USAID FROM THE AMERICAN PEOPLE | HIP HYGIENE IMPROVEMENT PROJECT

MADAGASCAR HOUSEHOLD OUTCOME MONITORING SURVEY 2007–2010 COMPARISONS

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ACRONYMS

CLTS	Community-Led Total Sanitation
FANTA	Food and Nutrition Technical Assistance
HIP	Hygiene Improvement Project
HWS	Hand Washing with Soap
HWTS	Household Water Treatment and Storage
LQAS	Lot Quality Assurance Sampling
OM	Outcome Monitoring
PENSER	Population and Environment Services
PMA	Program Management Area
PPS	Proportional Probability to Size
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene

INTRODUCTION

This document presents the findings of research conducted annually from 2007 to 2010 through a household survey in 63 communes in four regions of Madagascar where the USAID-funded Hygiene Improvement Project (HIP) worked: Amoron'i Mania, Analamanga, Atsinanana, and Haute Matsiatra. The purpose of the research was to track comparable indicators over time to establish the effectiveness of HIP-supported interventions that promoted three hygiene practices at the household level:

- Hygienic disposal of human waste
- Hand washing with soap at critical junctures to prevent diarrheal disease
- Household drinking water treatment and safe storage

The report discusses implications of comparable data collected in those years, and presents findings particular to 2010 when appropriate.

The Hygiene Improvement Project In Madagascar

The USAID Hygiene Improvement Project began operations in Madagascar in 2005. HIP sought to influence hygiene practices among families, especially with children under five years of age, where the highest incidence of morbidity and mortality resulting from diarrheal disease usually occurs. From its inception, HIP joined the Diorano-WASH platform, a consortium of some 20 government and nongovernment organizations working together to achieve water, sanitation, and hygiene (WASH) goals. HIP operated at scale in four regions with an estimated population of 6.4 million people, working on the principle of "multiples" to ensure broad reach: multiple administrative levels, ministries, partners, and communication channels. HIP promoted "small doable actions," as a pathway to adopt improved hygiene practices and connected practices with enabling technologies.

HIP also sought to improve: 1) access to hygiene infrastructure (e.g., sanitation and hand washing facilities, hand washing and water treatment supplies, protected water sources) and 2) hygiene promotion programs implemented by schools and basic health facilities targeting their respective client base as well as communities at large. In this regard, up until the first quarter of 2009, HIP supported the Government of Madagascar's initiative to promote both WASH-friendly schools and basic health facilities. In close collaboration with Diorano-WASH, and the ministries of Water, Health, and Education, HIP was instrumental in defining criteria to classify schools and health facilities as WASH-friendly and provided support to enable schools and health facilities in its project zones to become certified as such.

After the political crisis in 2009, in response to the U.S. government mandate, HIP shifted activities away from working with the Government of Madagascar to a greater focus on communities, the private-sector, and NGOs, with sanitation marketing and CLTS comprising core activities. The sanitation marketing component yielded three promising models: public-private partnerships for urban neighborhood for-fee toilet/shower facilities; sanitation product points of sale; and local mason training to make and sell SanPlat latrine slabs and build household latrines. Other critical partners for promoting key hygiene practices were the Scouts, the Club Vintsy youth clubs, the Malagasy Red Cross, and members of faith-based community groups. HIP developed a program and guidebooks for the Scout Federation of Madagascar for earning a WASH badge. Scouts actively participate in many WASH and HIP activities such as international day celebrations (World Water Day, Global Handwashing Day, etc.). They also organize weekend "camps" with community and household WASH-based outreach activities. HIP staff created a WASH-friendly church program where adequate sanitation and safe water are available for parishioners and where WASH messages are presented during Sunday school for adults and children.

A map of Madagascar indicating where HIP operates may be found on page 4.

Conducting the Surveys

Data collected at the household level follows USAID Madagascar's Outcome Monitoring approach, which tracks the achievement of behavioral change objectives in programs implemented by its health sector partners. PENSER (Population and Environment Services), a local Malagasy firm, collected the data in 2007 and 2008, with technical assistance from the Food and Nutrition Technical Assistance (FANTA) Project. PENSER collected data on its own in 2009, and a team of HIP trained enumerators collected the data in house in 2010. Because HIP was coming to a close in 2010, the data collection mechanism was changed; data collection activities occurred earlier than usual so the results would be available in early August in time for HIP's end-of-project event.

Data presented here are limited to household interventions as the political situation in Madagascar restricted HIP's involvement with public sector partners, particularly at the central level. As a result, the project components targeting schools and health facilities were suspended in 2009. Results presented in this report also exclude the achievements of the community-led total sanitation (CLTS) hygiene promotional efforts for two reasons: 1) the unit of analysis to track CLTS results is the village and not the household, and 2) CLTS activities were implemented in 2010 and the program was still too young during spring data collection to determine how many CLTS villages had achieved open-defecation-free status. That type of follow up will occur during the next fiscal year as activities once implemented by HIP are supported under the C-Change project umbrella.

Summary of Findings

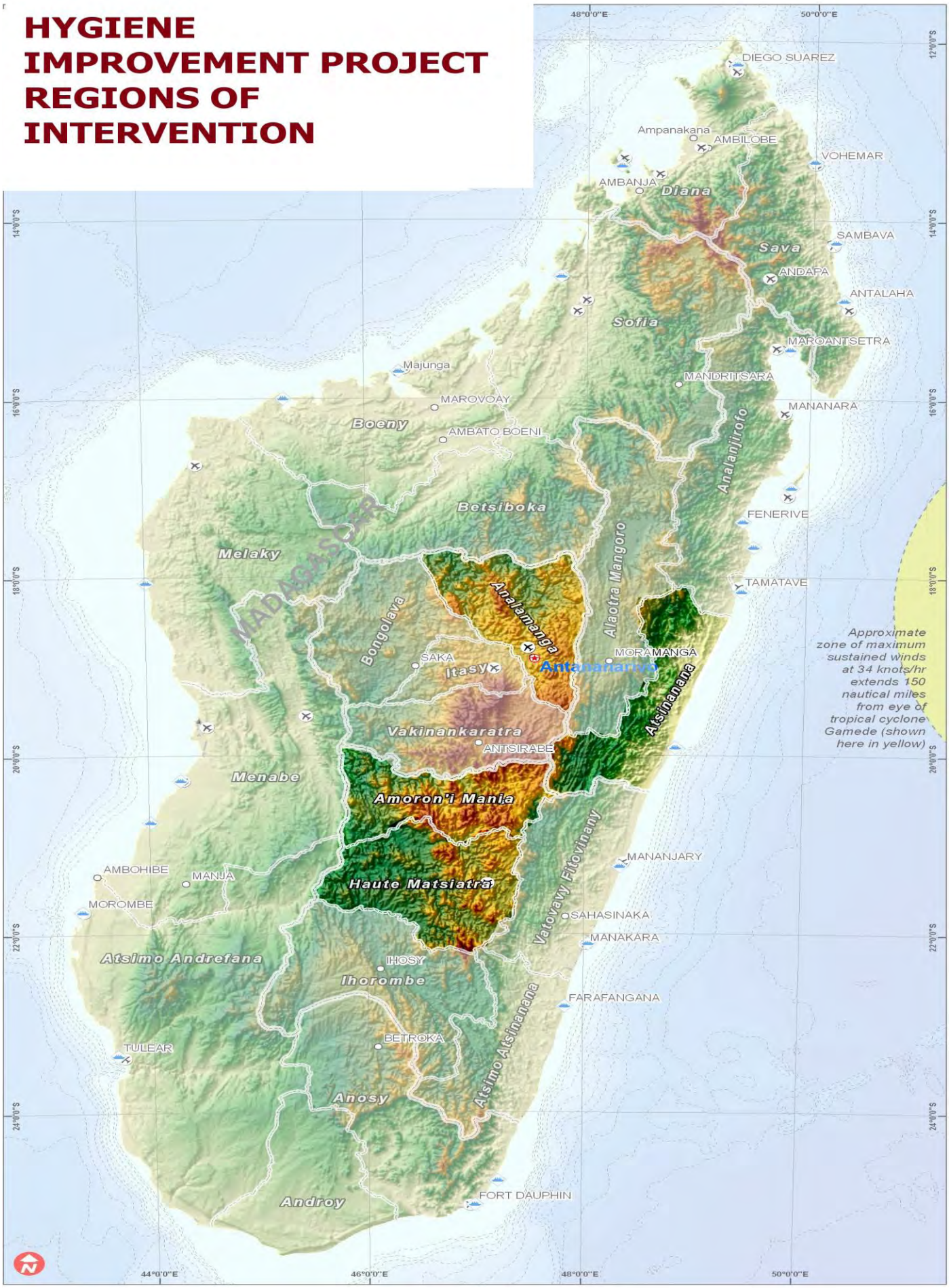
Survey data show notable improvements in the areas of water treatment product awareness (specifically for *Sur'Eau,* the locally produced product*)*, knowledge of the critical junctures for hand washing, sanitary disposal of children's feces, and installation of hand washing stations at/near latrines. Significant drops in the practice of open defecation were recorded in the first two years of HIP, but these improvements leveled off over time and the sanitation facilities visited were more often of poor quality and inadequate—far short of the improved sanitation the project promoted. Several interpretations are possible to understand these findings. Methodologically, Lot Quality Assurance Sampling (LQAS) has its limitations given the sample size required. For more in-depth explorations a large sample size than that established by the LQAS methodology is necessary. As far as the leveling off is concerned, innovation diffusion theory tells us that we have different population segments: innovators, early adopters, early majority, late majority and laggards. The initial gains in sanitation coverage may have included some of the first categories mentioned. To move a larger group of open defecators may require a different strategy than the one used by the project. Finally, because of the limitation HIP faced in Madagascar regarding work with government after the 2009 coup d'état, the strategy changed from working with individual households to work through CLTS. CLTS achievements are not captured by the outcome monitoring exercise implemented by the USAID Mission in Madagascar.

Results also show a rise in latrine sharing was also recorded during this period. The goal of HIP's scale approach was to reach households with hygiene improvement messages from many channels. While significant increases in exposure to messages were recorded over time, most respondents indicated that these messages came from one channel—radio was the primary source, followed by community health workers. Once HIP was forced to shift its support away from government institutions to NGOs and the private sector it lost a number of central channels through which to convey its messages, including community health facilities, and worked creatively to find others.

Based on the findings of the surveys, several clear recommendations stand out for program improvement and measurement in Madagascar. Sanitation promotion at the household level needs to be sustained overtime, and complement CLTS efforts. To improve the quality of toilets/latrines built, a strong sanitation marketing program that is not limited to fee for use toilets may need to be set up. In addition, future programs should take advantage of the universal practice of rice water preparation and promote it as an effective water treatment option for households. Another is to continue promoting hand washing station installation near food preparation and sanitation facilities along with messages that stress the importance of having hand washing supplies at the stations. Improved sanitation facilities continue to be the goal, and options to move households toward this end need to be developed. And finally, working with local government entities such as communes if the ban on central government support continues would be a way to expand the reach of hygiene messages.

This report contains the following sections: methodology, findings, conclusions, and programmatic and methodological recommendations.

HYGIENE IMPROVEMENT PROJECT REGIONS OF INTERVENTION



METHODOLOGY

Sampling

In accordance with the LQAS requirements for collecting information on population-based indicators and to ensure population point estimates were made, a total of at least 24 households were visited per region targeted by HIP interventions. Households were selected if they had a child seven to 23.9 months old, which, according to 2005 Demographic and Health Survey figures, children under five have the highest prevalence of diarrheal disease.

Each one of the regions where HIP operated was considered to be a Program Management Area (PMA). Twenty-four communes per region were selected at random using proportional probability to size (PPS). Fokontanys (villages) were randomly chosen within the selected communes via a weighted simple random selection process. Following the PPS methodology, more than one fokontany may have been chosen per commune. Once in a village, a "spin the bottle" procedure was used to select the first set of four households to visit. Enumerators went to these houses to identify one that would meet the selection criterion. If these households did not meet that criterion, an additional set of four households located in proximity to the first set were visited until a household with a child seven to 23.9 months was identified in that village.

From 2008 through 2010, data were collected by interviewing one household per village. This procedure represents a departure from the cluster sampling approach used in 2007 where three households per village were visited. Analysis of the 2007 data conducted by FANTA revealed that cluster sampling led to higher than desired intra-cluster correlations. The latter increased the probability of misclassifying PMAs when using the pass-fail classification associated with LQAS. Although this does not affect the overall point estimates, FANTA decided that the outcome monitoring (OM) should use simple random sampling rather that cluster sampling until further analyses are done. Since HIP piggybacks its household data collection with FANTA's, HIP had to use the same methodology FANTA used in both 2007 and 2008.

Data Collection

The instrument used to collect data appears in Annex 1. The 2007 instrument underwent minor modifications over time. The instrument in this annex is the one used in 2010.

Personal digital assistants were used to collect the information from all study groups. Instruments were converted into Pocket Creations format, the software used by the devices. Data entered were exported to Excel and then into Statistical Package for the Social Sciences for analysis.

Data Analysis

Frequency distributions were compared across time using cross tabulations and calculating Chi2 or conducting simple analysis of variance, depending on whether the variables under analysis were categorical or continuous, respectively.

Limitations of the Study

Data in this report are aggregated to provide a population estimate for the four regions where the HIP project was implemented in Madagascar. Presenting data in an aggregated fashion makes it difficult to take into account the confidence intervals that would give the reader an indication of the margins of error for each one of the indicators per year.

In addition, LQAS is usually employed to determine and follow up targets set up on an annual basis. It can help determine if each one of the targets established per indicator was met or not. The discussion in this report provides a general view of trends and does not focus on annual targets.

The size of the sample is relatively small making it difficult to do further analysis of the data to explore issues such as the relationship between exposure and knowledge and between knowledge and practices.

This report focuses on the findings of the household survey. It excludes the outcomes of other HIP program activities, namely the CLTS promotion and for-fee toilets/showers that HIP helped fund and establish.

FINDINGS

The findings are organized by practice promoted: hygienic disposal of human waste, hand washing with soap at critical junctures to prevent diarrheal disease, and household treatment and storage of drinking water. Within each content area, the discussion is broken down into three segments: exposure, knowledge (if appropriate), and practices. All of the data in the tables are percentages. The denominators to calculate the percentages appear at the top of each column after the letter “n” for size of the subsample.

Sanitation

Exposure

Table 1 presents findings regarding exposure to sanitation promotion in the month prior to the survey for the period under analysis. These data show two peaks, in 2008 and in 2010, preceded by lower percentages in the other two years, 2007 and 2009. Radio is the leading channel in both peaks. Community health workers were the second most frequently mentioned source in 2009, but shared that position with health facilities in 2010. The least frequently mentioned channel was school children, which emerged as a source of sanitation messages in 2009 and increased in 2010. These differences are statistically significant.

Table 1 – Channels of Exposure to Sanitation Promotion by Measure (Percentages)

Indicator		Measures				Chi2	p
		2007 (n=105)	2008 (n=95)	2009 (n=96)	2010 (n=100)		
Exposed to sanitation promotion							
Through:	**Health facility**	0	9	2	8	13.6	.00
	Community health workers	0	18	12	8	20.4	.00
	Radio	0	13	8	15	16.6	.00
	School kids	0	0	1	7	17.1	.00
	Other channels	0	1	5	0	12.1	.00

Table 2 presents findings regarding sanitation promotion by year. The purpose of the table is to examine the extent to which sanitation messages were relayed by multiple channels. One of the principles of the HIP scale approach is to try to present messages through multiple channels. In this approach message saturation is an important way to generate behavior change and attempt to modify social norms about hygiene. These data indicate that exposure to sanitation promotion messages occurred mainly through one channel. Message delivery through two channels increased from 2007 to 2008, but dropped in subsequent years.

Table 2 – Number of Channels Involved in Exposure to Sanitation Promotion by Measure (Percentages)

Indicator	Measures				Chi2	p
	2007 (n=105)	2008 (n=95)	2009 (n=96)	2010 (n=100)		
No access to information	0	65	73	72	65.0	.00
Access to sanitation messages through one channel	0	28	35	13		
Access to sanitation messages through two channels or more	0	6	2	2		

Practices

Table 3 summarizes findings regarding access to sanitation facilities. The data indicate significant drops in open defecation between 2007 and 2008 from 39 percent to 18 percent. This drop remained constant in 2009, but increased from 18 percent to 23 percent in 2010. By the same token, the data indicate an increase from 58 percent to 72 percent, a 14 point increase, in the access to unimproved sanitation from 2007 to 2008. This increase remained constant even though a slight drop occurred to 69 percent. Constant figures over time imply that the practice kept pace with any population increase characteristic of the areas where the data were gathered.

Table 3 – Sanitation Coverage by Measure (Percentages)

Indicator		Measures				Chi2	p
		2007 (n= 105)	2008 (n=95)	2009 (n = 96)	2010 (n=100)		
Access to latrines	Practices open defecation	39	18	18	23	23.1	.00
	Access to unimproved latrine	58	72	69	73		
	Access to improved latrine	3	10	12	4		

Table 4 presents findings regarding the sharing of latrines over time. The data suggest that again there were peaks in terms of latrine sharing: the peaks were in 2007 and 2009, and the drops in 2008 and 2010. The zigzag pattern observed, however, is not statistically significant. The average number of households that share latrines has a different pattern, nevertheless. The data indicate that the average number of households sharing a latrine has an initial value of 2.9 households in 2007; that value drops to 2.2 in 2008, then goes back up to 2.8 in 2009, with yet another increase to 4.4 in 2010. The changes observed in terms of the average number of households sharing a latrine are statistically significant. In a sense, at the end of the measurement period there may be a concentration of sharing around certain focal points.

Table 4 – Latrine Sharing by Measure (Percentages)

Indicator	Measures				Chi2/ F	P
	2007 (n=64)	2008 (n=78)	2009 (n= 78)	2010 (n= 76)		
Households that share a latrine	72	63	72	64	2.31	.51
Average number of households sharing latrines	2.9	2.2	2.8	4.4	2.8	.02

Table 5 presents findings regarding the physical characteristics of installed latrines. According to data in this table, latrines installed were generally being used when enumerators visited households. The exception to that rule occurred in 2008, when a drop from the high 90s to 69 percent was detected. The data in Table 5 also suggest an increase in the existence of latrines with a protected entry from 70 percent to 92 percent between 2007 and 2008. However, a drop was recorded in latrines having a protected entry from 92 percent to 83 percent between 2008 and 2009 and from 83 percent to 79 percent between 2009 and 2010. The data in Table 5 suggest a progressive increase in the use of locks on latrine doors over time, with an exception to the rule occurring in 2009. All of the differences pointed out between and across years are

statistically significant. The data in Table 5 suggest stability regarding two characteristics: presence of a roof and walls. The vast majority of latrines observed have both, regardless of the year when the observation occurred.

Table 5 – Latrine Characteristics by Measure (Percentages)

Indicator	Measures				Chi2/ F	p
	2007 (n=64)	2008 (n=77)	2009 (n= 62)	2010 (n= 76)		
Signs of latrine use	95	69	98	100	43.2	.00
Latrine has protected entry permitting privacy	70	92	83	79	11.6	.01
Latrine entrance has a lock	5	31	17	47	37.1	.00
Latrine has a roof	89	95	87	89	3.0	.39
Latrine has walls that permit privacy	94	99	96	95	2.5	.47

Table 6 presents findings regarding the management of child feces by year. The data suggest the presence of a drop followed by a progressive increase. The final level is still smaller than where it started in 2007. The data also indicate an increase in the use of a potty from 10 percent to 29 percent between 2007 and 2008, from 29 percent to 30 percent between 2008 and 2009, and a small drop from 30 percent to 26 percent between 2009 and 2010. The data also indicate a progressive increase in the disposal of child feces using latrines from 26 percent to 46 percent between 2007 and 2009, with an intermediate value of 45 percent in 2008, and a short drop from 46 percent to 37 percent between 2009 and 2010. This trend was matched by corresponding drops in the disposal of child feces by either depositing them in the backyard or leaving them out in the open as well as a drop in disposal by throwing feces into waterways or washing diapers in rivers. The data in Table 6 indicate a drop from 30 percent in 2007 to 17 percent in 2010 with some up and down movement in the intermediate years. By the same token, the data also indicate a steady drop in the disposal of child feces in waterways from 30 percent to 19 percent between 2007 and 2009, with a jump back to 25 percent in 2010. In general, however, the data show that the hygienic disposal of child feces increased, the unhygienic disposal tended to decrease, with some annual exceptions where the trend is (temporarily) interrupted.

Table 6 – Management of Child Feces by Measure (Percentages)

Indicator		Measures				Chi2/	p
		2007 (n=105)	2008 (n=95)	2009 (n=96)	2010 (n= 100)		
Where did youngest child defecate last?	**Open defecation**	78	39	45	65	32.9	.00
	In clothes or diapers	6	26	20	2		
	Used potty	10	29	30	26		

	Used latrine	6	5	4	6		
	Other answers	0	0	2	2		
Final disposal location of child's feces	**In latrine**	26	45	46	37	35.0	.03
	Buried	4	14	7	13		
	With solid waste	3	3	3	2		
	Backyard/open air	30	13	21	17		
	Washed/waterway	30	23	19	25		
	Elsewhere	7	2	3	5		

Hand Washing

Exposure

Table 7 presents the distribution of exposure to hand washing with soap (HWS) messages by year, broken down by source of information. The table shows significant increases over time, with two peaks clearly observed, one in 2008 and a much steeper one in 2010. In either peak year, radio was the most frequently mentioned channel. Community health workers are mentioned in three of the four years when the survey was conducted, and they are mentioned as frequently as radio as a communication source in 2010. The community health facility is also mentioned as a HWS message source from 2008 onward and comes in as the third most frequently mentioned source in 2010. Other communication channels and school children are the least frequently mentioned, regardless of the measurement.

Table 7 – Channels of Exposure to HWS Messages by Measure

Indicator		Measures				Chi2	p
		2007 (n=105)	2008 (n=95)	2009 (n = 96)	2010 (n=100)		
Exposed to hand washing messages		0	30	22	63	104.1	.00
Through :	**Health facility**	0	10	7	15	16.5	.00
	Community health workers	0	6	5	26	46.5	.00
	Radio	0	14	0	26	34.7	.00
	School children	0	0	1	0	3.1	.37
	Other channels	0	4	3	2	4.3	.22

One of the guiding principles of the at-scale intervention is that messages should preferably be delivered through more than one channel. Table 8 presents the breakdown of the number of channels through which HWS messages were disseminated based on self-reporting provided by the study participants. The data indicate that if exposed, the majority of the respondents received the HWS messages through one channel. The variations observed over time and presented in Table 8 are statistically significant. The same peaks discussed earlier are, of course, observed when the number of channels is collapsed.

Table 8 – Number of Channels through which HWS Messages Were Heard/Seen by Measure

Indicator	Measures				Chi2	P
	2007 (n=105)	2008 (n=95)	2009 (n=96)	2010 (n=100)		
No exposure to HWS messages	100	66	77	36	105.3	.00
Exposure through one channel	0	26	21	59		
Exposure via two or more channels	0	4	2	5		

Knowledge

Table 9 presents findings regarding the knowledge of hand washing junctures that are crucial to reducing diarrheal disease. These include the risk of coming in contact with fecal matter or junctures associated with food handling and consumption. The responses are unprompted, offered spontaneously by study participants. In general the trend suggests a progressive increase in knowledge during the first two or three years, which begins to drop by either the third or the fourth year. That said the percent by the endline is always higher than the percent observed at the baseline. For example, knowledge that one should wash hands with soap after defecation increased from 32 percent to 59 percent between 2007 and 2008, yet it dropped to 49 percent by 2009 and dropped further to 44 percent by 2010. The trend is slightly different when it comes to knowing that one should wash hands before cooking. It increased from 19 percent to 52 percent between 2007 and 2008, and it increased further to 54 percent by 2009. Yet, it dropped down to 33 percent in 2010. There are similar variations regarding the knowledge that it is important to wash hands with soap prior to feeding a child, even though the gains may have not been as dramatic as in the case of washing hands prior to cooking. In general, continuous support is needed to ensure these gains are sustained over time.

Table 9 – Knowledge of Hand Washing Junctures by Measure (Percentages)

Indicator	Measures				Chi2	P
	2007 (n= 105)	2008 (n=95)	2009 (n=96)	2010 (n= 100)		
After defecation	32	59	49	44	14.7	.00
After cleaning a child's bottom	8	28	16	18	27.0	.00
After cleaning a potty	0	0	5	0	16.3	.00
After cleaning a latrine	0	1	4	0	9.3	.03
Prior to cooking	19	52	54	33	52.3	.00
Prior to feeding a child	13	38	36	12	40.9	.00
Prior to eating	69	83	66	60	13.7	.00

Practices

Table 10 summarizes findings regarding the proxies used to measure hand washing practices. The data in Table 10 indicate a progressive increase over time in the percent of households that report having soap, even though that change is not statistically significant. According to those

data, 69 percent reported having soap in 2007. That percent increased to 81 percent by 2010. The presence of hand washing supplies, water, and soap at a commonly used hand washing station shows a peak at the baseline (32 percent) and in 2009 (38 percent), with drops in 2008 (13 percent) and 2010 (30 percent). Despite the statistical significance of these swings, the proxy suggests a relative stable practice between the baseline and the endline. That is, the presence of water at the commonly used hand washing station/device dropped 40 points from 2007 to 2008, but then jumped back 36 points in 2009 to lose six points again by 2010. The up and down pattern observed regarding the availability of water is quite different from the pattern observed regarding the availability of soap at a hand washing station/device. As far as the availability of soap is concerned, the data show a progressive increase from year to year. This trend, however, did not reach statistical significance. As such, the increase in the presence of soap at commonly used hand washing stations increased from 43 percent in 2007 to 57 percent in 2010.

Table 10 – Hand Washing Practices at Commonly Used Hand Washing Station/Device by Measure (Percentages)

Indicator		Measures				Chi2	P
		2007 (n= 105)	2008 (n=95)	2009 (n = 96)	2010 (n= 100)		
Household reports having soap		69	76	83	81	6.5	.09
Water and soap observed at commonly used hand washing device		32	13	38	30	17.4	.00
Water observed at commonly used hand washing station/device		61	21	57	51	38.0	.00
Device used to keep water	**Bucket**	65	96	91	71	58.7	.00
	Tippy tap	0	0	2	1		
	Pump	1	4	4	1		
	Other	34	0	3	27		
Cleansing agent observed at commonly used hand washing station/device		43	46	54	57	4.9	.17

Table 11 shows findings regarding proxy measures of hand washing practices at latrines. The data show a statistically significant increase in the observation of hand washing stations at latrines from 5 percent to 24 percent between 2007 and 2009, with an intermediate value of 13 percent in 2008. However, the data also show a drop from 24 percent to 11 percent in 2010. These hand washing stations still need to have hand washing supplies to properly fulfill their function. Only very few had soap, water, or both over time.

Table 11 – Hand Washing Stations/Devices and Hand Washing Supplies at Latrines

Indicator	Measures				Chi2	p
	2007 (n= 64)	2008 (n=78)	2009 (n = 75)	2010 (n= 76)		
Households with latrines with hand washing devices at latrines	5	13	24	11	12.0	.00
Water and soap observed at hand washing station/device at latrine	0	3	0	1	6.3	.09
Water observed at hand washing station/device at latrine	0	0	0	4	29.5	.00
Cleansing agent observed at hand washing station/device at latrine	0	4	0	3	5	.17

Household Water Treatment and Storage (HWTS)

Exposure

Table 12 summarizes findings regarding the exposure to messages about household treatment and storage of drinking water. These data indicate a self-reported increase in exposure to such messages over time, with the exception to the rule occurring in 2009. That is, self-reported exposure to such messages in the month prior to the survey increased from 9 percent to 35 percent between 2007 and 2008. It had further increased to 57 percent by 2010, with a drop to 25 percent in 2009. These changes are statistically significant.

Radio played a predominant role in conveying HWTS messages in most of the years, whereas the role played by community health workers progressively increased over time to become more common than radio by the endline. The role played by health facilities came in third, with the role played either by school children or other sources being relatively minor, regardless of the survey year.

Table 12 – Exposure to HWTS Messages by Measure (Percentages)

Domain Indicator		Measures					
		2007 (n= 105)	2008 (n=95)	2009 (n = 96)	2010 (n= 100)	Chi2	p
Exposed to HWTS messages		9	35	25	57	58.5	.00
Th rough :	**Health facility**	1	9	3	9	10.4	.01
	Community health workers	3	9	11	25	24.7	.00
	Radio	3	20	8	23	23.7	.00
	School children	0	1	0	0	3.2	.36
	Other channels	3	3	2	3	.24	.97

Table 13 suggests that most of the exposure to HWTS messages occurred through one channel. Exposure to HWTS messages through two or more channels increased from 0 percent to 7 percent in 2008, dropped back to 0 percent in 2009, and increased only slightly to 3 percent in 2010.

Table 13 – Number of Channels Involved in Exposure to HWTS Messages by Measure (Percentages)

Indicator	Measures				Chi2	p
	2007 (n= 105)	2008 (n=95	2009 (n = 96)	2010 (n= 100)		
Not exposed to HWTS messages	91	65	75	43	68.9	.00
Exposed via one channel	8	27	25	54		
Exposed via two or more channels	1	7	0	3		

Knowledge

Table 14 summarizes findings regarding the familiarity that respondents have with Sur'Eau, a locally produced chlorine-based water treatment solution. The awareness about the existence of Sur'Eau is relatively high and increased significantly over time—from 33 percent in 2007 to 89 percent by 2010. This is an unprompted answer to a question asking what methods can be used to treat water. The correct description of how to mix Sur'Eau has also changed dramatically. It increased from 14 percent in 2007 to 76 percent in 2010, with intermediate values of 41 percent for 2008 and 35 percent in 2009. This difference is statistically significant. The knowledge about adding chlorine/bleach to treat water, on the other hand, remained relatively low and unchanged over time.

Table 14 – Knowledge and Skills Related to HWTS Messages by Measure (Percentages)

Indicator	Measures				Chi2	p
	2007 (n= 105)	2008 (n=95)	2009 (n=96)	2010 (n=100)		
Knows that one may add Sur'Eau to make water safe for drinking	33	88	91	89	148.6	.00
Can correctly describe how to mix Sur'Eau	14	41	35	76	72.0	.00
Knows that one can add bleach to make water safe for drinking	1	0	0	5	15.5	.00

Practices

Table 15 presents findings regarding the treatment of drinking water. This table suggests that the preparation of rice water is not considered by respondents as a water treatment method when in fact it is one. The percent of respondents that report preparing rice water is higher than those that report boiling plain water. The percentage of respondents that reported preparing rice water is generally in the 90s. However, the percentage of respondents who reported boiling plain water is generally in the 60s. So, about a third of the respondents reported preparing rice water only, but it is in fact the practice of boiling water.

The data in Table 15 suggest a progressive increase in the use of Sur'Eau, with a dip in 2009. That increase, however, has not yet reached statistical significance. But this finding may be a result of the small sample used in all the measures.

The table also indicates which households are using combinations of water treatment methods when rice water preparation is included as a method, as rice water is generally boiled. Findings suggest that the most common combination of water treatment methods is when households prepare rice water and also boil plain water. Other two-method combinations are rare, and so is the use of three water treatment methods (preparing rice water, boiling plain water, and using Sur'Eau). It is important to point out, however, that the percent of households using three methods increased from 4 percent in 2007 to 7 percent in 2010 and that increase is statistically significant.

Table 15 –HWTS Practices by Measure (Percentages)

Indicator	Measures				Chi2	p
	2007 (n= 105)	2008 (n=95)	2009 (n =96)	2010 (n=100)		
Treats drinking water	57	65	70	67	4.0	.27
Boils water	57	63	68	64	2.8	.42
Prepares rice water	NA	90	94	89	1.6	.46
Uses Sur'Eau	2	6	4	10	7.0	.07
Prepares rice water and boils water	NA	55	63	61	9.8	.04
Prepares rice water and uses Sur'Eau	NA	6	4	10	4.6	.33
Boils and uses Sur'Eau	2	4	2	7	8.7	.19
Uses all three methods	NA	4	2	7	13.2	.04

Table 16 focuses on reported boiling practices. A question to explore boiling time for plain water was introduced in 2008. From 2008 to 2010, the percentage of respondents boiling for at least a minute increased from 57 percent to 84 percent, with an intermediate value of 91 percent in 2009. These variations are statistically significant.

The percent of plain water boilers that reported transferring boiled water to another container increased over time from 63 percent in 2008 to 72 percent in 2010. Yet, this magnitude of change was not statistically significant given the sample size.

The data in Table 16 indicate that the way that water was retrieved from the storage container showed variations over time as well. The use of a cup or glass with a handle showed a steady decrease from 70 percent in 2007 to 53 percent in 2008 and even further to 37 percent in 2009. Stability was reached in 2010, at 38 percent. These variations are statistically significant. On the flip side, increases were observed in the percent of respondents reporting pouring water out of the container. A baseline value of 17 percent in 2007 had increased to 62 percent by 2009. A drop in this practice to 34 percent was reported in 2010. These variations are statistically significant.

Table 16 – Specific Boiling Practice (Percentages)

Indicator		Measures				Chi2	p
		2007 (n= 60)	2008 (n=60)	2009 (n =65)	2010 (n=64)		
Boils water for a least one minute		NA	57	91	84	34.8	.00
Transfers boiled water to a container other than the pot used for boiling		NA	63	74	72	1.8	.40
Method used to retrieve boiled water	**No data**	12	10	0	22	48.3	.00
	Glass/cup with handle	70	53	37	38		
	Ladle	0	0	2	2		
	Pour into drinking glass/cup	17	37	62	34		
	Other method	2	0	0	5		

Table 17 indicates that the percent of water storage containers covered with a hard cover, detected via observation, is quite high. In 2007, 76 percent of those that stored treated water were already using hard covers. That number jumped to 91 percent in 2008. Some minor variations were observed in subsequent years; beginning in 2009 it stabilized at 88 percent. These variations, however, are not statistically significant, especially given the sample size.

Table 17 – Characteristics of Water Storage Container (Percentages)

Indicator	Measures				Chi2	P
	2007 (n= 54)	2008 (n=54)	2009 (n =65)	2010 (n=50)		
Storage container for boiled water has a hard cover	76	91	88	88	5.7	.13

Beginning in 2008, HIP explored practices regarding rice water. Results of this exploration are presented in Table 18. These data refer to respondents that indicated they prepared rice water.

The data collected indicate that 44 percent of the study participants that prepare rice water reported boiling it for at least one minute in 2008. That percentage increased to 51 percent in 2009, but then it dropped to 37 percent in 2010. These variations are not statistically significant.

Only 27 percent of those that prepared rice water in 2007 reported storing it. That percent increased to 35 percent in 2010, after an intermediate drop to 24 percent in 2009. Those differences, however, are not statistically significant.

The vast majority of respondents that store rice water do so in a container that is different from the one used to store boiled water. So, these may not be storage containers that are interchangeable. In addition, when households are referring to drinking water storage, they are clearly separating in their responses the storage of boiled plain water from the storage of heated/boiled rice water.

Table 18 – Specific Rice Water Practices (Percentages)

Indicator	Measures				Chi2	p
	2007	2008 (n=85)	2009 (n =90)	2010 (n=89)		
Boils rice water for at least one minute	NA	44	51	37	4.9	.56
Stores rice water	NA	27	24	35	2.5	.28
Stores rice water in container not used for storing boiled water	NA	94	98	83	13.5	.00

CONCLUSIONS

- Most of the reported exposure to any of the hygiene promotion messages supported by the project occurred through one single channel, with radio being the most frequently mentioned channel for exposure. Community health workers in general were the second most frequently mentioned source of information.

- Subsequent to the political crisis at the beginning of 2009, exposure to hygiene messages dropped. Those drops were inverted to become increases again in 2010.

- Increase in knowledge about hand washing junctures occurred during the first three years of the project, but there appeared to be a decrease in knowledge toward the end of the project.

- Impressive statistically significant increases were measured in knowledge pertaining to Sur'Eau, whether it was reporting awareness of the existence of Sur'Eau as a drinking water treatment method or specific knowledge about how to treat water with the product.

- Statistically significant drops in open defecation were recorded from 2007 to 2008. In subsequent years, however, the increases remained relatively constant. Most of the sanitation facilities installed are simple pit latrines with no slab. This general finding raises the issue about the quality of facilities constructed and the challenge that it may represent for Madagascar to meet its sanitation MDGs by 2015. This challenge is compounded by the fact that there continues to be a high percentage of facilities that are shared among households, and that number of individuals sharing each household latrine may have expanded in some areas.

- There are encouraging signs that the handling of child feces is improving and that it is becoming more hygienic. However, challenges remain ahead as numerous families continue to dispose of child feces in the open or by throwing them directly in waterways or by washing soiled diapers in rivers and streams thus, polluting water sources for families downstream.

- The increase in the installation of hand washing stations near latrines is encouraging. Yet, these hand washing stations need to be operational, and hand washing messages should promote the importance of having hand washing supplies available at all family hand washing stations to facilitate hand washing at critical junctures.

- Families may not consider rice water preparation to be a household water treatment method since they drink this beverage as part of their regular routine and do not

prepare rice water specifically to improve drinking water quality. However, some families boil plain water for drinking in addition to preparing rice water. Safe handling of either rice water or boiled plain water needs to be included as part of the HWTS messages disseminated.

RECOMMENDATIONS

Programmatic

- Sustain implementation of sanitation promotion at the individual household level to ensure further gains in sanitation coverage, complementing CLTS efforts.
- Identify options to promote the manufacture and sale of latrine slabs and make financing available to facilitate the adoption of improved sanitation facilities.
- Include recommendations about how to hygienically dispose of child feces in sanitation messages.
- Disseminate hygiene promotion messages through multiple channels and ensure that they improve exposure. If the ban continues regarding working at the central government level, consider working with local government structures such as communes to emulate the implementation of other USG-supported programs such as Santenet 2.
- Devise hand washing messages that clearly suggest installing hand washing stations close to where food is handled and where the family defecates. These messages should also promote the need to have hand washing supplies at all times at these stations.
- Design messages about household water treatment by building upon the almost universal practice of rice water preparation.

Methodological

- Use pictures of sanitation facilities to train enumerators to properly track the adoption of improved sanitation.
- Adopt the systematic measurement of chlorine residuals in households reporting the use of Sur'Eau to have more objective measures of the practice.
- Complement household data collection with systematic data collection that compares both CLTS and non-CLTS households.

ANNEXES

Annex 1: Data Collection Instrument

HIP Population Survey - Madagascar
Survey to be Used in Future Measurements

Identification			
	Date		
	Interviewer		
	Commune		
	Region		
	Supervisor		
Eligibility and Socio-Demographic Characteristics of Respondent			
SD101	Is there a child between 13 and 23 months in this household?	No..... 0 → Yes.....1	**Stop interview**
SD102	How old is that child? (Write age in months)		
SD103	Is it a boy or a girl?	Boy.....1 Girl.....2	
SD104	What is your relationship with this child?	Son/daughter.....1 Grandchild.....2 Other. Specify_____.....3	
SD105	Are you the child's main caretaker?	No..... 0 Yes.....1	
SD106	How old are you? (Write age in years)		
SD107	Can you read and write?	No..... 0 Yes.....1	
SD108	What grade level did you complete in school? (Write directly grade level)		

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
Drinking Water			
W 701	What is the principal source of drinking water for the members in your family?	PIPED WATER INTO DWELLING……..1 PIPED WATER INTO YARD/PLOT……2 PUBLIC TAP/STANDPIPE…….3 TUBE WELL OR BOREHOLE……4 PROTECTED DUG WELL……5 UNPROTECTED DUG WELL……6 WATER FROM PROTECTED SPRING……7 WATER FROM UNPROTECTED SPRING……8 RAINWATER……9 TANKER TRUCK……..10 CART WITH SMAL TANK……11 SURFACE WATER……..12 (RIVER/DAM/LAKE/PONDS/STREAM/CANAL/IRRIGATION CHANNEL) BOTTLED WATER……..13 OTHER (SPECIFY) _____.....14	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 701b	Who is responsible for supply water to this place/ source?	I DON'T KNOW……..1 GOVERNMENT AGENCY……..2 COMMUNITY COMMITTEE……3 NGO……..4 PRIVATE VENDOR……5 PERSONAL/FAMILY WELL……..6 RAINWATER……..7 SURFACE WATER……8	
W 702	How long does it take to get to the place and take water back? Record number of minutes.	Minutes: ☐☐ On premises.....1	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
03	What is the main source of water used by your household for other purposes, such as cooking and washing hands?	PIPED WATER INTO DWELLING……1 PIPED WATER INTO YARD/PLOT……2 PUBLIC TAP/STANDPIPE……3 TUBE WELL OR BOREHOLE……4 PROTECTED DUG WELL……..5 UNPROTECTED DUG WELL……6 WATER FROM PROTECTED SPRING……7 WATER FROM UNPROTECTED SPRING……8 RAINWATER……9 TANKER TRUCK……..10 CART WITH SMAL TANK……11 SURFACE WATER……..12 (RIVER/DAM/LAKE/PONDS/STREAM/CANAL/IRRIGATION CHANNEL) BOTTLED WATER……..13 OTHER (SPECIFY) _____.....14	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 704	What is the main source of water used by your household for other purposes, such as cooking and washing hands? What other source do you use when the primary source is not enough water (from a seasonal or occasional source)?	PIPED WATER INTO DWELLING……1 PIPED WATER INTO YARD/PLOT……2 PUBLIC TAP/STANDPIPE……3 TUBE WELL OR BOREHOLE……4 PROTECTED DUG WELL……..5 UNPROTECTED DUG WELL……..6 WATER FROM PROTECTED SPRING……..7 WATER FROM UNPROTECTED SPRING……..8 RAINWATER……..9 TANKER TRUCK……..10 CART WITH SMAL TANK……..11 SURFACE WATER……..12 (RIVER/DAM/LAKE/PONDS/STREAM/CANAL/IRRIGATION CHANNEL) BOTTLED WATER……..13 OTHER (SPECIFY) _____.....14	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
Water Treatment			
W 705	What can families do to make water better for drinking?	Boil ....01 Add bleach.....02 Add chlorine solution (Sur'Eau) ..... 03 Add chlorine tablets (Aquatabs) .....04 Strain it through a cloth.....05 Let it stand and settle.....06 Use ceramic filter.....07 Use sand filter.....08 Solar disinfection ..... 09 Keep water in covered container ..... 10 Other (specify) _____.....11 → Nothing.....12 Does not know..... .99	
W 706	What products can be added to make water safer to drink?	Liquid chlorine (Sur'Eau)..... ..1 Chlorine tablet (Aquatabs) ..... .2 Flocculent w/chlorine ..... 3 (PuR, Watermaker) Other chlorine examples ..... 4 (HTH granular, chlorine, laundry bleach, other) Iodine (drops or tablets)..... 5 Permanganate ..... 6 Other (specify)_____ ..... 7 → Nothing..... 8 Does not know..... 9	
W 707	Do you know a product called Sur'Eau?	No ....0 → Yes 1	**W709c**
W 708	Can you show the interviewer how to use Sur'Eau? Is it correct or incorrect?	Incorrect ..... .0 Correct..... .1	
W 708a	Verify expiration date	Expired.....0 Not expired.....1	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 708b	(Write down answer provided) Respondent indicates right number of caps to use	NO……..0 YES……..1	
W 708c	Indicates right amount of water	NO……..0 YES……..1	
W 708d	Indicates minutes after treatment when Sur'Eau treated water can be consumed	NO……..0 YES……..1	
W 708e	Can you buy Sur'Eau in your village if you wanted to use it?	NO……..0 YES……..1	
W 709	Where can you purchase Sur'Eau (less than 5 km) if you want it?	Centre de Sante de Base……..1 AVBC ……..2 Store ……..3 Drug Depot ……..4 Elsewhere ……..5 Nowhere ……..6 Does not know…… ……..7 →	
W 709a	Do you prepare rice water?	NO……..0 → YES……..1	**W710**
W 709b	Did you prepare rice water today?	NO ……..0 YES……..1	
W 709c	When you made rice water, did you let it boil?	Water is hot (you can touch by hand)……..0 Existence of small bubbles at bottom of pan (water hot but touchable by hand)……..1 First boiling……..2 Boiling over a minute……..3 Do not remember/ do not know ……..4	
W710	Do you treat water in any way to make it safer to drink?	NO……..0 → YES……..1	**W 757**

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 711	What do you do to treat water for that purpose?	a. Boil ....01 b. Add bleach.....02 → c. Add chlorine solution (Sur'Eau) ....03 → d. Add chlorine tablets (Aquatabs).....04 → e. PuR .....05 → f. Use ceramic filter.....06 → g. Use bio-sand filter.....07 → h. Solar disinfection ..... 08 → i. Other (specify .....09 → j. Nothing.....10 → k. Don't know.....99 →	 **W 717** **W 717** **W 717** **W 717** **W 725** **W 732** **W 738** **W 757** **W 757** **W 757**
BOILING			
W 712	When did you boil water?	Day of the interview while cooking ..... .1 Day of the interview after cooking was done..... 2 Other (Specify: 3	
W 712 b	How long did you heat the boiling the water?	Water is hot (you can touch by hand).....0 Existence of small bubbles at bottom of pan (water hot but touchable by hand).....1 First sing of boiling.....2 Boiling over a minute.....3 Other (how many miutes_____).....4	
W 712 c	Is the boiling pot used for other purposes when boiling is finished?	NO.....0 YES.....1	
W 712 d	Have you transferred the boiled water into another container for storage?	NO.....0 YES.....1	
W 713	May I see the container where you boil water?	NO ..... 0 → YES 1	**W 715**
W 713 a	Was there water in the boiled water container?	NO.....0 YES.....1	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 714	Does the container have a hard lid?	NO..... 0 YES 1	
W714b	Is the lid tight fitting?	NO..... 0 YES 1	
W 715	How is water retrieved from vessel?	Glass/cup with handle ..... 1 Ladle ..... 2 Pour into drinking glass/cup ..... 3 Other mechanism ..... 4 (Specify: _____)	
W 715b	Does vessel contain rice water?	NO..... 0 YES 1	
W 715c	Do you store rice water?	NO..... 0 → YES 1	**W745**
W 715d	Can I see the vessel where rice water is stored?	Not allowed.....1 → Allowed.....2	**W745**
W 715e	Same vessel where boiled water is stored?	NO..... 0 YES 1	
BLEACH (chlorine)			
W717	How long have you used a chlorine based product?	Less than 1 year.....1 Between 1-2 years.....2 2 years +.....3 Does not know/remember.....4	
W 719	How long ago in hours was water treated with product mentioned?	(Write number of hours directly here)	
W 721	Do you still have the bottle/package containing the product?	NO..... 0 → YES ..... 1 NOT APPLICABLE, USED BLEACH ..... 2 →	**W 724** **W 724**
W 722	Is the interviewer allowed to see bottle/ packaging of product?	Not allowed ..... 0 → Allowed..... 1	**W 724**

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
W 723	Verify the expiration date on chlorine solution?	Expired……0 Not expired……1	
W 724	May I take a sample of this water? (Proceed to take and store sample as indicated.)	NO..... 0 → YES 1	**W745**
W725	Proceed to do chlorine residual test and record results.	Positive……..1 Negative……2	

Ceramic Filters			
W725	How long have you used this filter?	Less than 1 year……1 Between 1-2 years……2 2 years +……3 Does not know/remember……4	
W 727	Can the interviewer see your drinking water filter?	Not allowed ..... 0 → Allowed 1	**W 745**
W 728	Does the filter have a cover?	NO..... 0 YES 1	
W 729	Does the lower unit of the filter contain a water filter?	NO..... 0 YES 1	
W 730	Does the filter have a ceramic filter installed inside the unit?	NO..... 0 YES 1	
W730a	The element that works as the filter, is it dry or wet?	WET……0 DRY……1	
Bio Sand Filters			
W732	How many times did you use this filter?	Less than 1 year……1 Between 1-2 years……2 2 years +……3 Does not know/remember……4	
W 732a	When did you last clean the filter?	Does not meet manufacturer's recommendations (over 6 months ago)……0 Meets manufacturer's recommendations ……1 (6 months or less) Never cleaned it..... ..2 →	**W 734**

W 733	How did you clean it?	Does not meet manufacturer's recommendations……0 (Did not change rocks, carbon or sand) Meets manufacturer's recommendations ……1 (Changed rocks, carbon or sand)	
W 734	Can the interviewer see your biosand filter?	NO ..... 0 → YES 1	**W 745**
W 735	Does the filter have a cover?	NO..... 0 YES 1	
W 736	Is the upper inside of the filter algea wrap or dirt?	NO..... 0 YES 1	
Solar Disinfection (SODIS)			
W738	Since when do you use the SODIS bottles to treat home drinking water?	Less than 1 year……1 Between 1-2 years……2 2 years +……3 Does not know/remember……4	
W 738a	Are your SODIS bottles exposed to sunlight?	NO..... 0 → YES 1	**W 740**
W 739	If you can see the SODIS bottles, indicate the number of cylinders exposed to the sun (water filled).	Number of bottles ☐☐	**If >1 go to W 741** **If=1 go to W 743** **If=0 go to W 745**

W 740	If unauthorized, ask: How many bottles are being exposed to the sun?	Number of bottles ☐☐ IF 0 SKIP TO…… →	**If >1 go to W 741** **If=1 go to W 743** **If=0 go to W 745**
W 741	Did you put all these bottles in the sun on the same day?	NO ..... 0 YES ..... 1 →	**743**
W 742a	How many bottles were exposed to the sun during the day?	Number of bottles ☐	**If 0 go to 742c**
W 742b	How many more days will they be exposed to the sun?	Number of days ☐	
W 742c	How many bottles were exposed to the sun for two days?	Number of bottles ☐	**If 0 go to 742e**
W 742d	How many more days will they be exposed to the sun?	Number of days ☐	
W 742e	How many bottles were exposed to the sun for three or more days?	Number of bottles ☐	**If 0 go to W745**
W 742f	How many more days will they be exposed to the sun?	Number of days ☐	

W 743	If you answered yes to W 741 : How many days were these bottles exposed to the sun?	Number of days ☐	
W 744	How many more days will they continue to be exposed to the sun before drinking the water?	Number of days ☐	

W 744b	Can the interviewer see them?	NO ..... 0 YES 1	
W 744c	Note the number of additional bottles.		

Storage

Responses to questions 745 through 753 must be provided by all households, regardless of how they treat their water.

W 745	How often do you treat the water in this way?	Daily ....1 From time to time, but not daily ..... 2 When somebody is sick in the household ..... 3 During rainy season ..... 4 Special occasions 5	
W 746	Who are the members of your household who drink the treated water?	All household members..... 1 Only children ....2 Only the sick ..... 3 Only the elderly ..... 4 Others (Specify: → _ _____)..... 5	
W 747	Do you store drinking water in household containers that the interviewer has not yet seen?	No water stored..... → ..... .0 In containers (Bucket, drums, jerry can, etc.)……..1 Roof tank or cistern……2	**W 754**
W 748	If containers are used, can the interviewer see them?	NO ..... 0 → YES 1	**W 754**
W 748a	How many containers were used? Record the number.	Number of containers ☐	
W 749	What type of containers were used?	Narrow mouth only……..1 Wide mouth only ……2 Both types……3	
W 750	Was the container(s) covered or closed with a hard lid?	None are ……..0 All covered with hard covers……..1 Some covered with hard covers……2 All covered with soft covers such as piece of cloth……..3	

W 750a	Does the container have a narrow opening (maximum 3 cm.)?	NO ..... 0 → YES 1	
W 751	Does the container(s) have a valve?	NONE DO ..... 0 YES, ALL DO..... 1 SOME DO AND SOME DO NOT.....2	
W 751a	Among the containers, is there one used to store the boiled water?	NO.....0 → YES.....1 →	**W 752**
W 751b	For the container with boiled water, is it covered?	NO.....0 → YES.....1	**W 752**
W 751c	OBSERVE: Is it a hard cover ?	NO.....0 YES.....1	
W751d	OBSERVE: Is it tight fitting?	NO.....0 YES.....1	
W 752	How many days have past since the last time you cleaned this vessel?	Never.....0 → *Number of days* ☐	**W 754**
W 753	How often do you clean these containers?	Daily ..... .1 Every other day..... 2 Weekly..... 3 Other (Specify_..... 4 Never 5	

Household Chores

Responses to questions 754 through 756 must be provided by all households, regardless of whether they treat their water or not

We are going to change the topic now. Please think about what happened yesterday (morning).

W 754	Did you prepare the food yesterday morning?	NO ..... 0 YES 1	
W 755	Did you give food to a child yesterday morning?	NO ..... 0 YES 1	
W 756	Did you clean a child yesterday morning after he/she defecated?	NO ..... 0 YES 1	

Soap

Y 801	Do you use soap in your household?	NO.....0 → YES.....1	**Y 812**
Y 802	Did you use soap yesterday morning?	NO..... 0 → YES 1	**Y 812**
Y 803	Why did you use soap for the first time yesterday morning?	WASHING CLOTHES.....1 WASHING MY BODY .....2 WASHING MY CHILDREN .....3 WASHING CHILD'S BOTTOMS.....4 WASHING MY CHILDREN'S HANDS.....5 WASHING MY HANDS AFTER DEFECATING .....6 WASHING MY HANDS AFTER CLEANING A CHILD .....7 WASHING MY HANDS BEFORE FEEDING A CHILD.....8 WASHING MY HANDS BEFORE PREPARING FOOD.....9 WASHING MY HANDS BEFORE EATING.....10 OTHER SPECIFY _____.....11	
Y 804	Have you used soap on another occasion?	NO..... 0 → YES 1	**Y 812**

Y 805	Why did you use it the second time?	WASHING CLOTHES……1 WASHING MY BODY ……..2 WASHING MY CHILDREN ……3 WASHING CHILD'S BOTTOM……4 WASHING MY CHILDREN'S HANDS……5 WASHING MY HANDS AFTER DEFECATING ……6 WASHING MY HANDS AFTER CLEANING CHILD ……7 WASHING MY HANDS BEFORE FEEDING CHILD……8 WASHING MY HANDS BEFORE PREPARING FOOD……9 WASHING MY HANDS BEFORE EATING……10 AFTER CLEANING A LATRINE……11 AFTER CLEANING THE REST OF THE HOUSE (OTHER THAN LATRINE)……12 WHILE WASHING DISHES……13 WHILE BATHING ……14 WHILE BATHING A CHILD……15 OTHER. SPECIFY ……16	
Y 806	Did you use it a third time?	NO..... 0 → YES 1	**Y 812**
Y 807	Why did you use it a third time?	WASHING CLOTHES……1 WASHING MY BODY ……2 WASHING MY CHILDREN ……3 WASHING CHILD'S BOTTOM……4 WASHING MY CHILDREN'S HANDS……5 WASHING MY HANDS AFTER DEFECATING ……6 WASHING MY HANDS AFTER CLEANING CHILD ……7 WASHING MY HANDS BEFORE FEEDING CHILD……8 WASHING MY HANDS BEFORE PREPARING FOOD……9 WASHING MY HANDS BEFORE EATING……10 OTHER. SPECIFY ……11	
Y 808	Any other time for soap use?	NO……0 → YES 1	**812**

Y 809	Any other reason for other soap use?	WASHING CLOTHES……..……..1 WASHING MY BODY …… ……..……..2 WASHING MY CHILDREN ……..……..3 WASHING CHILD'S BOTTOM.……..……..4 WASHING MY CHILDREN'S HANDS……..……..5 WASHING MY HANDS AFTER DEFECATING ……..……..6 WASHING MY HANDS AFTER CLEANING CHILD ……..……..7 WASHING MY HANDS BEFORE FEEDING CHILD……..……..8 WASHING MY HANDS BEFORE PREPARING FOOD……..……..9 WASHING MY HANDS BEFORE EATING……..……..10 OTHER. SPECIFY _____.....11	
Y 810	Any other soap use	NO..... 0 ⟶ YES 1	**812**
Y 811	Any reason for other soap use?	WASHING CLOTHES……..……..1 WASHING MY BODY ……..……..2 WASHING MY CHILDREN ……..……..3 WASHING CHILD'S BOTTOM.……..……..4 WASHING MY CHILDREN'S HANDS……..……..5 WASHING MY HANDS AFTER DEFECATING……..……..6 WASHING MY HANDS AFTER CLEANING CHILD ……..……..7 WASHING MY HANDS BEFORE FEEDING CHILD……..……..8 WASHING MY HANDS BEFORE PREPARING FOOD……..……..9 WASHING MY HANDS BEFORE EATING……..……..10 OTHER. SPECIFY ___ _____.....11	

Where Do You Wash			
Y 812	Where do you usually wash your hands?	INSIDE/NEAR TOILET FACILITY.....1 INSIDE/NEAR KITCHEN/COOKINGPLACE .....2 ELSEWHERE IN YARD .....3 OUTSIDE YARD .....4 NO SPECIFIC PLACE 5	
Y 813	Can you show me the place?	NO PERMISSION TO SEE.....0 → PERMISSION TO SEE GRANTED.....1	**→815**
Y 813a	Verify if the response is valid for the location.	NO..... 0 YES 1	
Y 814	What device is used at this hand washing station? (OBSERVE)	Tap.....1 Tippy Tap.....2 Basin, bucket.....3 Other. Specify _____.....4	
Y 814b	If it is a tippy tap, does it show signs of being used?	NO..... 0 YES 1	
Y 814c	Have you ever heard of a tippy tap?	NO..... 0 → YES 1	**815**
Y 814d	Have you ever used a tippy tap?	NO..... 0 YES 1	
Y 814e	Why haven't you used it?	Not familiar with it.....1 Too difficult to find bottles .....2 Too cumbersome to fill up with water 3	
Y 815	Is the water available at the time of the interview?	NO..... 0 YES 1	
Y 816	Did you have water here yesterday?	NO..... 0 YES.....1	
Y 817	Is there a cleansing agent at the hand washing device?	NO .....0 YES.....1	
Y817a	Have you used soap to wash your hands between yesterday and this moment now?	NO .....0 YES.....1	

Y 818	In what circumstance have you used soap to wash your hands?	Before preparing a meal/cooking……1 Before feeding children……2 While bathing……3 While bathing a child……4 While washing a child's hands……5 After having used the toilet……6 After defecating……7 After washing a child's bottom……8 After cleaning a latrine……9 After cleaning the house……10 While doing the dishes……11 While washing clothes……12 After coming in from outside……13 Because they looked/felt dirty……14 I don't know……15 Other (specify) … ……16	
When/How to Wash			
Y 819	In your opinion, what is the most important moment to wash your hands?	After defecation…… 1 Before eating …… 2 After cleaning a child's bottom…… 3 After cleaning the latrine…… 4 After cleaning a potty …… 5 Before food preparation…… 6 Before feeding a child…… 7 After eating…… 8 Other (specify)… …… 9	
Y 820	For what reasons should someone wash his/her hands with soap?	Prevent diarrhea…… 1 Prevent other diseases …… 2 Remove germs…… 3 Prevent dirt getting into mouth…… 4 Prevent dirt from getting into food …… 5 Smells good…… 6 Others (specify)…… 7	

Y 821	Generally, during what times do you wash your hands?	After going to the toilet……1 After changing child diapers or washing baby's bottom……2 Before preparing food ……3 Before eating, ……4 Before giving food to others (including the child)……5 Never or do not know……6	
Y 822	Do you wash your hands with water that has been treated with chlorine/ Sur'Eau?	No……1 Yes……2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
Sanitation Questions			
S 901	Where did your child defecate last time she passed stool?	Dropped into toilet facility……1 Buried……2 Solid waste trash……3 In yard……4 Outside premises……5 Into waterway……6 Elsewhere……7 In the water line……8 Not noted……9 Washed……10 Waterway……11	
S 902	Where were feces disposed of last time child passed stool?	Dropped into toilet facility……1 Buried……2 Solid waste trash……3 In yard……4 Outside premises……5 Into waterway……6 Elsewhere……7 In the water line……8 Not noted……9 Washed……10 Waterway……11	

S 903	What type of toilet is used by family members?	No toilet……0 Unimproved……1 Improved……2	**I 1001**
S 904	Do you share this toilet with other members of your household?	NO……0 → YES……1	**S 906**
S 905	How many members of your household share this toilet?	Number of households ☐☐	
S 906	Where are the toilets?	Inside/attached to dwelling ……1 Elsewhere on premises ……2 Outside premises ……3 Public latrine……4	
S 907	Can the interviewer see this toilet?	Not allowed ……0 → Allowed to see it ……1	**I 1001**
Sanitation Observations			
S 908	Do these toilets have a wall?	NO ……0 YES……1	
S 909	Do these toilets have a roof?	NO ……0 YES……1	
S 910	Are these toilets provided privacy?	NO ……0 YES……1	
S 911	Is this toilet locked with a key?	NO ……0 YES……1 →	**S 914**
S 912	Are there characteristics of the toilet that make its use easier for children, such as:	Pit latrine with smaller hole……1 Lower seat……2 Cannot determine……3 None of the above……4	
S 913	Do these latrines seem to have been used?	NO ……0 YES……1	
S 914	Is there a broom nearby?	NO ……0 YES……1	
S 915	Is there a place for washing hands near the latrine?	NO ……0 YES……1	

S 916	Is there water at this location near the latrine?	NO ..... 0 ⟶ YES..... 1	**I 1001**
S 917	What container is used for water near the latrines?	Tap.....1 Tippy tap.....2 Bucket.....3 Other (*specify)*.....4	
S 917b	What is the container used for?		
S 918	Is there a cleaning product at this location near the latrines?	None.....0 Soap.....1 Detergent.....2 Ash.....3 Other (specify.....4 _____	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
Exposure (Information)			
I 1001	In the past month, have you received information about hand washing?	NO .....0 ⟶ YES 1	**I 1003**
I 1002	What was the source of this information?	Through health center.....1 Through village health educator.....2 Through children that go to school.....3 Through the radio.....4 Through other channels (specify**)**_____ 5	
I 1003	In the past month, have you received information on the treatment of drinking water?	NO .....0 ⟶ YES 1	**I 1005**
I 1004	Where did you see or hear about this?	Through health center..... 1 Through village health educator..... 2 Through children that go to school ..... 3 Through the radio..... 4 Through other channels (specify)_____ 5	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
I 1005	In the past month, have you heard or seen anything about sanitation?	NO .....0 → YES 1	**I 1007**
I 1006	What was the source of information?	Through health center ..... 1 Through village health educator..... 2 Through children that go to school ..... 3 Through the radio..... 4 Through other channels (specify)_____.....5	
I 1007	In the past month, have you received information about diarrhea?	NO.....0 → YES 1	**End**
I 1008	What was the source of information?	Through health center ..... 1 Through village health educator..... 2 Through children that go to school ..... 3 Through the radio..... 4 Through other channels (specify)_____ 5	

Annex 2: List of Communes Where Outcome Monitoring Was Conducted between 2007 and 2010

Province	Region	District	Communes	2007	2008	2009	2010
Antananarivo				X	X	X	X
	Analamanga			X	X	X	X
		Ambohidratrimo		X	X	X	
			Ambohidratrimo	X			X
			Ambohidratrimo ville		X	X	
			Anosiala		X	X	X
			Mahitsy	X	X	X	X
		Andramasina			X	X	
			Ambohimiadana		X	X	X
			Andramasina		X	X	X
		Ankazobe				X	
			Ankazobaville			X	
		Antananarivo Atsimondrano		X	X	X	
			Anosizato Andrefana		X	X	
			Soavina	X		X	X
			Soavina Atsimondrano		X		
			Tsiafahy	X	X	X	X
		Antananarivo Avaradrano			X		
			Anjeva		X		
			Masindray			X	X
			Talata Ampano		X		
			Talata Volonondry			X	
		Antanambao Avaradramo		X	X	X	
			Masindray	X			

Province	Region	District	Communes	2007	2008	2009	2010
		Manjakandriana			X	X	
			Alarobia Vatomanga (Ambatomanga)		X	X	
			Ambanitsena		X	X	X
			Ambohitrolomahitsy		X	X	
			Anjepy		X		X
			Ankazondandy		X	X	
		Communes in Unknown Districts					
			Alarobia				X
			Ambanitsena				X
			Anjeva Gare				X
			Talatanivolonondry				X
	Vakinankaratra			X			
		Antanifotsy		X			
			Ambohimandroso G.	X			
		Antsirabe II		X			
			Alakamisy	X			
			Ambano (Amberobe)	X			
			Ambohibary	X			
			Andranomanelatra	X			
			Antanambao	X			
			Mandrosohasina	X			
		Betafo		X			
			Fidirana	X			
Fianarantsoa				X	X	X	X
	Amoroni Mania			X	X	X	X
		Ambatofinandrahana			X	X	
			Soavina		X	X	X

Province	Region	District	Communes	2007	2008	2009	2010
		Ambositra			X	X	
			Ambositra I		X	X	X
			Ambositra II		X	X	X
			Marosoa		X	X	X
			Tsarasaotra		X	X	X
		Fandriana		X	X	X	
			Fandriana		X	X	X
			Imito		X	X	X
			Miarinavaratra		X	X	X
			Sahamadio	X	X	X	X
			Tatamalaza	X		X	X
		Manandriana			X	X	
			Anjomanakona		X	X	
		Communes in Unknown Districts					
			Ambohimahazo				X
			Ambohimanjaka				X
			Anjomanakona				X
			Anjomanakona				X
			Ilaka Centre				X
	Haute Mahatsiatra			X	X	X	X
		Ambalavao		X	X	X	
			Ambalavao ville		X	X	
			Ambohimahamasina	X	X	X	X
			Miarinarivo		X	X	
			Sendrisoa		X		
			Vohitsaoka			X	
		Ambohimahasoa			X	X	

Province	Region	District	Communes	2007	2008	2009	2010
			Ambohimahasoa			X	X
			Ampitana		X	X	X
		Fianarantsoa I			X	X	
			Fianara I		X	X	
		FianarantsoaII			X	X	
			Andranovorivato			X	X
			Androy			X	X
			Isorana		X		X
			Mahaditra		X	X	
			Mahatsinjony			X	X
			Nasandratrony		X		
			Sahambavy			X	X
			Soatanana			X	
			Talatanampano		X	X	X
		Communes in Unknown Districts					
			Ambalavao				X
			Ankerana				X
	Ihorombe			X			
		Iakora		X			
			Ranotsara	X			
		Ihosy		X			
			Ihosy	X			
			Sakalalina	X			
	Vatovavy Fitovinany			X			
		Mananjary		X			
			Andonabe	X			
		Ifanadiana		X			

Province	Region	District	Communes	2007	2008	2009	2010
			Tsaratanana	X			
		Ikongo					
			Manampatrana (EM)	X			
Toamasina				X	X	X	X
	Alaotra Mangoro			X			
		Ambatondrazaka		X			
			Ambatosoratra	X			
		Anosibe Analia		X			
			Anosibe An'ala	X			
	Analanjirofo			X			
		Fenerive Est		X			
			Ampasimbe Manasatrana	X			
		Vavatenina		X			
			Vavatenina	X			
	Atsinanana			X	X	X	X
		Antanambao Manampotsy		X	X		
			Antanambao Manampotsy		X		
			Mahela	X			
		Brickaville		X	X	X	
			Ampasimbe (PK)		X	X	X
			Anivorano-Est		X	X	X
			Brickaville	X	X	X	X
			Mahatsara		X	X	X
			Ranomafana Est		X	X	X
		Mahanoro		X	X	X	
			Mahanoro	X	X	X	X

Province	Region	District	Communes	2007	2008	2009	2010
			Tsaravinany	X			
		Marolambo				X	
			Menagisa		X	X	
		Tamatave II		X	X		
			Ampasimbe Onibe	X			
			Fanandrana	X			
		Tomasina I			X	X	
			Tamatave ville		X	X	
		Tomasina II			X	X	
			Antetezambaro		X	X	
			Foulpointe		X	X	
		Vatomandry			X	X	
			Ilaka Est		X	X	X
			Maintinandry		X	X	X
			Vatomandry		X	X	X
		Communes in Unknown Districts					
			Anivorano				X
			Ranomafana				X
Toliara				X			
	Atsimo Andrefana			X			
		Ampanihy		X			
			Itampolo	X			
		Tulear II		X			
			Ankililoaka	X			