

The Role Of UV In Solving Next-Generation Water Challenges

By Rick VanSant, President & CEO, UV Pure Technologies, Inc.

When Analytica Advisors, a Canadian consulting firm specializing in clean technology industry, was conducting research for its 2013 Canadian Clean Technology Industry Report, they sought out game-changers in the field. The report examined jobs, exports, innovation, and competitive performance, and discussed why clean technology is both Canada's first new industry in the 21st century and a foundational base for growth in other industries. UV Pure Technologies Inc., which was recently named a 'GoingGreen Silicon Valley Global 200' company for its leadership in green technology, was a resource for the study. The following editorial is an assessment of the industry contributed by UV Pure's president and CEO, Rick VanSant, who discusses the global market and his company's place within it.

The global market for water treatment technologies is growing and becoming increasingly important as the quality and quantity of freshwater sources are stressed and the link between fresh water sources and wastewater — returned to the environment — is more and more obvious.

Estimates for the global water treatment market (infrastructure, O&M, and technology) are \$800 billion today, forecasting \$1.4 trillion by 2020, or a compound annual growth rate (CAGR) of about 8%. We estimate the technology segment at 10% of the overall market (\$80 billion) growing at 12% CAGR and as high as 15% for leading technology like UV treatment systems.

Market growth and product segment shifts are driven by:

- Treatment capacity requirements expanding at a multiple of 2.4 times population growth
- Urbanization that increases demand and population stressing wastewater treatment
- Desertification, exacerbated by geographic concentration of most urbanization in the desertification belt, reducing per capita access to fresh water
- Economic development and industrialization requires more treated water than agrarian societies and produces more and more complex wastewater
- A global shift from chemical treatment to non-chemical treatment
- A shift from large, capital- and energy-intensive, infrastructure-driven, centralized treatment plants to distributed, decentralized treatment that costs less, is more energy efficient, and not so infrastructure dependent
- Technology advancements that enable remote monitoring and operation of distributed treatment
- Increasing awareness of, regulation of, and requirement for treatment standards

UV Pure Technologies' advanced UV purification technology and systems are targeted at the global market shifts — where the growth is — and our experience in the past few years is that acceleration of CAGR for wastewater treatment systems as a product segment, particularly smaller (under 1 MGD or 3800 m³/day) distributed treatment applications, is dramatically ahead of the potable water segment.

One driver of this market growth is a recognition that treatment of wastewater before returning it to the environment not only addresses the particular characteristics of pre-treatment contamination and their effect on consumers — marine life, flora, fauna, and us — but that, strategically, the better condition treated wastewater is before returning it to the water table, the easier it will be to treat when reusing it as a fresh water source.

Notably, UV Pure's highest market segment growth rate is systems for rainwater treatment. As water sources are increasingly stressed and urbanization is concentrated in low rainfall geography, capture and treatment of the rainwater freshwater source becomes a necessity. Traditionally, rainwater has been treated as reuse for grey water or irrigation; UV Pure has over 1,000 applications like that in Australia. However, that use is changing.

Rainwater For Reuse As Drinking Water: A 'Mini' Case Study

UV Pure's UV systems are integrated into the Engineering Sciences Building at McMaster University in Hamilton, Ontario's new and innovative rainwater treatment system. There, a clean roof membrane collects rainwater that is stored in underground cisterns and then treated to potable standards. A portion of the treated flow provides drinking water for the coffee shops and fountains in that building. The technology is also smart, providing the regulator at McMaster with access to daily, online monitoring of multiple operating system metrics.

This 'mini-case' provides a microcosm that neatly illustrates, in real terms, what's driving the market, the shifts in product segments, and the real opportunities waiting to be developed.

About UV Pure

In November 2013 UV Pure was recognized by AlwaysOn as one of the GoingGreen Silicon Valley Global 200 winners. Inclusion in the GoingGreen Silicon Valley Global 200 signifies leadership amongst its peers and game-changing approaches and technologies that are likely to disrupt existing and entrenched players in green technology. UV Pure Technologies was specially selected by the AlwaysOn editorial team and industry experts spanning the globe based on a set of five criteria: innovation, market potential, commercialization, stakeholder value, and media buzz. To find out more, visit www.uvpure.com.