

# Economic and Financial Management Capacity of Small Water Systems

Jim Maras

*Water Programs, Rural Utilities Service, USDA*

Small communities—those with a population less than 3,300—and the small water systems they operate are an important part of the quality of life enjoyed in rural America. In many cases, economic opportunities in rural areas are also connected to the availability of water from these small systems. Small water systems serve a low percentage (13.5%) of the total population, but they comprise the majority (95%) of the water systems operating in the United States. It is important to understand the need for “capacity” and the challenges the very small systems face in operating and maintaining compliance with increasing standards. Small systems face unique challenges in developing sustainability. Locating affordable funding, retaining certified operators, complying with regulatory standards, engaging local leadership, accessing training and technology, meeting unattainable mandates, and finding a community meeting place are just some of the challenges.

In this article, I present some inherent barriers built into small water systems and some goals for consideration in overcoming these challenges.

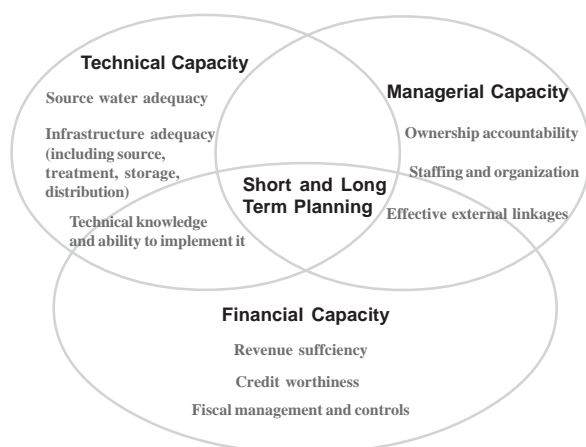
## Technical, Financial, and Managerial Capacity (TFM)

Water system capacity is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. For a system to have capacity, adequate capability in three key areas—technical, financial, and managerial—is necessary (EPA 2000; EPA 2003) (Fig. 1). TFM capability has

been the buzzword from water system regulators for several years, yet almost everyone agrees that it is a good policy and, in theory, benefits all water systems. However, many small water systems still lack TFM capacity and do not understand the basic concept, including short- and long-term planning. Small system needs for capacity may differ from those of larger systems, and policy makers must be cognizant of these differences.

## Rural America: Where and Who is it?

When one thinks of small communities, a picturesque view of rural America usually comes to mind. The U.S. Census Bureau defines rural as all territory, population, and housing units in



**Figure 1** Concept of technical, financial, and managerial capacity (U.S. Environmental Protection Agency, 2003).

nonurbanized areas of less than 2,500 persons. Areas with a rural classification appear in both metropolitan and non-metropolitan designated counties. Fifty-nine million people (21% of the total population) live in areas classified as rural (U.S. Department of Agriculture, 2003). The definition for small systems varies among agencies and organizations, which creates part of the problem in addressing small system needs. For my purposes, I define “very small systems” as those serving under 2,500 persons. This figure would typically equate to fewer than 100 household connections within a system.

## Capacity in Rural America

A distinction is made with very small systems since they are the systems most likely to be lacking TFM capacity. There is an economy of scale for the number of users that water systems must have to be sustainable, and very small systems typically fall below that magic number. As a rule, communities with populations of more than 3,000 people have the ability to self-finance a larger proportion of their infrastructure needs and the managerial capacity to address infrastructure operations, maintenance, and improvements (West Central Initiative, 2003).

Small systems can improve their sustainability through several methods such as cooperative management agreements, sale of excess capacity, or mergers to form larger systems.

## Building Capacity in Very Small Systems

Technical assistance providers, like the National Rural Water Association (NRWA) and the Rural Community Assistance Partnership (RCAP), have been successful in building capacity in very small systems. The training and operational assistance provided to these system operators has improved system performance and reduced regulatory violations. Project development assistance has enabled the systems to access grant and loan programs that keep user rates at an affordable level. There are very few barriers in receiving technical assistance from the NRWA or the RCAP. The main problem is that demand for technical assistance far exceeds the available resources. Requests for the USDA Rural Utilities Service Technical Assistance

and Training grant funds for fiscal year 2004 are 50% more than those available.

Because they provide on-demand technical expertise at an hourly rate, engineers, attorneys, accountants, and other consultants provide an important service to very small systems that cannot afford the overhead of having full-time staff. However, hiring a knowledgeable consultant and paying the associated fee can be a barrier for these systems. The USDA, Rural Utilities Service, Water and Waste Disposal Program initiated a pre-development and planning grant component in 2003, targeting very small systems that lack financial resources. The funding for the program is being doubled in fiscal year 2004 to \$2 million to meet expected demands.

Assistance is available to help very small systems build and improve TFM capacity. Consideration needs to be given on how to be more effective and efficient with limited resources.

## Dealing with Rural Areas

By delaying compliance dates for small systems, EPA’s implementation of the new arsenic standard and vulnerability assessment requirements of the Bioterrorism Act showed regulatory flexibility. Although the health and safety of users in very small systems must not be compromised, there are additional regulatory issues (e.g. flexibility) that should be considered when small water systems are involved. Intervals for reporting, testing, and consumer confidence reports are examples of areas where current regulations create an unnecessary burden for very small systems.

Technical assistance programs successfully assist very small systems. Continuing current programs and promoting a peer technical assistance group could stretch limited funding and promote greater cooperation with nearby systems. Very small systems can provide each other additional resources that will improve their TFM capabilities. In many very small systems, the operator of the water system performs many duties and is on call twenty-four hours per day, seven days a week. Technical assistance providers report “burn-out” as one of the reasons for the high turn-over among very small system operators. Working together can provide benefits in equipment ownership, parts inventories,

and human resources management while maintaining individual system identities.

Training needs to be done in an effective manner. Technical assistance providers have shown that hands-on, one-on-one training on operational content is very effective but also somewhat inefficient. Video conferencing has proven to be an effective means to deliver training for operational content as well. The University of Nevada, Nevada Health Division, RCAP, Nevada Rural Water Association, and the California-Nevada Section of the American Water Works Association have utilized videoconferencing to provide training on a variety of topics for operators. Attendees responded favorably, passing the Operator Certification Exam at a rate of 92% as compared to an 84% overall success rate (Montecinos et al. 2003).

Training in management concepts, leadership skills, planning and benchmarking needs to be developed in a media that allows user flexibility and interaction (e.g. web-based or multimedia content delivery). As the Nevada training example shows, a flexible location and an interactive capability creates a training experience that is acceptable and beneficial to the trainees. The management organizations for very small systems are comprised of people that serve essentially as unpaid volunteers, making them very hard to reach. This is a significant difference from the water system operators, who are usually paid to attend training. These management volunteers typically have full-time jobs, and the work of the water system is completed, after their regular job ends, usually in the evening. Utilizing web-conferencing or video-conferencing through local public television could prove successful in very small systems where a central meeting facility is not available. Flexibility in the delivery of training is essential to reach this group. In my own volunteer experience as a director for a credit union, I found training sessions held on weekends, where lodging and meals were provided, were very successful in attracting participants.

Setting mandates for TFM, asset management, and accounting principles for very small systems that are unattainable often create frustration. For example, Generally Accepted Accounting Principles (GAAP) include a standard that requires separation of duties for financial transactions. Very small systems with limited staff fail this standard every

audit cycle. The resulting corrective action plan and correspondence to address the separation of duties standard only create additional burden on the limited staff and volunteers of very small systems. Mandates can be useful to accomplish certain objectives, but they must be written to be useful and meaningful.

Organizations and agencies working with very small systems need to place a priority on planning, not additional mandates. Short- and long-term planning is at the center of TFM, and additional emphasis on it will build capacity in rural areas. In the short-term, proper planning will consume additional resources, including both time and money. The long-term benefits will be better managed systems and less need for limited grant dollars that very small systems seemingly need.

### **Goals for Assisting Very Small Systems**

Standards for financial, operational, and asset management need to be set at an appropriate level. Very small systems should be treated as “very small systems” and not held to standards developed for larger systems. The public health of very small system users can be protected with a prudent application of regulations.

Informed decision-makers, make better decisions. Proper planning will provide very small system decision-makers with the knowledge needed to manage and maintain sustainability. By their nature, very small systems have rapid turnover in their operational and leadership positions. The structure that exists for training operators on maintaining systems compliance is successful and has helped very small systems. The same emphasis is needed for the training of the management organization to ensure that very small systems stay viable. Ongoing technical assistance and effective training are the keys to continuing and improving TFM capacity.

Clean water is the cornerstone for rural areas wishing to keep and attract people and businesses. Very small systems must ascertain their role in the quality-of- life and economic opportunities within their service area. Increased and improved TFM capacity will assist the rural areas with more than just operation of their very small water systems.

## Author Bio and Contact Information

**JIM MARAS** is Director of Water Programs Division, USDA, Rural Utilities Service (RUS). Mr. Maras has served as the National Office Director since June 2003 and previously served as the RUS/CF Program Director in Minnesota. His USDA work experience covers over 20 years spent assisting families and communities in rural Minnesota. He has been involved in the Water Programs since 1989. Mr. Maras holds a B. S. degree in Agricultural Economics (1982) from North Dakota State University. Mr. Maras can be contacted at USDA, Rural Utilities Service, Mail Stop 1570, Room 2234-S, 1400 Independence Ave, SW, Washington, DC, 20250-1570, Phone: 202.720.9628, Email: jim.maras@usda.gov

## References

- Montecinos, C.C., M. Walker, and A. Basham. 2003. Covering the distance with videoconferencing. *American Water Works Association. Opflow Online*. Vol. 29
- U.S. Department of Agriculture. 2003. *Measuring rurality: what is rural?* U.S. Department of Agriculture, Economic Research Service, Briefing Room. Washington DC. Available at: <http://www.ers.usda.gov/briefing/rurality/WhatisRural>
- U.S. Environmental Protection Agency. 2000. *The Drinking Water State Revolving Fund Program, Case Studies in Implementation, II. Capacity Assessment*. EPA 816-R-00-004. U.S. Environmental Protection Agency, Office of Water. Washington DC.
- U.S. Environmental Protection Agency. 2003. *FACTOIDS, Drinking Water and Ground Water Statistics for 2002*. EPA 816-K-03-00. Office of Ground Water and Drinking Water. Washington DC.
- West Central Initiative. 2003. *Infrastructure Study for West Central Minnesota Communities*. Available at: <http://www.wcif.org/publications/infrastructurestudy.shtml>