

Clean Water / SODIS

By Virginia Price

“Next week we’ll be busy with diarrhea cases” Moses Yambie predicts as he guides the clinic motorbike up the last rough hill into town. He gestures at the looming thunderstorm above us.

The next morning, I make the rounds of the surface streams that local residents resort to for drinking water during the dry season, when the village’s shallow hand-dug wells invariably run dry. Sure enough, both streams are cloudy with runoff. I take mid-column water samples and test for bacteria and mineral content. A crowd of school-age children watch in fascination, and a few of the bolder kids get an impromptu hands-on lesson in testing water. Rural Kono has an extremely high rate of waterborne Typhoid Fever. Surrounded by agricultural land and informal fieldside toileting areas, the stream water is, unsurprisingly, heavily laden with *Salmonella* bacteria species.



The village Chief, Aiah Ngolo, calls a community meeting together the next evening. The town crier’s calls and the tolling of a large gong (the latter situated uncomfortably close to our heads as we sit in an elevated place of honor) serve to fill the town Barre (gathering hall) to capacity. Most of the audience is freshly arrived from a long day of preparing for planting by hand-clearing and tilling fields; there are many tired faces in the audience.

When discussing health and development with local acquaintances, no topic comes up more frequently than clean water. Nostalgia runs rampant for the village’s historical water system: clean, abundant, and spring fed, it was destroyed in the civil war. Here in Gbamandu, there’s no smartphone access to ask Google how to make dirty stream water safe. Even if there was, most adults are illiterate.

So, when we start to talk about clean water, we have the audience’s undivided attention. Unfortunately, our most effective solution, boiling, isn’t easy. Unlike a boil-water order in the States, achievable in moments on the stove or microwave, boiling water in Sierra Leone involves a fairly sizeable opportunity cost. Residents’ daylight hours and energy are already fully invested in farming, processing food, taking care of children and livestock, etc. Almost everyone in the village works hard all day, yet still flirts annually with malnutrition during the lean pre-harvest month of August. The pittance that cash crops like coffee bring in is never quite enough for school fees and clothes. For most families, eating meat or fish is a once-a-week

special event. Gathering extra fuel and taking time to boil water means losing food-growing time and energy.

A convenient alternative, almost as effective as boiling, is SODIS (Solar Water Disinfection). By the light of a solar flashlight, I show the townspeople how to select a clean, clear plastic PET bottle, fill it with water filtered through a t-shirt, shake it to add dissolved oxygen, and place it in full sunlight on a roof for 6 hours. The resulting mix of heat (100-110 degrees), UV light, and oxygen kills off almost all bacteria, viruses, and protozoa. Later, we also handed out PET bottles at the local school and taught the students to perform SODIS.



Was our lesson effective? Moses Yambie's prediction came true; that week we treated dozens of patients for diarrhea- from infants to great-grandmothers. But we also noticed our translator's young daughter, Ann-Marie, toting around a SODIS bottle every day. Gradually, more SODIS bottles appeared on rooftops, and more patients told us they'd been boiling or SODIS-treating all of their drinking water. Slowly, other complaints replaced diarrhea as the most common illnesses seen at the clinic.

This year, IMA has made a great start on clean water promotion in the Gbamandu area. We now have a firm base from which to expand future public education efforts in the greater Kono District.