Serving up clean water in Shelburne

Photo caption: NSCC's Applied Engineered Technologies Lab, led by Dr. Etienne Mfoumou connects engineering, science and technology to improve products and enhance processes.

Access to clean water isn't something most Nova Scotians worry about. The same can't be said for Shelburne, the town has been dealing with water contamination for over half a century.

NSCC researcher Dr. Etienne Mfoumou got involved in the Shelburne Water Project after chatting with coworker Wilber Menendez-Sanchez, faculty at NSCC and president of Rural Water Watch, a non-governmental organization that helps rural communities address concerns about drinking water quality.

"Once I understood the severity of the situation I wanted to get involved," says Etienne. "I grew up in Cameroon where millions of people live without access to safe water. This isn't an issue I expected to see in Canada – everyone, everywhere in the world should have the right to clean water."

A community-based research project

The majority of Shelburne's residents don't have access to clean water. Only 25% of the town has access to the public water system, run by the municipality. The remaining 75% rely on wells, which fall under the responsibility of the homeowner. Individuals living in the south end, a predominantly black community adjacent to the former dump, have raised the issue of contaminants leaching into the ground and into their water. While test results show the water is not safe to drink, the source of the contamination is still unknown.

The Engineered Technologies Applied Research Lab is working to uncover a cost-effective, water-filtration solution to purify the well water.

Most of Etienne's work is with industry, this is his first community-based research project:

"It's a unique experience, there's a lot of stake. Emotions are running high and we're trying our best to focus on the technology. From a research perspective, input from residents during a community meeting gave us a real sense of the situation and helped us narrow down what types of systems we should test to clean the water. Research findings from this project are potentially going to better the lives of many people, that's pretty gratifying."

The clean water solution

The Engineered Technologies Applied Research Lab is testing two advanced ultrafiltration systems; one will be tested at the

"The community is putting a lot of hope into this project. We are the first group coming in with technology to provide a solution."– Etienne Mfoumou

Fast fact

Etienne's team is building a mobile water testing lab to help more Nova Scotian communities test and manage their drinking water resources. NSCC students have helped lay out the plumbing and design for the trailer.

household level and another at a community level. The difference between the two systems is capacity and cost. It's not new technology, but it is being used in a new setting. Ultrafiltration systems are easy to use and don't require a lot of maintenance, which is important moving forward when homeowners or the town will manage the systems on their own:

"Advanced ultrafiltration works like a coffee filter. Only instead of straining coffee grinds, it uses a filter to remove contaminates in the water. It's slightly more complex as it's a two-step process; the filter needs to remain clean and clear of residue in both directions."

In addition to recommending which system Shelburne should adopt to best clean their water, NSCC is also developing a training manual that will teach the community how to clean their wells and take their own water samples.

The technologies and research approach used for this project are transferable solutions. "There's where the mobile trailer comes in," says Etienne. "There are quite a few communities in Nova Scotia with their own unique drinking water challenges, we don't plan on stopping here."

Collaborating with community partners

This project is done in partnership with, and additional to previous contributions from Dalhousie University's Environmental Noxiousness, Racial Inequities and Community Health (ENRICH) project, the South-End Environmental Injustice Society (SEED) and the Rural Water Watch (RWW) association in the Shelburne's south end community.