DECENTRALIZED WASTEWATER TREATMENT CAN PROTECT THE ENVIRONMENT, PUBLIC HEALTH, AND WATER QUALITY

Decentralized wastewater treatment systems can protect the environment, public health, and water quality in homes and communities by:

- *providing reliable wastewater treatment,*
- *reducing conventional pollutants, nutrients, and emerging contaminants, and*
- *mitigating contamination and health risks associated with wastewater.*

HOW CAN DECENTRALIZED WASTEWATER TREATMENT PROTECT THE ENVIRONMENT, PUBLIC HEALTH, AND WATER QUALITY?

Providing reliable wastewater treatment – Decentralized wastewater treatment systems can offer as much public health and environmental protection as centralized treatment systems. Like centralized treatment, decentralized treatment systems must be properly designed and constructed and well maintained. More than ever, these systems typically include good monitoring and backup that help prevent adverse discharges. The modern decentralized treatment system is as reliable as other wastewater treatment alternatives, and it is also a cost-effective and sustainable method of treatment for communities.

Reducing conventional pollutants, nutrients, and emerging contaminants – Decentralized treatment can produce effluent quality that is equal to or higher than other wastewater disposal options. These decentralized systems use the same advanced treatment technologies as discharging systems. Since they use the treatment capacity of the soil, they achieve high quality treatment at a lower cost than other options. Cluster systems, also called community systems, allow for centralized management of the wastewater via contract by a third party – a Responsible Management Entity (RME). Communities can enter into agreements with nearby public utilities or local cooperatives to create public private partnerships to provide management for decentralized wastewater treatment.

Mitigating contamination and health risks associated with wastewater – Sewage pathogens cause many human illnesses, including aseptic meningitis, cholera, dysentery, encephalitis, gastroenteritis, infectious hepatitis, and typhoid fever. Using decentralized systems allows for multiple layers of treatment including, advanced treatment and disinfection which can help mitigate the risk of human exposure and disease transmission. Small systems in single family homes can include secondary treatment from a variety of treatment technologies (e.g., aerobic treatment, recirculating filters, etc.). Larger neighborhood systems may be designed using high-level treatment and pressure dispersal of highly treated wastewater to utilize marginal soils. Therefore, decentralized systems can be designed to overcome the potential health risks posed by septic systems in areas often considered unsuitable for development because of limited permeability, limited vertical depths and high water tables.

The EPA Decentralized Wastewater Memorandum of Understanding (MOU) Partnership, created in 2005, has served as an ongoing cooperative relationship between the EPA and Signatory Organizations to effectively and collaboratively address management and performance issues pertaining to decentralized systems.

WHERE IT'S WORKED

Caroline County, VA

In the late 1990s, the Virginia Department of Health noted public health issues arising in the Dawn area of Caroline County, Virginia. Residents were suffering from failing or unreliable drain fields due to poor soils in the area. The County sought a declaration of "public health emergency" from the Virginia Department of Health. Early plans to connect with a centralized wastewater treatment plan proved cost-prohibitive, so the County turned to a decentralized solution. To finance the Dawn Project, non-local funding sources were pursued, including Community Development Block Grant funds, an EPA State and Territorial Assistance Grant, as well as other grants and loans. Three years later in the summer of 2007, the first homes were fully connected to the working decentralized system (including advanced control units, septic tank effluent pumping (STEP) tanks, and fixed activated flood treatment (FAST) units; see photo). Within the next 18 month, 182 homes and businesses were connected to the Dawn Decentralized Wastewater Treatment System, thereby eliminating reliance upon conventional septic systems and the health risks of failing systems. More than half the connected homes are owned by low-to-moderate income deed holders. The community was fully engaged throughout the project, through surveying and construction. By the completion of the project, the community felt its needs were addressed. For more information: http://www.foresterpress.com/ow_0701_taming.html

Bio-Microbics FAST unit, courtesy KOWA

ADDITIONAL RESOURCES

U.S. Environmental Protection Agency's Source Water Protection Practices Bulletin: Managing Septic Systems to Prevent Contamination of Drinking Water – http://www.epa.gov/safewater/sourcewater/pubs/fs-supp-septic.pdf

Centers for Disease Control and Prevention's Healthy Septic Systems – http://www.cdc.gov/healthyplaces/hia.htm

U.S. Environmental Protection Agency's Onsite Wastewater Treatment Systems Manual. – http://www.epa.gov/owm/septic/pubs/septic_2002_osdm_all.pdf

Crites, Ronald and George Tchobanoglous. 1998. Small and Decentralized Wastewater Management Systems. McGraw-Hill.

For more information on the individual MOU Partners, click on the logos below or go to http://www.epa.gov/owm/septic.

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