



Returning to Open Defecation

Post CLTS Defecation
Attitudes and Practices
In Two Cambodian Villages
Once Declared Open Defecation Free

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Objective

The objective of this report is to present findings of a survey that was conducted in three villages of rural Cambodia. The purpose of the survey was to identify new software and hardware tools that might be incorporated into Community Based Water, Sanitation, and Hygiene programs to reduce open defecation recidivism. The report includes recommendations for reducing the likelihood of villagers returning to open defecation after building and using pit latrines. Recommendations are based on the survey results and NHN's program experience in Cambodia, Senegal, Togo, Peru, and Haiti.

Glossary

CDWaSH	(Nature Healing Nature's) Community Driven Water, Sanitation, and Hygiene Solutions Program
CLTS	Community-Led Total Sanitation
HH	Head of Household
HWT	Household Water Treating
MDG	Millennium Development Goals
MRD	Ministry of Rural Development
NGO	Non-Government Organization
NHN	Nature Healing Nature
OD	Open Defecation
ODF	Open Defecation Free
PDRD	Provincial Department of Rural Development
PF	Pour flush
PHAST	Participatory Hygiene and Sanitation Transformation
WaSH	Water, Sanitation, and Hygiene
WHO	World Health Organization
WSP	World Bank - Water and Sanitation Program
\$	US Dollars

Introduction

Nature Healing Nature (NHN) has been active in conducting its Community-Driven Water, Sanitation and Hygiene Solutions (CDWaSH) program in Cambodia since June 2011. CDWaSH facilitates life-long behavioral change toward the adoption of affordable household water treatment, dignified household sanitation practices, effective hygiene habits, and the effectual use of *homemade* oral rehydration solution in communities with high incidents of diarrhea, respiratory disease, and maternal/child health issues. Our goal is to improve livelihoods by reducing water related illness and to advance community empowerment by facilitating community-driven solutions.

NHN has long promoted the building of pit latrines as an affordable sanitation alternative for those who can not afford a more expensive alternative. However, while conducting our work in seven rural villages in the Angkor Chum District of Siem Reap Province, we evidenced two villages where Community-Led Total Sanitation (CLTS) programs had been presented within the past seven years, yet ninety-nine percent of the participants that had built a pit latrine reverted to open defecation (OD).

In order to avoid repeating this same outcome, NHN conducted a survey to determine the reasons why villagers were abandoning their pit latrines and returning to OD. Along with basic demographic information, the survey questions were designed to ascertain:

- 1) Positive and negative feelings and fears about open defecation.
- 2) Positive and negative feelings and fears about pit latrine use.
- 3) Positive and negative technical aspects of building, using and maintaining a pit latrine.
- 4) Special needs of the poorest of the poor.

Executive Summary

The Royal Government of Cambodia has set a goal of achieving 100% improved sanitation coverage throughout the country by 2025. Rural sanitation coverage was 8.6% in 1993. It was estimated to be 18% in 2008 (UNICEF). The Ministry of Rural Development, International Banking Institutions, International and Local Nonprofit Organizations, and For-Profit Businesses are striving to make progress. Three techniques that are being used to facilitate the building of pit latrines in rural villages are Community-Led Total Sanitation (CLTS), Participatory Hygiene and Sanitation Transformation (PHAST), and modified combinations of the two. Unfortunately, evidence is mounting that pit latrines built as a result of these programs are being abandoned in favor of open defecation.

Nature Healing Nature conducted a survey in two, post-CLTS, rural Cambodian villages to determine the root cause(s) of why 99% of the households, that at one time built and were using a pit latrine, had returned to open defecation. The interviewees were selected by the village Chiefs and were considered to be of the poorer households within the community.

One, far-reaching finding was that the ten interviewees, two Chiefs, and more than fifty of their neighbors, viewed themselves as having only two sanitation options. They could either endure the 1) disgust, 2) shame, 3) indignity, 4) daily inconvenience, 5) debilitating health effects, and 6) dangers, of open defecation or they could endure the 1) disgust, 2) shame, 3) indignity, 4) annual inconvenience, 5) expense, and 6) maintenance difficulties of using a flimsy pit latrine.

Our survey results indicate that the CLTS programs conducted in the two villages were quite successful in triggering the participants to take action to build and use a pit latrine. Unfortunately, the pit latrine

designs that the homeowners selected were flimsy, and they were built in low lying areas that were subject to rainwater flooding. When the pits filled with rainwater in the rainy season, the wood floors washed away, the feces lifted out of the pits, mixed with mud, and inundated the areas around the houses. The villagers describe the quagmire as disgusting and filthy. They could not use their latrines for weeks at a time during the rainy season and had to rebuild them annually. The poorest of the poor did not have help or the materials to rebuild their pit latrines even if they had been inclined to do so.

Both village Chiefs told us at the beginning of our survey that the villagers would never rebuild their pit latrines because of the bad experience that they had with them. However, our survey results indicate that 75% of those interviewed are willing to build and use a pit latrine again if it is robust, dignified, and capable of withstanding the rainy season. The Chiefs may have had a more negative response considering that they were heavily burdened with providing motivation and construction assistance to the poorest of the poor during the CLTS activities.

Survey results indicate that the latrine designs selected by the villagers were not capable of withstanding the Cambodian rainy season. Nature Healing Nature posits that there are two distinctively different Cambodias that must be considered while deciding pit latrine designs. One is the Dry-Cambodia which exists between December and April, and the other is the Wet-Cambodia which exists between May and November. Living conditions and construction needs differ significantly between the two. Many pit latrine designs suitable for the Dry-Cambodia are useless in the wet season. In fact, the dry season designs are contributing significantly to OD recidivism.

Nature Healing Nature recommends that a combination of a single cement ring and a standard cement pour-flush toilet floor (without the bowl) be considered the minimum pit latrine design that is suggested to villagers living in flood prone areas.

Nature Healing Nature offers the following recommendations to improve the chances that each dollar spent to eliminate open defecation does so permanently.

1. Latrine elevation is critical. Too low of an installation is a primary cause of OD recidivism. All CLTS/PHAST Program Managers should insure that pit latrines are built at a suitable elevation to avoid rainwater flooding.
2. All CLTS/PHAST teams should include a pit latrine design Expert responsible for carefully surveying each village with the Chief to establish a minimum pit latrine design suitable for that village. This should be done before the CLTS/PHAST activities begin.
3. If the minimum pit latrine design requires cement parts, the local sanitation marketing sector should be asked to build and inventory these parts before the CLTS/PHAST programs are conducted.
4. If the minimum pit latrine design requires parts that are not affordable to the poorest of the poor, the CLTS/PHAST Program Managers should establish a village specific process for *partially* subsidizing the parts *and installation labor cost* for the poorest of the poor before conducting the CLTS/PHAST programs. This might include Conditional Cash Transfers if the trial programs being evaluated in Cambodia are successful.
5. Several of the Ministry of Rural Development (MRD) “Informed Choice” pit latrine designs are not suitable for rainy season applications. NHN is recommending a single cement ring and circular pour-flush toilet floor (without the bowl) as the minimum pit latrine design in areas prone to flooding (see pg. 19). The design is upgradable and we believe it will stimulate synergies

between the sanitation marketing sector and the consumer dynamics of the poorest of the poor.

6. NHN recommends that all CLTS/PHAST programs include provisions for two years of bi-monthly follow-up in the villages after completing the initial activities. Given the theme of empowering the villagers to reduce their water related illness, we recommend the follow-up teams be open-minded and allow the villagers to guide the topics.
NOTE: NHN and other organizations are including household water treating (HWT) and hygiene promotion in their “modified” CLTS/PHAST programs. The follow-up meetings should address HWT and hygiene issues as well as sanitation issues.
7. Special CLTS/PHAST teams should be created to revisit villages that have returned to open defecation with the goal of addressing the specific pit latrine issues in the village and facilitate their reconstruction. These visits should be short, intensive, and responsive to the poorest of the poor. Consideration should be given to inviting the sanitation marketing sector into the village at this time to simultaneously address the PF-toilet demand of the more affluent households.
8. We believe the sanitation marketing sector is playing an important role in providing sanitation choices for those that can afford a PF-toilet, however the sanitation marketing manufacturers need to improve their ability to meet peak demand when it is generated by CLTS/PHAST activities. We recommend that the NGOs that are facilitating sanitation marketing in Cambodia begin working with Banking Institutions to 1) help manufacturers adopt dynamic inventory management techniques and 2) create convenient cash flow assistance options (loans) that may be accessed by the PF-toilet manufacturers.
9. A method should be put in place during all CLTS/PHAST programs that creates a labor resource that the poorest of the poor can access for the initial installation of their pit latrines and for routine maintenance in the future. It is a disservice to simply relegate this to the Chief.
10. A method for safe sludge management is essential and should be addresses during CLTS/PHAST activities. Until third party sludge disposal options become widely available, NHN recommends the villagers be encouraged to rebuild their pit latrines annually, at the end of the dry season, between alternating pit sites on the household property. The households should be trained how to harvest and apply composted sludge for crop or orchard application as it is removed from the alternating pits. This training should be included during the two-year CLTS/PHAST follow-up activities.

Survey Demographics

Village Locations and Characteristics

The surveys were conducted in three villages in the Angkor Chum district of Siem Reap province in Cambodia from April 18th to 27th, 2012. CLTS programs had been presented by the Provincial Department for Rural Development (PDRD) under the facilitation and funding of PLAN-Cambodia in two of the three villages. One was declared open defecation free (ODF) in 2008 and the other was declared near-ODF in 2009.

This area of Cambodia is flat. Rice paddies populate the region. The farmers reside in stilted houses that are clustered in village centers. The village areas are typically one-half to one meter higher in elevation than the surrounding rice paddies. Several weeks into the annual rainy season (between May and November) the ground in the villages becomes saturated with water. Rather than soaking into the ground, the subsequent rainfall runs off in sheets filling any low areas in and around the household areas. It is this sheet runoff that the villagers refer to as flooding.

The three villages visited during this survey were:

- A. Village Takuoy in the Koul Commune: Takuoy has 111 households, 31 have pour-flush (PF) toilets. A CLTS program was conducted there in 2007-2008. The Chief stated that over half the villagers built a pit latrine during the CLTS program, however all but one were destroyed during the first post-CLTS rainy season. Several were rebuilt, but these were eventually abandoned and never rebuilt after they were destroyed during the second rainy season. All of the villagers practice open defecation except for those living in a household with a PF-toilet and the one household that has a pit latrine that does not flood. Villagers that practice OD do not share the PF-toilets of their neighbors.

Note: The Chief said sixteen households signed-up for a \$47 PF-toilet kit through the PDRD in February of this year, but were told there was a one year waiting period due to a lack of availability. The Chief fears that the villagers will lose interest in purchasing the kits due to the long wait time and that they may not have sufficient cash available when the kits become available.

- B. Village Ampelthnong in the Koul Commune: Ampelthnong has 124 households, 4 have PF-toilets. CLTS was conducted there in 2009. Sixty-five pit latrines were built and used by homeowners. All were abandoned after the first flood of the rainy season. All of the villagers except those that have a PF-toilet practice open defecation. We interviewed the Chief and one head-of-household. The Chief stated before the survey that all of the villagers were opposed to building or using a pit latrine again and that they would continue to open defecate until they could afford a PF-toilet. However, the head of household we interviewed was quite willing to use a pit latrine if she could get help with securing materials and labor.
- C. Village Svay Chum in the Don Pong Commune: Svay Chum has 130 households. Most households are relatively affluent with houses made of brick and mortar or all wood construction. Most own a PF-toilet. We interviewed the Chief and one head-of-household that has a PF-toilet. The household (Number 1 in the following graphs) was located adjacent to a paved road and has never received CLTS facilitation. We included this household in the survey results to offer a contrast to the households of the poorer villages.

Interviewee Selection and Interviewing Method

The Chiefs were asked to select interviewees from households that had built and used a pit latrine after CLTS facilitation, but had subsequently abandoned it and returned to OD. We asked to interview households that were considered poor.

Ten heads of household (HH) were interviewed. All were the sole head of the household or shared the responsibility with their spouse. All interviews were held outside the interviewee's house and lasted between one and a half to three hours each. A crowd of neighbors and other household members were often present during the interviews. Each interviewee was asked if we could ask them about their toilet habits. Although the interviews started with laughter and awkwardness, an air of importance and seriousness pervaded within minutes.

Nine of the ten interviewees owned their house; eight owned land. The female interviewee's ages ranged from 30 to 56 with an average of 47. The average age of the males interviewed was 53. The number of members per household ranged from 3 to 6 with the average being 4.6. Six of the ten households had one child less than five years of age. Many of the younger, able-bodied villagers were working outside the village near the Thai border at the time of the survey. There was little farming activity being conducted in the villages. The survey was conducted in the dry season between the last harvest and the next rice planting.

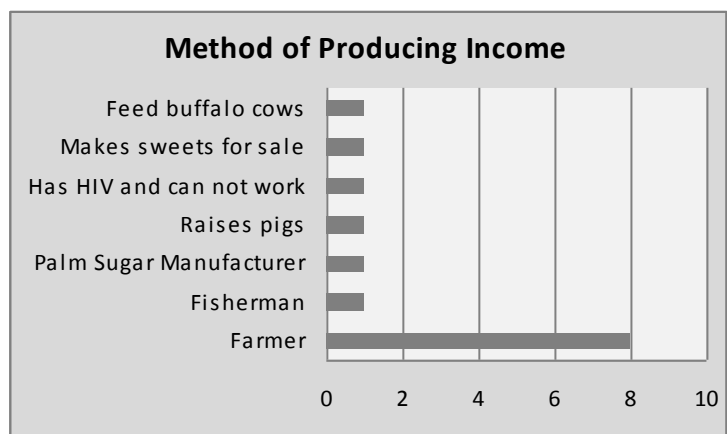
Survey Questions

A copy of the survey questionnaire can be found in Appendix B. The survey was structured with a minimum of multiple choice questions so as not to restrict the interviewee's answers. We consistently used the word "poop" with the interviewees when refereeing to feces or defecation rather than more graphic nouns/verbs. We asked the translators to translate the questions exactly and to avoid leading the interviewee or giving them example answers. We practiced with the translators to ensure the interviewee answers were verbatim. The reader is given as raw of data as possible to preserve subtle nuances within the narrative answers.

Survey Findings

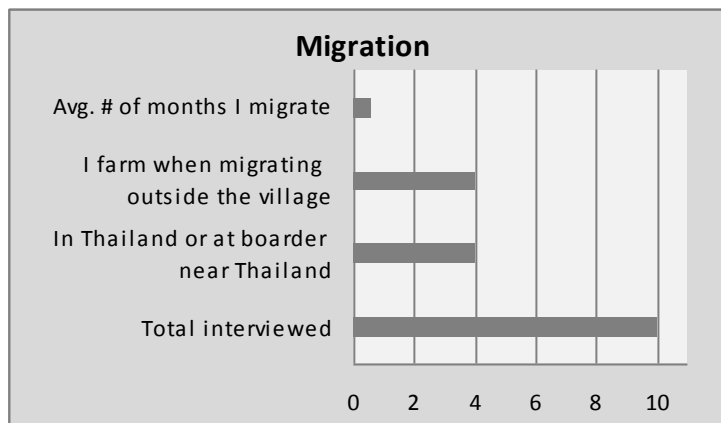
Household Demographics

We asked the interviewees how they produced income and about their migration habits to ascertain how long the interviewees were actually in their village during the year. We wanted to determine if the interviewees might not rebuild their pit latrines simply because they were away from their homes most of the year. Most interviewees practiced supplemental income producing activities during the year that are depicted in Graph 1.



Graph 1

80% of the interviewees were full time farmers. One was a full time fisherman and one had HIV and was unable to work.



Most interviewees did not migrate during the year. One migrated 3 months per year and three migrated 1 month per year. The remainder stayed in the village 12 months out of the year.

Other household members migrate for several months each year. They were not present at the time of this survey.

Graph 2

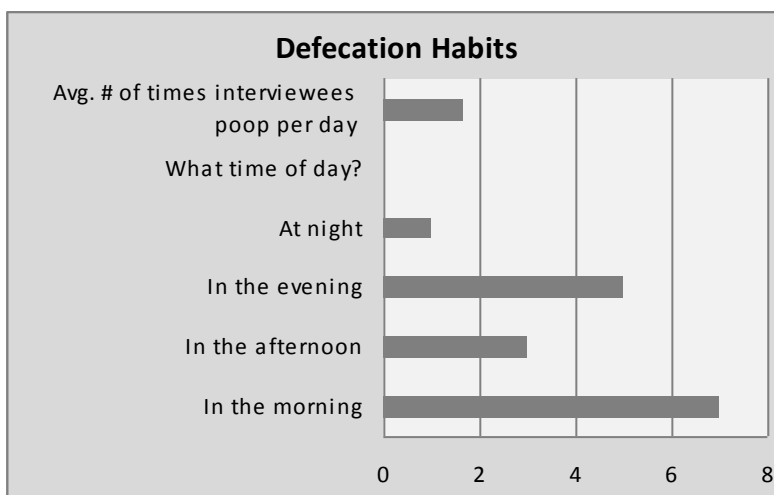
All interviewees stated their migration was not a factor in their decision to abandon their pit latrine. Indeed, one interviewee said she only uses a latrine when she migrates to the Thai boarder because they do not allow her to defecate in the fields – they provide toilets for the field workers.

Toilet Habits

We asked about toilet habits to identify anything unusual that we might exploit when conducting our Community Driven Water, Sanitation, and Hygiene Solutions (CDWaSH) program in rural Cambodia. Recalling that all of the interviewees had built and used a pit latrine at one time, we asked about urination and defecation practices to ascertain the level of physical difficulties villagers were willing to endure rather than to rebuild their pit latrine.

We asked interviewees when and how often they defecated each day. Graph 3 depicts the average times per day they defecate. 50% of the interviewees defecate once per day, 40% defecate twice per day, and 10% defecate three times per day.

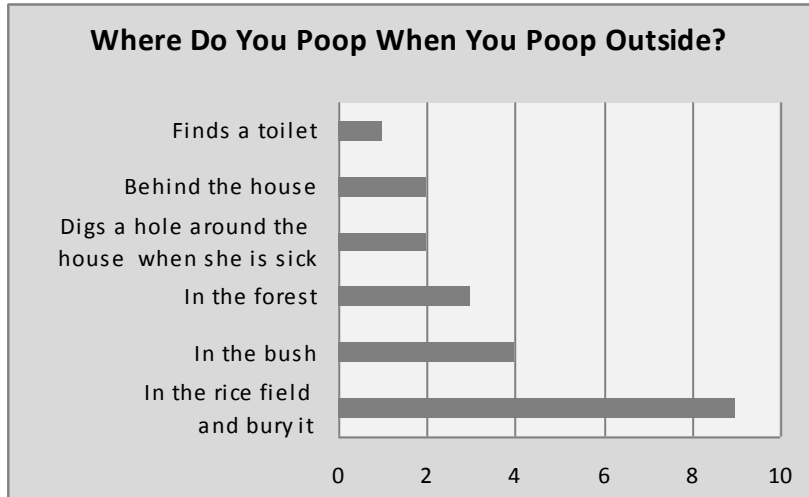
Only one interviewee defecated at night – she was the only interviewee with a PF-toilet.



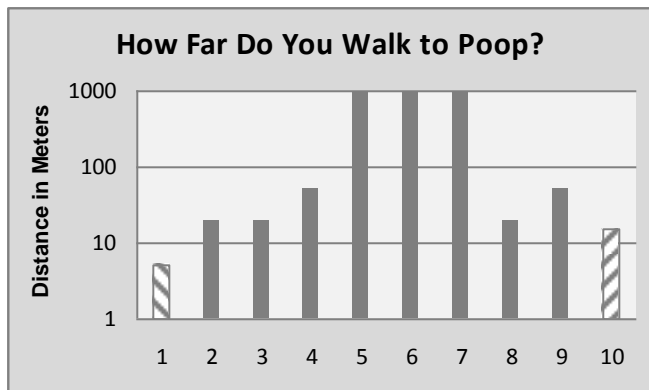
Graph 3

Graph 4 lists and enumerates where interviewees defecate. The one person that “Finds a toilet” is the same interviewee that owns a PF-toilet. She lives in Svay Chum, a more affluent village near a paved road. Most of her neighbors own a PF-toilet and are willing to share it when asked.

Sadly, one of the interviewees that defecates near her house has HIV and is chastised by her neighbors when she attempts to defecate farther from her house or in areas shared by others.



Graph 4

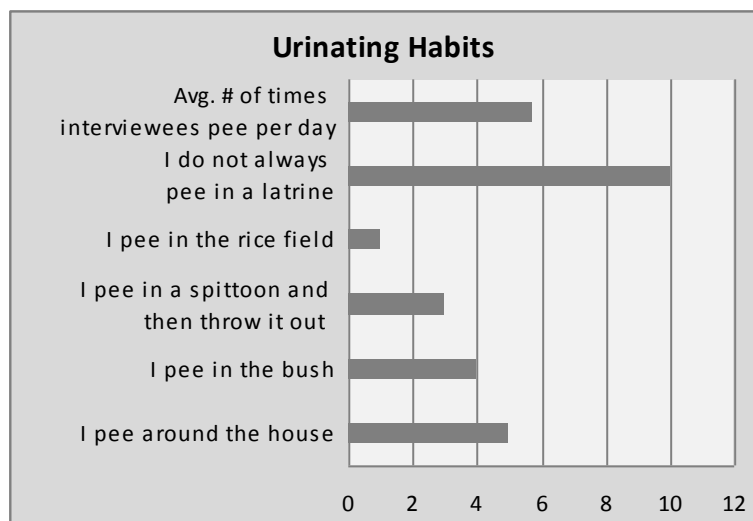


Graph 5 (Note the right ordinate is logarithmic)

The distances interviewees walked to defecate (Graph 5) was surprising. 30% of the interviewees walk *a kilometer* to find a place to defecate.

Of the two interviewees that walk a short distance (interviewee number 1 and 10), one owns a PF-toilet and the other is the only interviewee that still has and uses her pit latrine – it is located in an area that does not flood.

We asked about urinating habits to ascertain if the fears and physical difficulties endured when they were open defecating were repeated when they urinate. We found that **all** of the interviewees urinate in places more convenient than where they defecate. Neither men nor women walk far to urinate. 30% of the interviewees urinate in a spittoon at night and all urinate in the field or around the house during the day. The reasons given for urinating anywhere handy is that urine does not smell as bad nor is it as dirty as feces.



Graph 6

One interviewee said that she urinated near her house because she had young children and needed to urinate quickly so that she was not away from them for a long time.

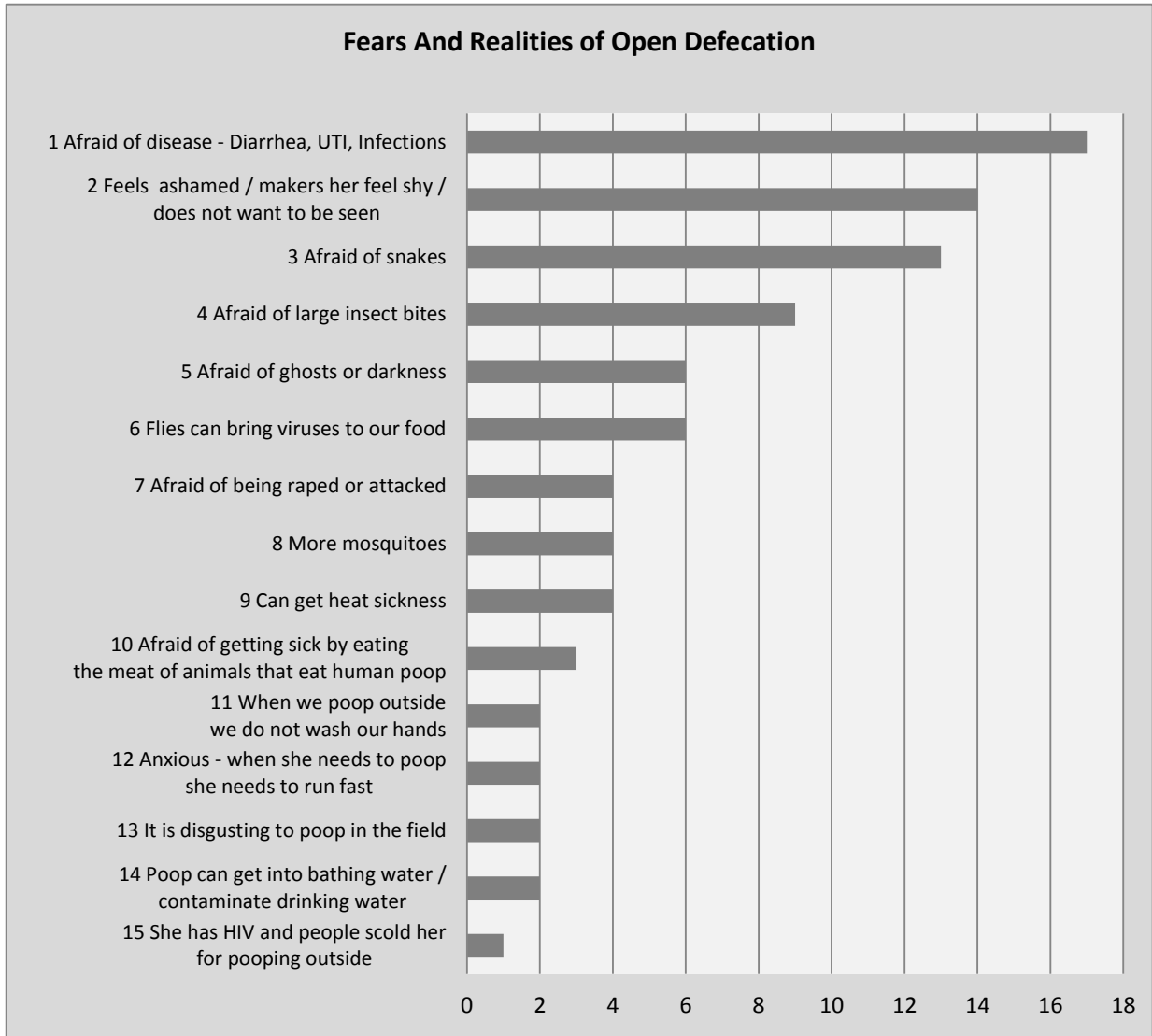
Attitudes toward Open Defecation and Latrines

We wanted to ascertain the feelings, attitudes, and physical difficulties (if any) that the villagers endured in their choice to practice open defecation rather than rebuilding their pit latrines. Graph 7 collates all answers that related to open defecation. Four questions were asked non-consecutively in the order shown below. We did not give multiple choices or suggest answers. The first two questions were designed to be open-ended and non-leading. The second two were included to insure that we addressed the topics of safety and health if they did not come up spontaneously in the first two questions.

1. Do you want a latrine, if so why?
2. How do you feel when you poop outside?
3. Is there anything unsafe about pooping outside?
4. Do you think pooping outside contributes to you or your family getting sick?

The maximum number of responses in Graph 7 can exceed ten because we asked for the same information in four different questions. Of eighty-nine responses, all but one were negative and are depicted in Graph 7. Many answers were similar between interviewees and are grouped as such on the ordinate. The values along the abscissa are the total number of times the narrative answers were given by the interviewees.

The only comment that was not negative came from an interviewee that said using a pit latrine made no difference in the amount of diarrhea her family got. Interestingly, she gave many reasons why she wanted one.



Graph 7

Graph 7 Notes:

7a. One woman described a Urinary Tract Infection as a disease she was afraid of getting from practicing open defecation. It is abbreviated as UTI in item 1.

7b. When asked to expand on their fear of snakes which was mentioned 13 times by the interviewees, none of those fearing snakes had ever been bitten by a snake (item 3).

7c. When asked to expand on their fear of large insect bites in item 4, many of the nine responses were referring to an insect similar in looks to a large centipede. One of the respondents had actually been bitten by such an insect while he was defecating; he had to spend money for medical treatment at the hospital.

7d. We asked the respondents of item 5 to expand on their fear of ghosts. They said the ghosts looked like dark shadowy figures in the shape of a person that came to them when they were alone and defecating outside. They said the ghosts could make them sick or bring them evil.

7e. One respondent in item 7 was a fourteen year old boy who indicated he was afraid of being raped when he went to defecate outside. The young man was also afraid of “being cut” by someone while open defecating. One fifteen year old girl respondent was afraid of being raped and two adult female respondents were afraid of being attacked.

7d. Three respondents explained “heat sickness” in item 9 as getting a headache or stomachache when they had to walk long distances to defecate in the heat of the dry season.

7f. Of note are the two responses concerning not being able to wash their hands after they defecate in the open (item 11).

We asked the interviewees if they wanted a latrine and if so why. We did not distinguish what kind of latrine. All of the interviewees responded that they wanted one (one interviewee already had a PF-toilet and one had a pit latrine). Graph 8 depicts their responses to the following questions:

1. Why do you want a latrine?
2. How is your and your family’s life different when you have a latrine?
3. (Positive responses to the question) “How do you feel when you poop in a pit latrine?”



Graph 8

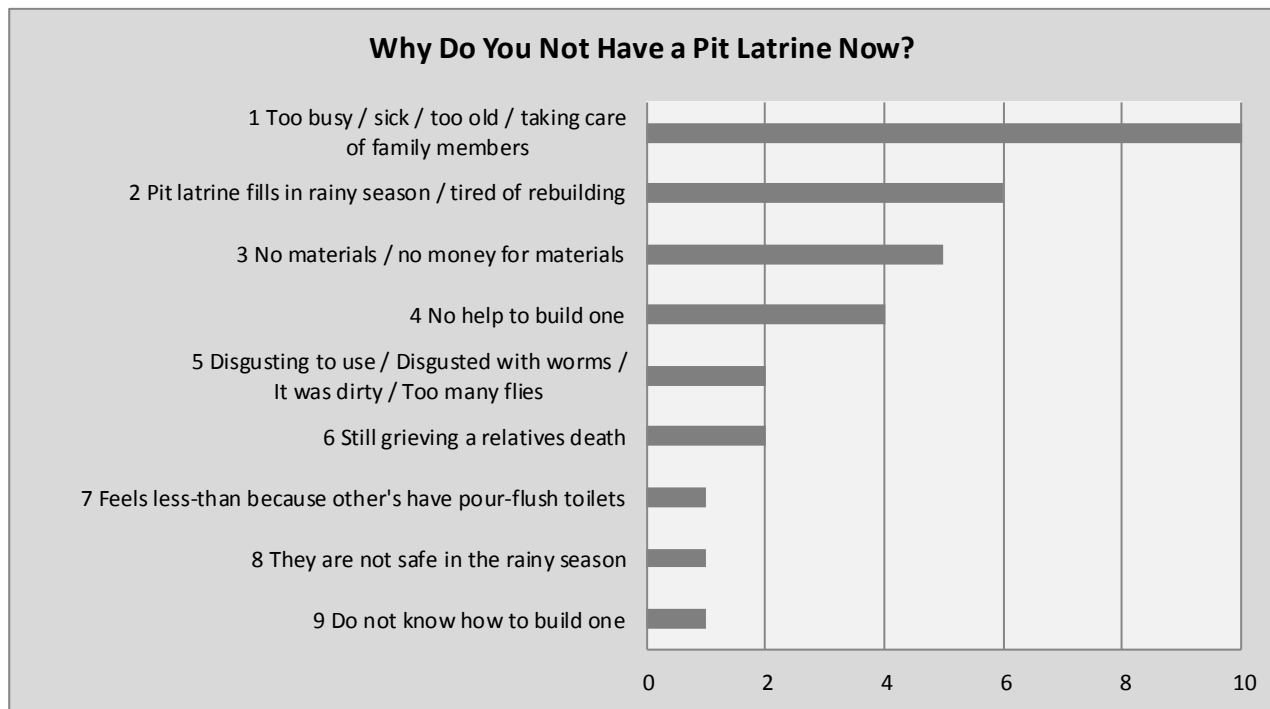
Graph 8 Notes:

8a. The most common reason interviewees gave for wanting a latrine involved its ease of use compared to defecating outside (item 1).

8b. All of the respondents made a positive comment about the health benefits of using a latrine, but it was not their first comment on the topic (item 2).

We asked the interviewees why they did not rebuild their pit latrine. Graph 9 depicts the answers to the following questions:

1. Do you want a latrine? If they answered YES, we asked “Why don’t you rebuild/make one?”
2. Have you ever had a latrine? If they answered YES, we asked “Why do you not have it now?”



Graph 9

Graph 9 Notes:

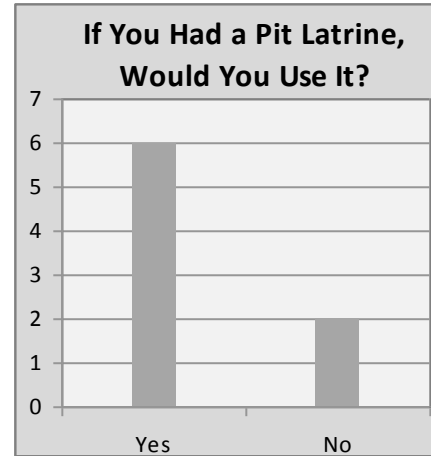
9a. The answers provided in Graph 9 do not indicate the amount of disgust shown on the faces or heard in the voices of the interviewees as they described how their pit latrines got full in the rainy season and spread feces, stench, and filth around their homes. Or, the disgust conveyed as they described the worms and flies that they had to contend with in the pits during the dry season.

We wanted to know if interviewees would ever consider building and using a pit latrine again. When we interviewed the Chiefs prior to conducting the survey, they said that the villagers had such poor

experience with pit latrines that they would never build and use a pit latrine again. Our survey results indicate otherwise and are depicted in Graph 10.

The relevant survey questions were:

- 1) If they answered “YES” to the question “Do you want a latrine?” we asked, “Is a pit latrine OK?”
- 2) “If you had a pit latrine would you use it?”
- 3) If they answered positively to: “How do you feel when you poop in a pit latrine?”, we assumed they would use a pit latrine again.



Graph 10

Graph 10 Notes:

10a. Of the eight interviewees that did not have a PF-toilet or pit latrine, six said they would use a pit latrine if they had one and two said they would not.

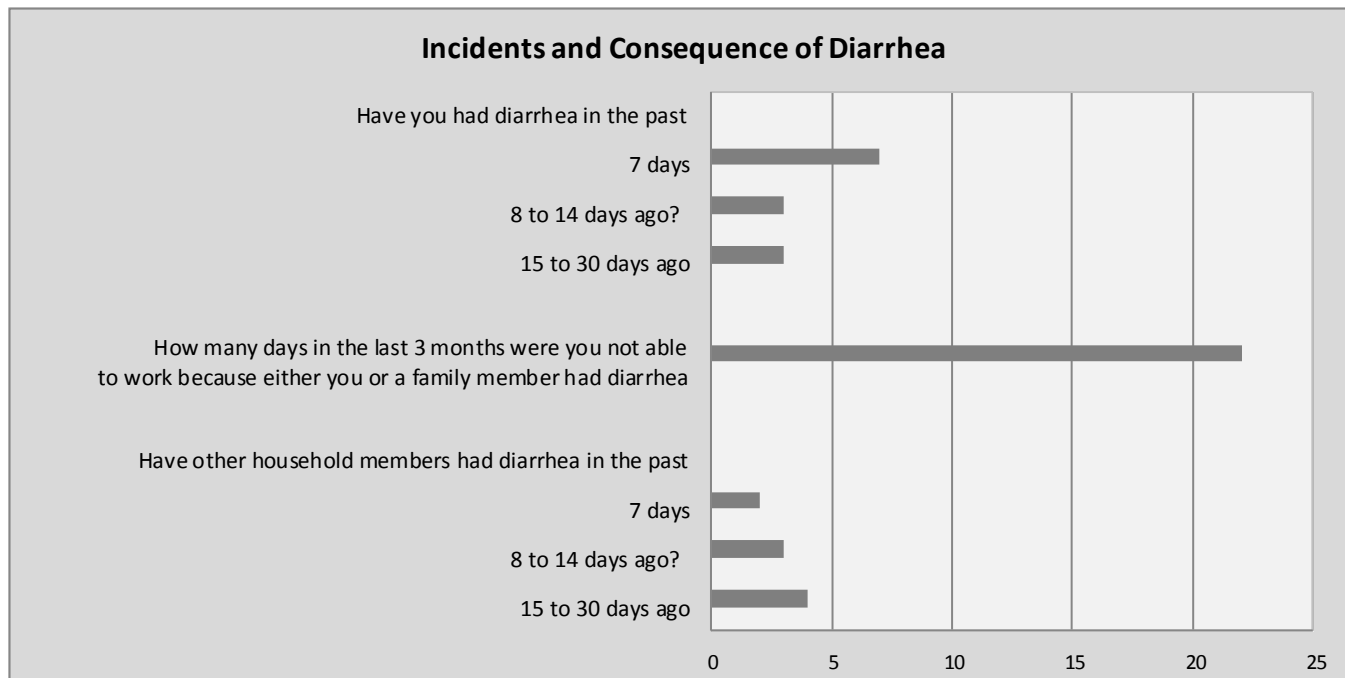
10b. Unfortunately none of the six interviewees that were willing to use a pit latrine were capable of building one. Four of the six said they were either too old or sick, three did not have access to materials, and three had no help to build one.

10c. We asked the four interviewees who said they would not use a pit latrine again if having a larger superstructure would make any difference to them. They said they would not use a pit latrine even if it was two meters square.

Impact of Diarrhea on Household Health and Income

We wanted to ascertain the frequency of diarrhea in the interviewees’ households and if it imposed an economic disadvantage. We defined the term “diarrhea” as “three, consecutive days of watery poop”. All of the interviewees said they get most of their diarrhea in the dry season. When informally asked “Why the dry season?” they mentioned mangoes and that there were more flies.

Graph 11 depicts the diarrhoeal incidents for the interviewees and other household members. It also indicates the number of days of work that the interviewee missed in the three months previous to the survey due to having diarrhea or needing to take care of a household member with diarrhea. The values relating to the questions “Have you had diarrhea in the past...” and “Have other household members...” indicate the number of “yes” answers, not the actual number of incidents of diarrhea. The number of incidents of diarrhea may have been greater.



Graph 11

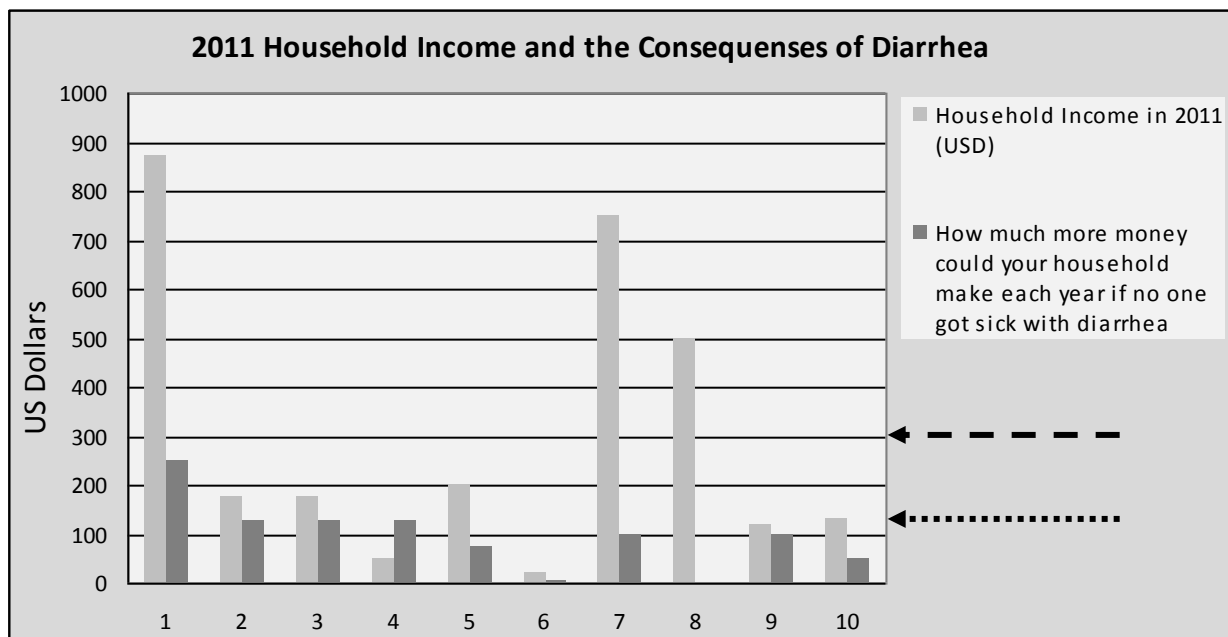
Graph 11 Notes:

11a. Ironically the two interviewees that had a PF-toilet or a pit latrine had at least one incident of diarrhea in the previous seven days while three of the interviewees that practiced OD had no diarrhea in the past month.

11b. All of the interviewees said they have most of their diarrhea in the dry season.

11c. The 22 days that the interviewees were unable to work is the total for the ten interviewees. Assuming they work six days a week and that there are twelve weeks in a three month period, the 22 days of missed work represents 3% of their productive time.

We asked the interviewees about their total household income for 2011, and then asked how much more money their household could make if no one got sick from diarrhea. The totals depicted in Graph 12 include the contribution of the migrating members of the household.



Graph 12

Graph 12 Notes:

12a. Interviewee Number 1 is the only person interviewed that owned a PF-toilet. She lives in Svay Chum which is a relatively affluent village adjacent to a paved road. Most of the houses in Svay Chum are made of brick and mortar, or wooden sided houses on cement stilts.

12b. Interviewee Number 10 is the only interviewee that still has a latrine after a CLTS program was conducted in her village in 2007-2008. Her house and latrine are located in a high area of the village that does not flood.

12c. Household Number 6 had the lowest income; \$20 per year. The male head of household is handicapped. The family had to sell most of their land and now eats all of the food that they can grow on their remaining land. They have no excess rice to sell for cash income.

12d. We presented this graph in lieu of reporting average income of all interviewees to highlight the misrepresentation of mathematical averages. The large discrepancy in three of the households having much higher income than the rest gives rise to a high average income of \$300 USD indicated with the dashed arrow. Seventy percent of the households have far less income. The average of the lowest 70% of household incomes is only \$124 USD and is indicated with the dotted arrow.

Comments and Recommendations

The most important revelation of this survey of ten heads of mostly poor households, two Chiefs, and more than fifty neighbors that sat with us was that they viewed themselves as having only two sanitation options. They could either, endure the 1) disgust, 2) shame, 3) indignity, 4) *daily* inconvenience, 5) debilitating health effects, and 6) dangers of open defecation, or they could endure the 1) disgust, 2) shame, 3) indignity, 4) *annual* inconvenience, 5) expense, and 6) difficulty of re-building a flimsy pit latrine. The following recommendations are given as a means to significantly improve the long-term durability and attractiveness of pit latrine use.

- 1) We believe that the survey reveals that the root cause of the villagers' return to OD after they successfully participated in a CLTS program is due to the flimsy latrine designs that they installed, and that the latrines were installed at too low of an elevation. This resulted in:
 - a. Overwhelming disgust when normal rainfall in the rainy season filled the pits, destroyed the walls, lifted the wood floors, and spread feces around the households causing such a quagmire that the villagers chose to endure the less disgusting indignities of open defecation.
 - b. Frustration of having to rebuild the latrines after every rainy season. Many of the households that can afford only a pit latrine are the same households that do not have anyone available to help them rebuild their latrine. The immediate post-CLTS/PHAST period is ripe with the Chief and others helping the poorest of the poor, however this spirit of the community helping each other erodes with time. The post CLTS/PHAST systems put in place to encourage these communities to help themselves ad infinitum is not working.
 - c. Reluctance to reinvest the energy, time, and money needed to rebuild their pit latrines every year.

To resolve pit latrine flooding, we recommend that **every organization that is facilitating latrine installations ALWAYS insures that latrines are installed above the normal flood elevation**. This sounds simple, but the villagers often forget how high the rainwater gets when they are designing and building a latrine in the middle of the dry season. They may have to build up the area where the latrine will be located. This extra effort may interfere with post-triggering enthusiasm. We recommend the design shown in topic “2)” below be used in villages where flooding is common.

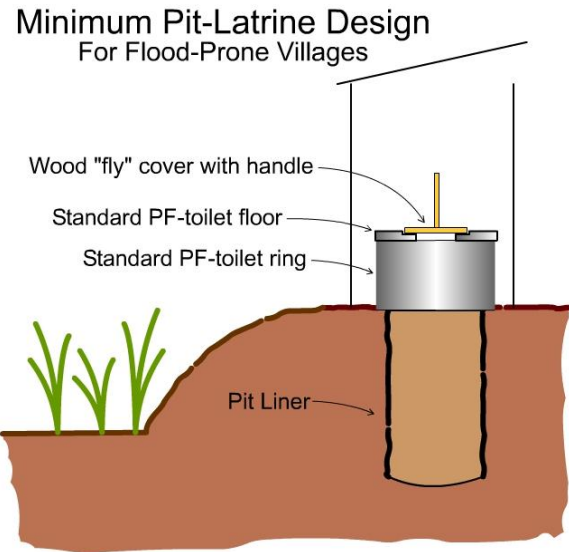
To resolve the poor quality of the pit latrines, we recommend having a Latrine Expert visit all villages where CLTS/PHAST is being considered before committing CLTS/PHAST to the village. The “Latrine Expert” would assess the minimum pit latrine design appropriate for that village with consideration to flooding, construction material availability and sustainability, pit liner possibilities, and other installation parameters including construction manpower options.

If the Latrine Expert assesses that the minimum design will require the purchase of materials that may not be affordable to the poorest of the poor, then the CLTS/PHAST team should not enter the village without a prearranged funding option to *partially* subsidize the minimum design option for the card-carrying ID-Poor. This might include Conditional Cash Transfers if the trial programs being evaluated in Cambodia are successful. We are assuming in this scenario that the remainder of the households will be able to afford a PF-toilet from the sanitation marketing sector.

2) Several of the twelve MRD “Informed Choice” latrine designs that are being suggested to villagers after CLTS/PHAST triggering are not suitable for the rainy season. Failure of these designs is a root cause for the return to open defecation.

We recommend a combination of a single cement ring (\$6.26 USD) and a standard or circular PF-toilet floor (without the bowl) (\$6.25 USD) be presented as the minimum design option shown to the poorest of the poor in villages where flooding is common (see diagram at right). The design will likely require partial subsidy by the organizations facilitating the CLTS/PHAST programs.

The wood cover helps to address the disgust that the interviewees expressed in the number of flies and odor present at the pit. The cement ring helps to elevate the latrine floor above the rainfall sheet-flooding. This will reduce the amount of soil needed to raise the latrine. It may also reduce the fear of snakes and large-insect bites.



The standard PF-toilet floor, without the bowl, offers a dignified, sturdy, and easily cleaned platform. A minor modification to include a recessed lip at the bowl opening will allow a tight fit for the wooden hole-cover. Use of standard PF-toilet parts allows the owner to upgrade to a complete PF-toilet in increments over time. Safety consideration must be given to the size of the floor hole to eliminate the possibility of a child falling through it.

We caution that the pit liner selection will be a critical, site-specific design issue. The pit latrine design Expert should evaluate robust pit liner options when they make their initial village inspection and before the CLTS/PHAST program begins.

3) Contrary to the beliefs of the Chiefs, the survey implies that 75% of the interviewees who have abandoned their latrines are willing to build and use one again if it is capable of withstanding the rainy season and if they can get help installing it. We recommend creating special CLTS/PHAST teams that revisit villages that have returned to open defecation. These teams would facilitate very short, perhaps three, half-day CLTS/PHAST refresher “facilitations” with the intention of:

- a. Promoting the rebuilding of pit latrines, at a higher elevation, for those that still want one.
- b. Asking and providing the Chief with what he needs to facilitate the CLTS/PHAST goals.
- c. Resolving the difficult issue of partial subsidies for both material and installation labor cost for pit latrines, and HWT devices for the poorest of the poor (ID-Poor 1&2 card holders).
- d. Conducting a refresher on hygiene promotion.
- e. Inviting all sanitation marketing **and** household water treating device manufacturers in the area to visit the village after re-triggering to offer their PF-toilets and HWT devices to those that can afford them.

4) The interviewees and the Chiefs expressed the need for follow-up help after the CLTS programs are complete. NHN recommends all CLTS/PHAST program providers plan on, and set aside funding for two years of follow-up activities. This might be simply subcontracting the activity to a local NGO, but it is important to support the villagers in addressing problems that arise long after CLTS/PHAST triggering. We recommend asking the villagers what follow-up activities would be most beneficial to them.

5) We believe that although sanitation marketing is not reaching the poorest of the poor, it does offer a sanitation choice for households that can afford a PF-toilet. Unfortunately, we found that the sanitation

marketing sector in the Angkor Chum district does not practice inventory management capable of meeting the demand.

Sixteen of the eighty households (20%) in Takuoy that do not have a PF-toilet were willing to buy a PF-toilet in January 2012 through the local PDRD representative only to be told that there was a twelve-month waiting period for delivery. The Chief was concerned that the villagers would lose interest or not have cash available by the time the kits become available.

We visited three of the four private PF-toilet manufacturers in Angkor Chum in April, 2012 to discuss the problem of delivery, and to tell them that sixteen sales were available that day. They told us that all of the skilled laborers needed to build the kits were migrating. The manufacturers had no idea when the laborers would be available. None of these manufacturers are associated with a sponsoring NGO.

To insure that there are enough PF-toilets to meet the demand, we recommend that all of the NGOs that are facilitating the sanitation marketing sector and the PDRD help both independent and NGO related manufacturers resolve their inventory management issues. This will likely include the need for an inventory financing program.

6) This survey indicates that pit latrines have a place in Cambodia if they are robust and dignified. However, once pit latrines are built to last more than one year, the owners will be faced with a new problem; needing to empty the pit when it fills with fecal sludge. The interviewees in this survey have never had to face this problem because their latrines never lasted long enough to fill.

We recommend addressing this situation during the CLTS/PHAST activities and village follow-up. The solution does not have to be difficult. When NHN conducts its CDWaSH program in Africa and South America, we ask the villagers not to consider the pit filling as a problem, but rather a resource for growing an orchard. We suggest they visualize an orchard ten years from now, and plan on moving the latrine frequently, at least annually, to take advantage of the accelerated tree growth provided by planting above the full pits.

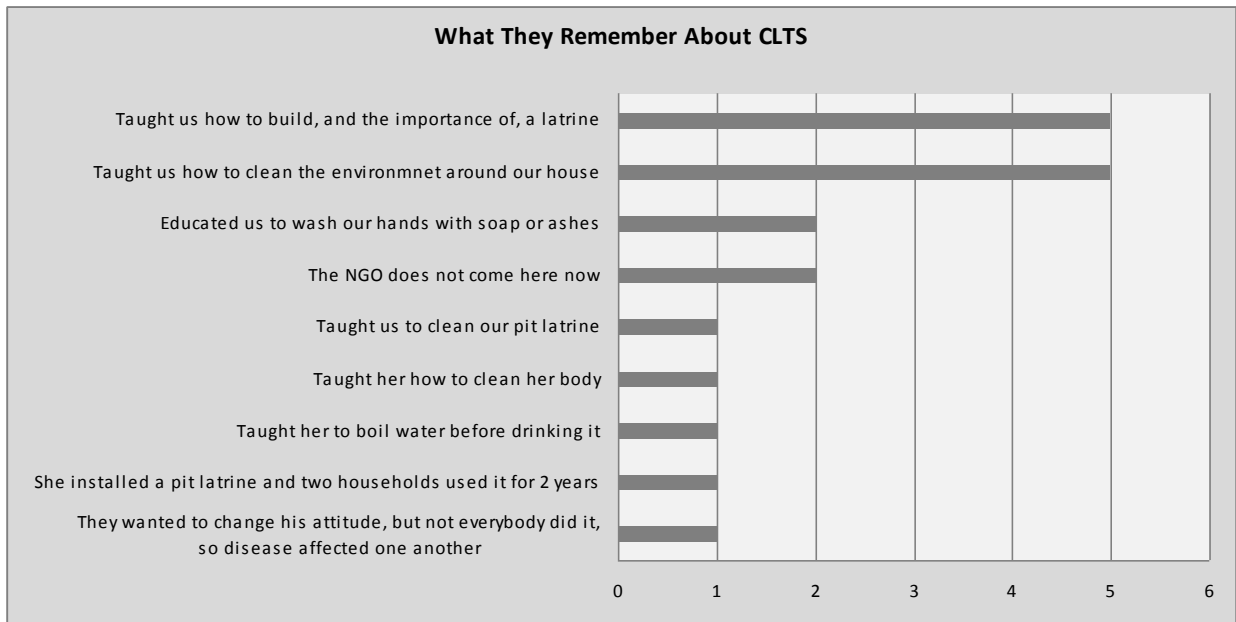
Villages in Cambodia have space limitations that might preclude an orchard within the village proper, but they have enough room to alternate between two pit locations at least ten meters apart. This would allow one pit to be filling while the other is composting (EcoSanitation) with a low probability of hydraulic cross contamination in most soils. Each year at the end of the dry season, the latrine can be alternated to the old pit location and the contents of the old pit harvested for remote orchard or crop application. By using the two piece pit latrine design described in (2) above, the single cement ring and floor can be easily moved between the alternating locations.

Bonus Information for CLTS Facilitators

We asked the following question to get an idea of what the interviewees remembered from their CLTS training.

“We understand that an NGO was here to convince people not to defecate outside, about two years ago. How did that work out?”

Graph 13 depicts the frequency and the answers given by seven of the ten interviewees.



Graph 13

Appendix A: References

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Appendix B: Survey Questionnaire

Province: _____ District: _____ Start Time _____
Commune: _____ Village: _____ End Time _____
Date _____

How far to the nearest clinic? _____ Km How long does it take to get there (minutes) _____

How do you get there (circle one)? Bicycle Walk Moto Other _____

How far is it to the nearest paved road from your house? _____ Km

Do not take their name. Interviewing a: Male Female Age: _____

How many people over age 5 in the household _____ Less than 5 _____

How many months in the year do you work in your village? _____

What do you do in the village? Farm Fish Sell Palm Sugar Other _____

Where do you go when you are not in the village? _____

What are you doing when you are not in the village? Farming Other _____

Do you own your house? Yes No Do you own land? Yes No

Do you own a latrine? Yes No

What kind is it?

- Pit latrine
- Pour-Flush latrine with concrete walls
- Pour-flush latrine with palm branch walls
- Other – Describe _____

Do people not living in your household use your latrine? Yes No

Who are they? _____

How many outside your household use it per month? _____

Why do they use your latrine? _____

Do you ever use someone else's latrine: Yes No

Why? _____

Where do you poop when you poop outside? 1) _____

2) _____

3) _____

How many meters from your house do you poop? _____

Do you want a latrine? Yes No

Why? 1) _____

2) _____

3) _____

4) _____

Is a pit latrine OK? Yes No

Why don't you make one? 1) _____

2) _____

3) _____

4) _____

Have you ever had a latrine? Yes No

What Kind did you have (circle one)? Pit Pour-flush Other:

How long did you use it (years)? _____

Why do you not have it now? 1) _____

2) _____

3) _____

4) _____

How is your and your family's life different when you have a latrine? _____

Do you poop in the (circle one) morning afternoon evening night different times during the day

How many times a day do you poop? _____ How many times a day do you pee? _____

Do you always pee in a latrine? Yes No

If not, where do you pee? _____

Why do you pee there? _____

How do you feel when you poop outside? 1) _____

2) _____

3) _____

4) _____

Is there anything unsafe about pooping outside? 1) _____

2) _____

3) _____

How do you feel when you poop in a pit latrine? 1) _____

2) _____

3) _____

How do you feel when you poop in a pour-flush toilet? 1) _____

2) _____

3) _____

Is there anything unsafe about using a pour-flush toilet? 1) _____

2) _____

3) _____

If you had a pit latrine would you use it? Yes No

Why? 1) _____

2) _____

3) _____

Would you prefer a big pit latrine; 2 meters square? Yes No

What could the poor people do to afford a pour-flush toilet? 1) _____

2) _____

3) _____

How much do you think a pour-flush toilet costs? _____

How much do you think a pit-latrine costs? _____

Do you mind if I ask how much your total household income was last year? _____

How many times did you have diarrhea,

Last week? _____

Two weeks ago? _____

Three and four weeks ago? _____

How many times did other household members have diarrhea,

Last week? _____

Two weeks ago? _____

Three and four weeks ago? _____

How many days in the last three months have you missed work because either you or a family member have had diarrhea? _____

What time of the year do you usually get diarrhea (circle one or add other)? Dry Season Wet Season

Other: _____

How much more money could your household make each year if no one got sick with diarrhea? _____

We understand that an NGO was here to convince people not to defecating outside about 2 years ago. How did that work out? _____

Did you ever stop pooping outside? Yes No

Did any of your other household members stop pooping outside? Yes No

Why or why not? 1) _____

2) _____

3) _____

4) _____

Do you think pooping outside contributes to you or your family getting sick? Yes No

Why or why not? 1) _____

2) _____

3) _____