

MANNA ENERGY

Case Study



**CLEAN
WATER
FOR ALL**

LOCATION:

Rwanda, Africa

SOURCE TYPE:

Surface Water

PARAMETER:

UVT

APPLICATION:

UV Disinfection

PRODUCT:

Real UV254 Field Meter



**NEARLY ONE BILLION PEOPLE
AROUND THE WORLD LACK
ACCESS TO SAFE WATER
AND APPROXIMATELY 3.5 MILLION DEATHS EACH
YEAR ARE LINKED TO WATER RELATED DISEASES.**^{1,2}

The scarcity of clean water is most apparent in developing countries where limited resources are available for water treatment. In Rwanda, Africa the traditional method of purifying water is to boil it, using firewood. However this method is time consuming and impractical for those who do not have access or cannot afford firewood. Limited access to clean drinking water has led to illness, disease, and a poor quality of life for the local residents utilizing the source water. Providing small communities with clean water has been a challenge.

¹ UNICEF/WHO. 2008. Process on Drinking Water and Sanitation: Special Focus on Sanitation

² World Health Organization. 2008. Safer Water, Better Health: Costs, benefits, and sustainability of interventions to protect and promote health.

The Solution

With the on-going concern over water quality in developing countries, Manna Energy has stepped forward to implement community scale water treatment systems into rural areas of Rwanda, Africa. Since 2003 the Manna team has been working hard to install sustainable water treatment systems for supply to schools, hospitals, and other public places. The source water is filtered to remove sediment and other particles before being treated by the solar powered ultra-violet (UV) disinfection systems. As part of the treatment system Manna selected Real Tech Inc.'s Real UV254 P200 Field meter to measure the ultra-violet transmittance (UVT) of the water for proper operation of the UV reactors. Having a reliable field instrument to measure UVT allows the volunteers to make adjustments onsite when necessary. A UVT value below 90% would indicate a decrease in flow rate is required, triggered automatically by the water treatment system, to ensure the water is being properly treated by the UV light. Ensuring proper disinfection gives the team confidence that they are producing the cleanest water possible for the local residents. With plans to reach other communities in Rwanda, the Manna team is also using the field meter for site assessments to ensure they are properly sizing future UV disinfection systems. Measuring the UVT at various sites in Rwanda gives the engineers data to design a water system that will ensure disinfection.

The Results

Manna has provided an immediate solution for the lack of clean water in Rwanda. They have also taken further steps to ensure the long term sustainability and operation of the systems through Carbon Emission Reduction (CER) credits gained from reducing the amount of wood burning emissions. By properly sizing and operating the UV reactors with the P200 field meter, Manna Energy is able to ensure they are producing the cleanest water possible for the safety of the local community members. Manna has installed a number of these treatment systems in rural Rwanda, providing thousands of local residence with clean, safe drinking water.

Manna staff on the ground continue to use the P200 meter to assess conditions for future installations with plans to install the Real UV254 M3000 Online monitor in the coming months. The unit is earmarked for a water treatment system being installed in Mugonero, Rwanda. It will be part of a unit treating surface water for 3,000 people.



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