local colleges that might bring in the technical expertise—but it's not a common course of study."

RCAC: Bringing Expertise to an Island in Need

In April 2024, RCAC provided training and technical support to Saipan's water operators with the United States Department of Agriculture Rural Development (USDA-RD) Technitrain 2024 grant funding. The workshops focused on helping operators achieve Level 1 and 2 certifications, covering critical topics such as water quality standards, treatment processes, infrastructure maintenance, and regulatory compliance. RCAC Regional Field Manager Gannon, who led the training, was struck by the remarkable generosity she encountered. "Besides housing, living costs are comparable to Hawaii. I wondered how people get by," she says. "Yet, people brought me bags of local bread from a bakery that has been in operation since the war. Homemade cookies made by their families. Even on such modest incomes, they were determined to share."

CUC staff also warmly welcomed RCAC Rural Development Specialist McKee, inviting him to lunches so they could talk shop and provide tips on navigating the island and making the most of his stay. "They were so kind and welcoming that I immediately became emotionally invested in their success," he says. Relationships built on mutual respect and a shared desire for success are



a hallmark of how RCAC operates. Unlike paid consultants, RCAC staff offer their expertise and training to the communities free of charge, directly benefiting them by bolstering their capacity to sustainably manage their water infrastructure. "The overwhelming message we received was, 'Please come back,'" McKee says. "The need for training goes beyond certification—they need classes on work management, asset management, cybersecurity, and more. We're eager to help, to the extent we can."

Beyond the Textbook: Hands-On Training to Address Local Needs

RCAC's operator certification workshops focus on equipping local water operators with practical skills and knowledge. "Our overarching goal is to elevate professionalism within these utilities, helping operators understand the 'why' behind their daily tasks," Gannon explains. "We want them to grasp that their work directly impacts their families' and communities' lives." The trainings also covered modern water treatment methods adapted to island conditions, emphasizing both water quality and operator safety. Participants learned safe chemical handling and emergency response protocols, preparing them for potential contamination or infrastructure failures.

RCAC's workshops included a comprehensive module on essential math formulas and calculations for water treatment and distribution. This empowers operators to analyze data, optimize processes, and make informed decisions based on quantitative evidence. Participants practiced calculating chemical dosage levels and treatment efficiency. The rate calculation module, which explained how rates are determined and the factors influencing them, was particularly impactful. "If you compare their water rates to the island's median household income, you see how expensive they are," Gannon says. "When we calculated the rates, I was shocked by how costly it was. They responded, 'Yeah, because we're paying for all the leaks!'"

Corpuz found the training highly beneficial and, despite belonging to CUC's meter crew, particularly appreciated the module about wells. "Usually we handle anything that deals with water meters, but when the other crews are short, we help out," he explained. "The only area I haven't helped out with is wells, so that part was very interesting to me." He also enjoyed RCAC staff's supportive and engaging teaching style. "Joy was an amazing instructor, funny, and she kept it lively—I give her a 10 out of 10! The whole team was amazing. They kept us informed and answered every question we had."

Investing in Resilience to Secure Saipan's Water Future

By equipping local operators with the skills they need to pass their certification exams, RCAC is helping Saipan's water utility improve its overall efficiency and reliability. Certified operators can identify and implement cost-saving measures, leading to substantial financial savings for the utility and boosting the community's economic stability. Beyond technical improvements, these workshops instill confidence and foster personal growth in participants, leading to improved job performance and satisfaction—key factors in retaining a skilled workforce. After completing RCAC's training, Corpuz successfully passed his Level 1 certification test. While a pay raise isn't guaranteed, Corpuz expresses pride in his accomplishment and feels better prepared for any future challenges.

"It's amazing to see how much we've learned and how far we've come," Corpuz reflects. "But there's always more to do, and with the support of organizations like RCAC, we're getting there, one step at a time."

Meeting Water-Supply Challenges in a Disaster-Prone Caribbean Region

RSol helps Acueducto Rural Tejas de Yabucoa in Puerto Rico improve resiliency.

Félix Ramos Rodríguez, Community Specialist for Puerto Rico, RCAP Solutions (RSOL)

Funded by USDA under RCAP's Technitrain 2023–2024 Grant

RCAP SOLUTIONS, FÉLIX RAMOS RODRÍGUEZ

Acueducto Rural Tejas de Yabucoa is a rural water system located in the southeastern region of Puerto Rico, within the town of Yabucoa. Serving approximately 642 families, this system provides clean water to an estimated 1,800 residents. It also serves a school, two churches, and eight small "colmados," or convenience stores. As one of the largest rural water systems in Puerto Rico, it relies on six deep wells, all of which operate simultaneously to ensure a continuous flow of water. This setup is essential to meet the community's high water demand, which requires over 16 hours of daily operation to sustain water service and leaves little room for downtime or maintenance. In a region prone to disasters and frequent power outages, increased resiliency has become a goal for many small systems.

The Yabucoa system includes two distribution tanks: a 32,000-gallon tank and a 130,000-gallon reserve tank. At each well, sodium hypochlorite solution is added via metering pumps to disinfect the water, ensuring that the supply remains safe for the community. The system's mountainous location adds challenges, making it difficult to maintain consistent water service in some parts of the Tejas community due to altitude and pressure differences. Given the distribution of the population, each well in the system is crucial for delivering a steady water supply to all areas of the community.

During Hurricanes Irma and Maria in 2017, Yabucoa was the first point of impact as the storms made landfall in Puerto Rico. The water system suffered significant damage and was without electricity for more than four months. During this time, the system had to rely solely on three power generators. Unfortunately, with six wells, the prolonged power outage created severe challenges throughout the community. Two of the wells, #5 and #6, lacked power generators and could not provide consistent water service, leaving parts of the community with limited access to water.

Nearly seven years after the hurricanes, Puerto Rico's power grid is still in a state of recovery and remains unreliable. Frequent power outages and voltage fluctuations continue to threaten the water service equipment, leading to the constant burnout of pumps and increased reliance on fuel-consuming power generators. This ongoing strain depletes the community's financial reserves, making it difficult to sustain the water system.

Power Needed

Seeking a solution to their ongoing challenges, the Acueducto Rural Tejas de Yabucoa community reached out to RCAP Solutions after learning about disaster funding opportunities from the United States Department of Agriculture (USDA). This specific funding, known as USDA HIM—Hurricanes Harvey, Irma, and Maria—disaster funding, was available to water and wastewater systems that had suffered damage from the hurricanes and were looking to enhance their resilience or rebuild more robust systems. The funding presented the community with a crucial opportunity to address the problems caused by the hurricanes while simultaneously constructing a more capable and resilient water system.

Acueducto Rural Tejas de Yabucoa had previously benefited from USDA loans, which were used to build and improve their water infrastructure, helping to alleviate the water-related issues in the area. Additionally, the community had a longstanding relationship with RCAP Solutions, having received technical assistance over the years. This ongoing partnership has enabled the RCAP Solutions' technical assistance providers to establish a deep understanding of the system, including its strengths and weaknesses, and to build strong relationships with the people who work tirelessly for the community.

To establish a baseline for this project, RCAP Solutions reached out to the community president, Jesús Abreu, to discuss the community's needs, application requirements, and process expectations. It was determined that an on-site tour of the system was necessary, and a visit was scheduled to evaluate the infrastructure and identify the best possible solutions. During this visit, RCAP Solutions met with three board members and their operators, touring all their facilities, including the six wells.

While inspecting the facilities, the system board members shared the current challenges they faced, the damage inflicted by the hurricanes, and the repair efforts that had been undertaken since. One significant challenge was the collapse of terrain around well #2 due to a landslide, which put the well structure at risk. The system had to rebuild the area and construct a retention wall to protect the well house. Damage to several bridges has isolated parts of the community, and landslides and river flooding also destroyed portions of the distribution network.

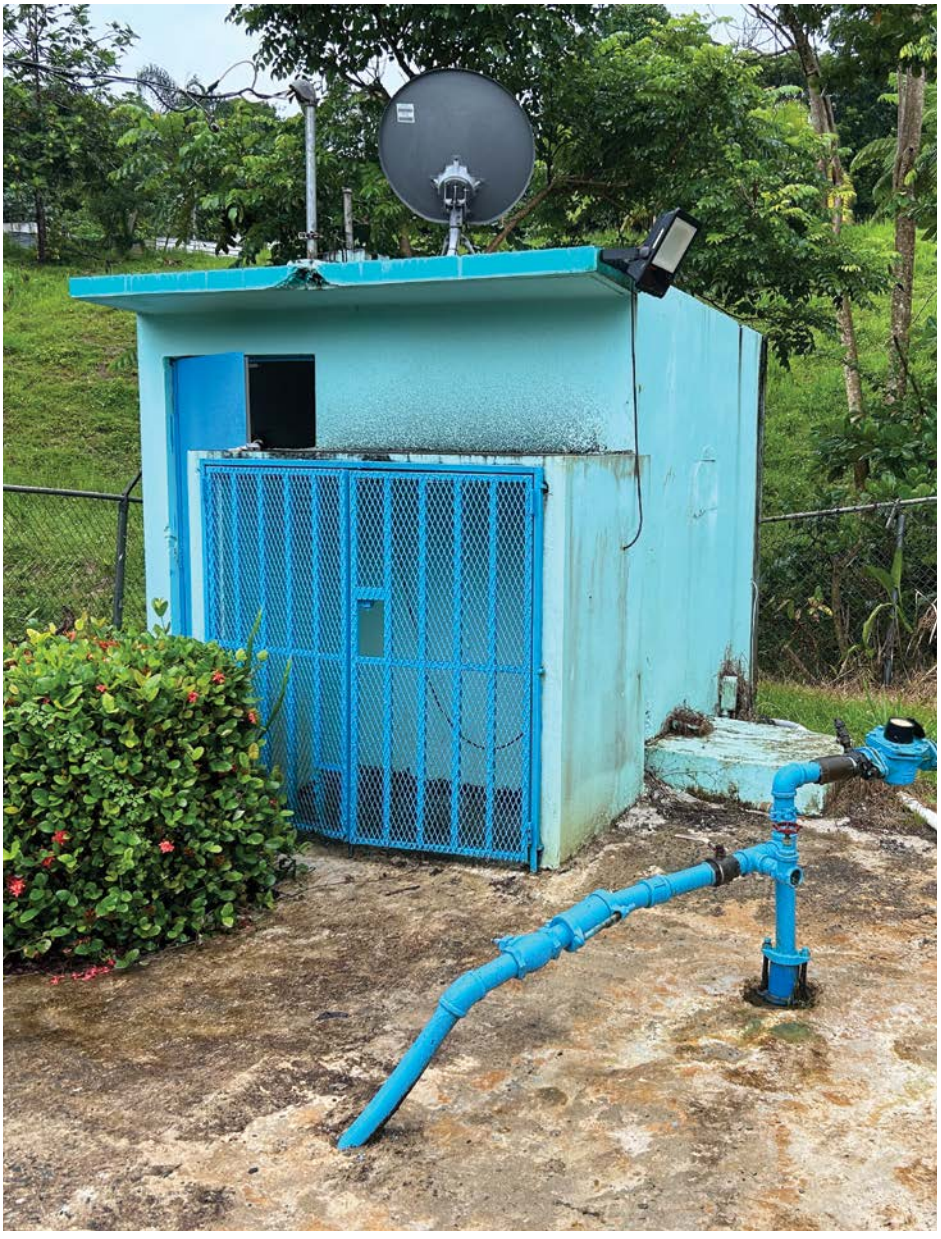
Since the hurricanes, the system has made necessary repairs and has taken steps toward more resilient power alternatives, such as installing solar power. Specifically, solar panels with battery power supplies were installed at wells #3 and #6. However, due to the high water demand and frequent power utility failures, these solar systems have proven insufficient, limiting their operational time and often requiring a switch to generator power.

During the visit, the community operator and the community president provided an overview of their system's operation. They emphasized the urgent need for two reliable generators for wells #5 and #6, which lacked any backup power source. These wells are located at the outermost parts of the distribution network and provide water to a large segment of the community. When these wells are unable to operate due to power outages or other issues, residents in those areas are left without water service. In anticipation of future needs, the community had already prepared the well sites for generators as part of their proactive planning. However, they were now seeking a way to finance the purchase and installation of these critical generators.

Funding Secured

USDA HIM funding seemed to be a suitable solution for the community's needs. RCAP discussed the situation with USDA personnel to determine whether the community would qualify for the funding. During the visit, RCAP Solutions explained the USDA RD HIM disaster funding application requirements to the community. The community president agreed to work closely with RCAP Solutions to provide the necessary documentation to complete the application.

It was concluded that the most appropriate solution would be to equip each of the wells with a 30 kilo-volt-amperes (kVA) generator to ensure reliable power for all of the equipment and pumping operations. Over the following months, RCAP Solutions worked closely with the community to fulfill a comprehensive list of requirements



to secure the funding. This included developing letters of intent to apply for funding, obtaining project authorization letters, preparing a project description, organizing financial documentation, and producing an environmental report and a simplified engineering report.

Additionally, RCAP Solutions researched and secured competitive quotes for the community's generators. Throughout the process, RCAP Solutions acted as a liaison between the USDA and the community, assisting with the documentation and streamlining the application process to help the community achieve its goal.

In early December 2023, USDA approved Acueducto Rural Tejas de Yabucoa's application for $42,000 in funding.

A Successful Example for Others

The USDA grant will finance two 30 kVA generators—one for well #5 and one for well #6—along with automatic transfer switches, transportation, installation, and training for the community board on their use and maintenance. There is hope that the generators will be installed before the end of the 2024 Caribbean hurricane season, which runs from June 1 to November 30.

Once installed, these generators will enable the community to better respond to storms and other emergencies, enhancing the system's resilience and supporting day-to-day operations. The generators will provide the much-needed relief of a reliable power source, offering peace of mind during power outages. The community has expressed deep gratitude to both USDA and RCAP Solutions for their unwavering support. USDA has provided crucial funding, enabling the community to continue developing its water system, while RCAP Solutions has consistently offered technical assistance during critical moments to help build the community's capacity to respond. Thanks to the efforts of the community board and the support from these organizations, the Acueducto Rural Tejas de Yabucoa water system is poised to continue striving for a more sustainable and resilient future. With more storms on the way, many other systems in the region should follow its example.

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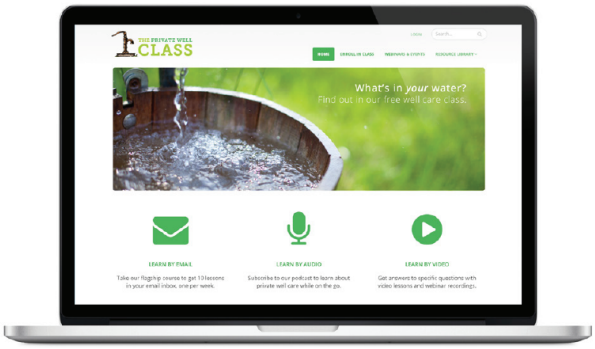

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