

Global Water
Progress Report
for Central American Countries
2002

Written by
T.A. Kuepper, REM
Project Manager
Global Water
3600 S. Harbor Blvd. #514
Oxnard, CA 93035
USA
Website: www.globalwater.org
Phone: 805.985.3057
Fax: 805.985.3688

"It is high time to recognize that a safe water supply and adequate sanitation to protect health are among the basic human rights"

Dr. Gro Harlem Brundtland, Director-General of the World Health Organization

Global Water Progress Report for 2002 for Central American Countries

Guatemala

BACKGROUND

The Land, the People and the Economy

One of the poorest and most socially polarized countries in the region, Guatemala has suffered from great social disparities, especially at the expense of the native Indian population living in the rural countryside. As a result, it experienced the longest and bloodiest armed insurgency in Latin America, a conflict that claimed 140,000 lives.

Located south of Mexico, Guatemala is a mostly mountainous country that contains one-third of the region's population. Its population of 12 million is composed in nearly equal parts of Latinos (people of Spanish-Indian origin) and westernized Indians of Mayan descent -- and Indians. Nearly two-thirds of today's Guatemalan population lives in rural areas, primarily concentrated in the central highlands. While more than half of all Guatemalan workers are employed in farming, agriculture contributes only 25 percent to the nation's income. This is because many farmers, particularly Indians, practice subsistence agriculture -- producing corn and beans for their individual household use only.

Guatemala City, the country's capital with more than one million inhabitants, is by far the largest urban center in Central America. It struggles to provide employment to a constant stream of rural immigrants. Despite the growth in light industry, the manufacturing sector has been unable to absorb the immigrants. In addition to their struggle against poverty, Guatemalans must make their living in a land where the southern area is subject to occasional violent earthquakes. In addition, the country's Caribbean coastline is vulnerable to hurricanes and other tropical storms.

Community Needs

Building water and sanitation infrastructure in a country fighting against these kinds of conditions is a demanding task. The majority of the population faces health care and sanitation deficiencies. The country has one of the highest infant mortality rates in Latin America, as well as an extremely high mortality rate for children under the age of five. More than half of these deaths are attributed to preventable infectious and gastrointestinal diseases, diseases which are often caused by drinking unsafe water.

Nearly half of the population lacks access to safe drinking water. In many rural villages, women must often walk miles every day to the nearest water supply, only to carry back water that is unsafe to drink. Only 52 percent of the population has access to sanitation facilities. The rapidly growing population -- 2.7 percent a year -- compounds the country's problems.

Global Water in Guatemala

Global Water has worked in Central America in a variety of ways over the years. Recently, we have supported several communities helping them to obtain safe drinking water, sanitation services, and health and hygiene education. The majority of recent Global Water work focuses on villages in the central highlands, where the residents are primarily Mayan Indians.

A typical project in Guatemala costs between \$1,000 and \$8,000 and is a spring-fed village water system in which faucets are centrally located between several homes or, in some cases, inside individual homes. Other projects include helping families construct latrines, spring protection, gravity water systems, and rain catchment systems. In all projects, the local people contribute their ideas, locally available materials, labor, and money (or barter) to start a maintenance fund.

Global Water works with partner organizations that have established infrastructure in the countries they operate in. These include both government and non-governmental water, sanitation, and health organizations. In particular, Water For People, has been an organization that Global Water has partnered with in Guatemala. Communities where the water projects are located are involved in project planning and decision-making, which nurtures a sense of ownership for completed projects.

PROJECT INFORMATION

2002 funding was used to fund the following project: the Panimachavac gravity-fed water system in Guatemala.

The following is a description of the Panimachavac Gravity-Fed Water System Project in Guatemala.

1. Project Description

The Panimachavac Project is a gravity-flow surface water supply and distribution system. In total length, the system measures four kilometers (2.5 miles), including the main transport line and the distribution system. Household taps were installed in each home included in the system. Also built for the system was a spring capture box, a break pressure tank and a 10 cubic meter (2,600 gallons) storage tank. With the new water supply system in place, each family member in the village receives about 60 liters of water per day (about 16 gallons per day). Therefore, a family of six may receive as much as 360 liters per day.

Please note - This quantity of water (60 liters/c/d) is less than the 100 liters of water per capita per day that was recommended as a planning factor in a report Global Water staff members authored for the United Nations (Reference 1). However, it is certainly an acceptable quantity of water that will allow family members sufficient water to drink, use for hygienic purposes and food preparation/cleanup.

Although no chemical water assessment was done, it can be assumed that a capped spring will be healthier and safer than an open river used, in addition for drinking water, for washing, bathing and urination. A village water board has now been organized and they have planted trees around the spring.

2. Specific location of the project

This water system project is located in the village of Panimachavac, in the Department of Chimaltenango, Guatemala. Panimachavac is a community 13 kilometers from Tecpan, which is the capital of the municipality. Panimachavac's climate is temperate and fresh. Much of the land in this area is still filled with green forests. The population is predominately Mayan and relies on subsistence farming for survival.

3. Project Initiation

Over two years ago, the community approached PAVA (Program De Ayuda Para Los Vecinos Del Altiplano; translation - *Program to Help Highland Neighbors*), the local partner organization, and expressed its interest in planning a water system. Together, PAVA, a non-governmental organization (NGO), and the community raised the funds to purchase the spring that they want to capture. Currently, half of the village has access to clean drinking water from an older spring system. Unfortunately, the other half still had to haul their water from an open stream over a mile away. Women are most affected by this issue because they are the ones who must haul water spending on average, two hours a day satisfying their family's water needs.

4. What is known about the source water?

When the project was completed, it was determined that the flow of water through the transport pipe was 12.6 liters per minute (3.3 gallons per minute or 4,750 gallons per day). This quantity of water should meet the needs of the community for the next 30 years given a three percent growth rate. We do not know the chemical or microorganism content of the water source as there is no mechanism to take a water analysis locally. We hope to take water analysis during a visit in the future. However, it can be assumed that the water quality is significantly better than the villagers were receiving from the water sources they were using before the system was installed since the water source is now in a protected area with less possibility for contamination due to livestock and human activities (compared to the water source originally being accessed).

5. Project timeframe

The project was begun Spring 2002 and was completed Summer 2002.

6. Who benefited from the project?

This project was designed to assist at least 43 families or about 190 people in the community. Before the water system was built, water collection took a good deal of the village women's time. Women were forced to get their water from shallow wells that were often dry or from a stream used extensively by livestock and human activities. Now, women do not spend any time gathering water as they now have the great convenience of a faucet in their homes.

7. How was the work accomplished?

The local partner nongovernmental organization (NGO) in Guatemala is PAVA. PAVA is a local NGO that serves the Nebaj and southern regions of the country in the areas of reforestation, school construction, water, sanitation and engineering. PAVA took the lead on this project, as they have been in the community for over ten years. The country coordinator from an associate organization of Global Water's (Water For People) kept in close contact with PAVA with visits to the project site and through email. This was done to assess progress during implementation. PAVA is a trusted partner organization and community members from Panimachavac and engineers from PAVA were responsible for the construction of the system.

8. Were pictures taken?

Yes, several pictures are included with this package of information

Reference (1) *Groundwater Availability Study for Water-Short Developing Countries*, authored by Kuepper, Ted et al, September 2001; written for the United Nations Environmental Program (UNEP).

Honduras

BACKGROUND

The Land, the People and the Economy

Honduras lies within the hurricane belt, and its Caribbean coast is particularly vulnerable to hurricanes or tropical storms that travel inland from the Caribbean. In October 1998, Hurricane Mitch struck Central America, unleashing one of the worst natural disasters in the region in centuries. Extensive wind damage and floods occurred throughout and the results were devastating. Thousands were killed or injured and tens of thousands more were left homeless. Despite restoration efforts, Hurricane Mitch has easily set back the Honduran economy a decade because the banana crop was destroyed and will take years to recover. Many Honduran people are now left without a means of economic support.

Honduras, the second largest country in Central America and only slightly smaller than neighboring Nicaragua, remains one of the least developed countries in Central America. Small-scale agriculture in corn (maize), beans, and rice has long been the major economic activity, but the trend is moving toward more crop diversification and commercialization. Almost two-thirds of the Honduran population live in rural settlements, concentrated in the central and western upland valleys and along La Costa Norte. Seasons are not expressed so much according to temperature, but rather according to the distribution of rainfall throughout the year.

Spanish-speaking people of Indian-Spanish heritage comprise the bulk of the population. Nearly 93 percent of the 5.9 million residents can be classified as mestizos, people of Spanish-Indian descent. The remainder are Indians and descendants of Africans and Europeans. The Spanish language predominates, and English is spoken by small populations of British descent on the northern coast and Bay Islands.

Community Needs

The overall standard of living in Honduras is one of the lowest in the Western Hemisphere. Poverty is an ongoing problem for the mainly rural population, and economic and educational improvements mostly affect urban inhabitants. Most residents live in one- or two-room thatch-roofed huts built of adobe or sugar cane stalks and mud. The rapidly growing population -- over 2.4 percent a year -- compounds the country's problems.

Honduran residents suffer from a high degree of malnutrition, as well as high infant and child mortality rates. Infectious and parasitic diseases are the leading cause of death, and gastroenteritis and tuberculosis are serious problems. By far, most of the population lack access to running water. In many rural villages, women often must walk miles every day to the nearest water supply, often only to carry back water that is unsafe to drink. Less than half of the rural population has adequate access to sanitation facilities. The numbers have fallen to even lower levels since Hurricane Mitch because community water supplies were damaged and water systems destroyed, leaving an even greater number of individuals without access to clean drinking water or a means of sanitation.

Global Water in Honduras

Global Water has worked in Central America in a variety of ways over the years. Recently, we have supported several communities helping them to obtain safe drinking water, sanitation services, and health and hygiene education.

Global Water supports several communities each year helping to obtain safe drinking water, sanitation services and hygiene education. Typical projects cost between \$1,000 and \$8,000 and include the installations of wells dug to a depth of 100 feet or less, accessing surface water sources and installing distribution pipe systems to villages, installing storage tanks and latrine construction.

Global Water works with several partner organizations -- government and non-governmental water, sanitation, and health organizations, including Lifewater International, Water For People, Agua para el Pueblo and FUNBANHCAFE. As our local partners manage projects, they gain the experience and the necessary skills to develop future water systems without complete funding support from outside sources. Communities participate in project planning and decision-making, which nurtures a sense of ownership for completed projects.

PROJECT INFORMATION

2002 funding was used to fund the following project – the drilling of two water wells in La Esperanza, Honduras.

The following is a description of the water well drilling project in Honduras.

1. Project Description

There were a total of five water wells total drilled near La Esperanza, in the State of Intubuca, Honduras. All of the wells were completed with hand pumps. Each well was basically associated with a village consisting of 15 to 25 adobe huts with a total of up to 150 people per village. Global Water helped fund the drilling of two of these wells.

As in most developing countries, before the wells were installed, women had to carry water from a nearby creek. There were about six locations that the villagers routinely gathered water from.

As part of the initial project survey, water tests were performed for the six village water source locations. All samples tested positive for bacteria pathogens as the six sites were all surface water sources under the influence of people, livestock and wild animals.

Other parameters tested included:

- nitrate/nitrite 0 mg/l
- nitrite nitrogen 0.15 mg/l
- total hardness 0
- pH 6.5
- iron 0.4 ppm

2. Specific location of the project

The wells were drilled in a state of Honduras known as Intubuca. This region is in the south-central area of Honduras and is a cold, rugged region of Honduras. La Esperanza is the nearest city with a population of around 4,000 people. The easiest way to get to La Esperanza is to fly into Tegucigalpa, the capital of Honduras. However, it is a long and challenging drive to La Esperanza.

3. Project Initiation

In 1999, a request was received from the Baptist Mission of Honduras to help provide training in shallow-water well drilling. In 2001, a team of U.S.-based volunteers trained a group of 10 local Honduran men from the area and drilled two wells. In 2002, the team returned to drill five additional wells.

4. What is known about the groundwater source?

Very little. We hope to take water samples this year and at least test for microorganisms.

5. Project timeframe

The wells were planned and installed in 2002. The team plans to return and drill a number of new wells in 2003 beginning in February.

6. Who benefited from the project?

The two villages closest to the two wells drilled consisted of 15 to 25 adobe huts with a total of about 150 people in each village. Therefore, a total of about 300 people benefited from the two wells funded by Global Water.

7. How was the work accomplished?

One of Global Water's associate organizations (Lifewater International) trained a well drilling crew in Honduras during 2001. Up to ten men were involved with the water well drilling training. The local municipality co-operated by providing welders, hand pumps, concrete, and some of the steel drop pipe. The drill team returns to initiate new wells with the hope that the local Honduran well drilling team will eventually be able to drill wells by themselves throughout Honduras.