Drinking Water and Sanitation Assessment
Iquitos and surrounding villages in the Loreto Region of Peru

Background
Iquitos is the largest city (around 500,000 people) and capital of the Loreto Department. Surrounded by the Amazon, Nanay, and Itaya rivers, the city can only be reached by air or boat. The Loreto region, being Peru’s largest land area, presents an especially challenging situation for water and sanitation projects due to the hot and humid climate, disperse population, high cost of boat or air transport within the region, and the difficulty in reaching this part of Peru. This situation has led to frequent neglect from the development sector. The main health concerns include malaria, dengue, diarrhea/vomiting, and acute respiratory illnesses.

Rural Jungle Water Assessment
A number of rural communities near Iquitos obtain water from a well or water treatment system installed by FONCODES (a Peruvian government organization responsible for social development) or other local or international organization. Currently however, most are no longer functioning and the majority of community members rely on untreated river water for their drinking water needs.

CONAPAC is an Iquitos-based NGO that is interested in improving the water situation in these communities. They are owned and managed by an eco-tourism company called Explorama and have focused on improving education in remote communities through school construction and donated supplies. In 2007 they decided to branch out to the water sector based on donor requests and as of July 2009, they have installed mini water treatment plants in five communities on the Amazon and Napo rivers.

Marcos Overslujis, the CONAPAC representative responsible for installing these water treatment plants, has specifically requested assistance with surveying community members regarding their water use, challenges, and acceptance of water treatment options. Marcos is responsible for a number of projects at CONAPAC but has a limited background in water. Although based off of a conventional treatment design from the University in Iquitos, Marcos has requested help with plant design optimization and assessment of other treatment options.

Peri-Urban Sanitation Assessment
In communities throughout the Loreto region, most latrines were constructed by FONCODES throughout the late 1990s through approximately 2005. Roughly 90% of these latrines (mostly pit latrines) no longer function due to a lack of maintenance, evaluation and education.

CARITAS is an international relief agency funded by the Catholic Church. Engineers at CARITAS – Iquitos are currently working on a sanitation/latrine project being implemented in the peri-urban communities of Belen and Peña Negra that began in 2007. Challenges in the project include high cost and lack of financial buy-in by the public sector (municipalities) and users. This project is especially challenging in Belen due to the high water levels for six months of the year.

CARITAS-Iquitos is interested in having student participation in their WSP (Water and Sanitation Program) supported “Creating a Sanitation Market” project which seeks to implement sanitation solutions using business models and creating community demand.

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Background

The Prelature of Ayaviri is located in the south of Peru. It is formed by three provinces: Carabaya, Macusani, and Melgar, whose capital is the city of Ayaviri. There is great geographic diversity with altitudes ranging from 1,970 ft to 19,200 ft. In the mountains above 13,200 ft it is freezing and almost uninhabited. Beginning at around 12,800 ft it is cold yet there are some towns including Ayaviri. In low valleys the climate is suitable for cereal and vegetable agriculture and there are also humid forested regions in the prelature. The major challenges include extreme poverty, cold, agriculture, water, energy, domestic violence, and education.

About CARITAS – Ayaviri

CARITAS-Ayaviri is primarily funded by MINASUR, a fund created by a local mining conglomerate for the purpose of supporting development projects. The MINASUR-funded program began work in April of 2008 and is organized into three main branches: coordination with authorities, work with community beneficiaries, and infrastructure. They are hoping to serve roughly ¼ million people (40% of the Puno district), have funding for 29 water/sanitation projects and currently support a dairy farm.

They have interest in water/sanitation (WATSAN) programs, wind/solar power, irrigation, reforestation projects, and household heating schemes.

Rural Mountain WATSAN Assessment

CARITAS-Ayaviri has implemented 29 WATSAN projects in the area and are hoping to implement 150 more pending funding from the Ministry of Housing. They work with each community to customize the solution, but the implementation usually includes two or more of the following: chlorinated spring-fed gravity water system with tap stands, latrine (dry or pour-flush), and shower.

The major challenges to these projects are piping water to dispersed homes, lack of pressure in the system due to overuse, community management strategies and freezing pipes at the tap stands. Community contribution is typically unskilled labor.

Passive Heating Solutions

CARITAS-Ayaviri is currently working on passive heating solutions to alleviate the extremely cold conditions in homes at night. Their current design is a Trombe wall (a dark colored wall covered with a sheet of glass) with holes drilled in the top and bottom for hot air to flow from rocks placed at the bottom of the glass sheet and heated by the sun during the day and into the home at night. The main challenge for this project is community acceptance due to the holes placed in an exterior wall.

Renewable Energy

Energy is a concern in the area due to the dispersed population. They are interested in implementing solar or wind energy in the area to provide energy for homes. This project is not currently in progress and CARITAS-Ayaviri is open to suggestions.

Irrigation

Irrigation was also raised as a concern in the area that CARITAS-Ayaviri was interested in collaboration for system design.

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