

## SEPI Project Profile: Ghana



August 2008

### Project Overview:

Many new wells have been bored by World Vision in rural areas of Ghana. Most of these wells have been equipped with hand pumps. Some of these wells need mechanized pumps to bring the water up from the ground and move it closer to the village. Or in some cases a mechanized pump is needed to serve a bigger population than the volume a hand pump can provide. It is these situations we were asked by Rotary and World Vision to examine and come up with the best way to pump the water using solar power.



Many of the people in rural Ghana are subsistence farmers who rely on intermittent sources of water for their domestic needs. There are some situations where the hand pumping is not feasible and a mechanized pumping system would better provide for the domestic water needs of the community. The

cases where wells are located a great distance from the community or in a swampy area that cannot be accessed on foot or where hand pumps cannot provide the volume of water needed.

It is to these sites that our team from the U.S. was taken by members of World Vision Ghana. SunEPI's Brad Burkhartzmeyer travelled to Ghana with Rotarian Dhaval Dhru and World Vision hydrologist John Stiefel to conduct a feasibility study for mechanizing wells with solar powered pumps in order to provide water for the communities in the Northern Regions of Ghana in August 2008. This study was commissioned in order to launch a joint World Vision (WV)/Rotary project aimed at extending access to clean water in electricity scarce regions of northern Ghana.

### Project Information:

**Location:** Ghana (Sindigu, Ying, and Kpalba)

#### Project Partners:

[Rotary Club of Federal Way](#)  
[World Vision](#)  
[Northwest Solar Group](#)  
[SunEnergy Power International](#)

**Scope of Project:** Funds are currently being raised to provide three communities with complete solar powered water pumping systems, as well as week-long training for community representatives.



## Project Execution:

Our team visited 10 different sites where World Vision has already drilled new wells. We selected three of the sites as having the most need for solar pumped water that can provide for the greatest number of people. The sites are Sindigu, Ying, and Kpalba. In Sindigu and Kpalba, the existing source of water is very far from the village and in Ying the new wells are located in a swampy area that is difficult to access on foot. A copy is available of the complete study with full descriptions, data sets, and the calculations and costs of each site on the SEPI website: <http://www.sunepi.org/SunEPI/Ghana.html>

The solar pumping project will provide 40 liters of water per day to each person in these communities from a tap stand located no more than 300 meters from their homes. Currently the folks in these communities are walking more that 1 kilometer to retrieve water on a daily basis. All of the wells have been tested to ensure that the water is safe to drink for the community. Pump tests have been performed on the wells to ensure that the well can recover its water level even while pumping it out with the solar power.

## The Next Step:

A comprehensive budget of \$160,000.00 has been prepared to provide each of the three communities with the pump, the solar power plant, the storage tanks, the concrete tap stand faucets and necessary plumbing pipes and valves, as well as a fence to protect the equipment. The Rotary Club of Federal Way, World Vision, the Northwest Solar Group, and Sun Energy Power International are all working together to raise the needed funds for the project.

We aim to provide the power plant, pump, water delivery system, and the necessary training to maintain the system for \$62.00 per person served.

As part of the overall project, we will provide a week-long training for representatives from each community and the staff at World Vision's Ghana Rural Water Project. This training will be followed by the newly trained technicians installing the solar pumping systems at each of the three villages. Each community will own this solar power plant and pumping system when the project is complete. We will be expanding on SunEPI's popular "Solar Pumping Systems – Introductory and Feasibility Guide" to include more classroom and hands-on technical solar training.

For more information, please contact Brad Burkhartzmeyer through the SunEnergy Power International website: [www.sunepi.org](http://www.sunepi.org)

