Chicorral, Guatemala

School and Community Solar-Powered Water Pump

Chapter:
Johns Hopkins University

Background:
Chicorral is a rural community with fewer than 200 people, located in the highlands of Guatemala. People live in extreme poverty and survive largely off subsistence agriculture. While the new primary school in town where many of the children study is a sign of promise for the rising generation, the community's men take day labor positions and women spend their days with household tasks – especially getting water. There is currently only one main source of potable water in the community: a spring at the bottom of a steep, 100 meter deep ravine. Children spend their recesses climbing down the ravine to fill their empty soda bottles and the women spend more than ½ hour each trip to retrieve household water. Even so, Individuals are not believed to get the widely recommended 50 liters per person per day.

Project Cost:
$40,000

Photo Credit: Laura Seraydarian

The Need:

The community members of Chicorral have traditionally relied upon hand-carried water from the spring as their supply of potable water. Recent developmental work in the area and in the community has highlighted the need for better and more reliable access to water.

The JHU EWB-USA Response:

The team is currently designing a system involving solar panels that generate enough energy to overcome the approximately a hundred meters of height from the bottom of the ravine to the outside of the school house. Ultimately, the water will be pumped to a higher point to provide water to individual homes. The calculated storage at the top is approximately 4,000 gallons in order to provide each person 50 liters a day. There is communication with the community to ensure that there is some governing structure over the water pump: The community water pump committee is working closely with the school committee to ensure that the pump is properly cared for. The team is also in contact with the local government, which is discussing joint funding.

Photo Credit: Jane Yee

Current Plan:

JHU EWB-USA recently sent a small group of professional partners and students to the community for an assessment trip in July and August of 2009. During these trips, the community-established water committee was legally recognized and permission was obtained for the piping path. Measurements and surveys were also taken for the design. Now, the team is in its final design stages and TAC submission process for the primary implementation trip in June 2011. The team is also planning for an assessment trip in March 2011 to gather necessary data for implementation.

Project Goals:

- To establish an energy efficient, reliable, and environmentally-friendly system to deliver water to the schoolhouse and the community
- To provide chlorinated water and to decrease the incidence of water-borne illnesses
- To improve the quality of life by reducing the dangers of climbing down the ravine and to save time for women and children
- To implement a socially and technically sustainable project

Photo Credit: Jane Yee

EWB-USA

Engineers Without Borders-USA is a non-profit organization established in 2000 to partner with developing communities worldwide in order to improve their quality of life. The Johns Hopkins University chapter (JHU EWB-USA), established in Spring 2005, seeks to fulfill these goals through the participation and

Additional Information

EWB-USA: http://www.ewb-usa.org
JHU EWB-USA: http://ewb.jhu.edu

Tax-deductible donations can be made via checks made out to "Johns Hopkins University" with "EWB-JHU Guatemala Project" in the memo line.

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