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WorldWater Continues Its Clean Water Mission  
by Diccon Hyatt

In 1984 Quentin Kelly traveled to Khartoum, Sudan, and stood among 100,000 people outside the city who were dying of thirst because they were unable to reach the source of fresh water just 10 meters below their feet. The water was there in underground aquifers, but there was no electricity, nor was there gas to power pumps to bring it to the surface.

Kelly returned to his barn in Hopewell Township, where he and a team of engineers from Princeton University built a solution: a water pump that could be run on a few solar panels. This device, on its own, could save thousands of people. WorldWater & Solar Technologies was born, and before long it was selling its lifesaving technology around the world.

Today WorldWater is located on Carter Road and has about 10 employees. On March 22 it celebrated World Water Day by releasing a new solar-powered system, the MaxClear, which Kelly says can pump and purify 10,000 gallons of water per day at a cost of less than a penny a gallon.

“You don’t have to do much of anything except press a button and they go to work. This means that for villages, they can be wheeled in and inside of 20 minutes, people who have never had clean water in their lives are suddenly getting clean drinking water,” Kelly says of his company’s systems.

The new machine has less capacity but is much cheaper than previous products. Kelly says it can still supply 10,000 gallons of water per day, which is enough for the water needs of most villages. A pair of them could easily supply a community of 5,000.

The new machine is part of what Kelly describes as a resurgence for WorldWater after a period of relative dormancy in which it was selling only to the U.S. military. He expects to double the number of employees soon and expand into several developing countries, where the company is not only providing stand-alone water purification and agricultural irrigation systems, but entire “solar parks” that provide electricity on a large scale.

In the decades following its founding, WorldWater grew rapidly. Its water pumping systems were refined into highly portable units that could be trucked almost anywhere. They provided communications as well as clean water and could also filter seawater.

Kelly says the key to the success of WorldWater's systems, compared to its competitors, was a power management system that could run powerful pumps with hundreds of horsepower on an irregular energy source. (Normally large pumps would seize up when run on solar power because of its constantly changing levels of voltage.)

By the early 2000s WorldWater had more than 100 employees and had moved from a small office in Pennington to a cavernous facility in Ewing. It was providing systems to governments in developing nations, agribusiness, and the U.S. military, which had a need to provide fresh water to troops in remote locations in Afghanistan, and in civilian areas with poor infrastructure and dirty water, like communities near the Tigris river in Iraq. WorldWater was living up to Kelly's original vision of supplying water to people all around the world who might have gone thirsty otherwise.

In 2007 WorldWater was bought out by investors who were much more interested in Entech, a Houston-based subsidiary that made solar panels for satellites, than they were in solar-powered pumps and purifiers. Kelly repurchased the patents for his systems, plus the Worldwater name, and effectively started over again with a small team. "After that, I thought I'd just stay small," he says. "We were doing the military and only the military."

Despite its scaled-back ambitions, WorldWater was able to make a big impact. Kelly says in 2010 following the Haiti earthquake, a WorldWater MaxClear system was the only source of fresh water in the Haitian capital, Port-Au-Prince. He says the Red Cross told him his machine was quenching the thirst of 100,000 people.

The military business slowed down in 2013 with the budget sequester, and recently Kelly has been thinking bigger about what Worldwater could do. "I thought, do I retire, or do I start again and really just go full bore?" he said. "I decided to really go for it."

Today WorldWater products are in more than 25 countries, 14 of them in Africa. About 50 units are working in the Philippines, either providing irrigation or drinking water. Places in India, Pakistan, and Sri Lanka also have WorldWater systems.

Kelly says he has been drumming up international business in Saudi Arabia, Morocco, Central America, and elsewhere. He has even built solar power systems close to home, for the federal courthouse in Trenton. The components of WorldWater's systems are manufactured in South Jersey and Eastern Pennsylvania, and some light assembly work is done on Carter Road. The company is now hiring engineers, salespeople, and product managers, and Kelly estimates it will grow to about 20 employees and be a \$200 million to \$300 million company.

When discussing the need for his product and the future of water worldwide, Kelly speaks with infectious enthusiasm. He says the company is working with Egyptian farmers west of Cairo who are irrigating the Sahara desert. Eight WorldWater systems are driving large pumps that allow food to be grown on 1,000 acres of what was once barren desert.

"We are turning the desert green. It's amazing," Kelly says. He points out that there are large reserves of water under the Sahara, and that if the aquifers could be pumped it could turn the

desert into farmland. In fact, the Egyptian government is in the midst of an ambitious program to dig wells and create 2.5 million acres of farmland in the Sahara. “The Sahara is going to be a breadbasket,” Kelly says.

In the future, Kelly sees a growing need for WorldWater systems around the globe. With a growing population, and with only 2.5 percent of the world’s water being fresh water, and with less than 1 percent of that water not trapped in glaciers and snowfields, people will be hard pressed to find enough water for industry, agriculture, drinking, hygiene, and everything else. Academics who study climate change believe that as water becomes more scarce, more people will move to cities in search of it. Kelly hopes that by providing a cheap source of water to villages, people can remain where they are rather than become part of a wave of migration to overcrowded urban areas.

“We solve a huge social problem,” he says.

WorldWater & Solar Technologies Inc., 330 Carter Road, Technology Center of Princeton, Princeton 08540. 609-356-0372. Quentin Kelly, president and CEO. [www.worldwatersolar.com](http://www.worldwatersolar.com).

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