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Water Purification for the Masses?

Jeff St. John August 24, 2009

The company's new water purification system could help it expand beyond government entities to high-end resorts, power plants and remote communities.

Can a decentralized version of an age-old technology for water purification meet the needs of customers as varied as power plants, luxury resorts and isolated villages?

Carlos Perea, CEO and president of Miox, believes it can. In the next month, his company will release an automated version of its salt and electricity-based water purification system that he hopes will become standard issue around the world – either on its own or partnered with systems from water giants like Siemens and General Electric.

Using salt and electricity to make chlorine on-site is something companies like Clorox have been doing for decades. But Miox's technology, spun out of Los Alamos National Laboratory in 1994, offers reduced electricity and maintenance costs compared to previous versions, Perea said.

Delivering salt instead of chlorine in the form of gas, liquid and powder can cut transport costs significantly, as well as reduce the danger of moving and storing the dangerous chemical. Those savings can pay back the up-front costs of the equipment in about one to two years, he estimated.

Miox now has about 1,500 systems installed in water treatment plants in the United States and about 30 other countries, treating about 6.5 billion gallons of water per day. It also sells "purifier pens" that may be familiar to high-end backpackers, which use a AA battery to turn a capful of salt and water into chlorine to disinfect water in the field – a product originally developed for the U.S. military.

But Perea, who joined the company in 2005, saw a chance to expand the scope of Miox's business into the faster-growing field of water purifying for private customers and developing countries. Since he joined, Miox has raised $33.5 million in venture financing, most recently $19 million in August 2008, aimed at tackling those challenges (see Green Light post).

But serving those customers is a much different prospect than supplying well staffed and funded government-owned water treatment plants, he said.

To meet that need, Miox's new systems "basically automate the process, eliminate any user intervention, and more or less make them automatic to run," Perea said. The "Vault" series of purifiers – named after the bank vaults they're meant to be as secure as – are set to launch in mid-September, he said.

How well those new systems will do will likely depend on how well they meet those criteria. The field of water treatment could be worth hundreds of billions of dollars a year, and developing nations are seen as the next big growth market for such technologies (see A Guide to the Water World and Water World Part II: Investing in Purification).

Seven Seas Water, funded by Virgin Green Fund, is trying to appeal to the same market with a membrane system.

The trick is finding the right technology for the right customers, investors say. Government-run purification plants can be slow to invest in new technologies. In developing markets, on the other hand, ease of use and low maintenance costs are critical to making sure installed systems actually keep running (see 'Peak Water' Requires Low-Cost Solutions and WaterHealth Lands $10M for UV Water Purification).

Miox does have a lower-cost – about $1,000 – distributed unit that has been deployed in rural communities in Honduras, South Africa and Rwanda, Perea noted. While those have been based on nonprofit models to date, he'd like to see that extended to so-called microenterprise models, in which local residents can invest in a system and pay for it by providing clean water to their neighbors.

Of course, Miox has had the ongoing economic downturn to contend with. Miox has seen a slowdown in its business in recent quarters, Perea said. While he doesn't expect to need to raise more investment in the near-term, he is looking for partners interested in using Miox's technology into filtration and other larger-scale water treatment systems.

Siemens and General Electric – two giants in the water treatment field – could be logical partners, he noted. But those giants are also seeing some challenges ahead for their water treatment lines of business, as this recent Reuters article on GE's water business notes.

In the longer term, "I think we'll end up splitting the company up into different pieces or divisions and looking at multiple markets," Perea added. While water treatment is an obvious market, on-site chemical generation is another, he noted.

One interesting market he's eyeing is power plants, which use large amounts of water for cooling and heat transfer. That water needs to be kept clean, or else flushed out to avoid contamination and corrosion, he noted.

The energy sector will face increasing difficulty in finding enough water to operate, particularly if climate change leads to rising temperatures and widespread shifts in longstanding precipitation patterns, according to a federal report on climate change released in June (see U.S. Energy Sector Faces Big Climate Change Threats, Report Finds).