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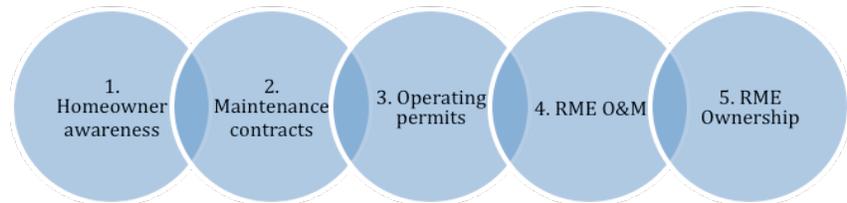
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Onsite Wastewater Treatment System Management Programs: A Summary from Case Studies

On-site wastewater treatment systems (OWTS) are used in 20-25% of homes in the US. New York State has over 1.5 million on-site systems - Florida being the only state with more. These onsite systems, usually minimally consisting of a septic tank and leach field, can be an efficient and cost-effective alternative to conventional centralized systems if properly maintained. However, lack of maintenance can lead to system failure and negative impacts on nearby water resources. Unfortunately, no federal or New York State regulations or uniform standards for operation and maintenance (in contrast to the design and installation) of these systems currently exist. As such, local governments are left to develop and implement management programs to ensure systems are functioning so as not to threaten public health and water quality.¹

EPA Models

The EPA created a guide for communities to develop decentralized wastewater management programs. This guide consists of five models describing an increasing environmental sensitivity and management authority continuum. Model 1 is appropriate for non-sensitive regions where homeowners are simply made aware of their responsibilities and then expected to carry them out with periodic government monitoring. In Model 2 homeowners are expected to maintain a contract with a qualified service provider for the management of their system. Model 3 requires homeowners to obtain operating permits from a managing authority who is also responsible for ensuring standards are met. In Model 4, a responsible management entity (RME) takes charge of management to ensure the reliable operation of systems in highly sensitive regions. Model 5 differs from 4 in that the RME actually owns the systems.

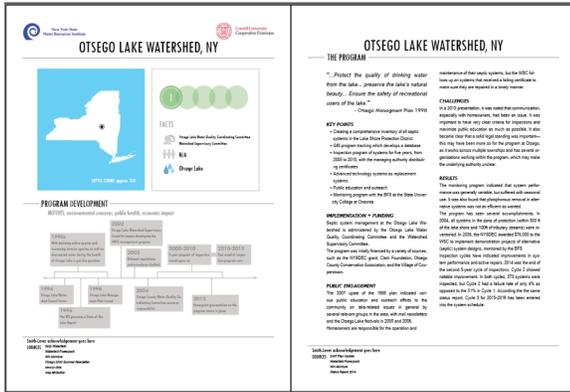


Lessons from Case Studies

Sensitive regions are generally areas where onsite systems may significantly degrade the water quality of nearby aquatic systems, including lakes, coastal areas and aquifers. Though failing onsite systems can locally pollute homeowner wells, larger community action seems generally dependent on risk to an important community water body. This action may be catalyzed by local concerns, or in response to state or federal mandates. To move beyond Model 1 requires the active involvement of local government and often cooperation among local governments as the region of concern becomes larger. Though large regions generally require more coordination of government entities, they often have increased ability to draw on and acquire the funding necessary for program success.

In the 13 case studies we researched, most of the programs did not move beyond Model 3. In these programs, generally local governments issue permits that allow onsite system owners to operate their

¹ http://water.epa.gov/aboutow/owm/upload/2004_07_07_septics_septic_2002_osdm_all.pdf



systems if they are meeting specified standards. The issuing of permits allows authorities to generate funds via permitting fees, which can be used to support inspection and compliance programs. Judging by the infrequent implementation of Models 4 and 5, the use of a RME is perceived as too costly, too complex or too politically unpopular for most communities to implement.

Components of Success (or Failure)

Communication - For programs to be implemented smoothly key constituents, especially homeowners and service providers, need to be informed and involved. The primary challenge with homeowners is clearly communicating standards and requirements. Public presentations at community venues are essential, especially when homeowners are opposed to inspections on the grounds of cost and/or necessity.

Identity – Programs appear to garner more support when advocates can clearly identify what (eg. a lake) is being protected, and how that water body is central to the identity of the community. Support can also be influenced by individual or institutional champions, who play important roles in ensuring continuity and motivation as the program gets established.

Legal Structure - Creating legal backing in the form of legislation and compliance measures (such as fines) allows programs to move forward when homeowners oppose the implementation of a management program. Management programs are strongly influenced by existing state or local laws, and successful ones draw on existing legal context to give themselves legitimacy.

Funding – Management programs are limited in terms of implementation and outreach by the amount of funds they can obtain. Funding for programs can be obtained in a variety of ways. Within the case studies examined, these included a variety of fees, taxes, and grants. To sustain a management program, a steady source of funding must either be identified or created.

Data & Outreach - A common problem is a lack of data upon which program justification and assessment can be built. Action is required to collect data on the number and condition of septic systems, consuming a significant amount of resources. Environmental monitoring, sometimes through local partners, in combination with proper recording of inspection results is essential for evaluating program success.

A Final Thought

An open question is whether water resource impacts occur as a result of many OWTS in a given area (likely important in cases where a certain density is exceeded), or from instances of single system failure (likely important in rural areas). These two contamination mechanisms imply different management approaches. The former is a laudable goal, but may also require greater funding and effort. The latter may shift responsibility only to those who most need to improve their system’s performance. Some management programs (e.g. Stinson Beach) establish multiple levels of action that allow for increased regulation in cases where failing or non-cooperative systems are identified. Unfortunately, regardless of how a management program is structured, success is often measured in metrics not directly related to water resource quality (e.g. number of systems inspected). More work is needed to build water quality monitoring into pre and post-management schemes in order to support an evidence-based case for such programs.