

Mountains, Motos, and Mules: Strengthening a Faith-Based Safe Water Project in Rural Haiti

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The Problem

Globally:

- 1.1 billion people lack access to an improved water source
- Contaminated water causes 2.2 million deaths each year
- 80% of these deaths occur among children under age 5

In Haiti:

- 54% of the 8.5 million people lack access to safe water
- 10.6% of children die before the age of 5
- Diarrhea is leading cause of death for children under 5



The Response

The Safe Water System (SWS) is a water quality intervention developed by CDC proven to reduce diarrheal incidence in users by 22-84%. There are 3 components to the SWS:

Point-of-use treatment of contaminated water using sodium hypochlorite solution to kill disease-causing bacteria and viruses



Safe water storage in plastic containers with a narrow mouth, lid, and a spigot to prevent recontamination



Behavior change techniques including community mobilization, education, and regular household visits to promote the purchase and proper use of the disinfectant and safe storage container

The Process: Local Production of Sodium Hypochlorite Solution

Measuring Salt to Make Brine Solution Adding Racket to Reduce Turbidity Removing Racket Straining Brine Solution

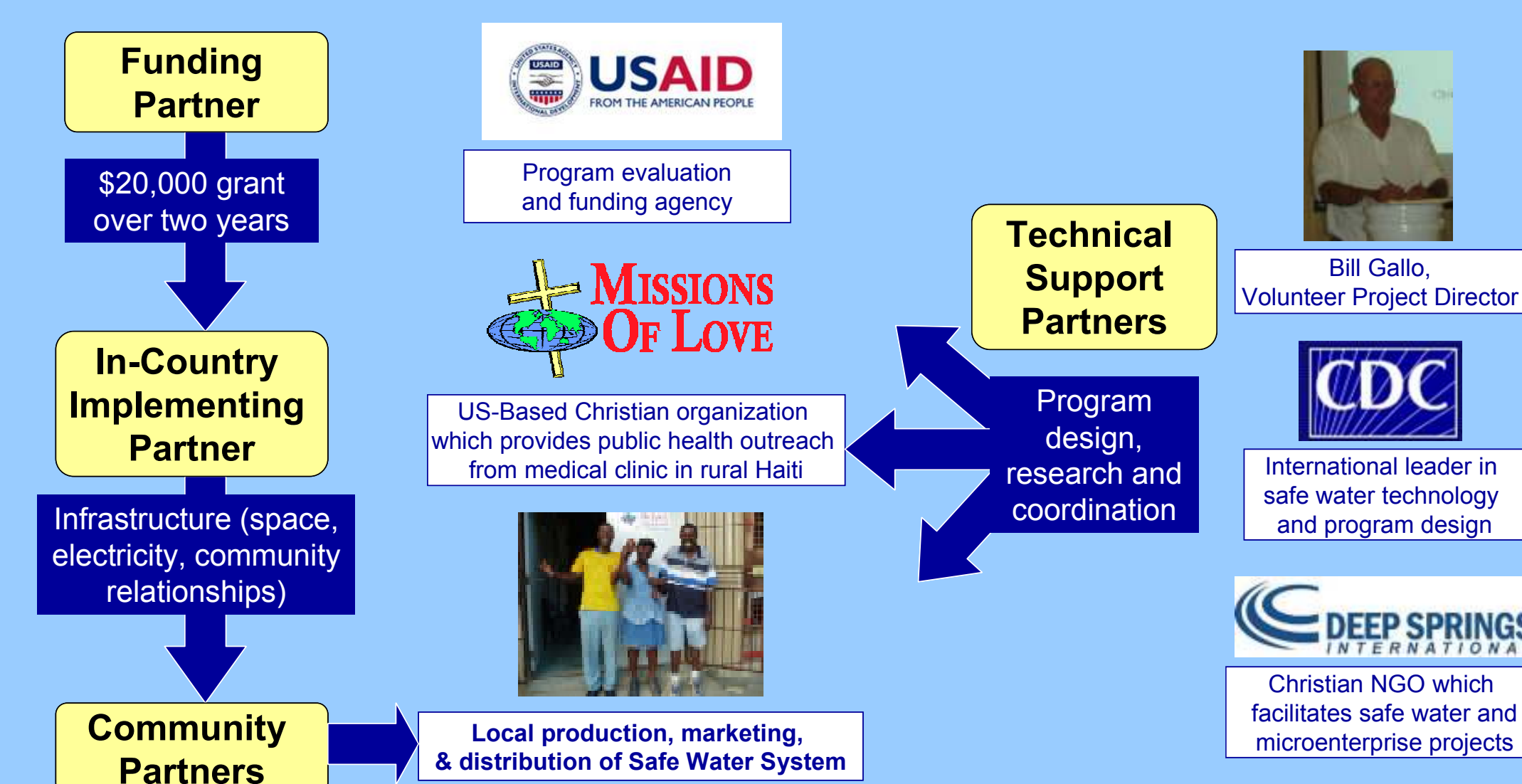


Connecting Leads of Generator Setting Voltage and Timer Letting Process Run for 2 Hours Buffering Solution and Checking pH



A Model of Collaboration for Religion & Health Communities

The Jolivert Safe Water for Families (JSWF) Project is a SWS project for families in northern Haiti that began in Sept. 2002. The project is located at a medical clinic in the rural village of Jolivert and is sponsored by Missions of Love, a US faith-based organization. The JSWF project is built on partnerships between the faith and health communities.



Research Questions

Research was conducted during summer 2007 on the determinants of adoption of SWS. Key questions were:

- 1) Why do some households purchase SWS more frequently than others?
- 2) Why do some communities purchase SWS more frequently than others?
- 3) Is the project effective in providing safe water and how could it be made more effective?

Methods

- 1) **Analysis of Sales Records:** Generated an Excel database from sales data and chlorine residual tests for 2,141 households which entered the program since October 2002
- 2) **Knowledge, Attitudes, and Practices Survey:** Trained a team of Haitian interviewers to conduct a 127-item questionnaire with a random sample of 360 households in the program and 120 households not in the program
- 3) **Qualitative Interviews:** Conducted in-depth interviews with 14 resellers, 26 heads of household enrolled in program, and 2 focus group discussions with resellers
- 4) **Financial Data Analysis:** Categorized and entered expenses and revenues since August 2005 into an Excel spreadsheet and summarized for analysis of cost-effectiveness and financial sustainability
- 5) **Geographic Mapping:** Collected coordinates of communities in the program and assembled a map for GIS analysis of sales data at the community level

Indicators of Program Impact

- 2,141 households are enrolled in program
- Average household purchases 6.24 bottles per year
- Technicians conduct 680 chlorine residual tests each year during unannounced household visits
- 76.66% of chlorine residual tests between Oct. 2002 and April 2007 were positive, indicating correct use of SWS
- Technicians conduct an additional 122 household visits each year for education and/or bucket repair
- Each year enough solution is sold to provide safe water to 2,979 people for the entire year (2,979 person-years of treated water, calculated based on volume of solution sold)
- Requires approximately \$2,500 of annual outside funding
- Thus, donors can provide safe water to one person for less than \$1 per year

Results

Figure 1. Sales over time for JSWF Project. Since the start of the program, 22,591 bottles have been sold (average of 4,813 bottles per year).

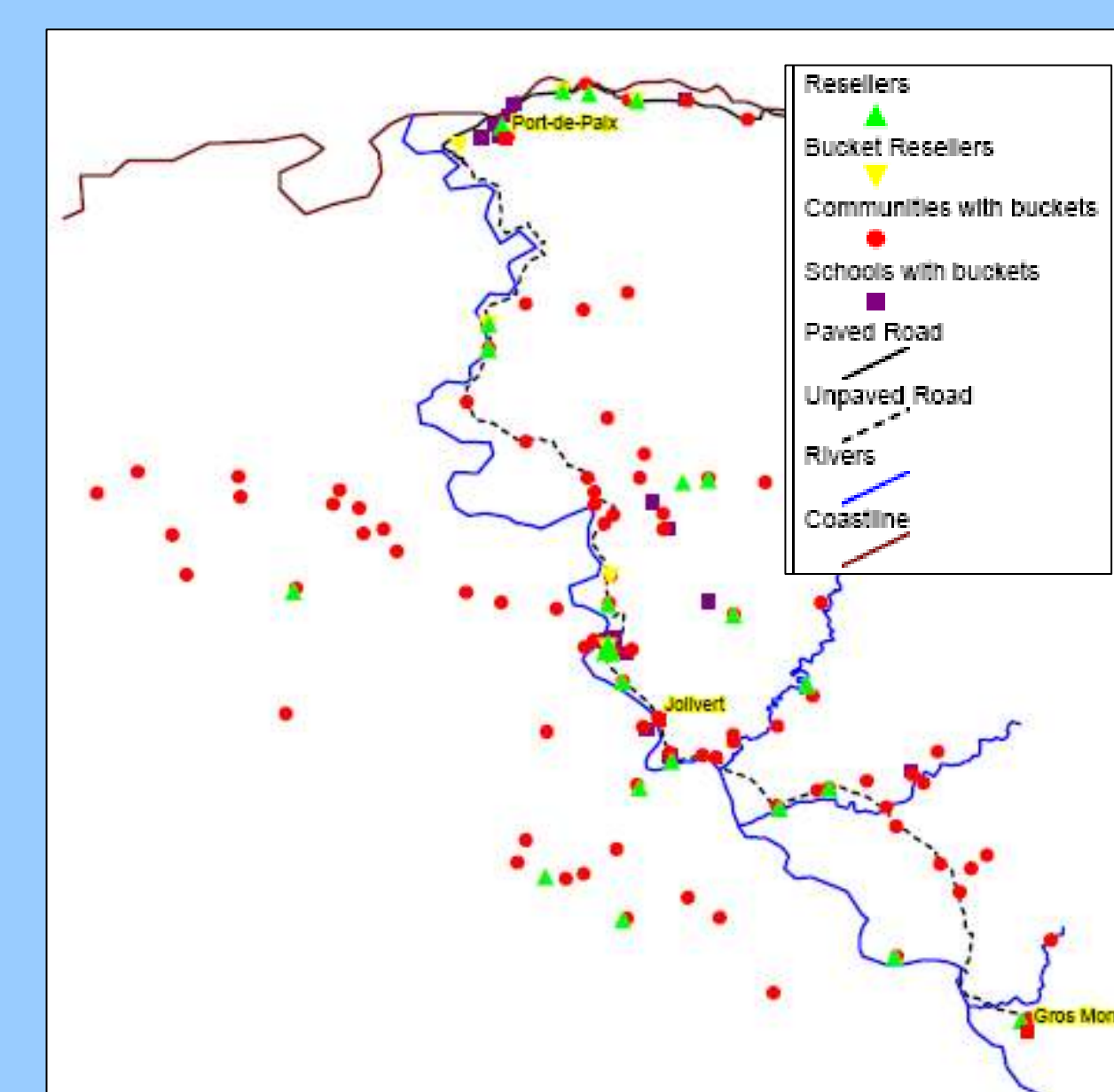
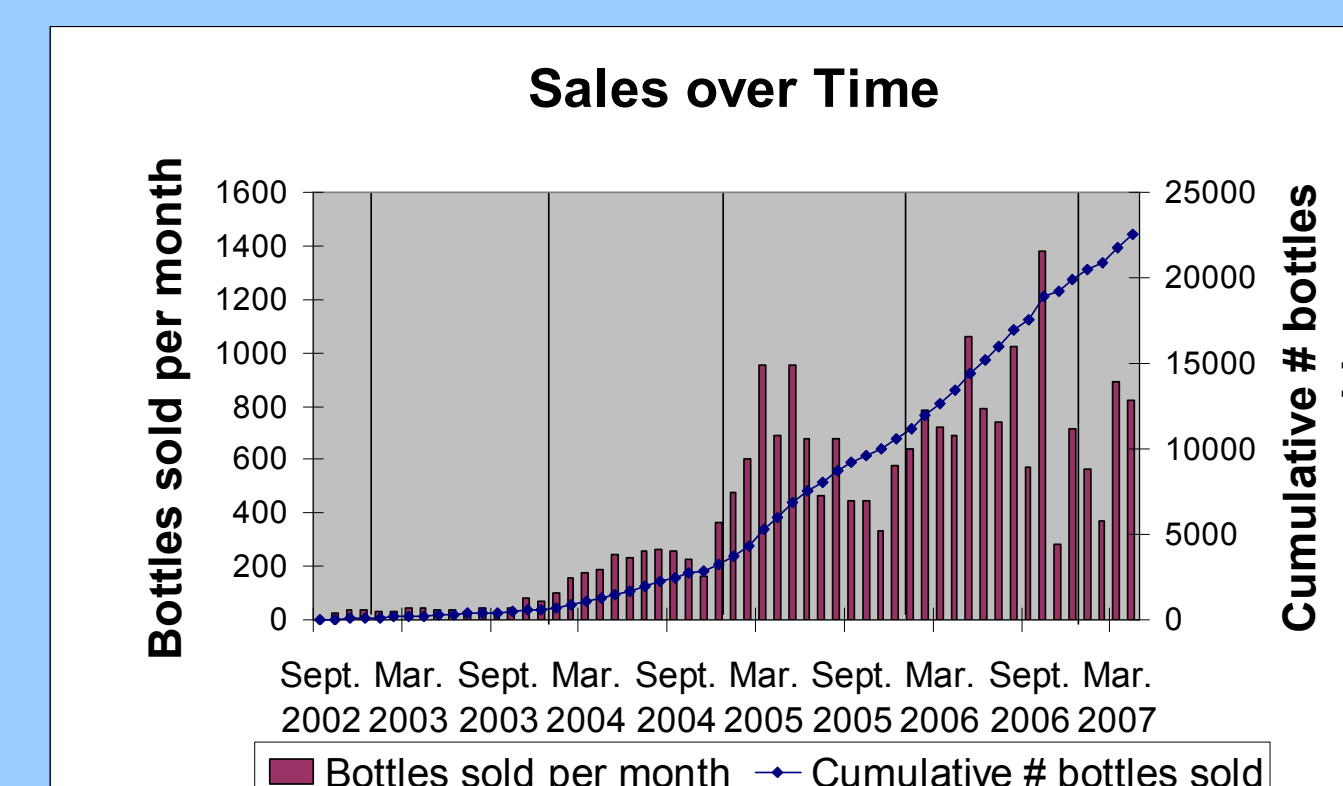


Figure 2. Map of communities in JSWF Project. Two thirds of households in the program are located in the 33 communities along the main road. One third of households are located in the 56 communities off the main road (in the mountains). The 25 resellers are scattered throughout the area.

	Avg. bottles purchased annually per household	Number of households per reseller	Bottles sold per reseller per year
Accessible (on main road)	7.41	77.18	235.94
Remote (in the mountains)	3.73	84.13	96.00

Figure 3. Analysis of sales records by location. Households in communities along the main road purchase twice as frequently as those in the mountains. Purchasing from resellers is often the only way that remote communities obtain solution. Resellers are evenly distributed throughout the communities, but resellers in remote communities purchase less than half as frequently as those on the main road, indicating a supply chain problem for remote communities.

Conclusions

The price of the bucket prevents some households from entering the program.

Potential Solutions: Continue to subsidize buckets for households who qualify. In communities which are located far from Jolivert, bucket distributors could be authorized to prepare and sell buckets themselves, reducing the cost of transportation.

Remote communities (those located in the mountains) have less access to the product than communities which are located on the main road.

Potential Solutions: Purchase or rent mules for resellers to transport buckets and solution to remote communities. Resellers say mules can carry 20 gallons of solution as opposed to the current practice of carrying 5 gallons by moto.



Many non-users do not have sufficient information about the product.

Potential Solution: Initiate a radio campaign which explains the benefits of the product, how to enter the program, and where to get solution. The majority of resellers recommended this as a way to increase awareness and improve the program's effectiveness.

Future Research

The project is ready to be scaled up throughout Haiti and other developing countries. Successful replication will require identifying structures and organizations to play the various roles in the model and adapting the model to maximize their unique assets. In Haiti, research must address the contribution of religion to each role. Specifically:

- What is the added value of working with US churches as opposed to other donors?
- What is the added value of working with faith-based organizations or Haitian churches as implementers?
- What does the local religious context contribute to an understanding of supply and demand for safe water?

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For further information

Contact mritte@sph.emory.edu. More info on this and related projects can be found at www.jolivert.org & www.cdc.gov/safewater