

El Naranjito, Las Mercedes, El Salvador: Water Quality and Supply Project

Engineers Without Borders, Oregon State University (EWB-OSU)

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Oregon State University

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<http://www.ewb-osu.org>

Start and End Dates: June 2008 through June 2009

Amount Requested: \$12,000

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Executive Summary

The purpose of this proposal is to request funding for implementation of a sustainable water source development and water quality improvement project in the rural villages of Las Mercedes and El Naranjito, El Salvador. The Oregon State University's chapter of Engineers Without Borders (EWB-OSU) has been officially partnered with these communities since January of 2006.

The communities of Las Mercedes and El Naranjito are located in the northwestern part of El Salvador in the state of Ahuachapán (Figure 1). The communities are home to approximately 150 coffee-farming families whose homes are scattered across several mountain ridges. The communities have identified water quality and accessibility as problems, and have requested EWB-OSU's help to solve them.

Accessibility: There is sufficient water in natural springs, but community members have to hike great distances multiple times a day in order to obtain adequate water for their household needs. In addition the water table lowers throughout the dry season; this makes accessibility even more of a challenge for community members when springs close to their homes dry up. When the water recedes, it has to be retrieved from sources farther away. There is enough rainfall during the rainy season to sustain the community throughout the year, but they have no means of capturing that water for long-term storage.

Quality: The water quality of available water is poor because water is obtained from surface streams and open impoundments below springs. Water-borne diseases are common in surface water, and diarrhea is a common ailment. Children of the area frequently suffer from malnutrition brought on by diarrhea.

EWB-OSU has collected extensive baseline data about community geography, demographics, and health and has developed a plan that will provide clean, accessible water to all community members. Sustainability has been a key consideration in the project design; therefore our design calls for methods that deliver water passively, with no energy requirements. Additionally, our project will reduce the loads of phosphates and bleach that currently enter natural streams and degrade aquatic habitat. Finally, we strive to purchase almost all materials used in the project locally.

Our plan to improve water quality was first implemented in March of 2007. EWB-OSU facilitated the distribution of approximately 50 point-of-use filtration units made locally by a NGO called Potters for Peace. Subsequent distributions of the filters have been arranged by the Peace Corps volunteer stationed in the communities and our goal is to supply one filter to each family.

To decrease the time and effort spent collecting water, we plan to deliver water to all community households through a combination of sustainable engineering solutions. Homes that are located down-gradient from springs will be served by gravity-fed water delivery systems while homes located higher on the ridge tops will receive rainwater catchment systems and storage tanks. Wash stations will be constructed close to water storage tanks so that people can do laundry outside of streams which will improve downstream water quality.