Maine Policy Review

Volume 1 | Issue 3

1992

Conference Reports: Wastewater Treatment Options for Maine's Small Communities

Linda Wood

News and Commentary

Maine Policy Review (1992). Volume 1, Number 3

Conference Reports: Wastewater treatment options for Maine's small communities

by Linda Wood

Improving communication among researchers and regulators was one of several recommendations that emerged from a workshop on wastewater treatment jointly sponsored by the University of Maine and College of the Atlantic June 11 and 12 at College of the Atlantic. Participants included local government managers, local planning board members, consulting engineers, state and federal water quality experts, and contractors who install wastewater (WW) systems. The purpose of the two-day workshop was to discuss new WW treatment technologies and constraints on their use in Maine. Participants also considered the costs and benefits of eliminating off-site impacts and identified steps Maine can pursue to expand the range of treatment options.

Since the early 1970s, the state has invested heavily in wastewater treatment facilities. Unfortunately, Maine still faces a long road ahead. State and local officials have estimated that Maine will need to spend another $1 billion to eliminate combined sewer overflows and to improve existing treatment plants. In addition, the state passed the 1987 Overboard Discharge Law that prohibits all new non-municipal overboard discharges. More than 3,000 overboard discharges along the coast and straight pipes inland will have to be replaced. Individuals, small communities and the state will assume most of the costs.

Several alternative technologies exist for WW treatment, including natural and constructed wetlands, solar aquatic systems, mound systems and peat beds. However, these new alternatives will not be widely adopted unless reliable performance is documented. Researchers and developers must answer many questions regarding what systems work best in Maine before Maine communities will utilize these innovative technologies on a large scale.

The use of peat systems in the treatment of wastewater is one option for communities. Peat systems are not new, but have been used both in the U.S. and abroad for single and multiple family homes, for schools, and for light industry and commercial units. Their life span is estimated to be similar to septic systems. Although there are some limitations of peat systems, a potential advantage is that they are not dependent on soil type and are effective at removing nitrates to tertiary treatment levels.

Constructed wetlands represent another option. Numerous constructed wetlands, both freewater surface types (where the surface of the wetland is exposed to the atmosphere) and subsurface flow types (where water flows through a gravel bed constructed below the surface) are in use

around the country. Constructed wetlands have been effective in removing BOD (biological oxygen demand), coliform, nitrogen and metals. However, a consensus for management, design and suitability does not currently exist. Differences of opinion have arisen from different construction needs based on soils and geographic location.

Greenhouse-based treatment systems are another option. These types of systems have been in use in this the U.S. for the past twenty years. The Solar Aquatic system is a patented wastewater treatment system that relies on the use of controlled environments and longer retention times (up to 10 days) to minimize the usual space requirements of alternatives, such as constructed wetlands. This type of system has been used on a variety of scales ranging from single homes, schools, small industries to a small sewage treatment plant. But system designers warn that Solar Aquatics is not a panacea for municipal WW problems but is more likely to work as a site-or market-specific technology.

Workshop attendees each participated in one of four site visits to nearby facilities that provided examples of wastewater treatment approaches. Following these visits, participants offered recommendations and suggestions. Among those were the following:

- More research should be done on innovative wastewater technologies at the university level.
- State and federal funding should support innovative research and on-site testing.
- There should be greater flexibility in the environmental permitting process.
- Perform a systematic study to determine which technologies work under which conditions and what makes innovative technologies a viable option for a community. Develop site-specific criteria for communities to evaluate before buying into an innovative technology.
- Address in a systematic process the planning, design, construction, and operation of innovative technologies.
- Increase coordination and communication between researchers (engineers, scientists) and regulators.
- Develop geographically specific criteria for reed beds for wastewater and sludge treatment and other innovative technologies.
- Develop training for treatment plant operators using innovative technologies.

Full cite: Wood, Linda. 1992. ***Conference Reports: Wastewater treatment options for Maine's small communities.*** Vol. 1(3): 58-59.