

## **Saltadere Clean Water Project**

Saltadere is an ideal laboratory for water supply engineering in remote arid areas. We believe the project we have chosen will have a measureable, positive impact on the lives of many thousands of Haitians, and will be a replicable example for Haiti and elsewhere.

### **Our Proposed Possible Solutions**

The goal is to provide 200,000 gallons of fresh water per week to the population, based on the common requirement of 1 gallon/person/day. We believe the combination of well and pipeline extensions would be the most effective course of action. The plan is the spacing of each source or secondary distribution point to be such that the average time to walk to and from it is forty minutes or less (about one mile). Each method would also include some system of purification preferably an in-home system.

#### Extending the Pipeline

This option is to extend the existing pipeline to all of Saltadere and some of its outlying areas, which seems to be an effective possibility in terms of expense and yield based on pilot work this year in Haiti, a cistern and the permits for it cost about \$1,000. Extending the pipeline costs approximately \$10,000 per mile. In this way, extension of the pipeline over a few miles would compete in price with well drilling.

#### Well Drilling

Each well would cost somewhere between \$25,000 - \$50,000 depending on the depth, plus equipment needed to drill the well. We are planning on drilling deep wells between 100 and 250 feet as opposed to shallow wells that reach maximum depths of 30 feet and only barely reach the water table, causing many to go dry in short amounts of time. However, work in the western regions of the Dominican Republic, only 10 miles from Saltadere, has yielded less-than-optimal results. Of approximately 60 200-foot-deep wells drilled in that area, only four wells yielded water. Similar results were obtained in the Thomassique area about 10 miles to the west of Saltadere. That is less than a 10% success rate in an area very close to Saltadere.

Each well would have a flow of two gallons per minute, consistent with a well pump powered by alternative energies such as solar or wind power. With this in mind, each of the 2,000 inhabitants of Saltadere would receive their gallon per day drinking requirement by employing ten extensions over several miles, nine wells, and the associated alternate energy sources and piping for \$500,000 - \$700,000.

### **The Pilot Project**

Currently, the strategy is to complete a series of pilot projects on each possibility to test assumptions and find out how each idea works in reality.

Specifically, there is much research to be done in country. We must gather data on geography, terrain, and population to solidify our strategy: where the water distribution sites would be located, who owns the land and whether we would be able to obtain permission to work on the land, and the geographic features that may prohibit or encourage well-drilling, to name a few.

At its most basic level, we foresee a pilot project of six tasks, each of which will be two months

for a total duration of one year.

Task 1 will focus on initiating the project, with two supervisors and three students organizing the effort, collecting data, and conducting phone conferences with colleagues in Haiti.

Task 2 will consist of two supervisors and three students traveling to Haiti for fourteen days to perform in-country data collection, research, and analysis.

Task 3 will be a data evaluation stage where a team of students, supervisors, and expert consultants will refine the project.

Task 4 is a second trip to Haiti for sixteen days to focus on local water conditions and potential for new water systems.

Task 5 is the final evaluation of data with students, supervisors, and experts.

Task 6 is the preparation of the final report and presenting it to the Rotary International.

Our current budget foresees an expense of \$91,040 for planning. With contingencies, we expect the total funding needed for planning will be approximately \$100,000. Of this amount, approximately \$25,000 will be in-kind contributions. We estimate the entire pilot to require \$410,000 and the full implementation to require an additional \$1.15 million. For this we would solicit several major donors. At this time we are requesting a \$75,000 planning grant to allow research, detailed planning, identification of donors, and preparation of a draft project plan and budget.