

Each issue, we ask members of the *On Tap* Editorial Advisory Board to answer a drinking water-related question. We then print as many responses as space permits. The opinions expressed are not necessarily those of NESCA.



Small water and wastewater utilities often trail their urban counterparts with respect to adopting technology.

Q: What are the key barriers small systems face in using the latest technologies?

What are some ways to aid small systems in this area?



Editorial Advisory Board

Jerry Biberstine

Senior Environmental Engineer
National Rural Water Association

Jenny Bielanski

Drinking Water Utilities Team Leader
EPA Office of Ground Water and
Drinking Water

Rodney Coker

Tribal Utility Consultant (Retired)
Indian Health Service

Mark Coyne

Associate Professor
University of Kentucky

Frank DeOrio

Director of Municipal Utilities
Auburn, NY

Kevin Kundert

Interactive Training Developer
Montana Water Resources Center

Z. Michael Lahlou, Ph.D.

Civil and Environmental Engineer
Huntington Beach, CA

Lori B. Libby

Senior Project Manager
Center for Public Management
and Regional Affairs
Miami University of Ohio

Babu Madabhushi, Ph.D.

Project Engineer
URS Corporation
Miami Springs, FL

Dale Ralston

President
Ralston Hydrologic Services
Moscow, ID

Lisa Hardcastle, P.E.

Army Contractor,
Fort Lewis, Washington

Jay Rutherford, P.E.

Water Supply Division Director
Vermont Department of
Environmental Conservation



Lisa Hardcastle, P.E.
Army Contractor,
Fort Lewis, Washington

It's a Question of Resources

The biggest barrier to adopting new technologies is resources: both people and dollars. More complex treatment technologies, for example, often require higher levels of operator certifications, which typically draw larger salaries than a smaller community can pay. In some cases, the cost for performing pilot studies or other engineering studies to evaluate the technologies to get state approval can cost more than the technology itself.

Communities (small or large) generally must have a reason for making the change to the latest technologies, even those that may end up being less complex like some of the newer lab equipment on the market. If there is no financial incentive or regulatory incentive to upgrade and the treatment plant facility is still in compliance using the older technology, there may be no support for the change.

A good way to help small community managers and operators learn about new technologies is to make it affordable for them to attend the larger conferences, which tend to have vendor exhibit halls or demonstration projects. You have to be exposed to the newest developments to determine if you need or want them. A number of different associations and organizations try to encourage smaller community participation by offering reduced conference rates.

In Washington, the state tries to offset the impact of adopting new technologies for smaller communities through sliding fees. For Department of Health drinking water permits and review and approval of plans and construction documents, fees are based on the population served by the water system. Similarly, the Department of Ecology has sliding fees for wastewater discharge permits based on residential equivalents for municipal or permitted flows for privately owned wastewater treatment plants.



Jerry Biberstine
Senior Environmental
Engineer
National Rural Water
Association

Education is Essential

The biggest reason that small systems trail their urban counterparts in adopting the use of new technology is the lack of knowledge. I do not mean that just the system personnel may not be aware of what is out there, but small system engineers, state program engineers, and funding agencies may not be any more aware of new technologies than the small systems they are trying to help.

Small systems, themselves, generally lack the resources to become aware of new technology that is entering the market. It takes time to read all the journals, research papers, and treatment reports that would show the reader what is happening on the technology frontier. Most small system operators just do not have the time to do much technical reading and research.

At the same time, small system managers and boards tend to be very conservative, both financially and technically. It is hard to pay for and implement a new treatment technique that does not have a proven track record. It is always easier to select the tried and true treatment technique because you know they will work.

Engineers, both consulting and state, are also quite conservative when it comes to treatment options for small systems. If a new technology develops problems, large systems can usually afford to correct the problem, while smaller systems may be stuck with it for many years. Additionally, funding providers can be very particular about providing money for a new technology used at small systems for the same reason.

The solution is getting information on treatment technologies intended for small systems to the small systems. There are publications by small system technical assistance providers that generally get to smaller operations, and these should be targeted by new technologies. Proven pilot programs, such as the U.S. Environmental Protection Agency's Environmental Technology Verification, provide information on treatment efficacy, operational problems, costs, and are accepted by most states as evidence that the treatment technology can be used by small systems. Generally the information is out there, if the technology is truly worthwhile for small systems, but getting it to the right people is the problem.