Geophysical Reconnaissance of Île de la Gonâve, Haiti: ACJ Foundation Project Report

Lifewater International and the Union Church of San Juan
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Two trips, each with four volunteers, were taken to Ile de la Gonâve, Haiti (fig. 1) to conduct the proposed geophysical reconnaissance. The first trip was from June 29 to July 14 and the second trip was from September 22 to October 5, 2004. While in Haiti the teams worked closely with World Vision, added to the geochemical knowledge of the island, and successfully conducted a TEM survey.

In spite of a number of logistical difficulties, the team studied the water quality at 7 capped springs, 3 caves pools, 3 drilled wells, 2 hand-dug wells, and 2 cisterns on the island of La Gonâve. All of the drilled wells, one of the cisterns, and one capped spring tested negative for the presence of hydrogen sulfide producing bacteria. These results are similar to the results previously collected and reported (Troester and Turvey, 2004). Properly drilled wells remain the most consistent source of safe water.

A geophysical survey consisting of seventy-seven TEM soundings was conducted on La Gonâve was conducted with an EM-47 (fig. 2). The results of this survey will significantly aid World Vision Haiti in planning and prioritizing future drilling programs on the island. The most significant benefit will be the prediction of the maximum depth that it will be necessary to drill in various areas, plus some assessment of the relative probabilities of drilling successful wells in these areas. When these results are compared with water needs of the areas, drilling priorities can be established.

At the request of the Methodist Church, their Bucyrus Erie 22-W cable-tool drilling rig and service truck were located and evaluated (fig. 3). The service truck needs to be replaced. The tires on the drilling rig need to be replaced. Although the drilling rig needs servicing and maintenance, nothing else was observed that would keep the rig from operating.

The survey of water sources on La Gonâve was continued with the addition of nine new locations to the previous 36 surveyed locations. Observations were also made at 18 previously observed locations.

The roof areas of 13 schools were measured in preparation for the construction of rain water cisterns. Roof areas varied from 76 to 727 square meters. The length of gutters needed for the schools ranged from 21 to 136 meters.

Objective

To provide critical water-resources information and data on the depth to the water table and other drilling information to the mission agencies that are working on Île de la

Gonâve, Haiti, specifically World Vision, the Methodist Church of Haiti, and the Episcopal Church of Haiti.

Lessons Learned

- Airlines have arbitrary rules.
- Drilled water wells continue to be the most consistence source of safe water.
- The cable-tool drilling rig in Dent Girgnin needs tires and a new service truck, but it is in good enough condition to continue to drill water wells.
- A ground-water site inventory is being developed to keep track of the meager water-resources on the island.
- Cistern water quality is variable, but could be treated with the periodic addition of Clorox or with a slow sand filter.
- World Vision's seven agriculture stations on La Gonâve have been collecting valuable rainfall data for the last two years.
- The TEM method can be successufully used as a geophysical tool to describe ground water resources in remote areas of underdeveloped countries.

Expenses

The expenses for this expedition were originally estimated at $13,500. The actual cost for the first expedition was $4,209.98. The actual cost of the second expedition was $3,172.96, for a total of $7,382.94. Not including the food, lodging, and transportation in Haiti that were provided by World Vision at no cost to the two expeditionary teams. Funds to cover expenses were obtained from the Union Church of San Juan (www.unionchurchofsanjuan.org), the Ana Campana Judge Foundation (www.acjfoundation.org), the Clement Project Fund, the First Baptist Church of Yucaipa, California (www.fbcy.org), and a number of personal contributions

Additional Information

For more information contact the project chief: Joe Troester at josephtroester@earthlink.net

Information on water resources, water quality, and water use can be found in the following publication:

Troester, J.W., and Turvey, M.D., 2004, Water-resources reconnaissance of Île de la Gonâve, Haiti: Hydrogeology Journal, v. 12, p. 224-236.

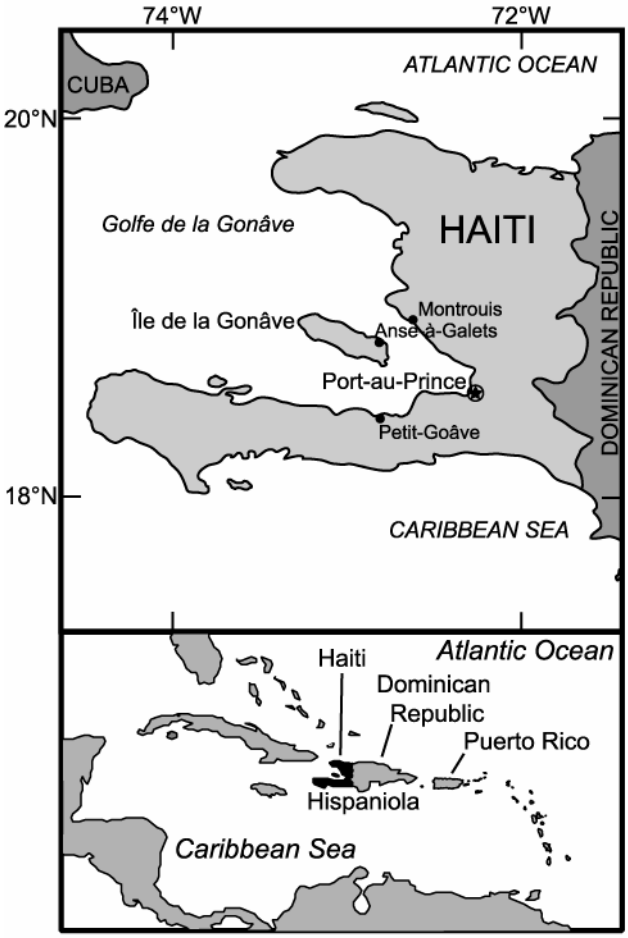
74°W
72°W
ATLANTIC OCEAN
CUBA
20°N
Golfe de la Gonâve
HAITI
DOMINICAN REPUBLIC
Île de la Gonâve
Montrouis
Anse-à-Galets
Port-au-Prince
Petit-Goâve
18°N
CARIBBEAN SEA
Haiti
Atlantic Ocean
Dominican
Republic
Puerto Rico
Hispaniola
Caribbean Sea

Figure 1

Figure 2: Conducting a geophysical survey.

Figure 3: Inspecting the drilling rig in Dent Girgnin.