

InFact

Technology Development Program

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Promoting Technological Advancements in Waste and Wastewater



The Edmonton Waste Management Centre of Excellence (EWMCE) offers Technology Development services, and can provide specialized expertise and facilities to develop, test, verify and scale-up technologies. The Program is staffed by a multidisciplinary science and engineering team of industry experts specializing in technology development and verification. Support is also available from other EWMCE programs and

from the Centre's partner organizations. The availability of these resources gives the Centre the ability to tackle a wide range of highly specialized projects. Clients come from both the private and public sectors, with the focus being on innovators, entrepreneurs, and small and medium enterprises.

The location of the EWMCE at two municipal facilities makes its Technology Development program unique. Readily available access to real time process streams means that development activities can be done under authentic conditions.

Technology Development Services

The Technology Development program at the EWMCE is divided into two main sections: Technology Development and Technology Verification. The EWMCE can also help innovators in their quest to obtain financing for their projects.

Technology Development

The EWMCE uses a unique approach in its technology development activities, since nearly all projects are owned by entrepreneurs who are keen to see their projects reach commercialization. Areas for technology development include wastewater treatment, water reuse, and the utilization of solid waste materials for various purposes.

The EWMCE has been involved with a number of successful technology development projects for various innovators/entrepreneurs, including the development of a street sand recycling system, micro-bubble aeration units, biological aerated filters, a ceramic membrane pilot plant, and optimization of zeolite media treatment systems.

Technology Verification

The EWMCE offers technology verification services in two main categories:

Third Party Verification - Confirmation of the performance of specific units or processes within the innovator's or technology owner's domain; and

ETV Canada Verification - Seeks to prove performance claims aimed at dissemination or commercialization of a technology. For environmental technologies this is done in collaboration with Environmental Technology Verification (ETV) Canada.

The EWMCE is a recognized verification and testing entity (VE) for the ETV Canada Program. ETV Canada is an independent verification organization which manages Canada's Environmental Technology Verification Program under a license agreement with Environment Canada. ETV Canada, through its verification entities, offers a reliable assessment process for verifying the environmental performance claims associated with projects and programs, as well as technologies and technological processes.

If you have developed a technology and plan to start marketing, then ETV verification is very important because it provides the marketplace with an assurance that your environmental performance claims are valid, credible, and supported by quality independent test data and information. Having this testing done will make your entry into the market relatively easy. For more information please visit: www.etvcanada.ca.



Edmonton Waste Management Centre of Excellence

The Edmonton Waste Management Centre of Excellence is a not-for-profit joint venture between public, private and academic members. The Centre promotes research, development and training to enhance scientific and applied knowledge in all areas of waste management. The EWMCE facilitates transfer of knowledge to contribute to the protection of public health, the sustainable use of environmental resources and the quality of life locally and globally.

The Centre's members are: the City of Edmonton, the University of Alberta, Alberta Innovates - Technology Futures, AMEC Earth and Environmental Ltd., Northern Alberta Institute of Technology and EPCOR Water Services Inc.

Project Financing

Project financing is one of the major obstacles preventing many innovators from seeing their inventions commercialized. At the EWMCE, innovators can use their own funds to finance their projects. However, various federal and provincial funding programs, such as the Alberta Innovation Voucher program and the federal Industrial Research Assistance Program (IRAP), are also available. The EWMCE can help clients determine whether their projects are eligible for the available funding schemes. We can also help with the application process by clearly defining the project, creating a statement of work, and, if necessary, identifying and engaging third-party vendors.

Technology Development Projects Summary

Recreational and Potable Water Projects

Performance Verification of a Low-Energy Disinfection Electrode: Hypochlorite ions formed via the actions of this proprietary electrode facilitated water disinfection. This technology's application was in the recreational water industry.

Performance Verification of a Physical/Chemical Wastewater Treatment System

EWMCE provided a test protocol and subsequently acted as the verification entity for the ETV Canada verification of a novel wastewater treatment system slated to be a viable alternative to sewage lagoons. The EcoLibra Systems Inc. technology has been fully verified and a fact sheet is available on the ETV Canada website: www.etvcanada.ca

Testing and Development of an Onsite Biological Aerated Filter (BAF) Wastewater Treatment System

Optimization of a portable ozone enhanced biological aerated filter treatment system intended for construction camp and remote resort applications. The BAF was improved to the extent that it could meet the APS SSP level 2 regulatory requirements even before ozonation.

Verification of a Nutrient Recovery Struvite Reactor

The EWMCE performed verification testing on a nutrient recovery fluidized bed reactor. The technology has now matured and being used in Canada and USA.

WERF Co-Digestion Study

In collaboration with the EWMCE's Research Program, University of Alberta and the Water Environment Research Foundation (WERF) through CDM, the Technology Development program has completed a study on the operation of a pilot project on co-digestion of municipal wastewater sludge with fats, oil and grease as well as biodiesel glycerin.

Evaluation of a Micro-bubble Aeration/Diffusion Systems

The Technology Development program has evaluated various proprietary micro-bubble diffusion systems as applied to an activated sludge, as well as Biological Nutrient Removal (BNR) wastewater treatment process. One of the systems was also evaluated on its ability to dissolve ozone in wastewater.

Zeolite Media Technology Development

Development and optimization of a zeolite media treatment system for a simultaneous removal of ammonia and phosphorous from wastewater effluent. Break-through curves and scale up data were generated for client's future stages of development

Ceramic Membrane Pilot Plant

Development of methodologies and equipment "in-house" that incorporate ceramic membranes as research tools in effluent treatment, general thickening applications, and MBR technologies.

Efficient Snow Melt Sediment Management

In collaboration with a private entity, EWMCE is working to provide the City of Edmonton with long-term technological and operations solutions to manage snow storage site sediment buildup and handling of the sludge in the City's snow collection pond system.

ETV Verification of a Super Controlled Flush

EWMCE completed the testing of a super controlled flush which aims at reducing the amount of water used in flushing toilets. Retrofitting of this unit in large, older toilets will allow water-use reduction without the necessity of replacing the toilets.

Biogas from Beef Cattle Organic Residues and Slaughterhouse Wastes

EWMCE in collaboration with AITF is working with a beef company in Mexico to produce biogas from inorganic waste laden manure and slaughterhouse wastes. Installation of a pilot plant is now in progress.

Grit Characterization for EPCOR Wastewater Treatment Plant

EWMCE is working with the EPCOR Gold Bar Treatment Plant in characterizing the grit from various locations of the plant so as to enable a more efficient design of solids handling.

Enhanced Primary Treatment (EPT) Optimization

In collaboration with EPCOR Gold Bar Wastewater Treatment Plant, EWMCE is participating in a project that will optimize the performance of the EPT in handling wet weather flows.

Gasification of Municipal Solid Wastes

EWMCE is providing technical support to a Nigerian organization in a design and production of a pilot plant to gasify municipal solid waste and produce various products including methanol and urea.



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