

Decentralized Wastewater Systems Fact Sheet



Overview

- 75-80% of US households rely on publicly owned treatment works (POTWs) to treat and discharge their wastewater. The other 20-25% of households – around 80 million people – manage their wastewater through onsite wastewater treatment systems (OWTS), which are more commonly referred to as “decentralized systems.” Septic systems are a type of decentralized system.
- Households that rely on decentralized wastewater systems are responsible for maintaining, repairing, and upgrading them. Many households struggle to afford these costs, which can leave failing systems unaddressed.
- Failing systems can increase public health risks and pollute water, land, and air.
- According to the National Onsite Wastewater Recycling Association, around 30% of new single-family homes are constructed with an onsite wastewater treatment system in the US.

The EPA defines decentralized wastewater treatment systems as...

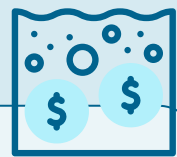
“managed individual onsite or clustered wastewater systems (commonly referred to as septic systems, private sewage systems, individual sewage treatment systems, onsite sewage disposal systems, or “package” plants) used to collect, treat, and disperse or reclaim wastewater from individual dwellings, businesses, or small communities or service areas.”

Impacts of Improperly Functioning/Failing Systems



When decentralized systems fail, they can contaminate surface water, groundwater, and soils, threaten public health, and may violate the Clean Water Act. Failing systems can have economic consequences for communities too, including lowering property values and negatively affecting economic development.

Some households with failing decentralized systems, or who have never had one to begin with, discharge raw sewage directly from their home, often referred to as “straight piping.” In communities where functioning wastewater services is lacking, people have experienced respiratory complications and intestinal parasitic infections due to fecal contamination.



According to the EPA's Clean Watersheds Needs Survey (CWNS) reports, decentralized wastewater treatment needs have increased by 170% between 2016 and 2024. The 2024 estimate was \$78 billion.

HOW A CONVENTIONAL DECENTRALIZED SYSTEM WORKS



Household or small business wastewater is piped into an onsite wastewater treatment system.

The system digests organic matter and separates floatable materials from solids. Solids settle to the bottom, liquids rise to the top.

The liquid (effluent) is discharged underground through mechanisms designed to slowly release effluent in the drainfield, filtering through gravel or stone and treated by microbes before it reaches groundwater.

Solids remain in the tank, chamber, container. This sludge should be pumped out every 3-5 years.

Types of Decentralized Wastewater Technologies

Alternative technologies: As defined by EPA, *alternative* technologies are

“Fully proven wastewater treatment systems that reclaim or reuse wastewater, productively recycle wastewater components, recover energy, or eliminate pollutant discharge. Specific alternative technologies include onsite treatment or alternative wastewater conveyance systems for small communities, land treatment of wastewater and sludge, direct reuse (non-potable) of treated wastewater, aquifer recharge, composting, co-disposal of sludge and refuse, and methane recovery and use.”

Innovative technologies: As defined by EPA, *innovative* technologies are:

“Wastewater treatment processes or components that are not fully proven in the circumstances of their intended use, but based upon documented research and demonstration projects, appear to offer the promise of benefits that outweigh the potential risks of failure. Projects are designated as innovative on a case-by-case basis ... if they offer the potential to significantly advance the state-of-the-art in terms of lifecycle costs, environmental benefits, or more efficient use of energy and resources.”

Case Study: Michigan's Septic Code (or Lack Thereof)

As of September 2026, Michigan stands out as the only state in the nation without a statewide septic code. This means many decentralized wastewater systems may be polluting surrounding soil and water for decades without monitoring or consequence. **Senate Bill 771 would change that, directing the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to develop uniform standards for managing onsite wastewater systems, including design, installation, maintenance, and repair.**

The legislation would create a database to track the location of systems and their inspection and repair results and set up a consistent evaluation schedule. Local health departments would be responsible for permitting, inspections, enforcement, and homeowner education.

According to Michigan Water Stewardship Program, **330,000 of 1.3 million septic systems in Michigan are failing and 100% of all rivers sampled in the Lower Peninsula of the state (the mitten) had human fecal contamination** according to Flow Water Advocates.



Actions Private Wastewater System Owners Can Take

- Follow the “do’s and don’ts” of EPA’s SepticSmart program to understand ongoing upkeep of your system, and to prepare for disasters like floods.
- Regularly have your system inspected (every 3-4 years) and maintained. NOWRA has a searchable database of different kinds of experts. Find one near you here.
- Free technical assistance as well as grants or low-interest loans may be available to you through local, state, and federal programs. Learn more through this EPA webpage.

Advocacy Actions to Take

- If you work at the local level, *familiarize yourself* with whichever local agency (usually the county health department) inspects and approves decentralized systems. Learn about any free services or financial assistance they may be able to provide homeowners.
- The EPA, US Department of Agriculture, and Housing and Urban Development all offer different types of federally funded programs that can help homeowners afford upgrades and repairs. *Support legislation and appropriations that enable these programs to continue and improve.*



Resources

- [Decentralized Wastewater Program website \(EPA\)](#)
- [Includes information about care and maintenance, funding for decentralized systems, technical resources, and more.](#)
- [EPA primer on decentralized/onsite wastewater management \(includes overview of responsible management entities\)](#)
- [Source Water Protection Bulletin: Managing Septic Systems to Prevents Contamination of Drinking Water \(EPA, 2001\)](#)
- [Policy Brief: The Case for a Statewide Septic Code in Michigan \(Flow Water Advocates, 2026\)](#)
- [Lawmakers Push Michigan's First Septic Code \(MSU Today, Aja Witt, 2026\)](#)
- [Clean Water SRF Financing for Decentralized Septic Projects \(EPIC, 2025\)](#)