DECENTRALIZED WASTEWATER TREATMENT CAN BE GREEN AND SUSTAINABLE

Decentralized wastewater treatment can meet the triple bottom line of protecting the environment, being efficient, and contributing to community well-being by:

- *increasing water quality and availability,*
- *using energy and land wisely,*
- *responding to growth while preserving green space, and*
- *using the natural treatment properties of the soil.*

HOW CAN DECENTRALIZED WASTEWATER TREATMENT BE GREEN?

Increasing water quality and availability – Decentralized wastewater treatment effectively and efficiently treats domestic sewage to protect water quality and support local water supplies. The wastewater from decentralized systems stays in the local watershed as it returns to the drain field, dispersing into the underlying soil and eventually recharging groundwater and/or reentering the local watershed. Advanced decentralized treatment systems can achieve treatment levels comparable to centralized wastewater treatment systems while minimizing the level of phosphates and nitrogen entering the ground water. Discharging to the soil can further remove contaminants so as to maintain water quality. Decentralized systems can be designed to meet specific treatment goals, to handle unusual site conditions, and to address local environmental protection requirements. Using decentralized systems may also make it easier for a community to employ water reuse techniques and, as a result, reduce the demand for treated drinking water.

Using energy and land wisely – Most decentralized systems take advantage of gravity flow rather than using energy to pump the wastewater. Additionally, decentralized wastewater treatment systems often incorporate septic tanks at the wastewater source resulting in reduced costs and energy for treatment of septage prior to land dispersal.

Responding to growth while preserving green space – Decentralized systems can be flexible and scaled to a desired size or footprint. For example, decentralized systems can easily be scaled to a needed size for communities with rapid growth and/or where installing pipelines a long distance to a central waste facility can be too expensive. Decentralized systems can be designed to meet specific growth goals through planning where and how the community will grow. Decentralized systems tend to have small, minimally intrusive environmental footprints and often have the benefit of creating green spaces in communities.

Using the natural treatment properties of the soil – Decentralized systems provide good opportunities to use the natural environment. They can help reduce the level of difficulty and cost to treat pollutants, such as nutrients, and keeping them from entering lakes, rivers, and streams. The soil acts as a natural filter and provides final treatment by removing harmful bacteria, viruses, and nutrients.

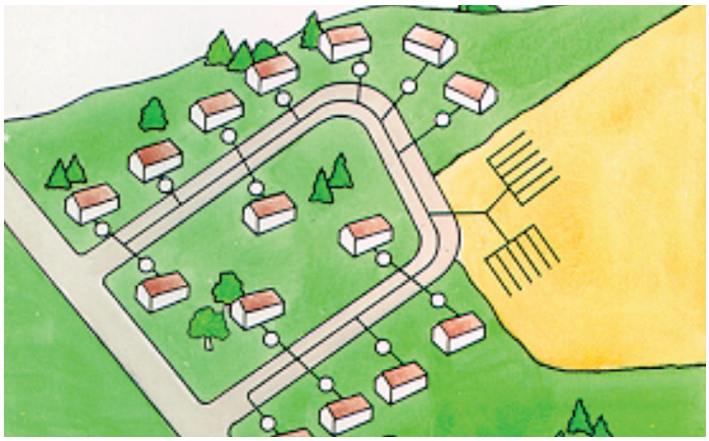
The EPA Decentralized Wastewater Memorandum of Understanding (MOU) Partnership, created in 2005, has served as an ongoing cooperative relationship between the EPA and Signatory Organizations to effectively and collaboratively address management and performance issues pertaining to decentralized systems.

WHERE IT'S WORKED

Shannock Woods Cluster Subdivison, RI

This steep-sloped community, located in South Kingston, Rhode Island, selected a 7,200 gallon per day cluster system for wastewater treatment of a 16-lot cluster subdivision rather than installing multiple individual systems. The decision aimed to minimize soil erosion, maintain scenic views, and protect the drinking waters which is located in a highly permeable aquifer recharge area. The selection of a cluster system for the subdivision instead of individual onsite systems drastically reduced the land needed for wastewater treatment and disposal. It helped to preserve 50% of the land for open space and to protect individual drinking water wells from contamination. The system selected was able to remove 50% of the nitrogen.

Schematic of a cluster system



Lamont, MS

The community of Lamont, Mississippi, used decentralized wastewater treatment including a septic tank effluent gravity (STEG) collection system. This system was more affordable than conventional treatment and better served the rural community because of its simple operation and maintenance, low energy requirements and low operation and maintenance costs. This project is 'green' because it uses energy wisely and allows the community to reuse its wastewater in beneficial ways.

Ground breaking ceremony for Lamont Demonstration Project

ADDITIONAL RESOURCES

U.S. Environmental Protection Agency Office of Wastewater Management Decentralized Program – www.epa.gov/owm/onsite

Water Environment Research Foundation's Smart, Clean and Green: 21st Century Sustainable Water Infrastructure – http://www.werf.org/i/c/KnowledgeAreas/DecentralizedSystems/LatestNews/Smart_Clean_and_Gree.aspx

Decentralized Water Resource Collaborative's New Approaches in Decentralized Water Infrastructure – http://www.decentralizedwater.org/documents/04-DEC-5SG/04DEC5Highlights.pdf

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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