

# An Innovative Solution to an Age-Old Problem

An Ontario company has developed an innovative technology that protects the health of Ontario's groundwater with every flush of the toilet. **Waterloo Biofilter Systems**, based in Rockwood, designed a low-energy, low-maintenance solution to reduce the impact of residential and commercial sewage on the environment.



SC20 shipping  
container  
treatment units

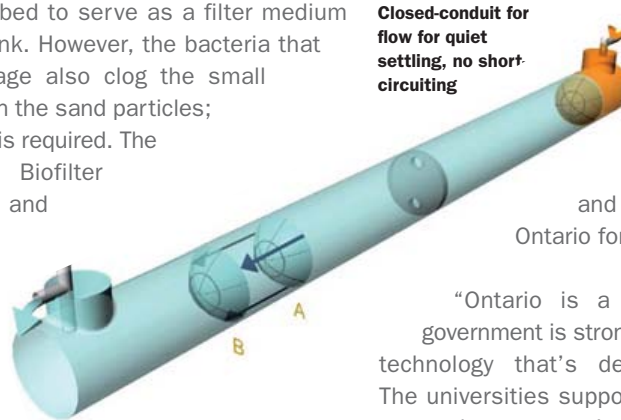
"In simple terms, it's a 'tile bed in a box,'" says Craig Jowett, a former University of Waterloo research professor who started the company with his wife, Robin, back in 1995. "Our filter system promotes beneficial microbial activity within a contained unit to treat wastewater before it reaches the environment."

Jowett began working on the idea in 1990 after attending a University of Waterloo conference at the Ministry of the Environment's Toronto office. Since the company operates in a regulated industry, Jowett has had to work closely with the Ontario government.

"Our business depends on regulators allowing our technology to enter the market," says Jowett. "The engineers at the Ministry of the Environment recognized the environmental and economic benefits of our technologies and, as a result, have been very supportive over many years."

Traditional trickle-filters rely on solid particles, typically sand or soil, in a tile bed to serve as a filter medium following the septic tank. However, the bacteria that break down the sewage also clog the small drainage holes between the sand particles; therefore, a large area is required. The absorbent, synthetic Biofilter medium improves air and wastewater flow, giving the microbes the time and space required to decompose the effluent before it exits the system.

"It's a *septic* system, not an *antiseptic* system," explains Jowett. "The sewage first goes through a fermentation process, like wine or beer. The next stage is to filter the effluent in an oxygenated environment, which also requires bacteria. Household disinfectants and bleaches can kill the bacteria and damage a septic system. Since our treatment can be verified by visual inspection, our system is recoverable after an upset, unlike traditional septic systems."



Closed-conduit for  
flow for quiet  
settling, no short-  
circuiting

Wastewater contamination of the environment is an important issue for residents, regulators, and municipal planners alike. The high levels of nitrogen and phosphorus in wastewater can negatively impact the health of groundwater and nearby lakes and rivers.

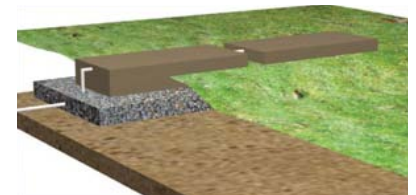
"The treated effluent exiting the Waterloo Biofilter system is relatively non-polluting, with 95% of the organics removed and over 50% of the nitrate," says Jowett. "It's comparable to and often better than storm water."

The system is sold directly to customers in Ontario, Massachusetts, and other jurisdictions, and is licensed to a US manufacturer on a royalty basis. Licensed partners are utilizing the technology for the resort industry in Mexico and the Caribbean.

The company has also capitalized on the economic growth and construction boom in the western provinces. A Winnipeg company even designed a mobile treatment unit using the Waterloo Biofilter system that travels with oil and gas workers as they move from camp to camp.

Jowett credits the innovative and competitive business climate in Ontario for the growth of the company.

"Ontario is a great business location. The government is strongly committed to commercializing technology that's developed within the province. The universities support entrepreneurship by enabling researchers to retain ownership of the technologies they develop. And the infrastructure and well-educated, skilled workforce are tremendous advantages."



FlatBed Biofilter