Potable water for a Honduran village

by David A. Chasis

With over half of its population living below the poverty line, Honduras is economically one of the poorest countries in the western hemisphere. Many small Honduran municipalities and villages do not have even the basic resources to provide safe, potable water systems for their citizens. The people of one such village, Colinas de Suiza, for over 12 years spent a third to half of their income per family to purchase three 55-gallon barrels of water daily, delivered by entrepreneurs. Not only was the system expensive but also the handling contaminated the delivered water.

The Humanitarian Engineering Program of the Colorado School of Mines (CSM) became involved in 2004 when it began designing a water distribution plan for Colinas de Suiza and took on the project of assisting in the construction of a potable water system for the 1,350 families (8,000 people) living there. Colinas de Suiza was established by the Honduran government to house refugees from the devastation of Hurricane Mitch in 1998, and is located in the hills of the Sula valley, within the municipality of Villanueva.

The goal of the CSM project was to replace the existing water delivery system by pumping water from a nearby aquifer (400-foot-deep well) into a 250,000 gallon capacity storage tank. The water would then be distributed by gravity to the villagers' homes. When completed, the project will reduce the cost of water to 1/50th of that associated with the truck delivery, eliminate contamination and reduce energy consumption by 95 percent.

Involved institutions

In addition to CSM's efforts, the following institutions contributed by donating money and in-kind goods: CEPUDO, Food for the Poor, Mondialogo Engineering Award, (collaboration between Daimler, Chrysler and UNIESCO), Plastic Pipe and Fittings Association (PPFA), Universidad Autonoma de Honduras, Valle Sula (UNAH-VS, a private Honduran engineering university, Universidad Tecnologica Centroamericana (a Honduras engineering university), and the William and Flora Hewlett Foundation.

Local laborers installing 4-inch diameter PVC pipe

By far the largest goods providers for the project were members of the PPFA. The project engineers specified PVC as the piping material to use for the potable water system for several reasons: very durable, easy and safe to use, environmentally sound and cost-effective. Plus, PVC has been successfully used to handle drinking water for over seven decades. PPFA member companies provided over 72 tons (45 km) of PVC materials including: 146,000 feet of piping, 6,000 fittings, 1,825 valves, 182 gallons of primer and solvent cement, and the services of an experienced installation supervisor. The market value for the goods and services exceeded $150,000.

The PPFA member companies who participated in the 2007 shipment of goods included George Fischer Sloane, Hayward Industrial Products, IPEX, IPS Corporation, J-M Manufacturing Company, LASCO Fittings, Mueller Industries, NIBCO, PipeLife Jet Stream, Shintech and Silver-Line Plastics.

Project challenges and status

Finally, in early 2008, the Honduras project installation started in earnest, with labor provided by village volunteers. Some on-site material thefts, the sudden illness and death of the on-site municipal director of water and sanitation, three different mayors of the municipality of Villanueva, improper installation of the 6-inch diameter PVC water pump line, and the occasional lack of local finances caused setbacks to the project. Fortunately, all these challenges were met and overcome. One item worthy of mention is that the people of Colinas de Suiza have not only contributed their labor, but also provided funds for the construction of the water storage tank and pumping system. Seventy-five percent of the village families each contributed an average of $100 to the project. This represents about 13 days of wages for the average laborer in Honduras.

The good news is that potable water is now being delivered from the storage tank to over 90 percent of the homes of Colinas de Suiza. Within a few months, all the families will have a running-water tap on their premises. From project conception to piped delivery of water to each home has taken almost seven years. If you ask any of the 8,000 villagers, you will find that the wait was certainly worth all the hard work and challenges. ■

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250,000 gallon water storage tank

Senora doing chores with running water