

Clean Water for the World & Center for Exchange and Solidarity

El Salvador Evaluation Report 2015



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CLEAN WATER FOR THE WORLD

Introduction & Background

A group of University of Toledo students and a Corpus Christi University Parish staff member traveled to El Salvador in March 2015 to install Clean Water for the World water purification systems in the Cinquera community as well as evaluate the impact in La Isla Espirito Santo community where water purification systems have already been installed. The Center for Exchange and Solidarity (CIS) was the local organization that provided the water promoters who led in the installation of the purification units and the data collection of the evaluation study. CIS also identified what communities were interested in obtaining a water purification unit and gave educational talks to the communities. With the help of the CIS water promoters, surveys were administered to La Isla Espirito Santo residents, with a total of 20 people completing a survey (n=20).¹ The survey determined how residents in this community obtain their drinking water and the frequency in which they get sick because of unpurified water. Surveys were also administered to residents in the Cinquera community, with 12 people completing a survey (n=12), in order to obtain pre-installation information that can be compared to surveys administered in the future to this community. Administering surveys before and after the water purification systems have been installed will help determine the systems' impact on the community's health. Combining all responses from Cinquera and La Isla Espirito Santo communities, a total of 32 residents completed a survey. In order to obtain the surveys, local water promoters partnered with the student group to administer the surveys in the community.

Data was also gathered in 2012 from residents in the La Isla Espirito Santo Community. This data was compared with the 2015 La Isla Espirito Santo data to determine if any changes have occurred over the last three years in this community. There was no data collected in previous years from the La Cinquera community.



2 water purification units were installed in La Isla Espirito Santo in 2012.

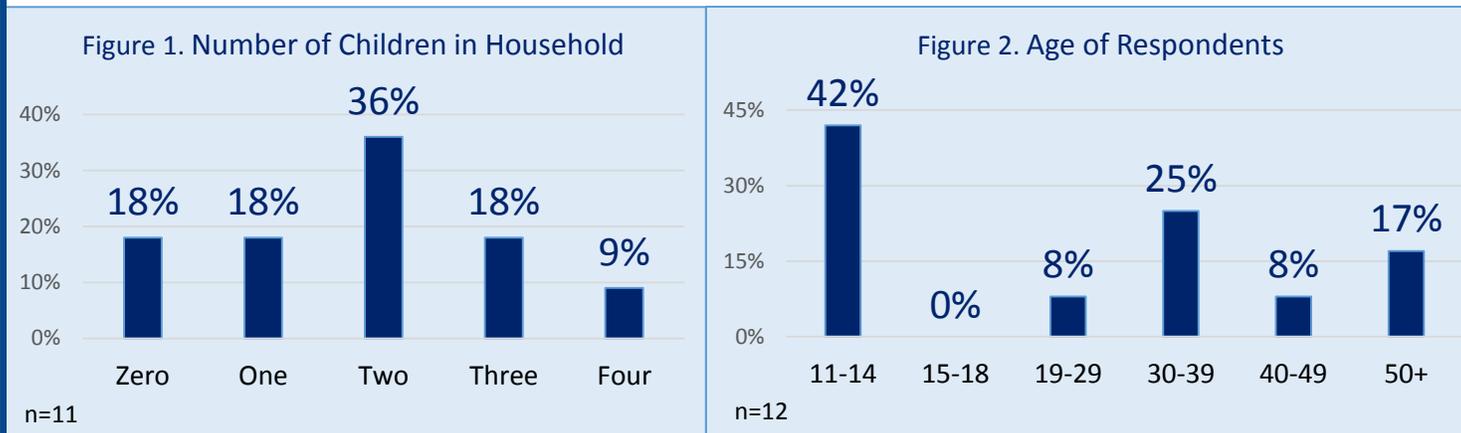


1 water purification unit was installed in La Cinquera in 2015.

¹ Used throughout this report, "n=" refers to the number of respondents for that particular question on the survey.

Cinquera Pre-Installation Results

Demographics. Respondents completed a demographics portion on the survey. 83% of respondents are female and 17% male (n=12). Other demographics of the participants are displayed below.



Where to Get Drinking Water. 100% of respondents get their water from a pipe in their house (n=12). 17% also get their water from a protected spring, which they mentioned is from a tank they share with other people and *chlorine is thrown in sometimes*. Participants indicated how many minutes it takes to get water: 83% indicated *water is already in the house*, while 8% disclosed it takes less and ten minutes and another 8% indicated it takes half an hour (n=12). The reason it takes half an hour is because the water is especially slow to get in the summer. All but one participant explained their water is in their house so they do not have to worry about going out and getting their water. One participant explained they have to go out and get drinking water twice a day in the summertime. Adult women are the main household member who generally get the water, 18% are an adult male who obtains the drinking water and 18% are a female child under the age of 15 (percentages do not equal 100% because respondents could indicate more than one person).

Making Water Safe to Drink. To make water safe to drink, 17% of respondents add bleach or chlorine, 8% do nothing, and 75% do something *other* than what was mentioned such as using a Sawyer Filter (n=12). Specifically, 60% use a Sawyer Filter, 20% use Puriagua, 10% use CSI, and 10% do not have a filter but would like

100%
of Cinquera
respondents use
piped water in
their house.

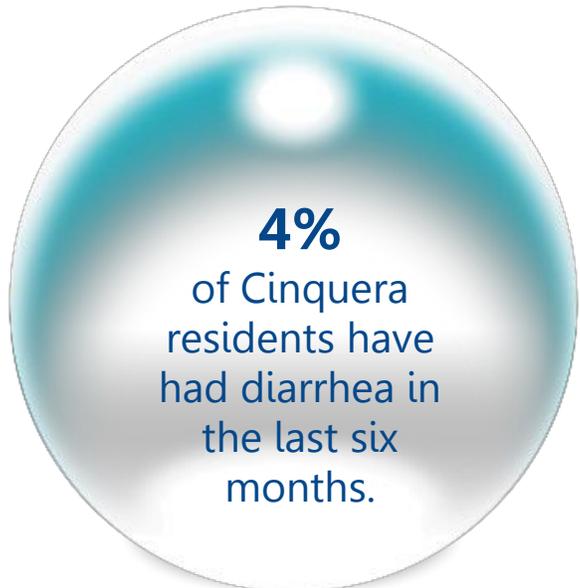
91% of Cinquera
respondents
indicated an adult
female usually
gets the water.

one. One respondent put their water in the sun before drinking it prior to owning a Sawyer Filter.

Drinking Habits & Sickness. 80% of respondents drink water from the filter *every time*, 10% drink water from the filter *most of the time*, and 20% *never* drink water from a filter because they do not have a filter (n=10). Respondents indicated that family and house members rarely get diarrhea. Of the 45 house members listed (including the respondent's own information), 4% have gotten diarrhea in the last six months. 9% have had to miss one day or work or school in the last six months because of being sick and 16% have missed four or more days of work or school as a result of being sick (n=12). One respondent mentioned they get a free consultation and then spend \$1 to get Yodocholrina with four pills to help their child get better from diarrhea (n=1). No other participant mentioned spending money when their child gets diarrhea.

According to residents completing the 2015 survey, a total of 23 days have been missed (either by them or household members) from work or school because of diarrhea within the last six months. This is an average of 1.4 days missed over a six month period by 32 people. For an estimated community size of 200 people, this equates to 280 days lost from work or school over a six month period (approximately 180 days).

Data from UNICEF (2005) and the World Bank (1998; 2013) were utilized to estimate the yearly income of rural families in El Salvador. This annual income was estimated at \$460.00, which breaks down to a daily wage of \$1.26. This indicates a total of \$352.80 in lost wages for the community as a whole over six months.



La Isla Espirito Santo Post-Installation

Water purification units have already been installed in the La Isla Espirito Santo community by Clean Water for the World. Local water promoters and Clean Water for the World volunteers surveyed residents to determine the units' impact. The water purification unit installed at the health clinic is not operable. Work is underway to create an electrical grounding package for El Salvador units to prevent further damage.

Demographics. 50% of respondents from La Isla Espirito Santo community who completed a survey were male and 50% were female (n=14). Other demographics are provided below.

Figure 3. Number of Children in Household

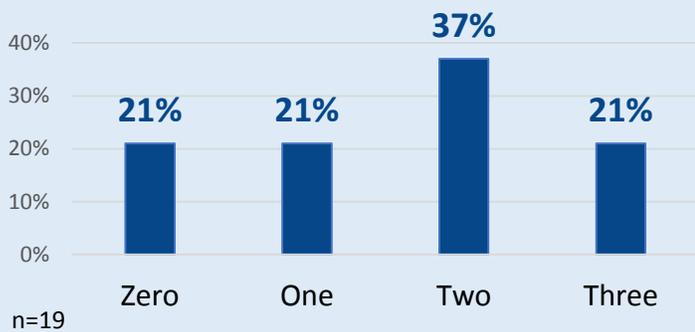
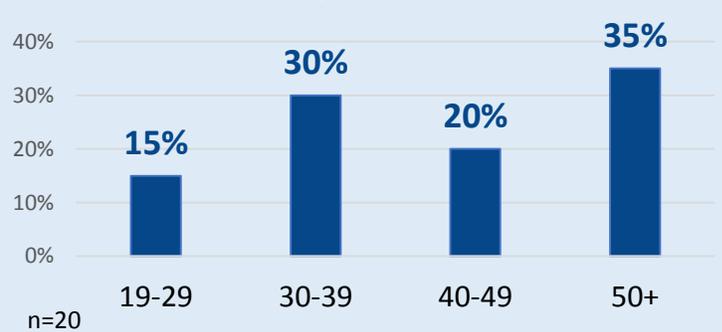
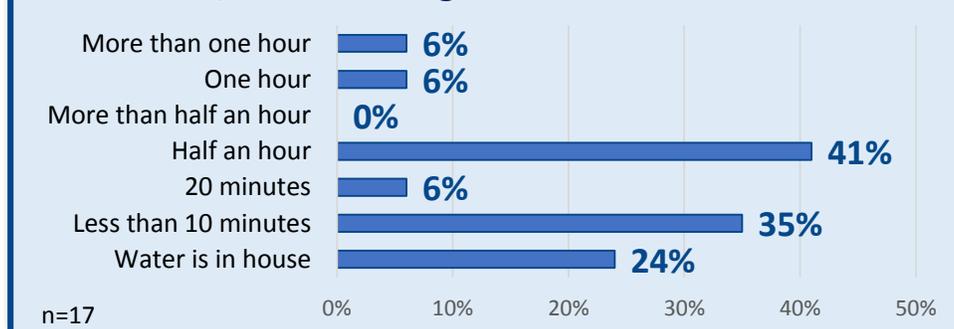


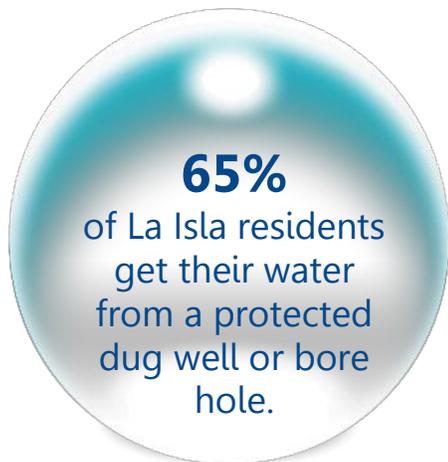
Figure 4. Age of Respondents



Where to Get Drinking Water. 25% of respondents get water from a tube well or borehole, 65% get their water from a protected dug well, 10% get water from a public pipe or stand pipe, and 5% get water from rainwater collection (n=20). The amount of time it takes for residents to get their water varies.

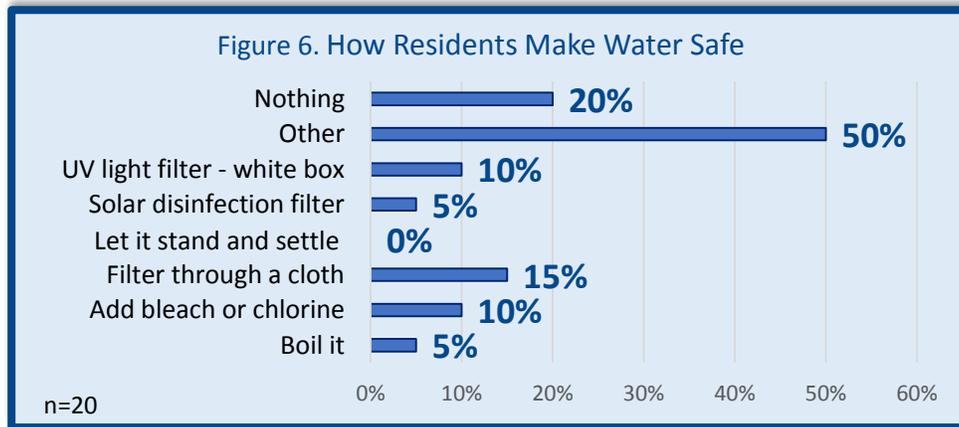
Figure 5. How Long it Takes to Get Water





Respondents also determined how often they get water. For 25% of respondents, water is in their house, 19% get their water once a day, 31% get their water twice a day, 6% get their water once a week, 6% get their water twice a week, and 13% get their water three times a week (n=16). Adult males and females get the water at the same rate: adult males usually get the water, according to 45% of respondents and adult females usually get the water, according to another 45% of respondents (n=20). The remaining 10% disclosed that a male child under the age of 15 usually gets the water.

Making Water Safe to Drink. To make water safe to drink, 20% of La Isla residents do *nothing* while 50% do something *other* than what was mentioned. See Figure 6 for the different techniques residents use. In terms of who has and uses a filter, 59% use a Sawyer Filter and 47% use another one such as Puriagua (18%), Filtro Donado (6%), Filtro Cruz Roja (18%), and WYW (6%) (n=17).



Drinking Habits & Sickness. Of the 72 family members listed (including respondents' own information), 86% have not gotten diarrhea at all in the last six months (compared with 33% in 2012) (n=20). 9% have contracted diarrhea three or more times over the last six months (compared with 33% in 2012), and 4% have contracted diarrhea one or two times (compared with 33% in 2012). 14% have missed four or more days of work or school as a result of having diarrhea over the last six months. Another 5% have had to miss three days of work or school, 2% have missed two days, and 5% have missed one day. 38% spend nothing when their child gets diarrhea, 13% spend \$2, 13% spend \$3, 13% spend \$5, 13% spend \$10, and 13% spend \$30 (n=8).



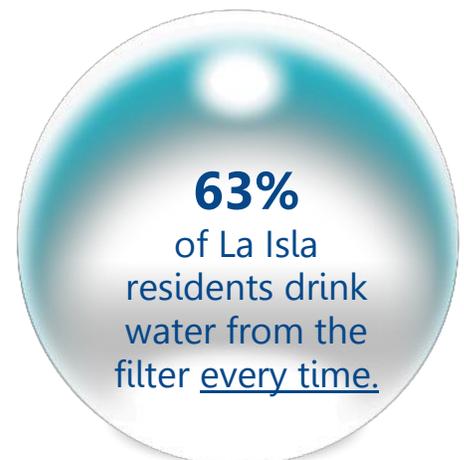
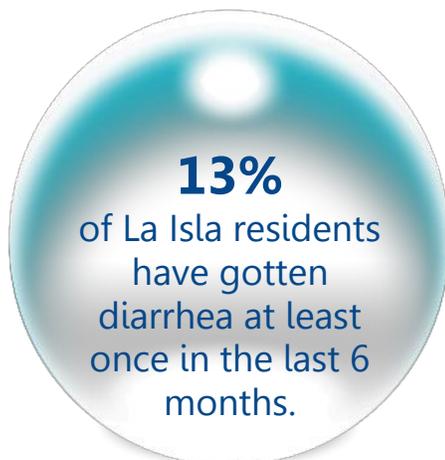
La Isla Espirito Santo Cost of Medicine	2012	2015
Total Money Spent (Reported)	\$95	\$50
Total Respondents	7	8
Average Money Spent Per Family (Reported)	\$13.57	\$6.25
Estimated Community Size	200	200
Estimated Community Cost	\$2,714	\$1,250

According to the residents completing the survey, they reported a total of 34 days missed (either by them or household members) from work or school because of diarrhea within the last six months. This is an average of 1.2 days missed over a six month period by 42 people. For a community of 200 people, this equates to 240 days lost from work or school over a six month period (approximately 180 days).

Data from UNICEF (2005) and the World Bank (1998; 2013) were utilized to estimate the yearly income of rural families in El Salvador. This annual income was estimated at \$460, which breaks down to a daily wage of \$1.26. This indicates a total of \$302.40 in lost wages for the community as a whole over six months (assuming all persons were missing work rather than school). For 2012 data in La Isla Espirito Santo, an average of 2.67 days were missed, costing \$672.84 in lost wages for a community of 200 people (an estimated total of 534 days missed for 200 people over a six month period). Based on these findings from 2012 to 2015, the community has seen less incidences of diarrhea and have, therefore, missed less days of school and work resulting in a decrease of lost wages.

La Isla Sickness Trends	2012	2015
Average number of sick days per person over six months	2.67	1.2
Total lost wages over a six month period	\$672.84	\$302.40
Number of survey respondents	3	20

While 63% of La Isla Espirito Santo residents drink water from the filter *every time*, 11% drink from the filter *most of the time*, and 21% *never* drink from the filter (n=19). One woman disclosed that her children drink *clean water from the unit at the school but nothing at home*. When residents were asked, *what do you need to drink filtered water every time*, two respondents said, “to have a filter”.



Limitations

A major limitation to this evaluation is the number of participants completing the survey. Since there is a low number of residents completing a survey, it results in less accuracy for generalizing the findings to the community as a whole (reliability). This also hinders data comparisons and trends between the different evaluations from year to year. Another limitation is the survey – it is a customized rather than standardized survey instrument. This can cause discrepancies between what the survey is actually measuring and what the evaluators want the survey to measure (validity) (In other words, are participants comprehending the questions accurately?).

Conclusion

The evaluation question is whether the Clean Water for the World water purifiers have improved community members' quality of life in terms of health and economics. Based on pre- and post-intervention data from La Isla Espirito Santo, community members are sick less often (less number of incidences), missed less work or school because they are healthy, and spend less money on medicine. Thus, more money can be spent on other life enhancing activities such as education and nutrition.

However, community members also reported they do not drink clean water every time. Thus, continual exposure to water borne diseases is evident.

Recommendations

While residents are not all drinking purified water every time, it is recommended that strategies are implemented that will ensure all residents are drinking purified water every time. Some ideas of strategies include increasing education of drinking purified water, increasing access to filters, increasing the number of filters in a community and decreasing the time it takes residents to obtain clean water on a daily basis.

Another idea for consideration is to monitor units to ensure they are working properly on a regular basis.

Finally, health outcomes are also dependent on sanitation and hygiene as well as drinking pure water every time. An option could be to determine the best ways to teach community members how to properly use clean, purified water in their daily lives. Many other nonprofits focused on clean water incorporate hygiene portions in their work. Clean Water for the World or its partnering local institutions could research other hygiene programs already established before trying to create a new one. Clean Water for the World and its partnering local institutions could incorporate these established hygiene models into their training and education component.