

NDWRCDP Research Program: Yesterday, Today, and Tomorrow

By Mary Strawn

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In 1997, the U.S. Environmental Protection Agency (EPA) affirmed in its “Response to Congress on Use of Decentralized Wastewater Treatment Systems” that decentralized treatment systems are a permanent part of the nation’s wastewater treatment infrastructure, protecting human health and water quality in unsewered areas when appropriately managed. About 25 percent of existing construction and a greater proportion of new developments are served by decentralized systems, demonstrating the critical need for peer-reviewed research in an area that has not received adequate attention or support from the water quality industry in the past.

In 1997, the five organizations listed below cooperated in developing a research agenda for decentralized systems, forming in the process the National Decentralized Water Resources Capacity Development Project (NDWRCDP):

- Water Environment Research Foundation (WERF)
- Coalition of Alternative Wastewater Treatment (CAWT)
- Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT)
- Electric Power Research Institute (EPRI)
- National Rural Electric Cooperative Association (NRECA).

The mission of NDWRCDP is to “improve the capacity of electric utilities, water and wastewater utilities, municipalities, engineers, contractors, regulators and other public and private entities to respond to the increasing complexities of, and expanding need for decentralized wastewater and stormwater systems.” Funding for the research became available from EPA in 1997, and in 2003 WERF assumed administration responsibility for the EPA grant. The research agenda was refined in 2002 and divided into four areas deemed most critical to advancing the science associated with decentralized systems:

1. Environmental Science and Engineering,
2. Management and Economics,
3. Regulatory Reform
4. Training and Education.

To assist in defining the research needs and the allocation of funds, WERF created two advisory groups. One is the Decentralized Systems Advisory Committee (DSAC), which consists of the five organizations listed above along with the National Onsite Wastewater Recycling Association (NOWRA).

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It is tasked with evaluating national needs and allocating research funds to the four areas identified above. DSAC members may receive a portion of the funds through sub-grants to conduct research in Management and Economics, Regulatory Reform, and Training and Education. The efforts of WERF itself have focused primarily on the Environmental Science and Engineering area; it has formed the Decentralized Research Advisory Council (DRAC) to provide assistance in determining the specific annual research projects to be conducted in that area. Individual members of DRAC provide support to the peer-review groups, referred to as Project Subcommittees (PSCs) that are developed for each WERF project.

To date, close to \$15 million have been allocated to research in the four areas, which has included not only wastewater-treatment research but, as the NDWRCDP mission encompasses, some research in projects related to stormwater. Final reports from all completed projects are available to the public and can be downloaded from the NDWRCDP website www.ndwrcdp.org.

At NOWRA’s 2007 Conference in Baltimore, several national and international speakers discussed the future of the decentralized wastewater field. They indicated that change was coming to the water quality industry and new paradigms were emerging. Wastewater treatment solutions were beginning to coalesce as a continuum of options rather than being tagged as either “decentralized” or “centralized” solutions. Consultants are discovering that replacing the infrastructure for centralized facilities that are reaching the ends of their lives is an expensive proposition; they are realizing that more cost-effective alternatives must be created. Simultaneously, triple bottom-line accounting, which considers economic, environmental, and social factors, is being discussed as an important tool for selecting the appropriate technologies for a given community. Ten years after EPA’s Response to Congress, it is clear that the broad water-quality community is beginning to recognize decentralized and distributed systems as being viable alternatives to traditional centralized systems.

At the Baltimore Conference, WERF held a 2-day workshop with invitees from across the globe who were well-known in the field of decentralized approaches to stormwater and wastewater treatment. A summary report was developed that charts a research agenda in support of an integrated, sustainable, decentralized water infrastructure. Workshop attendees also formulated a consensus vision called the Baltimore Charter; they signed that document as a commitment to design new water systems that mimic and work with nature. The research agenda developed will be shared with federal agencies and others as the decentralized program moves forward in

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2008 and 2009. (Editors note: The Winter 2008 issue of *Onsite Journal* featured an article on the Baltimore Charter.)

While the workshop provided a roadmap for future work and demonstrated a strong need for additional research, the funding for NDWRCDP's research on decentralized systems was discontinued by Congress. Some research is taking place elsewhere, but there appears to be only limited federal or state support for research on decentralized systems after the NDWRCDP program is completed in 2010.

A majority of WERF's non-federal funding comes from subscribers who collectively develop WERF's research agenda. Through participation at an annual meeting and/or a subscriber survey, research priorities for the organization are established. As new organizations with an interest in research on decentralized systems join the subscriber base, this topic will gain an increasingly higher priority and WERF will be able to conduct more work in the area. Further, as existing

WERF subscribers, such as consulting firms and wastewater utilities, become more educated on decentralized issues and more responsible for work on these types of systems, the call for additional WERF-supported research may grow and help support ongoing needs in the absence of future federal funding.

While the efforts of NDWRCDP during the past ten years have resulted in many advances in the field of decentralized wastewater and stormwater treatment, much work remains to be done. The support of stakeholders throughout the decentralized community will ensure that the research needs developed during the Baltimore Workshop will be realized. This in turn will further the appropriate use of decentralized and distributed management systems.

For more information on WERF's decentralized wastewater and stormwater program, please contact Jeff Moeller at 703-684-2461 or jmoeller@werf.org. ■