2013 CASE STUDY: Una exploración de la falta de acceso al agua en Hispaniola

Social Entrepreneur Corps
Dominican Republic & Ouanaminthe, Haiti

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**Background**

The Dominican Republic and Haiti occupy the same island in the Caribbean Sea—Hispaniola—and as a result, they share a long history of border shifts, migration complications, and power tension. Together, their joint histories have shaped their current identities.

Community Enterprise Solutions (CE Solutions), or Soluciones Comunitarias in Spanish, was co-founded by Greg Van Kirk and George “Bucky” Glickley, both Peace Corps Volunteers in Guatemala from 2001 to 2003 who saw a potential for infrastructure, particularly with energy-efficient and health-conscious wood-burning stoves. From this they created the MicroConsignment Model (MCM), where locally manufactured materials would be provided to local entrepreneurs on consignment to be marketed and sold in low-income markets and villages. Additionally, all materials would be interest-free to the entrepreneur, and a profit from the material would go to the entrepreneur as well as CE Solutions. This way, there would be purchasing power on the part of consumers, making them more likely to use their newly-bought product, and selling power on the part of local community leaders, incentivizing constant sales to serve as supplemental income. A sister organization, Social Entrepreneur Corps, has also been created to further CE Solutions by providing college students and recent graduates with the opportunity to intern in Guatemala, Ecuador, Nicaragua, or the Dominican Republic.

The major theme running through my experience as an intern in the Dominican Republic and Haiti is a lack of access. The populations tend to be the most marginalized and most in need of access to goods that can potentially create access to better opportunity. CE Solutions, in partnership with Social Entrepreneur Corps, has done research on how best to provide this access, naming a variety of products to produce and sell through entrepreneurs. Through buying one of these products—wood-burning stoves, water filters, seeds, solar products, glasses, and mosquito nets—the consumer has an automatic attachment; they have purchased the product and are therefore more likely to use it. CE Solutions holds that by purchasing and using these products, consumers will have the opportunity to better their lives.

**Our Team**

Seven of us traveled to the Dominican Republic as interns with Social Entrepreneur Corps, prepared to learn from the organization and build our understanding of a different culture. Upon arrival, our seven-member group was split in two, four of us working under the umbrella of “Health,” and the other three under “Energy.” Under Health, we were subdivided into two teams of two, and my team addressed issues related to sanitary drinking water.

**Inputs and Goals**

Families on the island of Hispaniola have three options when choosing drinking water: 1) to buy botellones, large blue plastic bottles that carry pre-purified water. On average, Dominican botellones cost RD $35 (US $0.84), and Haitian botellones cost RD $20 (US $0.48). Most families purchase around three or four botellones per week, 2) to purify the water with chlorine. Less than ten drops of chlorine will purify a five-gallon bucket of unpurified water in around fifteen minutes, and 3) to drink the dirty water. Unfortunately, this is extremely common in Haiti in particular, where people do not have enough money for either of the first two options.

The price of botellones is often backbreaking for rural campo families. Because of their distance from cities where the botellones are filled, transportation prices increase, and therefore their prices are higher than elsewhere. As campo families tend to have lower average incomes, buying botellones at higher prices has a larger impact than on city families. Water purified with chlorine is a cheap alternative, but chlorine creates an unpleasant taste, and mixing chlorine to create drinking water adds unneeded chemicals. Lastly, there are over ninety-eight sicknesses associated with consuming impure water. Dominicans and Haitians experience diseases from cholera and E.Coli to illnesses such as vomiting and upset stomachs.
Water purifiers, specifically the ceramic carbon stone gravity filter that is placed inside the purifier, remove 99.1% of bacteria, eliminating chance of sickness. They add no additional chemicals and taste almost exactly like botellon water. Families save on average RD $4000 (US $100) per year, which for families who have an average income of RD $3000 per month, is significant. In addition, the Dominican Republic consumes more plastic water bottles than any other country in the world. Water filters are an environmentally friendly solution.

Equipo Agua

My partner, Maddie Thurman, and I brought with us a diverse skill-set. Neither of us had any prior experience with clean water projects or building water filters, and both of us had only an intermediate level of Spanish. However, we both contributed individualized backgrounds and specialties. Maddie used her knowledge of psychology and her English major to create marketing materials as well as to interact with the communities we worked with. She used her previous leadership experience to approach strangers in their homes and to start conversations with them about their water access, in addition to contacting many companies and local entrepreneurs over the phone in Spanish. I came into the project with a passion for international development. I had some previous NGO-consulting experience in the Chicago/Evanston area, and I had taken many pertinent classes at Northwestern. I also have an economics background, which proved to be helpful with cost savings analysis and payment plans.

We started our project with deliverables from two previous Social Entrepreneur Corps intern batches at our disposal. A water filter model had been selected, and marketing materials created, but various aspects of the filters were problematic. The water filters we were currently selling were built with two large buckets stacked on top of one another with a ceramic stone filter drilled between them. Water could be placed in the top bucket, and in less than a day the water filtered into the second bucket, safe to drink. The models we sold at the beginning of the summer included the TableTop, a smaller filter with transparent buckets costing RD $1250, and the ILAC, a large filter with opaque white buckets costing RD $1700.

Our Goals

Our goals, laid out by our supervisors Dan Malin and Alanna Hughes, can be broken down into five categories:

1. Marketing Materials
   Although water filters have been sold through Soluciones Comunitarias for over a year, our Asesores Comunitarios (or ACs, community leaders who “borrow” our products through the MicroConsignment Model) were having a difficult time selling them. We decided to work on the marketing aspect of the filters in hopes that better visibility would increase sales and therefore profits for our entrepreneurs.

2. Payment Plans
   Alanna had been working on for the last few years on a project that allowed for consumers to purchase water filters in a series of payments. Although she had only piloted the project in a community where she had a great deal of confianza, Vicentillo, she wondered if we would be able to create a long-term payment plan method that could be easily monitored in various locations.

3. Demand Analysis & Feasibility
   Our biggest goal was conducting surveys to assess knowledge of and demand for water purifiers. CE Solutions makes consistent attempts to ensure that the products they sell are relevant to the consumer.

4. Product Testing

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Alanna and Dan realized that there was a lack of information about the filters: how fast they filter, how long the carbon stone within them lasts, and if this particular design with two buckets and one carbon stone is the best. We wanted to conduct several tests with both the ILAC and TableTop filters and to see if there might be a better option.

5. Client List & Testimonials

Alanna and Dan also realized that although filters have been sold in the Dominican Republic, there was no client list. Based on the records of the ACs, we wanted to find the information for each client who had purchased a water filter, including a rough idea of when they purchased it. Because we were close with the Vicentillo community in particular, we decided to record testimonials (both audio and video) of people who have purchased water filters to use as feedback as well as future marketing materials. We wanted, too, to make sure the filters were continuing to work correctly, ensuring that the carbon stone was still functioning and there were no leaks. For some families, it had been almost a year since they had bought their filters, and we wanted to give them the opportunity to voice any concerns or struggles they were having.

Maddie and I also created one main personal goal related to the project:

6. Cost Analysis & Microventure

Vaguely suggested as a goal at one of our initial meetings, Maddie and I wanted to make it a priority to complete, as we thought that it presented a unique opportunity to change the way the Dominican Republic, and possibly all of CE Solutions, produces and sells water filters. When we arrived in-country, our bosses mentioned that the filters were currently coming from India, and Soluciones Comunitarias had to pay a large shipping fee for an already expensive item. Therefore, the cost of the filters was high for our clients, and fewer people bought them.

Project Trajectory

Throughout our two months as Social Entrepreneur Corps interns, we traveled to upwards of forty different cities and towns for both campaigns and exploration. Our projects will be split into the five cities—four Dominican and one Haitian—where we spent the most time.

Vicentillo

Maddie and I decided to begin with projects that allowed us to learn about our product and the community. We first learned how to take apart and reassemble the two water filters—the ILAC and the TableTop—learning about the various parts and their corresponding names in Spanish. After becoming familiar with the terminology and the function of the product we decided to tackle the start of our Demand Analysis & Feasibility goal in order to learn more about Vicentillo and our product in practice. Maddie and I went door-to-door in the community, asking: From where do you get your drinking water? How much do botellones cost, and how many do you buy per week? Would you invest in a water filter if it meant not having to pay for botellones? We found that many families do not have mechanisms to save the money necessary for purchasing a filter. Additionally, many did not understand what a filter was, so we explained to them how a filter works. While this process required a considerable amount of energy, it was much easier than surveying in the U.S.; most families in Vicentillo spend much of their day on their porches, and if they are on their porch, it is a sign that they are willing to speak.

Los Guineos

Following two weeks in Vicentillo, we moved to Los Guineos, a fishing village with only one street and 200 people. Maddie and I continued our Demand Analysis in Los Guineos, finding similar results as Vicentillo from five families in total. Again, many families did not know what a water filter was, as no one in the community had one. We responded by holding a
campaign with the other interns, marketing with fliers and word-of-mouth. The day after the initial campaign, we held another for people to buy the products. Maddie and I were consistently asked how the filter worked. We conducted a taste test (concluding that the ILAC won, but only marginally). It was at this campaign that we sold our first water filter. Maddie and I explained how to assemble the filter and how to keep it properly cleaned, and it was reassuring to know that the filters were marketable enough to sell to community members on a budget.

Clients at our campaign had consistently asked how long the purifier took to filter, and we found that previous interns had never conducted time trials. We then conducted numerous tests, finding that both filters took around nineteen hours to filter completely (so the ILAC filters more water more quickly, as we predicted), and that the second filter was no faster than the first. We were disappointed with the results, as families might expect to use much more than one bucket per day. The results of this trial led us to look for a design that would better fit our client’s needs.

Dajabón/Ouanaminthe

After Los Guineos, we traveled to the western border of the Dominican Republic to a city called Dajabón, venturing into Ouanaminthe, Haiti a total of five times. Each family we surveyed was against the idea of purchasing a water filter. Most families could not afford to buy botellones from week to week, so they had accepted that they would drink water from wells that would make them sick. One man saw what we were selling, went to his well, filled a cup, and drank it in front of us. People could not comprehend buying a filter when they had free water, and even if they did agree that filters were a good idea, they expected that because we were foreigners, we would give them away for free. We struggled to stay positive and motivated, and it was clear that water filter markets were not welcomed at that time. Nevertheless, we saw a gap in the way that people chose to address their purified water shortage problem. We thought that there was a potential to recruit ACs from the community that could sell our filters, removing the “foreigners giving away freebies” assumption and creating a market for ACs to make money and for clients to gain access.

In Dajabón/Ouanaminthe, we began to work on marketing materials, translating some fliers into Creole with our fluent boss. We saw the need for better cost-savings descriptions, as families in both Haiti and the Dominican Republic needed convincing that the filtration system was worth saving up for.

Thus, we also began to work on our goal surrounding payment plans. Alanna had begun a pilot project in Vicentillo because of the mutual trust she and the community shared, but many clients had not been followed up on to pay the rest of the cost. Maddie and I decided to create contracts for ACs to use with clients, seeing the benefit of breaking up such an expensive cost.

In addition, the Dominican Republic in particular is largely a country that functions on credit, where people allow customers to pay at later times because of their trust levels. We developed a step-by-step guide for the ACs to explain how the payment plan should function as well as an agreement with Dan to be kept in contact about the flow of money.

El Seibo

Following Dajabón, we traveled to El Seibo, a city in the eastern region of the Dominican Republic. After disappointing results in product testing in Los Guineos, we realized the necessity of creating a new design that would filter much more quickly. A huge criticism from our demand analysis was the price of the filter. Though the TableTop was much less expensive than the ILAC, it also filtered much less water in the same amount of time. Soluciones Comunitarias receives all of its filters from a company in India, and its ceramic filters from the United Kingdom. Even then, these products are not shipped to the Dominican Republic, but to Port-au-Prince, Haiti and driven across the border. Maddie and I considered the possibility of making the production of the filters more localized, minimizing the middle man and empowering Dominicans
to buy/sell Dominican products. From this, Maddie and I developed the idea of building our own filter with materials from the local hardware store to do a price comparison. As a part of the budget of Soluciones Comunitarias, we were able to buy all of the materials for the new filter for RD $485. Because we could not find ceramic stones in El Seibo, we had to use ceramic stones from the old purifiers. In order to increase the speed of water purification, we added a second ceramic stone to the design, restructuring the purifier to two buckets with two stones. We constructed the filter and calculated a price of RD $1310, nearly RD $400 less than the ILAC filter with the same volume and an additional ceramic filter. After a product test, our new filter purified all of its water six hours, one-third the time of the ILAC and TableTop. We next had to figure out a way to mass produce local goods and to find a less expensive vendor for filters.

We tracked down a bucket company in Port-au-Prince that would supply clear buckets the size of the ILAC filter with the Soluciones Comunitarias logo for RD $369 (for two), nearly RD $300 less than the buckets from India and RD $30 less than the buckets from the local hardware store. Though this did not eliminate transport from Port-au-Prince to the Dominican Republic, we worked with Dan to ensure that there would be a shipping port opened in Santo Domingo, a project that had long ago been started but would only be implemented right after we left. Through this new microventure, Soluciones Comunitarias profits could be much lower due to lower production costs, and AC profits could remain the same without increasing the cost further. Lastly, Maddie and I were able to find a company in China willing to bulk ship 500 ceramic filters at a price of RD $86 a piece (RD $172 per filter). Including our new model of water filter and all of these new materials (with shipping), the new price of a microventure filter would be RD $950-1000, RD $700-750 less than the ILAC and RD $250-300 less than the TableTop.

In El Seibo, we had the opportunity to visit Lola, an AC living in Pedro Sanchez, an adjacent community. Lola had sold the most water filters, and we wanted to hear what the main issues were and what needed fixing. She mentioned that she would like new marketing materials, and we collectively came up with the idea to create a banner to place in her town square. She also mentioned that filters were too expensive and too slow to filter, and she was incredibly excited to hear that we had been working on those problems and had developed potential solutions.

We were also able to attend a feedback session with six ACs. They were impressed with our homemade filter and new design, and were able to follow our payment plan contracts and documents. They created new names for the ILAC and TableTop to be more Spanish-friendly, and we narrowed down their suggestions to four potential names for each.

Return to Vicentillo & Deliverables

We returned to Vicentillo to complete one final goal: Client List & Testimonials. We compiled all survey information as well as the information from our visit with Lola and calls with ACs in El Seibo to create a Client List for each AC. We predicted that this list would allow for better tracking of outcomes, and facilitate follow-ups with clients in subsequent years (ceramic stones last from 2-5 years). The client’s name, date of purchase, community, type of purifier, telephone number, satisfaction level, comments, and annual check-up date were recorded. Second, we were able to conduct four testimonial interviews with women from the community. We recorded each interview, and used quotes from each woman in our final presentation. These women were part of the pilot group, and it is imperative that they remain satisfied in order to increase client service in the future.

On one of our last days in Vicentillo, we presented our deliverables in an interactive presentation. We compiled all of the data we had gathered and created throughout our visits into one succinct presentation. The presentation included progress on our six primary goals, as well as recommendations for future intern groups.
Outputs

Marketing Materials
Following the brainstorming session at the trimestral meeting, we came up with a list of four Spanish names for each of the types of filters. We left the choosing of the name up to our coordinators and ACs. We also created a fixed sales point sign for Lola, who has done exceptionally well with her water filter campaign in Pedro Sanchez and the surrounding area. The sign is designed to hang in her town square and will ideally increase her sales. Lastly, we made a general flyer for all ACs to use in their community—in both Creole and Spanish—with basic information including price and cost-savings of a filter compared to buying botellones.

Payment Plans
We created four documents including: 1) an application for the client who wants to institute a payment plan to purchase a water filter, 2) a contract to be signed by the client, the AC, and the country director (Dan) at the time of the first payment, instituting their thirty-day period to pay the second and final payment, 3) a one-page document to be given to ACs to remind them of the ins and outs of this new payment plan system as well as what to do in specific situations, and 4) another one-page document for the ACs to keep track of their clients who are currently on payment plans, to remind them to pick up a second payment, and to keep all of their client information in one place. We also drafted a page of recommendations to present as a deliverable to Dan at our final presentation detailing how the plan will work and the purpose of each document.

Demand Analysis & Feasibility
We completed a total of twenty-seven surveys—six in Vicentillo, five in Los Guineos, five in Ouanaminthe, and eleven in smaller communities we visited. We received the information needed to complete cost analyses on the savings for purifiers over botellones, which we then used in our marketing materials. We also created an Excel document detailing the results of our surveys, ideally revisited every few months, as demands are constantly shifting.

Product Testing
We found that with one stone, both types of filters (ILAC and TableTop) took nineteen hours to complete one filtering cycle. A second test yielded the same result for both. When we built our own and added a second stone, that time was reduced from nineteen to six hours. The taste test we conducted yielded positive responses for both, with a slight preference toward the taste of the water produced by the ILAC filter. The speed with which we increased the process sparked our interest. We were encouraged by positive reactions from all of our ACs, and hope that our new design will redefine the future of SolCom’s water filters.

Client Lists & Testimonials
We created a registry of the people we know of who have purchased water filters, when they purchased them, and contact information to check up on them in the future. This registry will serve as a way to check-up on the functioning of the filters in the future.

Microventure
The Microventure project is possibly our biggest outcome. The prices of water filters in both Haiti and the Dominican Republic could decrease by RD $750 (almost USD $20), which for campo families who make around RD $2000-3000 each month is a huge difference. This accounts for a similar AC profit margin as well as an increased Soluciones Comunitarias profit margin to cover the initial costs of shipping in bulk and buying the screen to print the logo. In the
long-term, it is possible that other CESolutions countries might institute the same search for cheaper filters, maybe even using the same vendors we found.

Summary and Lessons Learned

There are over ninety-eight health problems associated with drinking unclean water. To address this problem, families are buying 3-5 botellones of purified water each week, costing them a significant portion of their salaries. Buying a water filter is very cost effective, but the upfront price is daunting to families who do not see the long-term benefits and savings. Maddie and I worked to develop new marketing materials that emphasized the economic benefits of buying a water purifier, as well as rebranding the product with names that are more fitting for a Dominican market. We built a filter from scratch, implementing a new design that filtered the water 70% faster than the original filter, whose speed was a previous point of concern for many of our clients. This encouraged us to begin a microventure project, where the filters could be produced in country, and ultimately reduced the price of the filters by 55%. Maddie and I also remodeled a system for payment plans, allowing clients to make two payments without interest instead of one upfront. Ideally the company will pursue the microventures, implement payment plans and marketing materials, and use client testimonials and client lists to continue to improve the sales of water filters.

In terms of development work, we learned the importance of flexibility, especially when working in a different culture that may not have the same concepts of time and organization that Americans do. By being flexible, we accomplished a lot, even if it was not what we had initially planned. From working with the filters, we learned that families are willing to make big investments financially if they see the value in it for their family’s well being. More importantly, we learned how to be open, welcoming, hospitable, and trustworthy from the people and communities we worked with. Whether it was the communities we lived in or even the ones we only spent the day working in, people did not hesitate to open up their homes to us and were more than willing to participate with us, listen to us, and teach us. In contrast to our cultural context in the U.S., we learned a lot about what it means to be a part of a community and to open up your family past the nuclear level. We have taken these lessons home with us, not only the work strategies and skills we learned, but especially the openness, warmth, and love people can bring to their community.

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