



# Finding a Way

By Raissa Rocha

Nonprofit organizations work to provide clean water in Africa

In many developing areas in Africa, accessing clean drinking water is a serious challenge for thousands of communities. The only sources of water available to their residents often are overrun with bacteria, waste and harmful contaminants. Many times, a family's only way to obtain potable water is to walk long distances to the nearest well or other groundwater source. Such a task has several adverse effects, particularly on women and children, who may spend much of their time retrieving low-quality water for their families instead of attending school.

One of the biggest challenges is not necessarily the lack of groundwater sources or boreholes, but the lack of regular maintenance to ensure water wells are properly utilized to full capacity. To help solve these problems, several groups are working to improve the situation by providing technological solutions and training for local residents.

## Water Filters

Nonprofit organization Wishing Well International Foundation

(WWIF) began its efforts in Africa with the help of partners who had contacts in the region, said WWIF founder and CEO Guillermo Guzman. With the support of H2O Intl. South Africa's managing director, Tony Marchesini, who is now also WWIF's senior vice president of operations for Africa, the organization is focused on distributing filters to areas in South Africa where drinking water is contaminated.

"The focus is currently rural; however, the foundation has not turned away from the need in urban areas where the water may still be contaminated, especially in poverty-stricken townships around the cities," Guzman said.

Residents who lack access to clean drinking water in South Africa face numerous health-related issues. Bacteria often transmit waterborne diseases to those who drink the tainted water, especially children. "Biological bacterial contamination varies, and it could cause [anything from] minor problems to more serious illnesses like cholera, which could easily kill

an adult if untreated," Guzman said. Waterborne illnesses are not necessarily specific to any region, but often are found in areas where there is a lack of running water. Still water and water at high temperatures is more susceptible, Guzman added.

The filters that WWIF distributes to villages in need are Hydraid BioSand water filters manufactured by Cascade Eng. Composed of enclosed layers of sand, gravel and a biological surface layer that consumes pathogens, the filters use no moving parts and can last for eight or more years with reasonable care. The filters are easy to install and operate, and according to the manufacturer, one filter can serve the water needs of eight to 10 people daily.

## Hand-Drilled Wells

Another organization, the Water4 Foundation, focuses on teaching hand-drilling techniques to residents in various African countries to help fulfill clean water needs and avoid coming into contact with dangerous pathogens.





Top Left: Tony Marchesini of WWIF visits with children in Klipheuwel Township in Cape Town.

Bottom Left: A local Water4 team drills a well in Uganda.

Above: Before a well was drilled in their village, these Sierra Leone women gathered water from a surface water source.

Opposite: Villagers from the same Sierra Leone community now collect water pumped from a well drilled by a Water4 team.

“Most of [the water problems] come from drinking contaminated surface water where there [are] no ground-water or boreholes,” said Richard Greenly, co-founder of Water4 Foundation. “[The local residents] drink out of springs or creeks or lakes. Their enemies are these pathogenic microorganisms ... [which] lead to diarrhea, and that is the killer.”

In one recent example, a local team in Zambia, previously trained by Water4 engineers, hand-drilled wells in a region of rural villages near Lake Bangweulu in the northern part of the country. According to Greenly, residents of one village that drank water from the lake had been reporting serious health problems, with many children dying from diarrhea-related causes. Since the installation of six wells by the local drilling team, the community has reported that “the instances of diarrhea have completely gone away,” Greenly said. As an added bonus, the residents also no longer spend the nearly four hours required to retrieve water from Lake Bangweulu for drinking.

Water4’s hand-drilling technology, which Greenly said the organization developed, is low-cost and requires no expensive machinery. Metal tools allow local residents to dig boreholes and install simple pipe systems and hand pumps that bring groundwater to the surface. The technology also is designed to use tools that can be manufactured and found locally in various African countries, creating a more sustainable and economically beneficial environment.

Water4 partnered with another organization, Rwandans4Water (R4W), to help bring wells and pumps into areas in need of clean drinking water in Rwanda, where the water problem is most severe in the eastern part of the country, said R4W President Aloys Zunguzungu.

Zunguzungu and his friends started R4W in 2010 to help provide access to clean drinking water back home. Most of the organization’s members are part of the Rwanda Presidential Scholars program, which sends top students from Rwanda to study engineering and science at U.S. universities. The

scholars then return to Rwanda to apply their education and help improve the country’s infrastructure.

“We wanted to go back home and build at least one water well, but we realized in the end that we can actually do more,” Zunguzungu said. “We have experienced firsthand the water problem, and we were all excited to be a solution to a problem we have all dealt with.”

In Rwanda, people walk long distances to reach polluted water sources, Zunguzungu said. In the past, other organizations had tried to install a few water wells, but lack of maintenance rendered them essentially useless. With the help of Water4’s hand-drilling technology, R4W seeks to reverse the problem by focusing on training fellow Rwandans to drill and maintain water wells themselves.

This method of training local residents in Africa to drill and maintain wells for themselves can save thousands of dollars toward the cost of a water well, Greenly said. “To hire a company to come drill a borehole like we have been doing is usually about

\$10,000,” he said. “Our teams have been charging an average of about \$1,000. So when an NGO raises money to fix a water problem in a village, it is \$10,000 to drill one well. What we do is, our teams will come in and they will drill eight or 10 wells for that same amount of money.”

By drilling multiple wells in a village and training residents to properly maintain them, communities can have multiple sources of water and not have to resort to drinking contaminated surface water if one well malfunctions. The overall goals of these organizations are to improve access to drinking water and to train local residents to ensure the access remains problem-free long after the wells are drilled. *wqp*

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