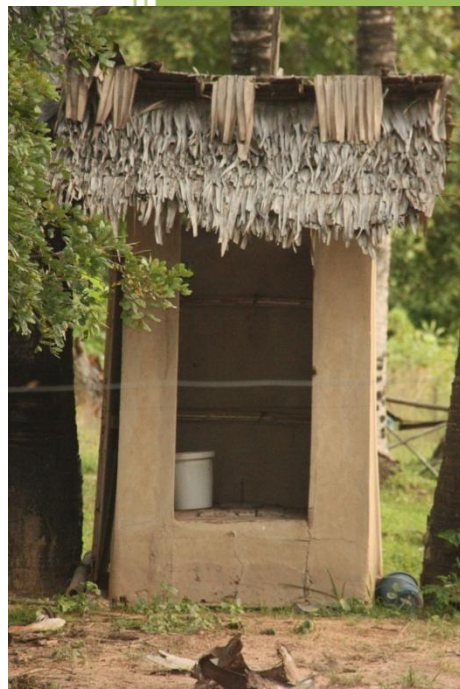




Sanitation in Cambodia

A Review



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List of Acronyms

ADB	Asian Development Bank
ADRA	Adventist Development and Relief Agency
CLTS	Community-Led Total Sanitation
HH	Households
ICC	International Cooperation Cambodia
IDE	International Development Enterprise
MRD	Ministry of Rural Development
NGO	Non-Government Organization
ODF	Open Defecation Free
PDRD	Provincial Department of Rural Development
SC-WASH	School Community Water and Sanitation
SNV	Netherlands Development Organization
TSRWSSP	Tonle Sap Rural Water Supply and Sanitation Sector Project
UNICEF	United Nations Fund for Children
WFP	World Food Program
WS	Water Sealed
WSP	Water Sanitation Program

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1 Executive summary

The Adventist Development and Relief Agency Cambodia (ADRA) has been operating in the water and sanitation sector for 18 years. ADRA's program has always involved hardware coupled with software interventions. The latrine component of the program has achieved relative success in terms of uptake, usage and acceptance by the community. Some communities have shown a preference towards implementing ADRA latrines. However, the biggest criticism has been the reach and impact of the program on the poorest within communities and whether ADRA should incorporate the principles and methods of Community-Led Total Sanitation (CLTS) more directly into the way ADRA's program operates. Therefore, ADRA commissioned this study to identify lessons learned from other programs and how and if these lessons and methods of implementing latrine programs should be considered for integration into ADRA's program.

The study analysed the impact of two differing latrine programs within the communities in which they were operating. The study chose to look at communities in their post project implementation stage to determine the "residual" impact of the program and therefore provide indicators of sustainability of the two different types of implementation.

The study looked in detail at three villages in Kompong Thom Province where CLTS was implemented, funded through UNICEF; and also three villages where the Asian Development Bank (ADB) implemented a subsidy-based sanitation program with a large emphasis on hardware together with software. This field observation is compared with other informal field observations of other programs as well as literature based analysis.

Key findings indicated that CLTS has not proven itself in terms of ownership of the program by the beneficiaries and even by the local village and commune authorities who implemented much of the process. This represents a fundamental failure of CLTS, given its purported "community-led" principle. Post CLTS villages showed only 11 percent of dry pit latrines still being used, and of these remaining the vast majority (80 percent) were in poor condition. Further studies could or should be conducted regarding the sanitary impact of poorly constructed or maintained pit latrines on health in communities as these pit latrines were often accessible to livestock; almost none were observed to be used with ash, and all seemed to be perfect breeders for fly populations, potentially negating any health benefits of the latrine in the first place.

Results of the study do not fully support the assumption that CLTS is a means of behaviour change which leads families to jump onto the sanitation ladder and continually improve their sanitation facilities. Data within one commune (as reported by the commune chief) was used to compare CLTS and non-CLTS villages. Within the CLTS villages, there was a relatively high rate of dry pit latrines (57 percent) but a very low rate of water sealed latrines (7 percent). Compare this to the non-CLTS villages where they there were no dry pit latrines (perhaps because the CLTS initiative was not conducted in those villages therefore there "shouldn't be any dry pit latrines) but reported a relatively high rate of water sealed latrines (26 percent). It seems that the exact opposite has occurred with regards to CLTS and the sanitation ladder, as was expected.

The observed ADB program had better long term results with better latrine design, acceptance and demand by the community. Nearly all latrines observed were well maintained and in use, and in nearly all cases households preferred water sealed latrines (many initially accepted a dry pit latrine which they later converted to water sealed).

Both programs had sanitation and hygiene training, and from discussions with households there was evidence that the sanitation and hygiene program was slightly more effective in the ADB program. Interviewees there were able to identify that specific sanitation and hygiene programs had been conducted and were able to identify some lessons learned during these programs. The CLTS

hygiene and sanitation education program was less formalised and in many cases the village chief was the primary facilitator responsible for the behaviour change process. Officially, there should have been a sanitation and hygiene community volunteer; however in most cases they were not effective. It appears that there was minimal formal education or training conducted.

Villagers expressed the desire for the latrine programs to offer hardware solutions. The CLTS program was not appreciated as it was felt that the authorities were forcing them to do something but without any assistance. Village chiefs were frustrated as most of the responsibility for making their village open defecation free (ODF) came down on them. Some appeared to not appreciate the top down approach including having to police the situation. When the program pressure was off, most were relieved.

The study supports taking a more positive motivational approach to latrine interventions. CLTS as implemented appears to have been reduced to a legislative approach administered by village authorities with little positive assistance. Unlike CLTS, subsidised approaches provide the technical assistance support needed in the community together with the freedom for individuals to make personal choices.

Recommendations for future latrine programs:

- **Focus on quality and not quantity:** Program focus should be on ensuring sustainable quality of any latrine units and/or technical assistance provided to households to construct the latrines. Families need technical assistance as it should not be expected that they will of themselves know the best ways to construct sustainable latrines on their own (in a similar way that households would ask for a builder to come and build their new house). A mere focus on numbers and ODF status within a short time frame means that the necessary ground work is not conducted to achieve sustainable behaviour change. ODF status should never be the only objective of a program but individual and long term behaviour change. Latrines are installed “for life” and a strong, long life unit is necessary to ensure long term solutions to village sanitation. **Subsidized hardware can still be an important aspect of sanitation programs:** In some cases and especially in regions where there is a very low rate of households with latrines there is a case for subsidisation. In these cases attractive latrine norms need to be established and a market for sanitation facilities developed. Poor households also need an affordable solution that is more sanitary and sustainable than a pit latrine and this brings forth the case for subsidisation at least in ID poor cases.
- **Personal contribution is necessary:** In cases of subsidization, even the poorest beneficiaries need to contribute a meaningful amount to their sanitation unit. This can be varied based on socio economic status but it should always be enforced. If contributions are made “in-kind”, monitoring is needed to ensure that the unit is completed and that the in-kind contribution is really made. To enforce this, programs can be designed to ensure contributions have been sourced prior to providing other assistance for the unit.
- **Latrines should be locally acceptable and respectable:** It has been recognised from ADRA’s experience and other studies that there is a certain expected standard for latrines in Cambodia. Latrine programs will be accepted in communities when they offer solutions that meet these standards. Efforts are being made and there should be continuing research regarding affordable latrine options that meet these standards of acceptability and respectability, while maintaining quality for sustainability of the unit.
- **Hardware versus software in project budgets:** The most common assumption found in failed latrine projects is that the community members were not sufficiently trained; and if the community better understands the health benefits of owning a latrine, then they will buy into the program. However, it has been seen that people want a latrine primarily for reasons of convenience. Most household members can tell you that there are supposed health benefits but that won’t be their reason for action. We must not assume that more training will lead to more latrines. The program needs to understand the mindset of the people it is trying to help

and then design latrine promotion programs from this perspective. It is also difficult to promote the health benefits if there are any of the dry pit latrines if that is the only option, and certainly convenience and comfort are minimal. Software alone cannot succeed without providing assistance with hardware, and sometimes providing training alone will result only in “trained” people but still no latrines, at least in the long run.

- ***CLTS only one part of a sanitation program:*** CLTS should only be used in conjunction with other aspects of a sanitation program. This can be together with a direct hardware subsidy for poorer households and/or social marketing but there are likely few situations in Cambodia presently where CLTS can successfully by itself and lead to sustained latrine use.

A program which considers these recommendations can succeed. If funding is available, then a balanced subsidy based program is appropriate for certain conditions. Latrine designs are important and organisations wishing to address rural sanitation effectively must not forget the need to provide options to communities that stimulate demand and provide real sanitation solutions.

2 Introduction

2.1 Background of review

ADRA Cambodia has been involved in the water and sanitation sector for 18 years. The first latrine project was conducted in Kompong Sway district, Kompong Thom province in 1993. This was followed by programs in three other districts of the same province from 1998 to 2006. Programs were further implemented in Siem Reap (1997 to 2010), Preah Vihear (2003 to 2011) and Pursat provinces (2004-2011). A total of over 6,700 water sealed latrines have now been installed country wide.

ADRA's approach since 1998 has generally been straight forward and follows a widely accepted approach of subsidizing the latrine in order to allow poorer families to be involved and also to ensure that targeted outputs are achieved. The rate of subsidy has generally been approximately half to two-thirds covered by the project and the remaining half to one-third met by the community. While there is a significant software component in some projects, others have involved very little training on sanitation and hygiene, focusing almost solely on supplying and installing hardware. Interestingly, these latter type programs have still been found to be successful in terms of usage rates and long term sustainability of the latrine unit (*Evaluation of ADRA Cambodia's Water and Sanitation Program, 1993-2004*; Peter Truscott, 2005).

However it is noted that this strategy is diverging from current "trends" in rural sanitation. Thus ADRA Cambodia is undertaking this review of its present strategy in order to compare it to others on the "cutting edge" of sanitation programming. Community Led Total Sanitation was first trialled in Cambodia by World Concern in 2004. Since then, the Ministry of Rural Development (MRD) has adopted the technique as one of its main strategies and has implemented it in partnership with a number of NGO's such as PLAN, SNV, and ICC to name a few.

2.2 Objectives of Evaluation

The review was conducted primarily to compare different strategies currently being used in Cambodia with the aim of improving ADRA's program and making it "competitive" with other programs. Thus, main objectives are to:

1. Document existing latrine program strategy used by national programs and other "best practice" programs within Cambodia and evaluate the effectiveness of each in achieving behaviour change, improving household and community sanitation, sustainability of the latrine, sustainability of the behaviour change and the cost effectiveness of each methodology. Included in this comparison is ADRA's current program strategy.
2. Identify what factors influence a mass uptake and acceptance of latrine installation. For example, how various programs impact attitudes of households not accessing the initial support.
3. Identify any existing proven technologies that may improve ADRA's current latrine program (strategy and hardware).
4. Identify what and how points from other programs can be integrated into ADRA's latrine program.

This review can also provide information to the wider Cambodian development community and contribute to the understanding of sanitation program implementation at the field level, and factors that impact effectiveness of programming. The review also aims to contribute to the understanding of knowledge, attitudes and practices of the rural population with regards to household sanitation so that informed choices can be made when formulating strategies.

2.3 Evaluation Methodology

The evaluation primarily compared two large scale programs which addressed rural sanitation issues; both programs were located in the same province of Kompong Thom. These are considered as representative of the two main extremes of sanitation program implementation: the capacity building, awareness raising focused approach with zero hardware versus the hardware/subsidy approach with minimal hygiene/sanitation training. A detailed analysis of these programs, primarily considering post program results, was conducted to assess the sustainability and long term impact of the activity. This study considers these results together with ADRA's own implementing experience and information from field visits to other sanitation programs being conducted in Cambodia.

2.3.1 Latrine Program Survey

The survey of the Kompong Thom latrine programs involved a concise survey of the owners with an observation of the latrine, focus group discussions and interviews with key persons in government and provincial and ministry level and the sponsoring organizations, in this case, UNICEF and Asian Development Bank (ADB) and other NGOs who work in the areas.

2.3.1.1 Owner Survey

Three hundred eighty-six latrine owners in six villages, four communes and three districts of Kompong Thom were surveyed. The questionnaire was administered in three open defecation free (ODF) declared villages in Baray and Santuk Districts as declared during the Provincial Department of Rural Development (PDRD) CLTS program of 2006-2008 to help assess the success rate of the previous CLTS program as well as ascertain the level of use and maintenance of latrines built there prior to the CLTS program (n=297). As the village had at one time been ODF, approximately half the households were selected randomly for an interview. Families in three villages within the ADB Tonle Sap Rural Water Supply Project (TSRWSSP) target area were also interviewed (n=91). Because these villages were not, nor had ever been declared ODF, it was decided to select only families with a latrine to survey. The survey asked questions regarding latrine construction and use and, in most cases, the surveyor asked to observe the latrine if it was present.

2.3.1.2 Focus Group Interviews

Several focus group interviews were conducted in each village being surveyed. Villagers were asked about their own sanitation practices, how they felt about the quality of the latrine program, how the program had been implemented, as well as why they did or did not join in the program, and other issues.

2.3.1.3 Personal Interviews

With Program Staff and Government of Latrine Programs and Village and Commune Authorities:
A number of key persons within government and programs were also interviewed to help gain an understanding of both the current situation in Cambodia as well as get their personal opinions on what is working or not working in the sanitation sector. Provincial Department of Rural Development and Ministry of Rural Development (MRD) staff were interviewed as well as a number of persons working on various sanitation projects in several NGO's including ADB, UNICEF and World Vision.

Prior to administering the village survey, the village and commune chiefs were interviewed to gain an understanding of the history and current situation regarding sanitation in their areas.

2.3.2 Reviews of other Cambodian Sanitation Programs

A short review of other sanitation programs that have been operating in Cambodia was conducted and synthesized in order to consider other alternatives and, where possible, compare the survey from this evaluation to the experiences of others in country programs.

2.3.3 Literature Review

A number of documents were reviewed including the MRD's 2009 CLTS Evaluation and the TSRWSSP 2010 report. The review also looked at CLTS experience in other countries and sanitation research from recent years.

3 Results of Latrine Program Survey in Kompong Thom

3.1 Program methods used in Kompong Thom

3.1.1 Community Led Total Sanitation

3.1.1.1 Implementation

CLTS is a relatively new strategy for improving sanitation rates in Cambodia, introduced initially in 2004 and becoming widely accepted by the NGO community by 2009. Theoretically, it is done in a facilitatory manner and gradually leads families to want to end open defecation by constructing and using latrines. While UNICEF, PLAN International, World Vision, World Concern, ICC among others have funded CLTS programming, direct implementation has been mostly carried out by MRD staff working with local PDRD staff and village authorities. Kompong Thom was one of the first provinces to trial CLTS on a large scale.

In Kompong Thom, CLTS has been implemented through the PDRD with primarily UNICEF funding (2006-2008). PDRD staff train village chiefs and a village based volunteer to facilitate CLTS in their villages. Through this CLTS facilitation, villagers are encouraged to install a latrine of some kind close to their homes. When 100 percent of families have access to a latrine, the village is declared ODF. PDRD staff initiates initial community meetings and should monitor the ongoing CLTS facilitation activities and verify the final results.

According to the Baray District director of Rural Development, CLTS was conducted in 64 villages in that district between 2005 and 2010 (note that 2008 stated to be the end date as quoted by the PDRD, possibly in reference to UNICEF funding for CLTS, but this 2010 date could reference CLTS activity continuing with local government resources). Of those 64, more than half achieved or almost achieved ODF status at that time.

3.1.1.2 Latrine Design

CLTS stresses the development of locally appropriate latrine designs. They do not push villagers to construct any specific model. At one stage of the process, some design solutions are suggested but villagers are left to decide what they must do. In most observed cases, a small hole is dug in the ground with planks of some kind for the platform with a very temporary housing structure of local materials (leaves, tarpaulins, boards).

There was only one household that actually had a lid for the latrine (which was not in use "temporarily" quoted by the owner). This particular latrine was a very well designed, appropriate pit latrine with superstructure made of manure, bamboo and earth. The latrine was clean (as expected, as it was not in use). Labour involved in installing the latrine was not excessive and the latrine could easily and cheaply be replicated. However, no neighbours had copied the design even though the owner had received commendation and even a medal from the Prime Minister Samdech Hun Sen.

Even though CLTS does not encourage pit latrines as the only option, it was interesting that in discussions the term "CLTS" and "dry pit latrine program" were consistently used interchangeably by both villagers and even some government staff. It appears that CLTS is understood by most to be synonymous with the dry pit latrine.

The use of ash to cover faeces in latrines has been promoted through the CLTS program to kill the smell and eliminate fly infestation; however only three latrines observed had visible ash. Most villagers cited a lack of sufficient ash for all family members, as well as the problem of the latrine filling up too fast, as reasons for not putting in ash.

Latrine design is a point of significant concern since CLTS is intended to improve the sanitation situation of the village. However almost all dry pit latrines appeared to exacerbate the situation. The majority were badly infested with flies and maggots, smelled terrible and were essentially still a form of open defecation but without the benefits of quick disintegration of the faeces (through drying up and dung beetles). This leads one to conclude that improper pit latrines, meaning those that do not use ash nor are covered, could potentially increase the incidence of diarrhoea in a village, worsening the health situation and doing the exact opposite of its intent.

On the positive side, nearly all the water sealed latrines observed in the CLTS program areas were in good condition and were being used. This includes latrines from before and after the CLTS program. Even latrines that were over 10 years old were being used and clean, with owners only mentioning the problem of a full septic tank needing cleaning out as the main maintenance issue.

3.1.1.3 Post Project Results – Latrines

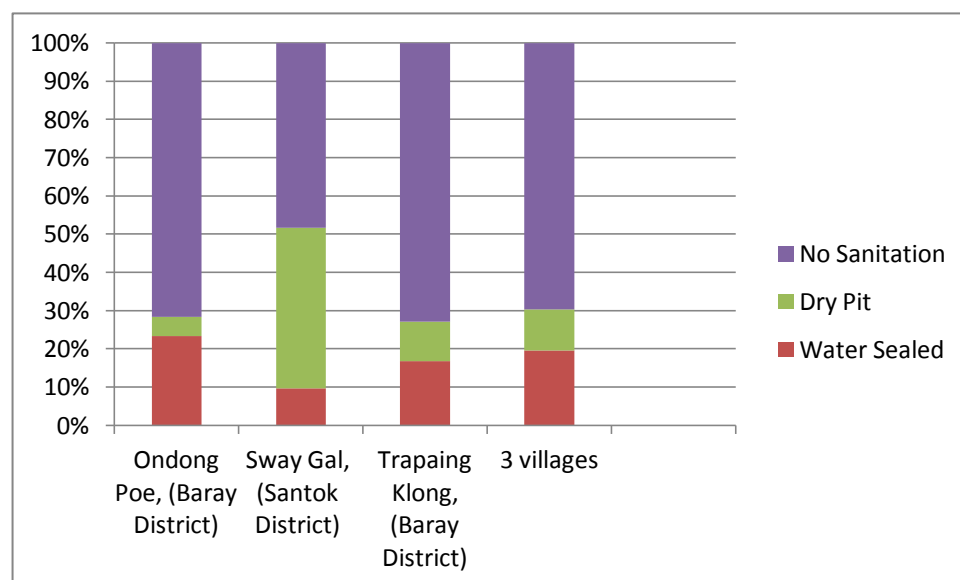
Table 1 and Figure 1 provide the results of households with sanitation facilities observed. It shows in these villages that the vast majority of households do not have any kind of latrine. There is an average of 71 percent of households with no sanitation facilities. Given that these villages had all once been declared ODF, these results raise questions about the “ODF” status. Even if they were validly achieved at the conclusion of the CLTS program in the village, how long can that status be considered valid? For the villages surveyed it can be concluded that these previously ODF villages are no longer ODF.

Since the village of Ondong Poe was mentioned by several PDRD staff as being exceptionally successful, it was decided to survey half of the village to gain as accurate a picture as possible of the current situation. Overall, several families with water sealed latrines reported that they were sharing their latrine with at least one other family (normally close relatives). In the case of the dry pit latrines, there were also a small number of families who reported sharing their latrine with between one and four other families (also relatives). Still, 72 percent of families had no latrine and many admitted that they had never actually completed one during the CLTS program. It was noted by one village chief that at the time his village was declared ODF, most families were “sharing” a latrine with at least one other family so there probably would not have been as many latrines as families initially.

Sway Gal village is also an interesting case. This village has had significant involvement and publicity. They were the first village to receive ODF status in Kompong Thom and have received medals, honours and many visits from people all over the country wanting to see a successful CLTS program. They were also provided with more assistance than others, such as ring moulds and even some free latrines. Because of the regular visits, the village has been encouraged to “shape up” for the public and as such, have higher than normal sanitation coverage rates, therefore an explanation for the relatively high prevalence of dry pit latrines.

Table 1: CLTS Villages - Number of Households (HH) with Latrine

Village	Water Sealed	Dry Pit	No Sanitation	Surveys (n)	Households (n)
Ondong Poe, (Baray District)	37 (23%)	8 (5%)	114 (72%)	159	300
Sway Gal, (Santok District)	3 (10%)	13 (42%)	15 (48%)	31	235
Trapaing Klong, (Baray District)	18 (17%)	11 (10%)	78 (73%)	107	300
Total 3 villages	58 (19%)	32 (11%)	209 (70%)	297	835

**Figure 1: CLTS Villages - Percentages of HH by Sanitation Facility**

3.1.1.4 Post Project Results – Behaviour Change

The Baray District PDRD director reported that since the initial ODF declaration, some villagers have returned to open defecation. He estimated that currently, only 50 percent of the original ODF village families were maintaining and using their latrines. He cited the challenges of bad smell, no space in congested villages and trying to do dry latrines in a flood plain as the main reasons people revert to open defecation.

When non-latrine users in former ODF villages were asked why they didn't continue maintaining the dry pit latrines after CLTS phased out, nearly all identified the problem of bad smell or being sickened by the sight of the contents of the latrine. They appear, therefore, to have not re-dug or maintained the existing latrine for long term use.

The survey team marked the condition of the dry pit latrines in each of the villages. There were no dry pit latrines that could be considered in good condition. None of these were covered and thus were exposed to fly infestation, and seriously compromising any sanitary impact of the program.

Table 2: Condition of Dry Pit Latrines

Village	Good/In-use	Good/Not In-use	Poor/In-use	Poor/Not In-use
Ondong Poe, (Baray District)	0	0	8	0
Sway Gal, (Santok District) (NB. 3 latrines were not assessed)	0	0	8	2
Trapaing Klong, (Baray District)	0	0	7	4
Total 3 villages	0	0	23 (80%)	6 (20%)

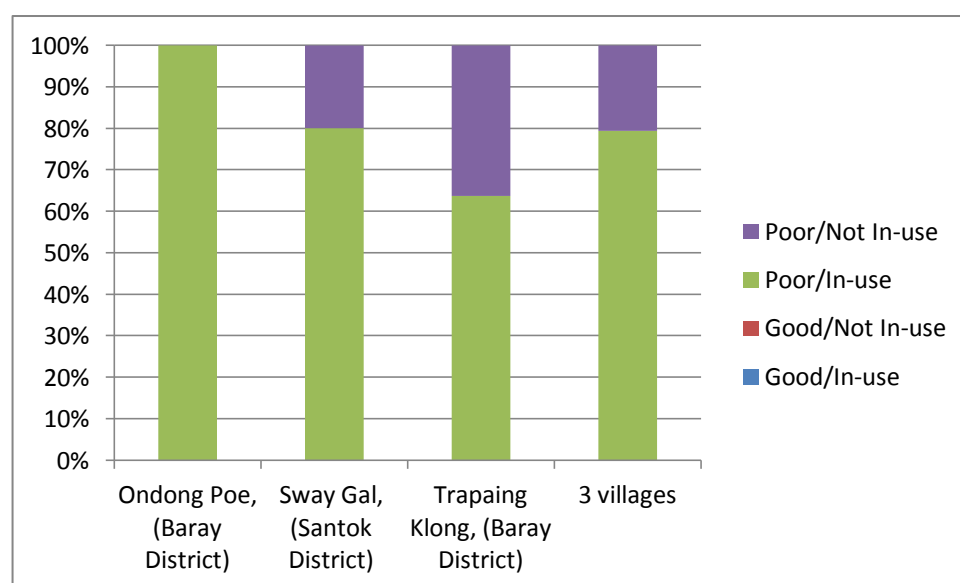


Figure 2: Percentages of Condition of Dry Pit Latrines

Comparing the dry pit latrine conditions to the condition of water sealed latrines shows better sustainability of water sealed latrine units in terms of usage and maintenance. All but one water sealed latrine surveyed was in good condition and in use.

Table 3: Condition of Water Sealed Latrines

Village	Good/In-use	Good/Not In-use	Poor/In-use	Poor/Not In-use
Ondong Poe, (Baray District)	37	0	0	0
Sway Gal, (Santok District)	3	0	0	0
Trapaing Klong, (Baray District)	17	0	1	0
Total 3 villages	57	0	1	0

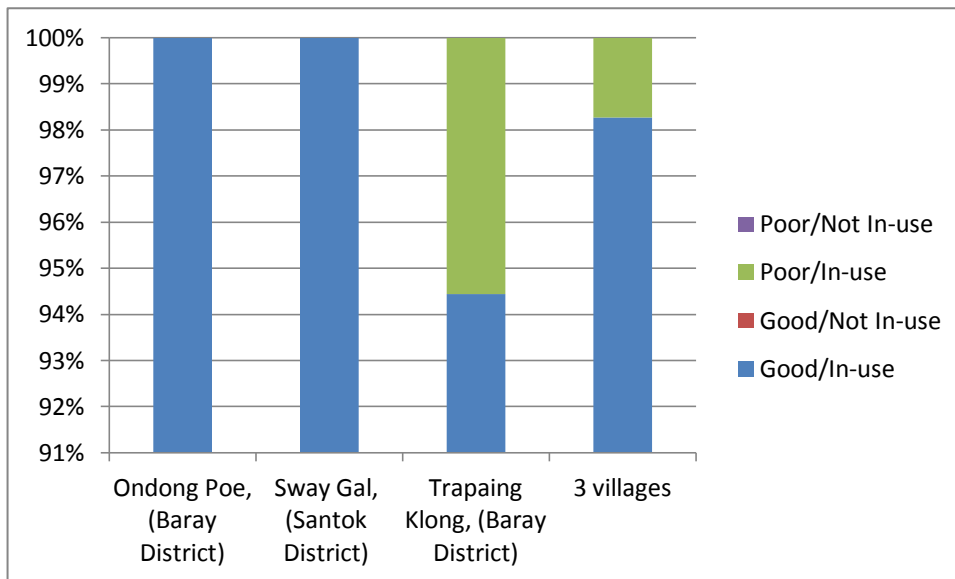


Figure 3: Percentages of Condition of Water Sealed Latrines

A premise of CLTS is that households starting with a dry pit latrine have stepped onto the “sanitation ladder” and will therefore more likely follow on with a water sealed latrine in the future. From this study however, it was not observed that CLTS has had significant impact on encouraging families to actually construct improved models such as water sealed latrines. As mentioned above, to villagers, CLTS means the same thing as a dry pit latrine program, and as such most only built that type of latrine during the life of the CLTS project. Table 4 below contains information gathered from the Commune chief of Cherneang Commune comparing CLTS villages with non-CLTS villages and the difference in uptake of water sealed latrines. While many of the water-sealed latrines counted may have been built prior to the CLTS program, it is still an interesting comparison. The table indicates that where CLTS was conducted there is actually a lower proportion of water sealed latrines and a reportedly high proportion of dry pit latrines that may or may not be considered sanitary (considering the previous findings of latrine condition).

To put things in perspective, the village of Tla, with over 80 percent water sealed latrine coverage, is on the main highway while Sra Bateay is quite far from the road but did have an ADRA sponsored latrine production site in the 1990s. The five CLTS villages are of similar remoteness to the non-CLTS ones and when compared to the difference in water sealed latrine numbers, it is hard to see any significant difference that might be attributed to the CLTS program. (It should be noted that the number of dry pit latrines was the figure cited by the commune chief, and was most likely outdated as the subsequent ADRA survey of Trapaing Klong revealed; see Table 1).

Another premise of CLTS is that CLTS will be replicated in other neighbouring villages where there has not been an official program. It is clear that while the five villages in Cherneang commune were meant to be “models” within the commune, there has been no copy-cat effect to non-CLTS villages. Instead, as the survey in Trapaing Klong indicated, there has been a serious attrition in numbers of functioning dry latrines, indicating that most people only did the initial latrine in the beginning in order to satisfy the conditions placed on them by the authorities.

Table 4: Cherneang commune sanitation statistics as reported by commune chief June 2011

Village	# Families	Water Sealed latrines	Dry pit Latrines	% of families with WS Latrine
CLTS Villages:				
*Trapaing Klong	310	20	200	6%
*Anchor Chea	175	14	66	8%
*Gon Thom	92	7	61	8%
*Chann	152	11	125	7%
*Pon	125	8	37	6%
Total CLTS villages	854	60	489 (57%)	7%
Non-CLTS Villages:				
Pang	125	3	0	2%
O Rom Chek	243	45	0	19%
Prang Som Rong	227	19	0	8%
Sra Bateay	188	42	0	22%
Siem Reang	326	126	0	39%
Tropaing Veng	121	0	0	0%
Tla	183	149	0	81%
Cherneang	225	42	0	19%
Total NON-CLTS Villages	1638	426	0	26%

* completed CLTS in 2007-8

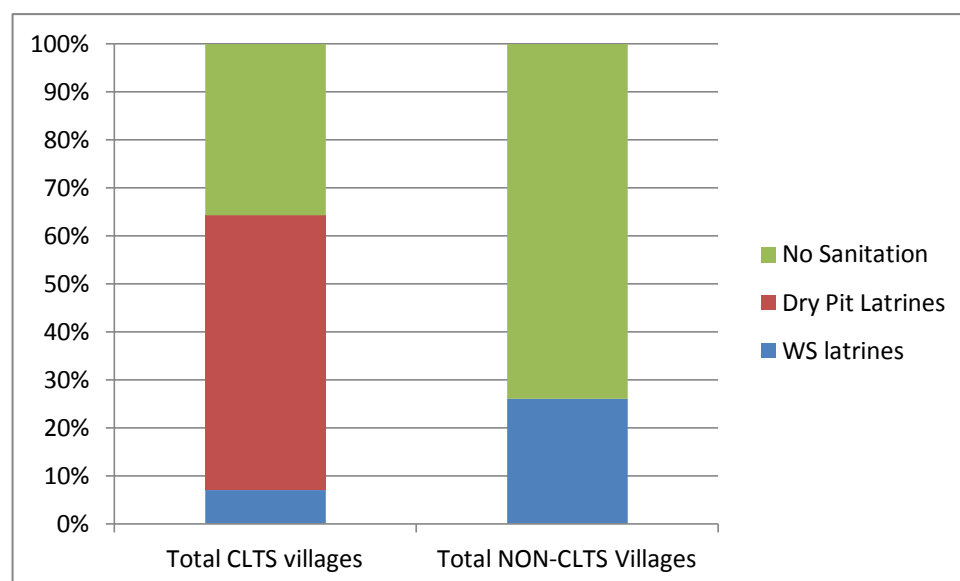


Figure 4: Comparing CLTS village and non-CLTS villages and type of sanitation for Cherneang Commune (Commune statistics)

3.1.1.5 Perceptions by Villagers and Village Authorities

From the focus groups and personal interviews the villagers generally were not impressed by the program primarily because the program didn't offer them any hardware solutions. Villagers felt they were just called to "meetings." There were various different ways that the CLTS program worked according to the villagers. Some remembered the village chief calling a general village meeting and instructing households to each dig a latrine. Others recalled the village chief walking through the village, meeting at houses and telling them to dig a latrine. And some mentioned facilitated

meetings conducted by the PDRD staff. In all cases cited, except Sway Gal Village, there were, at most, two meetings in which CLTS was the focus.

Some felt that CLTS amounted to authorities telling them to dig a dry-pit latrine, with no assistance. They were unsatisfied with the level of help in installing their latrine (both technical and hardware) and would have appreciated some kind of assistance.

In interviewing village authorities, information received was considerably more optimistic than what was actually found in the surveys regarding latrine maintenance and usage.

Some village chiefs expressed frustration with the top-down approach, of having to force everyone to build a latrine in a certain amount of time and were relieved when the pressure was over. They felt the objectives were too superficial. For example in one ODF village, the chief readily admitted that “probably no more than 10 percent” of the families did a new latrine during the time of CLTS. However, the pressure put on him to “produce results” and attain ODF status meant that he felt pressured to report what he thought his superiors wanted to see.

3.1.1.6 Program Implementation Issues

The implementers of CLTS discussed various implementation issues. The Baray District director for Rural Development mentioned that the community volunteers did not receive any incentives and in general, they were inactive. This was verified at the villages surveyed, where villagers and village chiefs all stated that the volunteers were not active during the active CLTS stage.

The limited funding was also cited at many levels as a major constraint, which meant the village chief ended up doing most of the work (or lack of it). The CLTS model being used currently in Kompong Thom aims to use a network of community volunteers who have been trained in CLTS “facilitation” and latrine construction. However, because of the lack of per diem and other allowances for these volunteers, village chiefs reported that few if any of these volunteers were active, which put a further burden on him. Thus the main burden of ensuring that the village became ODF was with the village chief and to a lesser degree the commune chief. When the authorities took off the pressure, the majority of people went back to open defecation.

As the program has been implemented, there appears to be little ongoing monitoring in villages post active CLTS. It seems little budget has been allocated to monitoring villages and, as stated above, village chiefs are relieved when there is no more pressure on them to ensure ODF status in their village, so are unlikely to continue pressuring villagers unnecessarily.

3.1.1.7 Project Literature Review

Research was conducted by Dr. Sok Kunthy and Rafael Norberto F Catalla documented in their CLTS – Final Evaluation Report December 2009, comparing the CLTS interventions to the TSWRRP program. The report was in general positive (with some contradictions) on the contribution CLTS has and can play in addressing rural sanitation needs. Findings however, have not been corroborated by this study: it noted that CLTS had increased village sanitation rates significantly; that households had displayed improved hygiene and sanitation behaviour changes; and that households were satisfied with their dry-pit latrines and the CLTS program. The 2009 evaluation highlighted the participatory nature of CLTS, making it an effective and appropriate approach to rural sanitation. However this characteristic was not appreciated by any of the participants of this survey and in fact it was considered a very top down authoritarian approach. Durability of latrines was mentioned as an issue that will inhibit sustainability of the program, a real constraint where latrines last only a dry season.

The report did note that CLTS still relied significantly on institutional leadership rather than community initiative. It stated that others can encourage families to dig latrines, but the village chief held the authority to “convince people to follow encouragements given” (page 89). It was indicated that people needed to be afraid of the village chief and sanitation focal persons in order for there to be any sanitation results, else commune, district or even provincial intervention was needed. It was mentioned that there was significant monitoring in some cases to ensure that latrines were built and admitted that possibly, building and maintenance of latrines occurred in order to “comply with the encouragements of authorities and external focal points rather than an actual attitude and behaviour change” (page 90). And finally, a conclusion that CLTS has had limited success in Cambodia and that there are social, economic, technical and institutional barriers which need to be addressed in order for CLTS to be strengthened and further scaled up as a viable alternative to subsidised sanitation latrine programs (page 96).

An important issue was identified regarding the quality of the CLTS facilitation. CLTS success is dependent upon quality facilitation and it was noted that in many or most cases, the existing facilitators lacked technical knowledge, initiative and innovation to solve some of the problems identified by the community.

Important recommendations, relevant to the findings of this study include (page 98):

- Invest in research into design of low-cost, durable latrine models, and materials for latrine construction that are relevant to the specific geographic and environmental conditions of the area.
- Develop and implement social marketing strategies and mechanisms to allow the rural poor to access low-cost latrines/materials.
- Adopt and utilise subsidised approaches where appropriate for the poorest /vulnerable households; pilot shared latrines among relatives living in close proximity.
- And, importantly, allow for longer gestation of behaviour change and ODF status. The speedy requirements for achieving ODF status undermine the behaviour change “lynchpin” of CLTS.

3.1.2 ADB Hardware subsidy project

3.1.2.1 How was it implemented

Between 2005 and 2010 the ADB funded TSRWSS Project completed a total of 45,056 latrines in five provinces. A little over 14,000 of these were in Kompong Thom with approximately 60 percent of these being water sealed latrines.

The project was implemented directly through the PDRD in cooperation with the local village and commune chiefs. Village volunteers were also trained to facilitate hygiene and sanitation training (in addition to training provided directly by PDRD staff) and to follow up on latrine installations.

A general village meeting was held to introduce the villagers to the program and villagers were able to sign up for either a water sealed or dry pit latrine. The project supplied the under parts of the latrine and villagers would supply the upper parts. Masons were contracted to supply latrine parts. Initially masons were sourced from outside the region; however, due to issues with quality, this was changed to local masons. Follow up in villages was conducted to ensure that latrines were installed.

3.1.2.2 Latrine Design

The ADB strategy was to make a latrine (1) of minimal design, (2) protected, (3) usable in the wet season and (4) sustainable. Using these principles, they came up with a number of different designs for both water sealed and dry pit latrines (mostly related to the superstructure only). The

project team worked with local and non-local masons for construction of parts and families were presented with a choice of latrine.

The program supplied rings, a pad and, for water sealed latrines, a lid for the offset rings, a toilet bowl, PVC pipe and cement. Families who chose to install a water sealed latrine would need to provide a permanent type of upper housing for the latrine, whereas families who chose a pit latrine could construct any superstructure, usually leaves, tarpaulins, bags (rice or cement etc.) or other local material. While initially, many families choose to do dry latrines, they soon changed their minds and upgraded to water sealed at their own expense.

A strong point of the program is that most of the latrines have been built to last. The bottom part of the water sealed latrines is built with an offset septic tank for easy cleaning. Since the vast majority of families put up either brick or tin walls and roof, it can be expected that many of these latrines will last for decades if looked after properly.

3.1.2.3 Post Project Results – Latrines

The survey team was able to survey three villages in Kompong Sway that had average to above average participation in the project. As the primary objective was to look at how the latrines were being used and maintained, only families who had received a latrine were surveyed. The results of the survey are as follows:

Table 5: Kompong Sway district ADB Project Latrines (n=91)

Village	Water Sealed Latrines	Dry-pit Latrines	No Sanitation	Total surveys / # HH
So Chey	20	2	--	22/164
Tee-im Jas	37	7 (not installed)	--	44/386
Tnout	21	4 (not installed)	--	25/315

While a total of 5,151 dry pit latrines were distributed initially in Kompong Thom, ADB staff and village authorities say that most of those have since been modified into water sealed latrines. Of the 91 latrines surveyed in Kompong Sway, only two were dry pit currently in use. The other 11 dry-pit were not installed at all or only partially installed and non-operational. All the water sealed latrines observed were in good condition and in use.

3.1.2.4 Post Project Results – Behaviour Change

Compared to many programs, the installation rate of 85 percent (three years after distribution) is relatively good. That most of the latrines were eventually installed and were used properly even in the wet season is a good indicator of success. There was also evidence that families were maintaining them properly. Another good point is that families were given a choice in what kind of latrine to install. There were options for water sealed or dry pit, concrete walls or leaves, etc. People could spend as much or as little as they wanted to build their latrine (if they were willing to take a dry pit latrine). Villagers cited various different personal costs, but it seemed that most families were able to build a brick structure on a 1.3 x 1.3 meter block for under \$100 if they did the work. Others built more lavish bathrooms spending up to \$300 while some spent approximately \$30 on corrugated iron walls.

The fact that many households converted their dry-pit latrines into water sealed latrines is also indicative of the value that they placed on the latrine unit.

The project conducted basic hygiene and sanitation training and villagers surveyed were able to recite a number of good behaviour practices that they were supposed to follow.

3.1.2.5 Perceptions by Villagers and Village Authorities

The program was very well accepted by villagers and local authorities. They appreciated the hardware parts provided and most were happy to invest in good superstructures. The main problem mentioned by facilitators and villagers alike was a problem with communication. After the general meeting, everyone in the target area understood the ADB facilitators to be saying that water sealed latrines would require a financial contribution while pit latrines were free or had almost no contribution, therefore most submitted requests for pit latrines. However the actual program requirements were that to receive the water sealed unit one would need to construct, as a personal contribution, a more permanent superstructure whereas a dry pit unit would be provided with any kind of structure including temporary structures. When it was realised that there was no financial contribution for either unit, most wanted to change their requests to water sealed latrines but it was too late. Most then converted the dry pit units into water sealed units by resizing the pad to fit a ceramic latrine bowl.

3.1.2.6 Project Implementation Issues

Apart from the misunderstanding between the villagers and program staff mentioned above, the main challenge faced by the project related to parts supply. In the later years of the project, there appeared to be problems with contractors supplying sub-standard parts. There was an obvious difference in quality of the rings from the first to the third year with the later ones being very brittle and weak. According to project management, this problem was to be remedied in the second phase by allowing local authorities to contract directly with the local service provider of their choice making them more accountable.

Another challenge was getting everyone to install their latrine once they actually had the parts on site. While most did install their latrines eventually, some people reported that it took a number of years for it to happen. After three or more years, there are still 15 percent uninstalled. Theoretically, the project staff gave the villagers only one month to install their latrine at which time uninstalled ones were suppose to be collected and re-distributed. In practice however, the village chief who was responsible for unused part confiscation was reluctant to deal strongly with his fellow villagers.

While there was a training aspect of the project, it appeared that it was not prioritized by the implementing staff in some villages. For example, the community volunteers were supposed to hold village meetings to disseminate hygiene and sanitation information. As with the CLTS volunteers, they received no financial incentives and as a result, seemed to be largely inactive.

3.1.2.7 Project Literature Review: Project Completion Report (December 2011)

The TSRWSSP Completion Report was somewhat harsh in considering the results and rated the project as *less effective* in achieving its outcomes and *less efficient* in achieving outcomes and outputs. It noted that 34 percent of villages with sanitation activities did not achieve the target of 30 percent coverage (and by deduction the remaining 66 percent must have at least achieved 30 percent coverage). The costs of the sanitation program were significantly over budget and latrine units averaged \$104 per latrine compared to a budget of \$16. With a planned construction of 150,000 latrines, the project actually only constructed, 45,056 units. It also noted the lack of a holistic approach to rural water supply and sanitation also lead to the project not achieving targets for health benefits and sanitation behaviours.

The report did note that usage rates of the latrines at 97 percent but qualified this success with consideration of the fact that many users did not know how to clean the latrine pits when full. The report cited benefits to households who received latrines of improved convenience and safety, but again noted that the health benefits of latrines (and water supply) were not realised.

The subsidy program was criticised for allowing subsidies to the richer households, although it did recognise that the subsidised latrines were successful at achieving such high usage rates. Some were able to “add-on” to their free latrine base with \$200-\$300 walls and bathing units.

Thus it seems the project was considered vastly over budgeted with few achievements for such a large expenditure. The individual household benefits from the project for those who participated are significant and potentially more sustainable (as the CLTS alternative) as reviewed in this study.

4 Review of Other Cambodian Sanitation Programs

4.1 *International Cooperation Cambodia, Rattankiri Province*

As of 2009, ICC Rattankiri was implementing CLTS through a partnership with the DRD. While they had experimented with providing subsidized latrines prior to 2009, by the following year they had taken a no-subsidy approach with the result that most of the latrines being installed were dry pit latrines. As the target area was primarily upland, dry pit latrines seemed like a good option as the red laterite soil doesn't collapse in the wet season; further, water is quite scarce in many villages. Unfortunately usage rates were not very high even though a number of villages were declared ODF. This highlights the cultural issues regarding latrine use, especially dry latrines, with the associated problems of flies, bad smell and the frequent need to rebuild the structure.

4.2 *Lien Aid, Kompong Speu Province*

As of 2010, the Lien Aid Kompong Speu project was focused on capacity building of local suppliers. They actively looked for local masons to work with and link them with local communities. As such there were no subsidized latrines but rather a focus on encouraging local authorities and suppliers to do quality and effective marketing and linkage creation. Local commune councils or village chiefs are taught to help advertise and receive a commission on all latrines sold in their area. The method is different to IDE's (see below) in that they don't train new masons from scratch but only work with the existing structure. Many of their community partners are rich businessmen or in the upper class. They also leave the type of latrine they wish to market up to the local mason to decide. They don't have a strict monitoring system in place to ensure quality, but do teach the mason the importance of doing quality work in order to gain a good reputation and thus ensure his livelihood and sustainability of his business. This marketing approach is quite appropriate and good at getting better off people to build latrines. It is not designed to reach the poor and vulnerable although local masons are taught to tailor their latrines to community desires. It is noted that there were a number of relatively poor families buying and installing latrines in the target area.

4.3 *IDE Cambodia*

IDE's latrine “marketing” approach in 2010 was to set up local masons specializing in “Easy Latrines.” Some of these new businesses have little or no experience in masonry. They are given a \$440-\$500 loan to buy a complete set of moulds and other equipment for making the lower section “core” of a water sealed latrine designed by IDE. The complete unit including 3 rings, one lid, a tiled toilet pad, PVC pipe and a receptacle pan for under the toilet is retailed for approximately \$35 depending on location. The producers are given intense training in hygiene and sanitation promotion, latrine production, as well as business and management skills. A vigorous marketing scheme is also emphasized with each mason responsible for distributing flyers and doing other forms of advertising. Masons are encouraged to deliver the complete units to customers to stimulate sales. As of June 2010, 2,500 “Easy Latrines” had been installed. The latrine owner is responsible for building the superstructure and can do so however and whenever they want.

The marketing approach, in conjunction with programs such as CLTS, seems to hold much promise for stimulating mass installation of water sealed latrines. One obvious limitation is that because the

program is strictly unsubsidized, there is less opportunity for the poor and vulnerable to become involved or install a latrine. There seems to be some evidence of the market running out of steam in some places as most of the financially capable families install a latrine leaving the poorer half of the population without.

Questions have also been raised about the quality of the concrete rings and lid. Because they are constructed very thinly with a relatively weak mix of cement, sand, rice husk and ash, they can be produced much cheaper than the conventional rings. The rings are designed to be porous yet have steel rebar which is likely to rust and rupture the rings within several years. As such, most of these latrines will need new rings within 3-5 years (thin rings rupturing from constant pressure from dirt sides, and rusting steel from porous concrete, rupturing the concrete). IDE may be operating under the assumption that this latrine is just a first step on the “ladder” for the new latrine owners with something more permanent to follow later. However it has been observed that many Khmers would like to make a permanent latrine the first time so they don’t have to worry about it again. Many owners are investing \$200 to \$300 on their latrine including the concrete superstructure. For an extra one to five percent of the total cost, it might make more sense to put in proper septic system of long lasting rings that can be pumped when full multiple times and avoid the hassle of having to continually dig new pits.

4.4 ADRA Cambodia

ADRA Cambodia began its first latrine project in November 1993. The program targeted 500 rural villagers living in Kompong Sway district of Kompong Thom. Latrine components were distributed free of charge to anyone willing to invest in digging a hole and helping set it up. Parts being supplied by ADRA included a concrete pad, porcelain bowl and four concrete rings. Cement and PVC were also provided to finish off the latrine. Villages were to supply sand and labour for installation, although eventually WFP rice was secured and villagers were paid in rice for labour. Program implementers expressed frustration at the time that villagers were not actually interested in the latrines and only agreed to take them in order to receive the free WFP rice. In the end, few of the latrines had superstructures installed on them making them impossible to use. Although no final evaluation was ever completed on this project, ADRA staff associated with the project pointed out that there was a serious lack of ownership by the community, and estimated that less than 10 percent of the latrine parts were ever used as latrines, most of those being ones which were dug up and sold to market people in nearby SanKo village.

The next latrine initiative in Kompong Thom was not until mid-1998. This next initiative targeted 1,700 families in 3 districts of southern Kompong Thom. Using lessons from the first project, the team decided to charge a “community contribution” of \$27 for each latrine to ensure ownership and that the families had a true desire to obtain and use a latrine. The project then used the \$27 to supply the owner with a complete latrine unit including an all-concrete superstructure, ensuring that all the latrines were built to a proper standard and respectable looking. The program was implemented through a team of community technicians, two per commune, who had been trained in how to prefabricate and install water sealed latrines. Eight program staff acted as trainers and monitors to ensure quality work and that targets were met on time. Software consisted of the technicians giving each latrine owner a short set of instructions on how to maintain the latrine. In addition, hygiene and sanitation awareness-raising was done by a small team of software staff at local school functions, although not all schools in the target area were covered by the end of the project.

Since this initial project, the majority of ADRA Cambodia’s sanitation projects have followed a similar strategy of working with a small team of local technicians in each commune to provide latrines to any interested family on a first come first serve basis with a financial contribution. The projects focus on producing quality latrines which families can be proud to pass on to their children while ensuring that the technology is sustainable through the training of the local technicians. The

current contribution is 35\$ to \$50. While in recent years, the software component has taken a more prominent role (SC-WASH for instance in Preah Vihear), it has been observed by ADRA staff that usage and maintenance rates of latrines from past projects have remained well above 90 percent, with or without a significant software component. This was also confirmed in a 2005 external survey in Kompong Thom (Truscott, 2005). It is believed this is a result of the latrine being sturdy, easy to clean (external septic tank) and the fact that the owner had to pay a significant amount of money for it.

Valid questions, however, have been raised regarding the sustainability of a program that encouraged such expensive latrines plus the fact that few poor and vulnerable households are able to join in the project. ADRA's response has been that yes, the latrine is relatively expensive (\$150-\$180 total cost depending on location) but it should not need replacing for at least 20 to 30 years.

Other criticism surrounds equity and access of the program to the poor and vulnerable. The program has attempted to reach this group with a much less expensive model but has not met with much success. This could be because of people making comparisons and being embarrassed to be seen with a "second rate" latrine or that fact that many poor place a very low priority on sanitation unless it is a matter of necessity which is not often the case in ADRA's rural target areas. Experience has shown that the poor sometimes wait till they can install a full version and would rather not expend anything until they can afford that. In Kompong Thom, the latrine program spanned many years (1998 to 2006), and there were many "poor" that were able to eventually participate in the program. A case therefore is made for smaller but long term interventions in an area that eventually can reach all.

5 Literature Review

There has been an abundance of research into various aspects of sanitation in other countries and in Cambodia. A review of literature was conducted to consider these findings in light of international experience. Themes identified throughout the literature highlighted issues of implementing CLTS; impacts of sanitation on health; effectiveness of hygiene and sanitation education methods; and sanitation financing.

5.1 CLTS implementation issues

A case is made for technical assistance to households as they construct their latrines during CLTS. Without technical assistance, the very premise for improved sanitation leading to health benefits is negated as latrines potentially cause an environmental hazard. Many locally developed latrine designs do not take into account considerations that are imperative for improving village sanitation (Papafilippou et al., 2010), a fact identified by this research where only one latrine out of twenty-seven observed in CLTS villages actually had a cover.

An article arising from research in India (Chatterjee, 2011) identified that much of the "success" of CLTS has been a result of various coercion methods, many of which are community led. These include extreme methods such as stone throwing, photographing people openly defecating and cutting off utilities. Whether these are appropriate or not, whether they are "community-led," and whether the ends justify the means, Chatterjee rightly noted that it needs to be recognised that sometimes decentralised development is not always the "democratic panacea" it so often is portrayed as.

5.2 Impacts of Sanitation on Village Health Situation

A number of studies have also failed to find a direct linkage between presence of sanitation and an improved village health situation, specifically a reduction of incidence of diarrhoea and improvement in water quality. A study across a number of sample villages in India, comparing CLTS villages,

villages with a government subsidy based latrine program, and villages with no sanitation program, found no correlation between type of latrine program (and even presence of latrine program) with diarrhoea and water quality. And in fact, there were some cases where higher rates of diarrhoea and worm infestation were found in villages with a sanitation program, than villages without. Similarly water quality levels were not linked to the prevalence of latrines. A key finding of the study was that seeking out ODF status should not be the primary goal of any sanitation program but for households to modify all key behaviours that determine prevalence of waterborne diseases (Khale and Dyalchand, 2009).

5.3 Effectiveness of Hygiene and Sanitation Methods for Behaviour Change

Considering Cambodia's adoption of SC-WASH as a national sanitation strategy, lessons from other countries of incorporating school based hygiene and sanitation education should be identified. A relevant four year study in India looked at this issue where hygiene education, or more recently "hygiene promotion campaigns" together with school sanitation, have been an unquestioned, essential element of water and sanitation programs (Kochurani et al, 2009). The UNICEF program had allocated 25 percent of its budget to sanitation education. Research noted, that the overwhelming majority of "trained" pupils did not in fact wash their hands with soap after using the toilet and before eating even though the importance of such practices is well established and certainly has been emphasised in hygiene classes. Open defecation still is widespread even in intervention schools and only seven to ten percent of students in both target and control districts report using school latrines (in the past week). Therefore what we can learn and must consider when designing sanitation programs is that sometimes even a high emphasis on software (i.e. hygiene and sanitation education programs) may not always lead to behaviour change. There needs to be an enabling environment. Money spent on software alone, without ensuring that households have the means and capacity to implement lessons learned, will most likely not produce results.

5.4 Sanitation Financing

Public sanitation financing is a complicated issue. Both UNICEF's CLTS programming and the ADB's TSRWSSP have been implemented through the MRD and represent extremes in approaches that the government has been using. A 2010 report commissioned by the ADB (Robinson, 2010) provided six recommendations for public financing in Cambodia. The report recommends using a segmented approach that can help all sectors of the community address their sanitation needs, ensuring that no group is left out; identifying who is benefitting from the program; aiming for efficiency in delivery (as sometimes public programs are less efficient than market delivery); and designing finances to deliver long term solutions to sanitation needs. It recommended using the national ID-Poor system for means testing to determine poor and non-poor households. It also favoured the use of vouchers and conditional cash transfers as a means to deliver sanitation outcomes among the very poor. This is an innovative program to deliver subsidies to the very poor, although it may be difficult to administer, and needs piloting in order to demonstrate viability and sustainability.

5.5 Sanitation Demand and Supply

A comprehensive analysis of the latrine market was conducted in 2007 (Roberts and Long, summarised by Salter in WSP Field Note, 2008) and provided some direction for latrine programs seeking to address sanitation through a market based model. The study found that Cambodians have strong preferences for the type of latrine model and have an "ideal design" which they would construct if and when they have the funds (usually costing upwards of \$150). They usually do not consider other lesser designs. Most survey respondents (95 percent) who did not have a latrine cited lack of money while 19 percent of rural respondents claimed they had other purchasing

priorities. The report identified opportunities for “market facilitation.” It recommended that consumer marketing initiatives should work to overcome this perception of the ideal design and to promote designs that can be upgradable, ultimately encouraging the end result of a latrine being purchased or constructed. Supply-side initiatives should aim to strengthen capacity to “ensure that the private sector plays a role in information exchange, demand creation, and sales closure”, and that consumers are aware of upgradeable latrines that are affordable and hygienic and are available through the market. Programs thus need to encourage interaction between consumers and suppliers.

6 Potential for sustainability

6.1 CLTS Approach

CLTS, as it has been implemented thus far in Kompong Thom, has not shown much potential for sustainability. The latrines themselves which were built during the CLTS project were almost all dry pit latrines. Almost none of them have been maintained properly and people have reverted to open defecation. It should be noted that there were a small number of water sealed latrines installed during the project life and prior to, and post project. These have been well looked after and there is no reason to believe they will be discarded in the future. However, it is hard to demonstrate that the percentage of water sealed latrines installed is much higher than neighbouring non-CLTS villages.

Another challenge that has hindered the prospect for sustainability is the lack of institutionalization of CLTS at the community level. While the CLTS process has been carried out almost exclusively by village and commune authorities working with local PDRD staff, the concept is still viewed by everyone in terms of “project”. This translates to mean that when the project is over, the entire issue of sanitation is also shelved by the authorities. Everyone interviewed from the provincial level down to the village chiefs mentioned that follow up ceased as soon as funding did. There almost seemed to be a sense of relief on the village chief’s part when the project finally came to an end and they could stop worrying about whether families had completed their latrines or not.

One aspect of CLTS that may be sustainable is the knowledge of proper behaviour that has been left in the village. While there is little evidence that this knowledge has translated to change at this time, it may be that over time, people will make permanent changes based on that knowledge. The fact that CLTS is relatively inexpensive means that with the limited funding available, it may be possible to cover all of Cambodia in the near future. While this may be viewed by some as an advantage of “sustainability”, it is hard to justify the expenditure of ANY money if the results are going to be virtually nonexistent.

Most practitioners and implementers interviewed at all levels readily acknowledged the limitations of CLTS but they point out that the current trend in thinking is to combine CLTS with social marketing. The new strategy, which uses strengthening of local producers and vigorous advertising, will link communities with local producers in order to give them more options such as affordable water sealed latrines. Other methods already in use in some areas include using village authorities to pressure families to construct a latrine by refusing signatures for everything from weddings to building a new house.

There seems to be some hope that social marketing will make a positive difference. IDE has managed to sell over 10,000 easy latrines in less than 1 year (as of February 2011). The main challenge here is reaching the 40 percent of the rural population that is of low economic status. So far, IDE has not been as successful entering this market. Regarding using authorities to “force” villagers to build latrines, this method has received much less favourable results. Many villagers in the CLTS villages who were surveyed reported that at the time they built their latrine it was because they were told they had to. The long term results, however, show that true behaviour change cannot be forced on people as most people have returned to open defecation. There are a number

of articles from experiences in India and Bangladesh where authorities have taken the idea of forcing sanitation to extreme levels. Open defecators have been spied on, photographed, stoned and locked out of their houses to name a few of the tactics employed to force compliance by local authorities. Yet the problem of open defecation persists even there.

6.2 ADB Approach

The ADB funded project (2005-2010) was more typical of many previous latrine projects in Cambodia in that it put less emphasis on software and spent most of the funding on hardware subsidies. There is significant evidence that the vast majority of latrines built during this project are going to be well used and maintained far into the future. This is in stark contrast, not only to the latrines built recently in the CLTS project areas, but many of the latrines constructed during previous hardware oriented subsidized projects throughout Cambodia. There appear to be several reasons for this success. A key factor is that the latrines are primarily water sealed, or can be made water sealed. As noted earlier, this is critical to success in the Cambodian context. Secondly, the approach requires a personal “contribution”. This, of itself is not unusual as almost all previous projects in Cambodia have had this requirement. The difference is that the ADB project was managed slightly differently which ensured that families receiving a latrine actually installed it and used it. For example, villagers had to sign up for a latrine. It required more effort than some projects. They were told they had to install it in a month or it would be taken back. While this threat seems to not have been followed through, it seems to have worked in many cases. Finally, there were specific guidelines which the families receiving a latrine had to follow, such as what kind of structure had to be made. All of these factors combined with lots of follow up by ADB staff and village authorities made for a successful project outcome.

The main question of sustainability is not whether the latrines constructed will last 30 years but how multi-million dollar projects of this nature can be duplicated all over Cambodia. As one MRD staff pointed out “there are 14 million people in Cambodia and no NGO or government agency has enough money to build them each a latrine”. This is certainly the hardest question to answer and no one has come up with many palatable solutions. Yet it should be pointed out that over the course of the last 20 years, there have probably been tens of millions of dollars spent on rural sanitation and most of it was for nothing. If all the sanitation projects since 1990 were as successful as the latest ADB one, the issue of open defecation in Cambodia would probably be insignificant by now.

7 Recommendations

A good sanitation program may look different depending on the location, the history of NGO support in the area, economic status of the average families, and such. However, there are a number of over-arching principles that should be noted in any program.

Recommendation #1: Quality not Quantity

The first is that programs should be quality orientated, not number orientated to achieve long term success and sustainability. While this issue is almost always flagged in a project proposal, it is surprising how often it is forgotten midway through a project as the stress of trying to accomplish targets on time nearly overwhelms the implementers. This issue has also been a problem in many past “free giveaway” programs and unfortunately seems to have been adopted by some CLTS drives as well with the goal being ODF. To accomplish this may take a major paradigm shift on the part of implementers at all levels, including the field level. Since local authorities are often responsible for the level of success of programs, they will need special training to develop good facilitation skills and the importance of doing less, but with better quality.

Recommendation #2: Subsidized hardware can still be an important aspect of sanitation programs

The second point is that there is still a place for subsidized hardware. ID poor households especially should be allowed access to subsidies. In very rural areas where there has never been a sanitation program and sanitation rates are far below the national average, it is appropriate to make subsidies available to everyone for a limited time to establish “models” and create a desire and demand. In this case, better off households can make a more significant contribution; however, it must not be so much that they won’t participate in the program. In this situation, it is important that enough quality latrines are installed to become a “norm” and something to be desired by all members of the community.

Recommendation #3: Personal Contribution is Necessary

A third principle is that everyone must provide a personal contribution for their sanitation infrastructure. This may be 100 percent in the case of people who can afford it or as little as 25-50 percent for poor households, but there should be no more free giveaways. The contribution may take several forms; however a cash contribution is the most effective way to ensure a sense of ownership, making sure the family actually wants the infrastructure, and insuring proper use and maintenance. In the event a project allows for in-kind contributions, programs must be strict in ensuring that families are not allowed to take hardware home and let it sit un-installed or un-used (which then becomes the same as a free giveaway) and therefore not making the required contribution.

Recommendation #4: Latrines should be locally acceptable and respectable

The fourth point is that programs should promote quality hardware that is culturally appropriate, respectable and durable. In the Cambodian context, this is most often a water sealed latrine. As such, programs should strive to provide technical assistance that can help families have a long lasting latrine that they can be proud of. The ADB approach has worked well, and while it was expensive, families are very happy with what they have and most of the latrines have the potential to last for many decades.

Recommendation #5: Hardware versus software in project budgets

Sanitation programs should shift the balance of the percentage spent on software versus hardware. It should not be assumed that more software equals more awareness thus a more sustainable sanitation program. Many rural people do not need more training but more tangible assistance making something worthwhile and respectable that is actually sanitary. They need something they can be proud of more than, to use the graphic language of CLTS to create disgust, “the fly infested, intensely smelly, collapsed foxhole in the back yard.”

Recommendation #6: CLTS only a part of a sanitation program

CLTS should only be used in conjunction with other aspects of a sanitation program. This can be a direct hardware subsidy for poorer households and/or social marketing; but there are likely few situations in Cambodia presently where CLTS can successfully work by itself.

8 Conclusions

The goal of declaring a village ODF and the associated status has played too large a role in the CLTS program. While the real goal of CLTS should be improving the health of families, this appears to have become of lesser importance as demonstrated by the method of implementation and the lack of follow up. It may be that field staff are somewhat responsible for this issue, however, it should be understood that they may have had little choice in the matter. Many village chiefs expressed frustration at having to “force” everyone in their village to build a latrine that they knew in advance was not wanted and would not be used for long or at least not maintained. These findings

have been confirmed in various other studies in a number of countries and many practitioners and academics alike now acknowledge that CLTS by itself is not work well. Some programs are now emphasizing the inclusion of schools (SC-WASH); however there is not much evidence that this alone will make a significant difference in overall outcome. Combining social marketing with CLTS such as IDE's program has proved very effective at stimulating a large percentage of families to install latrines. However this approach alone will not likely reach the lower economic class in society and most likely needs to be combined with economic status based subsidies.

The belief that getting families to build a pit latrine is critical to "get them onto the sanitation ladder" has not been demonstrated to be true. In the villages surveyed, there was no correlation between the high numbers of latrines built during CLTS and the current number of families using latrines. Having enough financial resources and the need of a convenient place to defecate is much more critical to making and sustaining the use of a latrine than having a history of making a pit latrine one or more times.

A program that encourages families to build dry pit latrines may actually be counter-productive in the long run. Most people interviewed expressed a strong disgust for dry latrines based on the difficulty to keep them clean, fly and smell free, as well as the reality that in many areas they are unusable in the wet season anyway and must be rebuilt from scratch each year in the dry season. Rather than getting everyone on the sanitation ladder, it appears that the belief that "using the forest is better" is reinforced by this initial negative experience.

While intense social marketing schemes may be quite effective in reaching the richer 50 percent of the population, it will probably be necessary to subsidize the lower 50 percent in some form or another. As such, significant funding should continue to be allocated to this to achieve the national goals of 100% sanitation by the year 2025.

There is too much emphasis and weight being placed on software with the assumption that people need more training and awareness to effect behaviour change. In reality, many people may already be more aware than practitioners give them credit for. Thus it should not be assumed that more awareness raising is the only answer. People need tangible help to improve their sanitation. In areas where awareness raising has already been done in years past, it may be that there are other reasons besides knowledge that families don't have proper sanitation. In general, people are not going to put in latrines because they are worried about getting sick. The main reasons are convenience and social status (Roberts et al, 2007). This must be taken into account when projects are considering allocating 50 percent of the budget or more to software leaving only a token figure for hardware.

Finally, the research team originally began this study with the impression that popular methods such as CLTS were well accepted and proven in the development field. It was thus surprising to find that there have been serious concerns about its effectiveness both with practitioners in Cambodia and in the broader development field. When literature was reviewed, it was revealed that its limitations have been well documented for at least three years. What was even more surprising, however, was to discover the number of projects that have continued to press forward with CLTS only, or various versions of it in the face of the mounting evidence against it. The inclusion of social marketing and the reintroduction of limited subsidies by the MRD in Cambodia, however, are an encouraging sign that progress is being made in the right direction. The challenge in the future will be convincing donors to fund programs that include subsidies which are viewed by this author as a necessary component to reaching the poorer half of the rural population.

Appendix 1: Key persons interviewed

1. Mr. Chuah Sothea, Kompong Thom PDRD Chair
2. Mr.Chay Kim Seng, Kompong Thom PDRD; ADB and UNISEF project overseeing partner
3. Yen Yath, CWS Kompong Thom
4. Mr.Vanny, CWS Kompong Thom
5. Mr. Sayha, World Vision Kompong Thom
6. Village chief Sway Kal village, Kokos commune Santok district, Kompong Thom
7. Mr. Chunen, Baray District director of Rural Development
8. Khum Chief Cherneang commune, Baray district Kompong Thom
9. Village chief, Ondong Poe village, Ondong Poe commune, Baray district, Kompong Thom
10. Village chief So Chey village Kompong Sway commune, Kompong Sway district, Kompong Thom
11. Village chief Tee-im Jaah village, Kompong Sway commune,, Kompong Sway district, Kompong Thom
12. Village chief Tanout village, Kompong Sway commune, Kompong Sway district, Kompong Thom
13. Village chief Trapaing Rusay village, Recksmay commune, Rovieng district, Preah Vihear
- 14-18. MRD staff
 1. Chea Somnang
 2. Chhoeurn Chhorn
 3. Lydo Khonn
 4. Sarith Van
 5. Chanto They
19. Kov Phyrum, WSP
20. Wan Maung, TSRWSSP ADB team leader
- 21, Belinda Abraham, UNICEF
22. Van Chumross, ICC Ratankiri
23. Mr. Hengly, Lien Aid consultant

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