

ALASKA RURAL UTILITY COLLABORATIVE

Alaska Native Tribal Health Consortium

Indoor plumbing is a basic amenity that most Americans take for granted. In parts of rural Alaska, however, providing water and sewer service is not an easy task. The harsh climate requires special adaptations, costs are high, and many small communities lack the expertise needed to manage complex systems. To address these challenges, the Alaska Rural Utility Collaborative facilitates cooperation among Alaska Native villages to assist them with the operations of their own water and sewer systems as effectively and inexpensively as possible.

UNRELIABLE INDOOR PLUMBING

The absence of water and sewer services has far-reaching consequences for Alaska Native villages. Without functioning systems, village residents have limited opportunities to wash their hands, take showers, or clean their clothes. They must rely on shared public facilities or nearby springs, streams or rivers for drinking water. Families collect human waste in 5-gallon plastic buckets and dispose of the contents in pits, receptacles or lagoons. Not only is this extremely inconvenient, but it facilitates the spread of skin infections and respiratory ailments. According to a study by the U.S. Centers for Disease Control and Prevention, one-third of infants from western Alaskan villages without functioning water systems have been hospitalized with lung infections, a figure five times the U.S. average.

Recognizing the need for clean drinking water and safe sewage disposal, over the past fifty years both the U.S. government and the state of Alaska have made multi-million dollar investments in rural water and sewer infrastructure. Once these systems are installed, however, villages face the challenge of operating them in the unique Alaskan context. Most Alaska Native communities are accessible only by boat or plane, making it difficult to get replacement parts. Pipes must keep water flowing even when winter temperatures fall below minus forty degrees Fahrenheit. As climate change melts permafrost, pipes are at risk of shifting and rupturing. Local system operators must deal with maintenance or repair issues that they may not have the knowledge or experience to address. When a system breaks down, village residents can be left without service until repair funds are secured and an outside contractor is available to travel to the community.

Water and sewer infrastructure is also expensive for village governments to operate and maintain. Staff turnover among water system managers, clerks and operators is a constant concern. Fuel costs are substantial, and many systems are energy inefficient. Given seasonal work patterns and high rates of poverty and unemployment, customers struggle to pay bills. When user fees do not cover the cost of operations, village governments must subsidize water and sewer services from their general funds, leaving fewer resources for other community needs.

KEEPING WATER FLOWING

In 2004, the Yukon-Kuskokwim Health Corporation operated a pilot project in the Bethel area aimed at cost reduction through the bulk purchase of fuel and maintenance parts for village water and sewer systems. A few years later, the program—renamed the Alaska Rural Utility Collaborative—moved to its current administrative home within the Alaska Native Tribal Health Consortium, a nonprofit tribal health organization, so that villages located throughout the state could participate. Today, the collaborative serves 27 member communities, providing support, opportunities, and engineering expertise in partnership with each community’s leadership and water plant operators. Each village maintains full ownership of its water and sewer system and participates in governance of the Collaborative through an advisory committee, which meets once a year in Anchorage and three times a year by teleconference.

Financial management is one key support service shared among the Collaborative’s members. Billing specialists based in Anchorage collect water and sewer fees from residential, government, and commercial customers on behalf of each village. In cases of nonpayment, billing specialists work with individual customers to establish a payment plan and give advice on sources of financial assistance. These revenues, minus a small billing service charge, flow directly into the villages’ individual water and sewer accounts to cover system operation and maintenance costs. Under this model, each village system is run as a stand-alone nonprofit business funded by user fees.

The Collaborative also assists with system management. Its staff partners with village governments on establishing appropriate water and sewer rates based on operational expenses. While village governments hire local system operators directly, the Collaborative arranges training and networking opportunities. The Collaborative employs a small professional team that, working with village operators, researches and trials system innovations to reduce costs and prolong the life of equipment in the communities. These engineers also provide technical guidance and help village operators troubleshoot problems. The Collaborative funds these technical services with outside grants, generating further cost savings.

Member villages of the Alaska Rural Utility Collaborative have realized significant benefits from cooperation. Centralized billing services have increased collections and improved cost coverage. Collaborative support for local water and sewer system operators has increased retention and decreased turnover. In 2015, for example, the turnover rate among system operators in member villages was just 6% compared to the 75% rate typical in other rural Alaska communities. Knowledge sharing among members has improved village level problem-solving capacities and reduced system downtime. Alaska Native village governments have healthier budgets and fewer system management problems, and residents experience more reliable service at better prices.

CONTROL THROUGH COOPERATION

By partnering through the Collaborative, Alaskan villages have strengthened their authority over community water and sewer systems. When villages struggle with high operating costs and low user fee collections, they become reliant on government grants for repairs. Strikingly, before

joining the Collaborative, not one village had a maintenance reserve to cover emergency repairs. Now more than half of the member communities boast a reserve account that is fully funded, and the remaining villages are making progress toward this goal. With the Collaborative's assistance, village governments are no longer at the mercy of other governments' timetables and priorities. In one noteworthy case, severe flooding and ice jams caused by a winter storm cut off water service to two public buildings and forty-five homes in Kotlik, Alaska. Without ANTHC and the Collaborative, the process of securing an emergency designation, applying for funding, hiring contractors to repair the damage and restore service would have taken at least two years. Instead, local Kotlik operators and laborers working with colleagues from eight other member communities, as well as ANTHC and YKHC staff, restored temporary service to the village in just two months until permanent fixes could be complete.

The Collaborative also supports villages by creating economies of scale. Previously, each village had to request consultants to address complex financial matters or non-routine maintenance issues. Now, members can instead rely on the talents of shared specialist staff. By pooling their buying power, villages can purchase equipment and supplies at lower rates. Repair parts and ideas are shared throughout the network, and innovations made in one community can easily be transferred to another. For instance, in response to line and connector damage caused by melting permafrost, the Collaborative developed an innovative flexible connection that dramatically reduces blockage and breakage. The ARUC program also worked collaboratively with ANTHC's Energy Initiative program and local water plant operators to identify and install energy efficient upgrades reducing fuel use in member communities from 6,520 gallons of oil per year to 2,820 gallons over three years. Given the expense of transporting fuel to remote communities, these savings allowed member villages to offer substantially more affordable services.

Tribes with small populations and significant resource constraints must find ways to perform the basic functions of government without relinquishing their sovereignty. In this context, the Alaska Rural Utility Collaborative offers a useful model: villages retain control of their water systems but can access assistance to carry out tasks that might otherwise be challenging or impossible. For example, strong community ties made it politically difficult for village leaders to suspend service for nonpayment. The Collaborative's billing service, financial assistance programming, and cost-reduction measures address this problem. Several communities also requested that staff hold meetings in their villages to explain how shutoffs help keep prices down, which further strengthened residents' buy-in. By providing reliable plumbing, Alaska Native villages are improving their citizens' quality of life, reducing the temptation to move in search of modern conveniences, and making it easier for families to stay on traditional lands and pass along their Alutiq, Dena'ina, Inupiaq, Yup'ik, or Siberian Yup'ik culture to the next generation.

BRINGING THE LESSONS HOME

No one should have to live with unhygienic water and substandard sewer systems. The Alaska Rural Utility Collaborative is leveraging talent across its member communities to keep budgets balanced and water flowing. Because of the Collaborative's successful partnership model,

villages are no longer solely dependent on outside experts and funding to operate their systems. Through cooperation, member communities provide high quality water and sewer services that allow their citizens to thrive while living on their ancestral lands.

Lessons

1. Safe drinking water and proper sewage disposal are crucial for human health and help ensure a better quality of life in every community.
2. Providing resources to train local water and sewer system operators supports capacity development and promotes self-governance.
3. Village utility programs can deliver potable water at affordable costs by joining forces and capitalizing on economies of scale.