

# Clean Water-- Essential to Life



*A local woman dances to celebrate the dedication of a well in a West African village.*

*The World Chlorine Council has long supported partnerships that help increase access to safe drinking water by providing essential products of chemistry. Jeffery Sloan, Director of Sustainability Programs at the Chlorine Chemistry Council, recently visited several West African communities that are benefiting from this work. Here, Jeffery reflects on the tremendous hope offered by these partnerships, as well as the many challenges ahead.*

The products of chemistry are essential to safe drinking water, from chlorine disinfectants that kill germs, to membrane filters that remove impurities, to PVC pipes that help protect treated water all the way to consumers' taps. Around the globe, 1.1 billion people – one sixth of the world's population – must rely on unsafe water from lakes, rivers or unprotected wells. The World Health Organization estimates that every year, infectious diarrhea spread by contaminated water kills nearly 2 million people, mostly children under five years old. In addition, the laborious task of obtaining water typically falls to women and young girls, denying them economic and educational opportunities.

For the last five years, the World Chlorine Council has been a partner in the West Africa Water Initiative (WAWI), an alliance of organizations working to improve water access in Ghana, Mali and Niger, which include some of the most arid and impoverished communities in the world. WAWI partners include USAID, UNICEF, the Conrad Hilton Foundation and a variety of other groups working in the region. As part of this partnership, WCC has provided premium PVC pipes and other materials used to construct bore wells that will provide high-quality water to an estimated 500,000 people.

I recently had the amazing opportunity to visit some of the communities that are benefiting from our partnership. I traveled to Ghana and Niger with staff members from World Vision, a WAWI partner and one of the largest humanitarian development groups in the world. Over the course of 10 days I witnessed tremendous promise in communities where new wells bring improved health and quality of life. I also witnessed the devastating impacts where water is not available and gained a stronger understanding of the scope and complexity of global water challenges.



*Jeff Sloan visits with the District Mayor of the Kuduli Village in Ghana.*

The trip began dramatically in Ghana. There, I participated in a ceremony to dedicate a newly constructed bore well in the small village of Kuduli. The 100 km trip from the city of Tamale took about three hours, during which we traveled largely over dusty, unpaved roads. Our first stop was the office of the Honorable Baba Wahab, the local District Chief Executive. We then went on to the hut of the village chief, or headman,



*As part of the partnership, WCC donated PVC pipe, which is made from chlorine chemistry and keeps the water clean as it is carried to the wells in the villages.*

who welcomed us and gave his blessing to continue. This was a necessary part of the delicate and complex relationship between the federal government and the local tribal leadership.

Outside the hut, local workers completed installation of the well's hand pump, while drummers played and women danced. After many speeches and songs, the well's first water was drawn by the leading woman on a newly-formed water council that will help ensure the sustainable use and maintenance of the pump.

The last stop of the day was the community's original water source – a pond about one km from

the village. While the shallow bottom was not visible through the turbid water, insects and other swimming organisms clearly were. In addition, several small crocodiles sunned themselves on the bank where so many young girls had previously trekked to gather water for their families.

After three days in Ghana we traveled north to Niger, passing through the country of Burkina Faso. The 2,000 km drive was fascinating, tedious, unsettling and challenging – from the desolate landscape that grew more arid as each mile passed to the many small communities teeming with life and the struggles of the region.

In the village of Nongon Gochi, we saw a World Vision drill rig steadily boring through the rocky earth. The drilling takes one to two days, typically reaching a depth of about 120 meters. After the drilling is complete, PVC pipe will be installed as well as casing. PVC is the preferred material because it is lightweight, durable and helps to protect water quality. The World Chlorine Council provided these pipes as part of the WAWI partnership. During well construction the first three or four sections of pipe, which go into the aquifer, have slots cut in to allow water to flow into the pipe. The slots are 0.5 mm thick, allowing water to flow in, but keeping out the fine gravel packed around the casing.

In the village of Dan Goulbi we watched the World Vision crew pressure test a newly drilled well to measure its potential production. This produced a torrent of water gushing perhaps 10 meters in the air, signaling a successful project, and celebrated by the village children as they played in the water.

In sobering contrast to this scene, we also visited Garin Makaka, a village that is scheduled to have a bore well constructed in 2009. The residents currently subsist by using hand-dug traditional wells that are 60-80 meters deep. We spoke with villagers about the daily challenge of meeting a family's water needs. Drawing the water requires lowering a container down the shaft and drawing it back up, hand-over-hand, by rope. The village women demonstrated the physical toll of this work, each emphatically trumping the last by displaying increasingly calloused, worn and cracked palms.



*A World Vision drill rig bores a well in the village of Nongon Gochi.*

The water must be carried back to the village, typically in a clay pot holding about 10 liters. The water alone can weigh more than 40 pounds. I picked up a full container to feel its heft and tried to imagine carrying it a kilometer or more through the desert heat. The women and girls carry these on their heads, perhaps making four or five trips each day. For this labor the families get poor quality water leading to high rates of diarrheal illnesses in the village.

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Ensuring access to sufficient quantities of high-quality water is only one step in cutting the disease burden. World Vision and the other WAWI partners are working to implement comprehensive programs that include building sanitary latrines and promoting good hygiene practices to maximize the health improvements.

As part the next phase of WAWI the American Chemistry Council, a WCC member, will support efforts by USAID and other partners to further enhance the quality of household water. These programs include promoting the use of chlorine tablets and specially designed containers to disinfect and safely store water in individual homes.

The World Health Organization has concluded that readily available household programs such as these are among the most cost-effective ways to reduce waterborne illnesses.

I am proud of WCC's ongoing support for the WAWI partnership. In recent weeks, member companies have generously committed additional funds to implement the household treatment programs, bringing the total industry contribution to WAWI to over \$500,000.

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