BRIDGING ACADEMIA, ENTERPRISE, MUNICIPALITIES

Part 1: Academia and Municipalities 9:30-10:40

9:30 The Role of Post-Secondary Institution

Water Centres and Institutes

9:40 Carlos Diaz, Lambton College

9:50 Martha Dagnew, University of Western

10:00 BREAK

10:30 Elsayed Elbeshbishy, TMU



URBAN WATER TMU IS A...

- Research centre conducting transdisciplinary research
- urban water management
- natural systems and green technologies
- freshwater science and governance
- 40 faculty, 130 students and post docs

FACULTY/HQP ACROSS

6 FACULTIES & 13 DEPARTMENTS



Dr. Roxana Suehring - Persistent, Mobile and Toxic Substances

Highly polar, low volatility, low organic absorption

Not removed by WWTPs, Up-concentrate over time

Forensic fingerprinting - Massspectrometry and LDIR spectroscopy

Chemical polymer with additives (flame retardant, stain resistant)

Rivers flowing north – bioaccumulation, Inuit health impacts, polar bears



Green infrastructure, aerosol biofiltration capacity

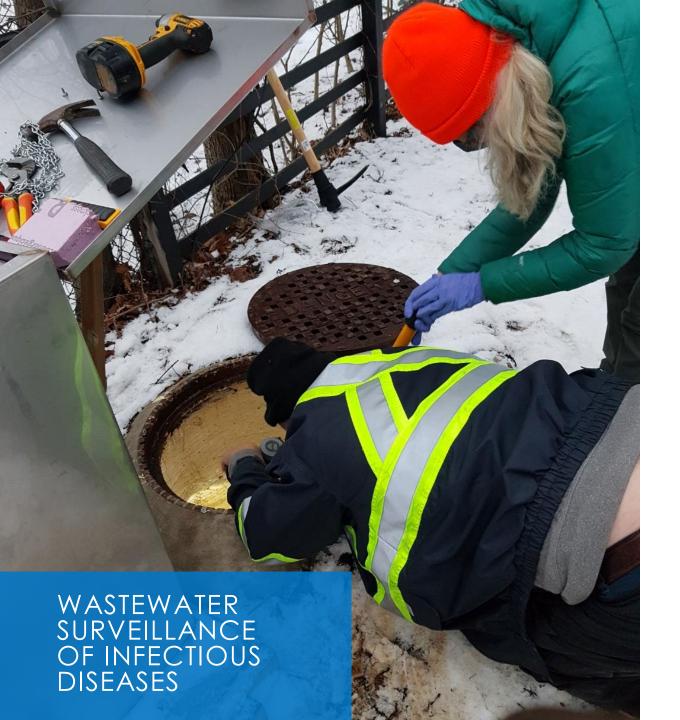
Air pollution increasing globally, volatile organic compounds are known carcinogens

From industrial combustion and materials prevalent in our homes (furniture, insulation, house cleaning products)

Microbial ecosystem in the hydroponic root system absorbs VOCs

VOC concentrations decreased significantly over time

acetaldehyde, benzene, toluene, m-xylene, tetrachlorethylene, chloroform



Transdisciplinary: Drs. Kimberley Gilbride, Claire Oswald (11 other TMU researchers)

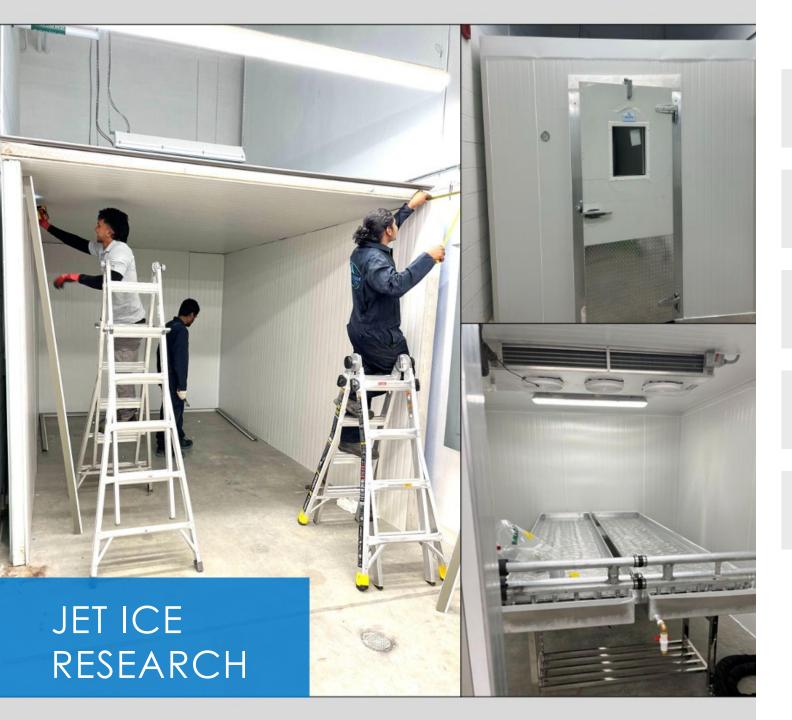
Province of Ontario's Wastewater Surveillance Initiative

Wastewater monitoring, virus shed in wastewater, RNA is signal in advance of clinical indicators

Has enabled several public health interventions since 2021

1 WWTP, 6 upstream communities, 9 high-risk congregate facilities e.g. homeless shelters, LTCHs, hospitals

20 HQP trained since July 2020, Funding nearly \$4M



Jet Ice Research Chair – Stefania Impellizzeri

Sustainable and high performance paint formulas and ice making

JetIce history – Doug Moore, Maple Leaf Gardens Chief Engineer formed the company

Water Analytics Lab development of molecules

Experimental Lab testing of molecules on rink surface



Residential Drain line, Municipal Sewer Drain line

About 15 y ago, manufacturers started labelling items as "flushable"

Result was \$250M repairs at WWTP annually, clogged sewer drain lines, residential blockages

International Water Service Flushability Group formed and created protocol and IWSFG Logo

In a study of 101 single use products, not one wipe fell apart or dispersed safely

Testing with obstructions, variable flow and pressure

OWC'S WATER CENTRES & INSTITUTES COMMITTEE

















BENEFITS TO A UTILITY WORKING WITH A UNIVERSITY?

- Concentration of high caliber expertise
- State-of-the-art equipment
- Students as potential future employees
- Cost-effective no consulting fees
- Unbiased, non-partisan opinion and research

WHAT ARE THE CHALLENGES?

EXPECTATIONS AND DELIVERY ARE MISMATCHED

 The research team doesn't act as a consultancy, expect a research paper

SOLUTION

- To reduce the gap between expectations increase communication
- Request a Gantt chart and invest time in regular meetings
- Request preliminary results part way through project

WHAT ARE THE CHALLENGES?

LEGAL AGREEMENTS

- Procurement, cannot sole source
- Legal agreements are labour intensive and time consuming and pose a barrier to projects

SOLUTION

- Develop a template agreement
- Let the legal departments sort out the standard IP, insurance attestations
- Just attach a simple appendix with high level deliverables and fee schedule for research projects
- For example, in 2020 City of Toronto developed a template with TMU (and 7 other institutions)

PATHWAY TO SUCCESS

- Find the expert, test the relationship with a simple project
- Develop relationship, regular meetings, invest time
- Clearly articulate what you want and format of results, ask for a Gantt chart with regular meetings and preliminary results
- Develop a template legal agreement with the academic institution to facilitate future projects

