

The Ontario H2O Global Leadership Summit and The Artemis Project Top 50 awards highlighted the most innovative water technologies that promise sustainable water management. By Pamela Wolfe

Innovation key to economic strategy in Ontario

In November 2010, the provincial government of Ontario, Canada passed the *Water Opportunities and Water Conservation Act*¹ with the intention to establish Ontario as a world leader in water innovation and help address global water challenges. The intent of the legislation was to encourage water conservation, promote sustainable planning for future infrastructure needs, and also to tap the province's water technology expertise and potential for generating jobs and exports.

Innovation can be highly rewarding. "Innovation-based companies, including Trojan Technologies and Zenon, represent only five percent of Ontario-based companies, but they are producing 50 percent of new jobs," Glenn Murray, Minister of Research and Innovation, said in his opening remarks at the Ontario H2O Global Leadership Summit, held on May 17-18, 2011 in Toronto, Canada. Recognizing the dynamic economic potential in this sector, the Ministry of Research and Innovation has implemented programs to support research, development, and commercialization of new technologies. Its Water Technology Acceleration Project, referred to as "WaterTAP", is facilitating collaboration between municipalities, industry, business, and academia to develop and promote water technologies.

The global water market was approximately US\$424 billion in 2010, according to Global Water Intelligence, a UK-based market research company. By 2020, the water market will be worth nearly US\$1 trillion, with more than US\$87 billion in high-growth areas. The North American water and wastewater sector is growing at a steady rate, however significantly higher growth opportunities in China and India are creating a strong market for innovative technology and services.

Gaining shares in these markets

is difficult for start-ups. The question "How can entrepreneurs deliver new innovative technologies into the market?" elicited much discussion throughout the event.

"The future is really bright for water innovation, but the challenge shared by all is to encourage market adoption of new technology solutions, said CEO Sheeraj Haji of the Cleantech Group, a San Francisco-based market research company that covers innovation in the water sector. "Private venture capital is not flowing, however the number of deals are on the uptick," Haji said. "The good news is there's a lot of support provided by the Government of Ontario and more big companies are investing in research and development."

Three Ontario ministries (Ministry of Research and Innovation, Ministry of Economic Development and Trade, and Ministry of the Environment) partnered with XPV Capital Corporation, Cleantech Group, and the consultancy The Artemis Project to organize the event.

During the summit, The Artemis Project revealed its Top 50 most promising companies that develop and apply innovation to solve global water challenges. Of these, seven companies are Canadian. Below are brief summaries of several of them – Purifics, evandtec, UV Pure Technologies, and Ostara Nutrient Recovery Technologies.

Purifics has developed water purification systems that do not add chemicals to the water environment or generate waste. Photo-Cat® is a multi-barrier, integrated system that combines chemical-free AOP+, ultraviolet and ceramic membrane filtration with remote automation for the removal of organics, biologicals, and metals from water.

A Photo-Cat drinking water system installed at an Ontario elementary school removes all contaminants and operates independent of the electrical power grid by using solar panels. The



The City of Toronto is situated on the shores of Lake Ontario, one of four Great Lakes that border the Canadian Province of Ontario.

Green Schools Pilot Initiative, a US\$20-million government program that invests in innovative green products and technologies in Ontario schools, funded the project.

CFFeR®, a chemical-free iron removal technology that removes metals from water at ultra low cost, is used in drinking water treatment and groundwater remediation. The CMS is a low-maintenance continuous flow ceramic membrane system used in MF/UF/NF with no backwash. Purifics is based in London, Ontario (www.purifics.com).

Toronto-based evandtec developed a comprehensive water treatment system for cooling water applications that can reduce chemical use by 90 percent and water consumption by an average of 26 percent by recycling water. Cooling is the largest use of potable water in North America and all cooling systems must be treated for scale, corrosion, and bacteria, said CEO Paul Wickberg of Evandtec. He estimates that 99 percent of

cooling tower water is still treated by using chemicals (www.evandtec.com).

EnviroTower™ uses evandtec's patented Ion Scalebuster® technology to condition water for residential, commercial, and industrial markets. The ionic flow-based system uses zinc to charge the ions and precipitate calcium carbonate from cooling water. This treatment prevents the formation of scale, which also prevents bacterial growth.

The Canadian Fresh & Easy grocery chain installed evandtec's system, including its Sustainable Water Manager, an intuitive water system control system, and reported using 30 percent less energy than a typical supermarket and 50 percent less water for cooling, while keeping systems clear of scale and bacterial growth.

Another Toronto company, UV Pure Technologies, won an Artemis Top 50 award for its patented Crossfire Technology® used in all UV Pure systems for residential, commercial, industrial, institutional, and commercial applications (www.uvpure.com). The UV water purification system is virtually maintenance free. It also won Frost & Sullivan's award for global technology in the water and wastewater treatment market in April 2011.

Ostara Nutrient Recovery Technologies of Vancouver, British Columbia was awarded for its Pearl® Nutrient Recovery Process that recovers phosphorus and other nutrients from sludge liquids to produce a premium commercial fertilizer called Crystal Green® (www.ostara.com).

Governments in Ontario, Israel, and Singapore, which encourage, promote, and invest in water innovation, are discovering the benefits of a collaborative strategy that improves the economy and environment.

¹ Ontario Ministry of the Environment. *Water Opportunities and Water Conservation Act*. www.ontario.ca/watervact