



2015

**Empowering Access to Improved Sanitation:
Project Evaluation Report for Movimiento
Manuela Ramos**



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Background

Access to safe drinking water and basic sanitation is essential to human health; for the poor, these are often out of reach. Inadequate water and sanitation policies and practices fuel the spread of disease (GLASS 2014). Smith and Haddad (2014) have shown in meta-analysis using data collected over the past 40 years for 116 countries that access to safe water and sanitation are key drivers of the global reduction in child undernutrition and stunting. While many development programs focus on the construction of water and sanitation facilities, significant research in India recently showed that behavior-change communication related to sanitation is more important than simply building improved facilities (Clasen 2014).

In Peru, it was estimated that in 2013, approximately 73 percent of households had piped-in water; almost 60 percent had facilities with connections to the public sewer system. However, there are fairly significant disparities between urban and rural households for both water and sanitation facilities. Only 63 of rural homes, compared to 77 percent of urban homes have piped-in water; drastically fewer rural homes, 15 percent, have access to the sewer system compared to 77 percent of urban households. Fifty-seven percent of rural homes depend on latrines, compared to 11 percent of urban households. Twenty-four percent of rural households have no facilities at all (*Peru* 2014).

Movimiento Manuela Ramos (*hereafter*: Manuela Ramos) is a Peruvian Civil Development Association (or non-governmental organization), that has a microfinance program for women, called CrediMUJER, that reaches approximately 20,000 poor, peri-urban and rural women with microfinance services, such as microenterprise credit products. In 2011, Freedom from Hunger and Manuela Ramos partnered to provide Manuela Ramos clients with integrated financial and nonfinancial services. Using a village-banking model, Manuela Ramos clients meet biweekly or monthly in groups to both manage financial transactions and participate in nonformal education sessions facilitated by the credit officer. Between 2013 and 2014, Freedom from Hunger collaborated with Manuela Ramos to pilot a water and sanitation program that a) integrated a group-based nonformal education program called *Healthy Families: Safe Water, Sanitation and Hygiene* with their financial services; b) provided clients access to a loan product designed to facilitate a household's access to sanitation products; and c) marketed and linked clients to either a full lavatory product that included a toilet connected to the local sewer system and a compost toilet. The full product, known as *Mi Baño con Conexión*, included a toilet and sink. The compost toilet, known as *Mi Baño con Biodigestor* was marketed to households that lacked access to a public sewer system. The pilot was launched in Ucayali, located in the Peruvian Amazon, which serves both rural and peri-urban communities. Many families in this area live in unincorporated, semi-urban areas that lack basic sanitation and water services.

This program would create sustainable financial and physical access to improved sanitation services at the household level and improve safe water and sanitation knowledge and behaviors as a means to reduce the impact of illness on poor families. This intervention was also seen as an integral part of

Manuela Ramos' focus on gender, where they actively strive to ensure decent living conditions for women and reduce the time women must spend in the "care economy."

The pilot aimed to initially reach 5,000 of Manuela Ramos' client with the education and improve client financial access to the improved sanitation products. By the end of the pilot period, 5,060 clients had received the *Healthy Families: Safe Water, Sanitation and Hygiene* education and of those, 3,060 clients had access to the financial services needed to upgrade a household's sanitation facilities. At the time of this report, only eight Manuela Ramos clients had used a sanitation loan to purchase either of the two products described above.

This report summarizes the findings from a program assessment completed between 2012 and 2014 and focuses on the changes in client knowledge, attitudes and behaviors as they relate to Manuela Ramos' efforts to improve financial and physical access to improved sanitation facilities.

Methods

Sampling and Analysis

A quantitative pre- and post-test evaluation design was conducted with Manuela Ramos clients using Lot Quality Assurance Sampling (LQAS). LQAS is a low-cost sampling methodology that relies on small sample sizes to determine whether desired levels of performance, for any given indicator, are being met. LQAS normally requires that 19 surveys be conducted on a random sampling basis for at least five supervision areas, for a total of 95 surveys. These supervision areas are often determined by existing and meaningful performance areas for the institution. In this case, given the pilot area of Ucayali, three supervision areas were chosen by Manuela Ramos based on the three credit officers serving the pilot area. This means 60 surveys were completed in total; 20 surveys per area represented by the three credit officers. The same 60 people interviewed at the pre-test were interviewed at post-test.

Whether a supervision area's performance is judged as acceptable or below a pre-determined target is based on a decision rule. A decision rule is the number of all sample observations that must be classified as "acceptable" for the supervision area to be considered acceptable. LQAS tables are available to provide the necessary decision rules for various targets. See attached LQAS table for reference in the Appendix. How these decision rules are used is examined in the analysis section of this paper. Only supervision areas noted for not meeting the averages as based on decision rules will be mentioned in this paper. No mention of this comparison means that all three supervision areas chosen by Manuela Ramos for this study performed similarly.

Pre-test averages were also compared to post-test averages for each indicator. Confidence intervals were generated to help facilitate a deeper understanding of whether the differences between the pre- and post-test were statistically significant.

Survey

The survey was adapted from an instrument developed for water and sanitation programs supplied by Dr. Pavani Ram, an Associate Professor of Epidemiology and Environmental Health at the University of Buffalo. The survey covers topics such as knowledge, attitudes, behaviors, and observations related to drinking water, handwashing, and household sanitation. The baseline instrument is provided in the Appendix in Spanish.

Data-Collection

The pre- and post-test survey data were collected by Manuela Ramos staff who are responsible for training and supporting the local credit officers. The pre-test was conducted in February 2014 and the post-test conducted in October 2014. Manuela Ramos staff entered data onto an MS Excel spreadsheet, which they then shared with Freedom from Hunger, who conducted the analysis and developed this final report.

Results

Water Treatment

At the pre-test, 97 percent reported treating their water to make it safe for drinking. At post-test, 100 percent reported treating their water (not shown in Table 1 below). Table 1 below compares pre- and post-test averages for those who *knew* about the methods used to treat water and how they actually *used* certain methods to treat their water.

There was a 20 percentage-point increase from the pre- to post-test in the percentage of clients who indicated that boiling water was a way to make their water safer to drink; an increase in 30 percentage points of those who recognized chlorine as a way to treat their water; and a 28 percentage-point increase of those who knew filtration was a means for treating their water. These latter two differences are statistically significant due to the lack of overlap in their confidence intervals (which are provided next to the averages in the table).

Some of this knowledge improvement also resulted in behavior change by the post-test. There was a 10 percentage-point increase of those who reported to boiling their water and a 20 percentage-point increase of those who reported using chlorine tablets to treat their water. While there was an improvement in knowledge related to filtering one’s water, this did not result in more clients using filtration as a means for treating their water. The increase in those reporting “other” can be explained by an increase in households indicating they use “table water” or bottled water for drinking. Table water is treated water provided by local businesses that filter water for drinking.

Table 1. Water treatment methods—Knowledge and Behavior

Indicators	Percentage who know the following methods used to treat water to make it safe to drink:		Percentage who treat their water with the following methods to make it safe to drink:	
	Pre-test	Post-test	Pre-test	Post-test
Boil	80%	100%	73%	83%
Chlorine tablets	63% (±12)	93%* (±6)	40%	60%
Filtration	5% (±5)	33%* (±11)	0%	0%

Other (sedimentation, bottled water, etc.)	13%	10%	5%	13%
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*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

The LQAS assessment, comparing the three supervision areas, revealed at the baseline that Supervision Area 3 fell below the baseline average of 63 percent for those reporting to know that chlorine was an effective method for treating water. Table 2 shares the LQAS analysis for this indicator. Supervision Area 3 is highlighted as falling below the 63 percent average because only ten clients from this area knew chlorine tablets could be used to treat water. The decision rule of 11, which corresponds to 63 percent, is the lowest number a supervision area could have to meet the average of 63 percent. This means that far fewer than 63 percent in Supervision Area 3 knew about chlorine tablets. At the post-test, this difference no longer existed, suggesting that the lower knowledge at baseline was improved to the same level of improvement as experienced in the other two supervision areas. There were no differences in performance across the supervision areas at the pre- or the post-test for the question about methods households actually used to treat their water.

Table 2. LQAS Assessment at baseline for knowledge about water treatment methods

Supervision Areas	Total No. Correct per Supervision Area			Sum of Total Correct	Sample Size per Supervision Area			Sum of Sample Sizes	Average Correct	Decision Rule
	1	2	3		1	2	3			
Percentage who knew the following methods used to treat water to make it safe to drink:										
Boil	16	16	16	48	20	20	20	60	80%	14
Chlorine tablets	15	13	10	38	20	20	20	60	63%	11
Filtration	0	1	2	3	20	20	20	60	5%	NA
Other	3	2	3	8	20	20	20	60	13%	NA

Clients were also asked a series of attitude questions and were asked whether they agreed or disagreed with three questions. The results in Table 3 show mixed results. Fewer clients at the post-test agreed with the statement that it was necessary to treat their drinking water at home. The Manuela Ramos team felt that because more of the clients reported drinking bottled water and table water, which is already treated, this could account for the decrease in this indicator at the post-test. More clients at the post-test felt personally obligated to treat their water. The high pre-test average of those who felt confident they could provide safe water for the family was maintained at the post-test.

Table 3. Water Treatment attitudes

Indicators	Pre-test	Post-test
The client agrees with the following statement: It is necessary to treat my family's drinking water at home.	82%	65%
The client agrees with the following statement: I feel a strong personal obligation to consume treated water	80%	95%
The client agrees with the following statement: I feel confident that I can provide safe drinking water for my family	97%	98%

When asked how they stored their water (Table 4), there was a statistical increase in the percentage of clients who indicated they stored water in a container with no lid or cover; there was also a

statistical decrease in the percentage of clients who reported storing their water in a container with a lid but no tap or spigot. There was a small, yet statistically significant, increase in the percentage of clients who reported storing their water in a container with a lid and spigot. These results are somewhat contrary to what we might have expected given the increase in those reporting to store their water in a container without a lid. The education promotes clean storage of water. While results below will somewhat contradict these findings, the answers to these questions might reflect a current reality with purchasing the table water. Manuela Ramos field staff reported that women often purchase water from large water containers from local merchants that are lacking the red lid that normally caps the water. This may suggest women are more aware of how they are storing their water given the education and are therefore more accurate in their reporting.

Table 4. Water storage

Indicators	Pre-test	Post-test
In container with no lid or cover	3% (±5)	37%* (±12)
In container with lid but no tap or spigot.	95% (±5)*	45%(±12)
In container with lid and spigot	0%	12% (±5)*
In narrow-mouthed container	0%	0%
Other	2%	13%
Don't know	0%	0%

*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

When utilizing an LQAS analysis (data not shown in table) at the post-test, Supervision Area 2 fell far below the 45 percent average of those reporting to have water stored in a container with a lid but no tap. While Supervision Area 3 fell below the 37 percent average of those storing their water with no lid or cover, they met the average or exceeded it for those with water stored in a container with a lid—a more preferable storage method. These differences did not exist at the pre-test.

When the surveyor asked to observe where the drinking water was stored, the averages for those storing their water with a lid was much greater than reported by the client prior to observation. At both pre- and post-test, over 92 percent of the clients had water covered completely with a lid. There was also a statistical increase from the pre-test to the post-test for those observed to have a spigot and water stored beyond the reach of animals. The difference between the pre- and post-test of those observed to have stored their water beyond the reach of animals was over a 50 percentage-point increase. While water was observed to be cleaner, the difference was not statistically significant.

Table 5. Observation of water storage method by surveyor

Indicators	Pre-test	Post-test
Completely covered with lid	95%	92%
Narrow opening	5%	2%
Spigot	2%(±3)	19%* (±10)
Beyond reach of animals	3%(±5)	54%* (±12)
Clean (free of dirt, debris, garbage, fecal matter, etc.)	67%	87%
Dirty	5%	5%
Other	5%	3%

*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

Using an LQAS analysis (data not shown in table), at the pre-test, Supervision Area 1 fell below the average of 67 percent for having clean water, meaning far fewer households were observed to have clean water. At the post-test, this lower performance was maintained, with far fewer than the 87 percent average for all three supervision areas observed to have clean water. At the post-test, Supervision Area 1 also fell below the 92 percent average for those observed to have water completely covered with a lid. Supervision Area 3 fell below the average of those at post-test observed to have a spigot.

At the pre-test, none of the clients reported having purchased any equipment to filter and store their water in the prior six months; at the post-test, 17 percent of the clients reported having purchased equipment to filter or store their water. An additional 20 percent were considering purchasing equipment to filter and store their water. Clients in Supervision Area 2 were far less likely to report thinking about purchasing equipment in the future, which likely reflects their overall results of having better water treatment and storage behaviors.

Sanitation

When clients were asked to name the main ways a person comes in contact with feces (Table 6), there were statistically significant and fairly large improvements between the pre- and post-test for those who could name fingers and hands, water, and flies. Very little knowledge changed relating to those who knew one could come in contact with feces in the fields. When discussed with the Manuela Ramos staff why so few could name “fields” at the post-test, field staff indicated that since most clients used at least a latrine, there was not a high prevalence of open defecation; however, when the education was delivered, it may have not been clear to the field staff or the clients that animal feces, most often found in the fields, would also be relevant to the “feces in the field” context.

Table 6. Knowledge of how one comes in contact with feces

Indicators	Pre-test	Post-test
Fields	3%	8%
Fingers and hands	83% (± 9)	100%*
Water	37% (± 12)	85%* (± 9)
Flies	3% (± 5)	35%* (± 12)
Other	3%	5%

*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

Clients were also asked to name the safest way to dispose of feces (Table 7). There was a significant increase in those who reported that a latrine or toilet is the best place to dispose of feces; no one at the post-test reported that one should bury feces; this decrease was also statistically significant.

Table 7. Knowledge of safest way to dispose of feces

Indicators	Pre-test	Post-test
In a latrine or toilet	65% (± 12)	100%*
Burying it	53% (± 13)	0%*
Disposing in river or pond or other water	0%	0%

Other	5%	0%
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*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

However, knowledge of the safest place to dispose of feces does not necessarily result in a change in the type of lavatory facility used by the household (Table 8). Approximately the same percentage of households who reported having a toilet at the pre-test had one at the post-test. At the pre-test, the option of “wooden-box latrine” was not a pre-coded option; therefore, we retrospectively re-coded the “other” options into a category that only included the wooden-box latrine because it was so common. Therefore, the increase in the use of the wooden-box latrine is likely explained by the fact that clients were given this type of latrine as a pre-coded option at the post-test.

Table 8. Type of household sanitation facility

Indicators	Pre-test	Post-test
No facilities/in the field	2%	0%
Toilet connected to the public network/ <i>Mi Baño con Conexión</i>	32%	28%
Wooden-box latrine	47%	63%
Compost Toilet/ <i>Mi Baño con Biodigestor</i>	0%	0%
Flush or pour toilet connected to a septic tank	2%	0%

Overall, the majority of clients were at least somewhat satisfied with the place where the family defecates and this level of satisfaction did not change much between the pre- and post-test, likely due to the lack of change in lavatory facility as well (Table 9).

Table 9. Satisfaction with where the family defecates

Indicators	Pre-test	Post-test
Very high level of satisfaction with the place where the family defecates	27%	28%
Somewhat satisfied with the place where the family defecates	47%	53%

For those who did make a change to their lavatory facility in the prior months, only 12 percent, or four people, made an improvement. Two clients in the sample purchased the full lavatory product (*Mi baño con conexión*) that had a connection to the local sewer systems. The other two purchased a new latrine or toilet. When asked how they paid for the products, one client used the WASH credit product, two used their business income and one client said her mother took out WASH credit.

When asked about their satisfaction with the price of the products, they were either very satisfied or they did not respond. When asked about their level of satisfaction with the quality of the products, only the person who purchased the latrine was somewhat satisfied; the others were very satisfied.

For the remaining clients who did not make an improvement to their household lavatory facility, 62 percent of those at the post-test said they planned to improve their facility in the next six months. Of those that have this intention, the majority of them (92 percent) indicated they planned to purchase one of the products offered by Manuela Ramos. For those who had no intention of purchasing a product provided by Manuela Ramos:

- Eight clients had other debts to pay
- Eight felt their household facilities were still in good shape

- Three wanted to “catch up economically” first
- The remaining wanted to wait until the sewer system was installed, they couldn’t make an improvement because they do not own their home, or they had other financial priorities.

When clients were asked to indicate where they disposed of their children’s feces, there were statistically significant decreases in the proportion of clients who disposed of their children’s feces in a toilet or who buried them (Table 10). However, this has to be interpreted with some caution since the majority of the clients use a wooden-box latrine. At baseline, the answer option of wooden-box latrine was not available and the majority of clients reported disposing of their children’s feces in a toilet. At the post-test, wooden-box latrine was an answer option. This explains likely explains why far fewer at the post-test reported disposing of feces in a toilet, but 60 percent reported disposing of feces in a wooden-box latrine. The almost 60 percentage-point drop in the use of the latrine is reflected by the 60 percent who use the wooden-box latrine for disposing of children’s feces at the post-test. It is a positive sign to see that fewer reported burying feces in the ground.

Table 10. Location where children’s feces are disposed

Indicators	Pre-test	Post-test
Disposed of them in a toilet	68%* (±12)	5% (±6)
Buried them	23%* (±11)	0%
Disposed of them somewhere else	2%	2%
Wooden-box latrine	These were not provided as options at the pre-test.	60%
<i>Mi Baño con Conexión</i>		22%
<i>Mi Baño con Biodigestor</i>		0%
Not applicable		12%

*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

Handwashing

While knowledge about handwashing preventing diarrhea was high at the pre-test and slightly improved by the post-test (Table 11), there were significant improvements in the percentage of clients who knew that handwashing could prevent respiratory illnesses. There were also statistically significant improvements between the pre- and post-test for those who knew that washing your hands could prevent spreading illnesses among people. However, there was very little change in the number of clients who knew that germs cannot always be eliminated without soap.

Table 11. Knowledge that handwashing can prevent illnesses

Indicators	Pre-test	Post-test
Know that washing your hands can prevent diarrhea	93%	100%
Know that washing your hands can prevent respiratory illnesses	62% (±12)	87%* (±9)
Know that washing your hands can prevent spreading illnesses among people	38% (±12)	69%* (±12)
Know that germs cannot always be eliminated only with water and that one needs soap	34%	39%

The surveyors, like with the observation questions related to household water sources, were asked to observe in the household whether soap was present for handwashing (Table 12). While the changes

between the pre- and post-test did not improve significantly, there were observable improvements for those who had either bar soap, detergent, or liquid soap in the home for handwashing.

Table 12. Presence of soap in the house for handwashing purposes

Indicators	Pre-test	Post-test
Bar soap is present	88%	95%
Detergent (powered, liquid, or paste) is present	53%	77%
Liquid soap is present	10%	17%
Ash, mud or sand is present	0%	0%

In Table 13, the clients' answers to both the knowledge question of when it is important to wash one's hands as well as their report of when they tend to wash their hands are provided side by side to facilitate understanding as to how well knowledge change results in behavior change.

The high knowledge and corresponding behaviors related to washing one's hands after going to the lavatory or defecating at the pre-test were maintained at post-test. While a large majority already knew and practiced washing hands before eating, there was a visible improvement such that almost all clients knew and practiced washing hands prior to eating.

Interestingly, there was a significant jump in knowledge and behavior as it relates to washing hands prior to preparing food. While this did not occur for the option of "before cooking," this may be explained by the similarity of these two options. Since these were open-ended questions, the client listed the number of times they knew they practiced washing their hands. The low report at pre- and post-test for those who knew to wash hands when interacting with their children (changing diapers, helping clean their bottoms, preparing their food or breastfeeding) might be due to this not being applicable for all clients, but its lack of increase is also noteworthy.

Table 13. Handwashing Knowledge and Behaviors

Indicators	Know the situations in which it is important to wash ones hands with soap (knowledge)		The situations in which they reported actually washing their hands (behavior)	
	Pre-test	Post-test	Pre-test	Post-test
After going to the bathroom	100%	100%	95%	95%
After defecating	98%	98%	95%	95%
Before eating	85%	98%	87%	92%
Before preparing food	22%(±10)	67%*(±12)	15%(±9)	67%*(±12)
Before cooking	7%	17%	5%	10%
Before breastfeeding or feeding a child	2%	3%	0%	0%
After changing a diaper or cleaning a child's bottom	2%	10%	0%	5%
Other	3%	2%	2%	0%

*Differences between the pre- and post-test are significant at $p \leq 0.05$. The confidence intervals for each of the pre- and post-test values are provided next to the average.

When the supervision areas were compared using the LQAS decision rules, Supervision Area 2 was below the average for those who knew that one should wash their hands prior to preparing food,

however, in practice they were on average similar, which suggests that while they did not mention this as a time they should wash their hands, they did practice it. On the flip side, Supervision Area 1 performed at the average for those who knew they should wash their hands prior to preparing food; however, this was below the average, indicating they were less likely than Supervision Areas 2 and 3 to wash their hands prior to preparing food.

In total, Supervision Area 1 fell below the average for three indicators: fewer clients in this area were reported to have clean storage for their water and fewer washed their hands prior to preparing food. Supervision Area 2 also fell below the average for three different indicators: fewer clients stored their water in covered containers, they were less likely to purchase a water filter, and were less likely to know one should wash their hands prior to preparing food. Supervision Area 3 was below the average for one indicator: fewer clients in this area reported storing their water in a container that had a dispenser. **Given how very few differences there are across the three Supervision Areas, this suggests that all three areas performed similarly in making improvements in knowledge, attitudes and behaviors.** Most of the differences dealt with water storage, which was also not a strong component of this project beyond the education messages that promoted the treatment and safe storage of water.

Discussion

While Manuela Ramos' primary goal of this initiative was improve the living conditions of their clients by paying much needed attention to household sanitation facilities and related behaviors, their successful application of the WASH education also suggests that there were also important improvements in water as well as handwashing.

Water

Related to water, **clients experienced improvements in knowledge as to how they could ensure the safety of their drinking water.** For example, there was an increase in those who reported boiling or treating their water with chlorine tablets. Anecdotal evidence from Manuela Ramos field staff indicates that prior to the education, women often reported they did not boil their water because they did not like the taste of boiled water. After the education, many women reported boiling their water because they now realized the importance of the boiling for ensuring their water was completely safe to drink.

While the original survey did not ask about water sources used by the household, it was recognized that this question has to be added in order to make most sense of the reasons behind treating or not treating one's water. In this case, the field staff shared that the majority drink well water, which likely needs to be treated. Also, given the number who also reported purchasing table water, water treatment is not always necessary in these cases. This may also explain why fewer clients at the post-test felt a personal obligation to treat their water, but **more felt obligated at the post-test to consume treated water.**

Sanitation

More clients at the post-test knew that one could come in contact with feces through flies and water, but fewer acknowledged the role that the “countryside” plays, likely due to a misunderstanding or lack of emphasis in the training on human and animal feces. Given the strong emphasis on household facilities, perhaps the lack of emphasis on animal feces reduced the likelihood of improvement in this area. This is something to explore further.

When asked about the safest place to dispose of feces, at the post-test, 100 percent reported the toilet; however, this did not correspond to behaviors because **60 percent of the households in this sample use wooden-box latrines. By the post-test, only four people among the 60 had made an improvement in their household facility and only two had purchased the sanitation products provided by Manuela Ramos.** However, 62 percent of the clients indicated they intended to make an improvement in the next six months, and among the 62 percent, the majority indicated they would likely purchase the products provided by Manuela Ramos. For those who had no intention of purchasing these products, they reported having other financial obligations, priorities, or debts to repay prior to improving their facility. Others also indicated that their facilities were still in good shape and therefore did not need to make an improvement any time soon. These reasons are important to consider. While clients would like to make an improvement, they have other financial obligations. **Given the competition for their limited resources, they either must see this type of sanitation improvement of greater priority compared to something else, or must find another way to prepare or save for it.**

Handwashing

As with water and sanitation, there were also improvements with knowledge and behaviors related to washing hands with soap. While there were improvements in knowledge related to the spread of illnesses, there was no visible improvement in knowledge among clients that one cannot fully eliminate germs without soap. This is an area to consider further for ways to improve the education design or the delivery to ensure this message comes across more strongly. More clients also reported knowing the importance of and practicing washing hands prior to preparing food. **Changes in knowledge appear to have resulted in behavior changes in handwashing.**

Conclusion

There is a growing body of evidence on the important role that water, sanitation and handwashing play in health outcomes. This assessment with Manuela Ramos also demonstrates how a busy MFI can also collect and track client knowledge, attitudes, behaviors and outcomes for the purpose of improving MFI performance and growing their WASH programs. Despite focusing primarily on sanitation facilities for this project, it appears important gains have also been made by the clients in their ability to drink and provide clean, safe water to their families. The reported improvements in handwashing also hold promise for slowing the spread of illness and disease.

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Appendices

Appendix I: LQAS Table

LQAS Table: Decision Rules for Sample Sizes of 12-30 and Coverage Targets/Average of 10%-95%																		
Sample Size*	Average Coverage (Baselines) / Annual Coverage Target (Monitoring and Evaluation)																	
	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
12	N/A	N/A	1	1	2	2	3	4	5	5	6	7	7	8	8	9	10	11
13	N/A	N/A	1	1	2	3	3	4	5	6	6	7	8	8	9	10	11	11
14	N/A	N/A	1	1	2	3	4	4	5	6	7	8	8	9	10	11	11	12
15	N/A	N/A	1	2	2	3	4	5	6	6	7	8	9	10	10	11	12	13
16	N/A	N/A	1	2	2	3	4	5	6	7	8	9	9	10	11	12	13	14
17	N/A	N/A	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15
18	N/A	N/A	1	2	2	3	5	6	7	8	9	10	11	11	12	13	14	16
19	N/A	N/A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	N/A	N/A	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17
21	N/A	N/A	1	2	3	4	5	6	8	9	10	11	12	13	14	16	17	18
22	N/A	N/A	1	2	3	4	5	7	8	9	10	12	13	14	15	16	18	19
23	N/A	N/A	1	2	3	4	6	7	8	10	11	12	13	14	16	17	18	20
24	N/A	N/A	1	2	3	4	6	7	9	10	11	13	14	15	16	18	19	21
25	N/A	1	2	2	4	5	6	8	9	10	12	13	14	16	17	18	20	21
26	N/A	1	2	3	4	5	6	8	9	11	12	14	15	16	18	19	21	22
27	N/A	1	2	3	4	5	7	8	10	11	13	14	15	17	18	20	21	23
28	N/A	1	2	3	4	5	7	8	10	12	13	15	16	18	19	21	22	24
29	N/A	1	2	3	4	5	7	9	10	12	13	15	17	18	20	21	23	25
30	N/A	1	2	3	4	5	7	9	11	12	14	16	17	19	20	22	24	26

N/A: *not applicable*, meaning LQAS cannot be used in this assessment because the coverage is either too low or too high to assess an SA. This table assumes the lower threshold is 30 percentage points below the upper threshold.

- : shaded cells indicate where *alpha* or *beta* errors are 10%.
- : shaded cells indicate where *alpha* or *beta* errors are 15%.

Appendix 2: Pre-Test Survey Instrument

Pre-Test - WASH - Conocimientos y prácticas de las clientas

GRUPO No. _____	NOMBRE DEL GRUPO _____
NOMBRE DEL ENCUESTADOR(A) _____	FECHA DE LA ENTREVISTA ____/____/____ (DD/MM/AA)
NOMBRE DE LA SOCIA _____	

PRESENTACIÓN Y AUTORIZACIÓN

En las siguientes reuniones aprenderá cómo prevenir la diarrea y a asegurarse de que su familia beba agua segura. Estamos haciendo una encuesta sobre los conocimientos y prácticas de las socias. De entre las socias de su grupo, usted ha sido seleccionada para participar. La participación es voluntaria. Sin embargo, me gustaría que aceptara porque sus opiniones son importantes. Esta información nos ayudará a planificar y mejorar la educación. Por lo general, la encuesta se realiza en 20 minutos. Su identidad y las respuestas que nos proporcione serán confidenciales.

¿Quisiera ser entrevistada?

La socia acepta participar.....1 La socia no acepta participar.....2 → FIN

TRATAMIENTO DEL AGUA			
<i>ENCUESTADOR - LEA: Voy a hacerle algunas preguntas sobre cómo trata el agua de su casa. Respóndame lo que usted sepa o considere que es lo mejor.</i>			
1.	<p><i>INSTRUCCIONES PARA EL ENCUESTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta. Si la encuestada responde usando alguna de las respuestas que aparecen a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no responde alguna de estas opciones, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Conoce alguna otra forma de hacer que el agua sea más segura de beber?" Repita la pregunta hasta que la encuestada piense que no hay otras formas.</i></p> <p><i>ENCUESTADOR - PREGUNTE: ¿Puede nombrarme todas las formas que conoce para hacer que el agua de beber sea segura?</i></p>		
		SÍ	NO
1.a	Hervirla	1	0
1.b	Cloración (pastillas, etc.)	1	0
1.c	Filtrarla (recipiente de cerámica u otros)	1	0
1.e	Sodis	1	0
1.f	Otra (indicar forma) _____	1	0
2.	¿Usted trata el agua de alguna forma para hacerla segura de beber?	1	0
			→ Si responde NO, pasar a la P.4
3.	<p>En caso afirmativo, ¿qué hace normalmente para hacer que el agua sea segura de beber?</p> <p><i>INSTRUCCIONES PARA EL ENCUESTADOR: MARQUE MÁS DE UNA RESPUESTA SOLO SI SUELEN USARSE VARIOS MÉTODOS A LA VEZ. POR EJEMPLO, COLAR EL AGUA CON UN PAÑO Y AÑADIR CLORO.</i></p>		
	DEJARLA EN REPOSO PARA	COLARLA CON UN	HERVIRLA.....3
			AGREGARLE

	QUE SE DECANTE / SEDIMENTACIÓN1	PAÑO.....2		BLANQUEADOR/ CLORO.....4
	USA UN FILTRO DE AGUA (CERÁMICA, ARENA, MIXTO).....5	DESINFECCIÓN SOLAR (Sodis)...6	OTRO..... 7	NO SABE8
4.	Es mi hogar necesitamos tratar el agua para beber. (ENCUESTADOR: LEA TODAS LAS OPCIONES Y SELECCIONE SOLO UNA RESPUESTA)			
	Totalmente en desacuerdo.....1	Parcialmente en desacuerdo...2	No opina.....3	Parcialmente de acuerdo.....4
	Totalmente de acuerdo.....5			
5.	¿Siente usted una fuerte obligación personal de consumir agua tratada? (ENCUESTADOR: LEA TODAS LAS OPCIONES Y SELECCIONE SOLO UNA RESPUESTA)			
	Sí.....1	Algo.....2	No3	No sabe.....4
6.	La mayoría de mis amigas y vecinas tratan de alguna forma el agua en sus hogares para hacerla segura de beber. (ENCUESTADOR: LEA TODAS LAS OPCIONES Y SELECCIONE SOLO UNA RESPUESTA)			
	Totalmente en desacuerdo.....1	Parcialmente en desacuerdo...2	No opina.....3	Parcialmente de acuerdo.....4
	Totalmente de acuerdo.....5			
7.	Confío en que puedo ofrecerle a mi familia agua segura de beber. (ENCUESTADOR: LEA TODAS LAS OPCIONES Y SELECCIONE SOLO UNA RESPUESTA)			
	Totalmente en desacuerdo.....1	Parcialmente en desacuerdo...2	No opina.....3	Parcialmente de acuerdo.....4
	Totalmente de acuerdo.....5			
8.	¿Cómo almacena el agua de beber? (ENCUESTADOR: PUEDE HABER MÁS DE UNA RESPUESTA. ENCIERRE EN UN CÍRCULO TODAS LAS QUE SE MENCIONEN).			
	En un recipiente sin tapa o cubierta.....1	En un recipiente con tapa pero sin dispensador o grifo.....2	En un recipiente con tapa y dispensador.....3	En un recipiente de boca angosta.....4
	Otro (¿cuál?).....5	No sabe.....99		
9.	¿Ha comprado anteriormente algún equipo para filtrar y almacenar agua?		Sí.....1	No.....2 → Si responde NO, pasar a la P.11
10.	Si aún no cuenta con un filtro de agua, ¿está pensando en comprar uno en los próximos seis meses?	Sí.....1	No.....2	No está segura.....3
11.	INSTRUCCIONES PARA EL ENCUESTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta.			

<p><i>Si la encuestada responde usando alguna de las respuestas que aparecen a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no responde alguna de estas opciones, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Conoce alguna otra forma de hacer que el agua sea más segura de beber?"</i></p> <p>ENCUESTADOR - PREGUNTAR: ¿Podría mostrarme por favor dónde almacena el agua de beber?</p>				
			SÍ	NO
12.a	Completamente cubierta con una tapa		1	0
12.b	Abertura angosta		1	0
12.c	Con dispensador		1	0
12.d	Fuera del alcance de los animales		1	0
12.e	Limpia (sin impurezas, residuos, basura, materia fecal, etc.)		1	0
12.f	Sucia		1	0
12.g	Otro (¿cuál?)		1	0
INSTALACIONES SANITARIAS Y ELIMINACIÓN DE LAS HECES				
<p>ENCUESTADOR - LEER: Voy a hacerle algunas preguntas sobre sus instalaciones sanitarias. Respóndame lo que usted sepa o considere que es lo mejor.</p>				
13.	<p>¿Cuáles son las principales formas en que la gente entra en contacto con las heces? (ENCUESTADOR: ENCIERRE EN UN CÍRCULO TODAS LAS RESPUESTAS QUE APLIQUEN. PUEDE HABER VARIAS RESPUESTAS).</p>			
	En el campo.....1	Dedos/Manos.....2	Agua.....3	Moscas.....4
	Otra (¿cuál?).....5			
14.	<p>INSTRUCCIONES PARA EL ENCUESTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta. Si la encuestada responde usando alguna de las respuestas que aparecen a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no responde alguna de estas opciones, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Conoce alguna otra forma de eliminar las heces?" Repita la pregunta hasta que la encuestada piense que no hay otras formas.</p> <p>ENCUESTADOR - PREGUNTE: ¿Puede decirme cuál es la forma más segura de eliminar las heces?</p>			
14.a	En una letrina o inodoro		SÍ	NO
14.b	Enterrándolas		1	0
14.c	Botándolas a un río, estanque u otro cuerpo de agua		1	0
14.d	Otro		1	0
15.	<p>¿Qué tipo de instalación sanitaria suelen usar quienes viven en su hogar? (ENCUESTADOR: ENCIERRE EN UN CÍRCULO TODAS LAS RESPUESTAS QUE APLIQUEN. PUEDE HABER VARIAS RESPUESTAS).</p>			
	Sin instalaciones/en los arbustos/campo.....0	Inodoro con cisterna o de sifón conectado a una cloaca con tubería1	Inodoro con cisterna o de sifón conectado a una fosa séptica2	Inodoro con cisterna o de sifón conectado a una letrina de pozo.....3
	Inodoro con cisterna o de sifón conectado a alguna otra parte4	Letrinas de pozo ventiladas.....5	Letrina de pozo con losa.....6	Letrina de pozo sin losa/abierta.....7
	Sanitario de composta.....8	Letrina de balde.....9	Inodoro colgante/letrina colgante.....10	Otra (¿cuál?).....11

16.	¿Qué tan satisfecha está con el lugar en el que su familia defeca? (ENCUESTADOR: LEA TODAS LAS OPCIONES Y SELECCIONE SOLO UNA RESPUESTA)			
	Muy insatisfecha1	Algo insatisfecha2	No opina.....3	Algo satisfecha4
	Muy satisfecha5			
17.	¿Piensa usted instalar o cambiar una instalación sanitaria en los siguientes 6 meses?		Sí.....1	No.....2
18.	En caso negativo, ¿por qué no?			
19.	La última vez que su hijo(a) defecó, ¿cómo se eliminaron sus heces?			
	Botándolas en el inodoro.....1	Enterrándolas2	Con los residuos sólidos/basura.....3	En el jardín.....4
	Afuera del hogar.....5	En una letrina pública.....6	En un lavamanos o tina.....7	En un cuerpo de agua.....8
	En el pozo.....9	En otra parte (¿cuál?).....10	Lavándolas o echándoles agua (especificar dónde).....11	No aplica.....3
LAVADO DE MANOS				
ENCUESTADOR - LEA: Voy a hacerle algunas preguntas sobre el lavado de las manos. Respóndame lo que usted sepa o considere que es lo mejor.				
20.	¿Lavarse las manos con jabón puede prevenir la diarrea?	Sí.....1	No.....2	No sabe.....3
21.	¿Lavarse las manos con jabón puede prevenir la enfermedad respiratoria?	Sí.....1	No.....2	No sabe.....3
22.	¿Lavarse las manos con jabón puede evitar que las personas se contagien enfermedades entre sí?	Sí.....1	No.....2	No sabe.....3
23.	Algunos elementos como los gérmenes no siempre pueden ser eliminados sólo con agua. Es necesario usar jabón para eliminarlos por completo.	Sí.....1	No.....2	No sabe.....3
24.	INSTRUCCIONES PARA EL ENTREVISTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta. Si la encuestada responde usando alguna de las respuestas que aparecen a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no usa ninguna de estas respuestas, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Existe alguna otra situación en la que sea segura importante lavarse las manos?" Repita la pregunta hasta que la encuestada piense que no hay otras situaciones.			
	ENCUESTADOR - PREGUNTE: ¿En qué situaciones es importante lavarse las manos?			
24.a	Después de ir al baño		SÍ	NO
24.b	Después de defecar		1	0
24.c	Antes de comer		1	0
24.d	Antes de preparar los alimentos		1	0
24.e	Antes de cocinar		1	0

24.f	Antes de alimentar o amamantar a un niño	1	0
24.g	Después de cambiarle el pañal o limpiar la cola de un niño	1	0
24.h	Otra (¿cuál?)	1	0
25.	<p>INSTRUCCIONES PARA EL ENTREVISTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta. Si la encuestada responde usando alguna de las respuestas que aparece a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no usa ninguna de estas respuestas, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Existe alguna otra situación en la que sea segura importante usar jabón al lavarse las manos?" Repita la pregunta hasta que la encuestada piense que no hay otras formas.</p> <p>ENCUESTADOR - PREGUNTE: ¿En qué situaciones es importante usar jabón cuando se lava las manos?</p>		
25.a	Después de ir al baño	SÍ	NO
25.b	Después de defecar	1	0
25.c	Antes de comer	1	0
25.d	Antes de preparar los alimentos	1	0
25.e	Antes de cocinar	1	0
25.f	Antes de alimentar o amamantar a un niño	1	0
25.g	Después de cambiarle el pañal o limpiar el trasero de un niño	1	0
25.h	Otra (¿cuál?)	1	0
<p>NOTA PARA EL ENCUESTADOR: Las siguientes 3 preguntas son de observación, lo que significa que usted simplemente pedirá ver dónde se lavan las manos los miembros del hogar y marcará la respuesta que corresponda. No haga ninguna de estas preguntas directamente.</p>			
26	<p>Por favor enséñeme adónde suelen lavarse las manos los miembros de su hogar. (ENCUESTADOR: NO LEA ESTAS PREGUNTAS EN VOZ ALTA. MARCAR TODAS LAS QUE CORRESPONDAN AL LUGAR DESTINADO PARA LAVARSE LAS MANOS.)</p>		
	Se observó.....1	No se observó, no en la vivienda/lote/jardín.....2	No se observó, acceso no permitido.....3
			No se observó, otra razón.....4
27	<p>ENCUESTADOR: Observe si hay agua en el lugar destinado para lavarse las manos. Verifíquelo revisando el grifo/surtidor, jarra, cubeta, recipiente con agua u objetos similares que indiquen la presencia de agua.</p>	Hay agua disponible.....1	No hay agua disponible.....2
28	<p>ENCUESTADOR: Registre si hay jabón o detergente en el lugar destinado para lavarse las manos. Marque 1 si lo hay y 0 si no lo hay.</p>		
		Hay	No hay
28.a	Jabón en barra	1	0
28.b	Detergente (en polvo, líquido o pasta)	1	0
28.c	Jabón líquido	1	0
28.d	Ceniza, barro o arena	1	0
28.e	Ninguno	1	0
29.	¿Tiene jabón o detergente para lavarse las manos en su hogar?	Sí.....1	No0 ➔ Pasar a la P.37
30.	¿Me lo puede mostrar, por favor? (ENCUESTADOR: Por favor marque 1 si "sí" y 0 si "no" se cuenta en el hogar con los siguientes artículos).	SÍ	NO
30.a	Jabón en barra	1	0
30.b	Detergente (en polvo, líquido o pasta)	1	0
30.c	Jabón líquido	1	0
30.d	Ceniza, barro o arena	1	0
30.e	La entrevistada no pudo/no quiso mostrar	1	0

31.	<p>INSTRUCCIONES PARA EL ENTREVISTADOR: Esta es una pregunta abierta. No lea las opciones de respuesta. Si la encuestada responde usando alguna de las respuestas que aparecen a continuación, encierre en un círculo el 1 correspondiente en la columna "sí". Si la encuestada no usa ninguna de estas respuestas, encierre en un círculo el 0 correspondiente a "no". Cuando la encuestada deje de nombrar opciones, pregúntele "¿Existe alguna otra situación en la que haya que lavarse las manos con jabón?" Repita la pregunta hasta que la encuestada piense que no hay otras formas. TENGA EN CUENTA que esta pregunta no es acerca de cuándo hay que lavarse las manos sino sobre cuándo en realidad la encuestada se lava las manos. Las preguntas anteriores se refieren al conocimiento de las encuestadas sobre los momentos importantes en los que deben lavarse las manos mientras que esta pregunta se refiere a los momentos en las que las encuestadas se las lavan en la práctica.</p> <p>ENCUESTADOR - PREGUNTE: ¿En qué situaciones se lava usted las manos con jabón?</p>		
31.a	Después de ir al baño	SÍ	NO
31.b	Después de defecar	1	0
31.c	Antes de comer	1	0
31.d	Antes de preparar los alimentos	1	0
31.e	Antes de cocinar	1	0
31.f	Antes de alimentar o amamantar a un niño	1	0
31.g	Después de cambiarle el pañal o limpiar el trasero de un niño	1	0
31.h	Otra (¿cuál?)	1	0

ENCUESTADOR – DIGA: Gracias por su participación. ¿Tiene alguna pregunta?