Abra Malaga, Peru

http://www.five-gallon-bucket-hydroelectric.org/

THOMAS J. DECKER
Mobile: 607-765-4251
Email: TJDECK02@SYR.EDU
Abra Malaga, Peru

http://www.five-gallon.bucket hydroelectric.org/

Installation

Overview
Significant progress has been achieved in the ESF Peru project to bring electricity to a rural Andean mountain village. The story begins in August of 2012 when ERE student Tom Decker and the ESF Engineering for a Sustainable Society and Engineers Without Borders clubs (ESS/EWB) began a sustainable electrification project in the Andean community of Abra Malaga, Peru. Abra Malaga had no Peruvian support to implement electricity of their village homes, and the community had no in-door lighting or basic electrical services. Thanks to an ESF alum we learned of Abra Malaga’s interest in partnering with ESS/EWB and our club engaged the project. The process for ESS/EWB was to first establish a partnership with ECOAN (Ecosistemas Asociacion Andinos), an on the ground NGO, to facilitate an agreed upon project with Abra Malaga. The plan – provide and install solar panels and pico-hydro generators as a sustainable and long lasting energy source for electrification. Our target was to bring electricity to all 20 homes in Abra Malaga and to create education opportunities for the community so that after the project’s completion, the community would be self-sufficient. Tom arrived in Peru on December 15 with the Phase II goals of continuing installation of solar panels, assessing the pico-hydro performance, and to establishing long and short term education opportunities so the community can take over project maintenance and expansion.

Electrification: Solar Panels
Over the course of the December 2013 trip TJ worked with ECOAN to purchase four solar panels. These panels were brought to Abra Malaga and a half day workshop was conducted by ECOAN and ESS/EWB to teach community members the workings and instructions of solar panel installation. After the workshop, the team stepped back and allowed the community to install the panels themselves, giving them equal technical ownership of the project. This approach was a HUGE success because the workshop was a positive step in the direction technical education and community self-sufficiency with solar panel maintenance and installation.

Electrification: Pico-Hydro
There was also progress with the pico hydro generators with the donation of two charge controllers from Morningstar and the construction of a cement settling tank for clarifying the the 24/7 electricity from water rather than only 12 hours a day of electricity from solar panels. The generators are a work-in-progress and should be up and running by February 2014. The generators will give the community the capacity to expand on their electricity use and capture another source of renewable energy from the local Andes environment.

Results:
With the combination of solar panels and pico-hydro electricity, ESF students have been able to reduce the number of homes without electricity from 20 to 3. This was tremendous progress for a relatively short period of time, limited trips, and a modest budget. With additional fundraising and additional equipment, the entire community will have full access to basic electrical services. Within a year, the community will also have two local men and women fully trained in electricity installation and maintenance.

Funding Update:
Since Phase I, additional fundraising presentations were successful in collecting the needed donations to enable Phase II of the project and a return trip to Peru. To put this in context, the electricity project in Abra Malaga is a humanitarian engineering project and as such it needs face-to-face connections to increase the chances for successful project planning and ground implementation. Face-to-face time is hard to maintain between NY and Peru, and in order to keep the project rolling without long stagnant periods, Phase II was scheduled for December 2013, only 4 months after Phase I. In addition to presentations, the club fundraised through their annual Burritos Without Borders event and raised nearly $1,000 through a Rotary sponsored Superbowl raffle. Thank you to everyone who has contributed.

THOMAS J. DECKER
Mobile: 607-765-4251
Email: TJDECK02@SYR.EDU

SUNY-ESF Engineering For A Sustainable Society & Engineers Without Borders