

Technology to the Rescue

Local company designs water purification system

PUNTA GORDA, May 31, 2010 -- Most Americans take their access to purified water for granted.

With the twist of a knob, clean water will trickle from a faucet, providing people with the ability to drink, bathe and cook without fear.

But in third-world countries, the life-source carries different characteristics, as the water is often murky in appearance and crawling with diarrhea-causing bacteria and viruses.

The chances of contracting these "critters" will only increase if a natural disaster is added into the equation, said Paul Marcuzzo, the president of Fourwinds Enterprises Inc., a Punta Gorda company that specializes in alternative energies technology.

Haiti, he said, is a good example.

In January, a 7-magnitude earthquake rattled the country, reducing buildings to rubble. Water and sewage pipes were broken, forcing people to choose between drinking contaminated water or dipping into other water sources, like ponds and creeks.

Without purification systems, the latter can result in the ingestion of sediment particles, molds, bacteria like salmonella and the eggs of such creatures as nematodes.

Upon learning about the Haitians growing need for safe drinking water, Marcuzzo and company engineer Herman Novak designed a revolutionary portable water purification system that doubles as a solar generator.

"We've created a water purifier that uses ultraviolet light in a chamber, which kills 99.9 percent of the critters that might be in the water," Marcuzzo said.

The system comes in three sizes - one capable of producing one gallon of purified water per minute, one capable of four gallons per minute and a backpack version that feeds off gravity instead of a pump.

All use a 12-volt battery, which is rechargeable through a solar panel. They also feature accessory outlets, capable of running an LED light, a cell phone charger, fan, radio or a small power converter for larger electronics.

"The main idea was we wanted to provide a light or ability to charge a cell phone while



making sure people had safe water to drink," he said.

Although there are other water purification systems on the market, the Fourwind's design has a few special features that are patent pending.

Each system is made with a microprocessor, which controls a 30-second purge system. Marcuzzo said this essentially flushes old water out of the system.

"The UV light kills 99.9 percent of the critters, but what happens if the water sits for a while is it will start growing little critters again from that 0.1 percent," Marcuzzo said. "It has a whole bunch of food now to grow new critters. The microprocessor control board helps prevent this from happening."

Also, the control board monitors the battery to make sure the system won't overheat. This enables it to shut itself off, he said.

Just five months into the project, the company has sold two filtration systems that are scheduled to be donated to Haiti next week on behalf of the teaching staff of St. Charles Borromeo Catholic School and Port Charlotte High School's Model United Nations Academic Team.

Through his son's involvement in the PCHS Model UN, Dr. Joseph Spadafora was able to learn more about the hazardous living conditions experienced by people still living in Haiti.

"I think we all knew the Haitians had some problems, but I think people are forgetting about the problems in that country because the world's economic problems have escalated," he said.

However, he said the Haitians continue to struggle day after day with contaminated water sources.

As an ophthalmologist with Community Eye Center, Spadafora knows this can lead to problems.

"People are bathing in this water, getting it in their eyes, causing eye infections," he said. This is in addition to the spread of illness like diarrhea, he said.

Of course with the approach of hurricane season, Fourwinds' product might also become a wanted commodity here in Florida.

"I was here for (Hurricane) Charley," Marcuzzo said. "Where we live in Punta Gorda Isles, we didn't have water for I think 20 days. This is definitely something that would come in handy for emergencies."

While the unit does not work with salt or brackish water, it can be set up by fresh water sources or pools.

The four-gallon per minute unit is retailing for \$3,895, the one-gallon unit is being sold for \$2,395 and the backpack version costs \$699. All are meant to work for approximately 10 years.

For more information, contact Fourwinds at 941-575-4404.

E-mail: pstaik@sun-herald.com

By PAMELA STAIK