

THE SUSTAINABILITY OF CLTS IN WATERAID'S PROGRAM IN TIMOR-LESTE

By

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ABSTRACT

Community-Led Total Sanitation (CLTS) was introduced into Timor-Leste by WaterAid in 2007 and implemented by local NGO partners. As in many other countries it was found to have been successful in triggering motivation to end open defecation, however it was not known how sustainable these changes had been. This research used a sample of 22 households in 5 villages which had had CLTS interventions between 2 and 5 years ago with a view to assessing its sustainability and the possible influencing factors. The study found widely varying levels of sustainability but an overall estimated slippage rate back to open defecation of approximately 30%. A number of possible influencing factors were identified but the quality of CLTS processes and the durability of latrines were believed to be the most important. A key issue discussed was how durable latrine options could be made available to remote rural communities.

Key words: sanitation, rural, slippage, durability, latrines.

EXECUTIVE SUMMARY

This research aimed to investigate the sustainability of Community Led Total Sanitation (CLTS) in WaterAid's program in Timor-Leste. It did this by first examining the global sanitation situation, then reviewing what current international literature had to say about the level of sustainability and the possible influencing factors. Field research was then undertaken in Timor-Leste that examined the sustainability of WaterAid's CLTS program and reached conclusions about the potential factors influencing sustainability in that particular context.

An examination of the global sanitation situation described how sanitation forms part of the WASH sector, including water, sanitation and hygiene; and how both access to water and sanitation have formed target 7c of the MDGs (WHO/UNICEF, 2012). The 2012 JMP statistics showed that while approximately 780 million people still lack access to safe water supplies, the MDG target (of halving the proportion of people without access) had been met. However by contrast 2.5 billion people still lack access to basic sanitation and further that the 2015 MDG target was not only unlikely to be met, but was adjudged to be the worst performing target of all the MDGs (WHO/UNICEF, 2012). The JMP data also showed that most people (approximately 70%) without access to sanitation lived in rural areas in developing countries and further that almost 1 billion of these people were practising open defecation (WHO/UNICEF, 2012).

The poor performance of the rural sanitation sector has been attributed to a lack of investment in sanitation in general, and in rural areas in particular, but also to the failure of supply led methodologies (Cairncross, 1992; UNDP, 2006; Heierli & Frias, 2007; Mara et al., 2010). However over the past decade or so, two demand led methodologies, known as Community Led Total Sanitation (CLTS) and Sanitation Marketing, have produced encouraging results and have reinvigorated the sector (Mehta & Movik, 2011; Peres et al., 2010). In general sanitation marketing usually requires a more urban based manufacturing centre from which it markets out by diffusion to eventually reach rural areas (Jenkins & Curtis, 2004; Robinson, 2007), whereas CLTS has been particularly effective in rural areas where the concepts of self-help and community action have struck a chord and often resulted in relatively rapid sanitation behaviour change (Chambers, 2009; Mehta & Movik, 2011).

For these reasons this study focused on CLTS, as it has a primary aim of ending open defecation (ODF – open defecation free) which is adjudged to be the highest priority issue in global sanitation. The research used WaterAid's sanitation program in Timor-Leste,

which predominantly utilised CLTS, as a case study to look at the issue of its long term sustainability.

In Timor-Leste 2012 JMP figures indicated that the national sanitation coverage was 47%, but the coverage in rural areas was only 37%, with more than half of those without sanitation practicing open defecation. This data was consistent with the global statistics, and further justified the focus of the research.

Global Literature on Sustainability of CLTS

A review of the global literature found a number of studies and reports dealing with the attainment of ODF but very few on the actual long term sustainability of ODF. Another factor was that CLTS is a comparatively new methodology, having only been in existence since 1999 and slowly spread to over 40 countries in Asia, Africa and the Pacific. Consequently it could be said that not many CLTS programs have been in operation long enough to be able to assess their long term sustainability. The sustainability studies reviewed included research in Bangladesh, Indonesia and Zimbabwe (Hanchett et al., 2011; Evans et al., 2009; Mukherjee et al., 2012; Whaley & Webster, 2011).

An analysis of the relevant literature revealed that CLTS has been a powerful tool to raise demand to end open defecation within rural communities. However the conversion rate from motivation or “triggering” to achieving community wide ODF varied widely. In some programs such as Bangladesh it was close to 100% (Evans et al., 2009); while in Mozambique it was only 20% (Godfrey, 2009).

While there was limited data on the percentage of households that returned to open defecation, there was enough information to conclude that “slippage” was a problem in many programs. Available slippage data varied widely; in Bangladesh some results showed around only 3% slippage (Hanchett et al., 2011), while in Cambodia an average rate of 58% was recorded (Kunthy&Catalla, 2009). Program results from other countries fell within these two percentages (Whaley & Webster, 2011; SNV, 2009; Robinson, 2012a; Evans et al., 2009).

A range of factors were identified in the literature that could have contributed to the above results. Those considered by the author to be of the greatest importance to the sustainability of CLTS were:

- the quality of facilitation skills in both triggering and follow-up processes
- the need for frequent follow-up up visits by external agencies
- the importance of local champions and leaders in communities

- access to a range of affordable and durable latrine options
- hardware subsidy programs tended to dampen local demand

While most of these influencing factors were consistently mentioned in the literature, there has been little prioritisation or ranking of their relative importance (Mukherjee et al., 2012). That said, the quality of CLTS processes, the importance of post triggering follow-up support and access to durable latrine options featured most often and prominently.

Research in Timor-Leste

The new research conducted within this study included 22 household interviews conducted across 5 villages, plus a focus group discussion and key informant interviews with key sector actors in the sanitation sector in Timor-Leste.

While ODF was reported to have been declared in all 88 villages where WaterAid had been working from 2007-12, the study looked at villages between 2-5 years post project implementation. The study found that slippage back to open defecation varied from 0% in one village to 100% in another, with the average weighted slippage rate was calculated to be approximately 30%.

However the limited sample size meant that the results needed to be taken as indicative rather than as a statistically accurate reflection of the actual sustainability rates. Despite this limitation, sustainability information obtained from an AusAID funded rural WASH project in Timor-Leste (known as BESIK) also indicated an estimated slippage rate of around 30%.

Factors Influencing Sustainability

The author considered the primary influencing factors obtained from the global literature, and compared them with other issues that came out of the research in Timor-Leste. As a result the following factors were considered to be most relevant within WaterAid's program in the Timor-Leste context:

- the quality of CLTS facilitation was important in triggering change but also to make the behaviour change permanent
- local champions in each village enhanced motivation and supported households to build durable latrines
- sanitation marketing was currently too underdeveloped to effectively deliver "supply" side services to triggered households
- external support and advice (in this case from local NGOs) was instrumental in assisting households to build durable latrines. Essentially this involved

explaining latrine options, loaning moulds, training local champions, and assisting with transporting of manufactured materials

- community cohesiveness affected collective commitment to sustain ODF
- households with durable latrines showed stronger commitment to sustaining ODF
- the integration of new water supplies enabled some households to build more durable latrines, enhancing sustainability, but also may have been an indirect incentive to achieve ODF.

In addition to the above factors the author was concerned that long term follow-up and support may need to be provided to communities if slippage back to ODF is to be minimised. It was noted that the government of Timor-Leste had begun to roll out sub district facilitators who may be able to provide some ongoing support. Other options considered were linkages to private sanitation service providers, and government contracting local NGOs to provide ongoing support.

While all the factors outlined above were considered relevant, in the author's opinion CLTS sustainability could be best maximised through addressing two key issues:

- motivating people to end open defecation as a permanent behaviour change. If done well CLTS can trigger this change but ongoing follow-up support and encouragement was probably needed to sustain this behaviour
- assisting households to build durable latrines post triggering while their motivation levels are high should greatly enhance the chances of people not returning to open defecation.

While the quality of CLTS processes has been universally identified as critical, the author felt the durability of latrines has not been sufficiently highlighted. The success of CLTS in Bangladesh may well have been built on the base of an already well developed sanitation supply chain that is not well developed in many other countries (Heierli&Frias, 2007; Hanchett et al., 2011; Evans et al., 2009).

In reference to WaterAid's program in Timor-Leste, sanitation marketing, while offering a supply side solution in the long term, was found to be currently too underdeveloped to effectively link in with CLTS in remote rural villages. As a consequence WaterAid's present approach of providing indirect support to triggered households, through training local champions, loaning latrine moulds and assisting with the transport of cement, rebar and plastic piping, would seem to offer the best opportunity for households to build

durable latrines and thereby maximising sustainability. It may be that this WaterAid “model” could be adopted by other CLTS programs in Timor-Leste, and may also be applicable in some other country contexts in other parts of the world.

Recommendations

This study has provided a series of recommendations, some to further research the sustainability of CLTS at a global level and some specifically for WaterAid’s program in Timor - Leste. The recommendations are outlined below.

Recommendations for the global sanitation sector

1. Further research should be undertaken into the long term sustainability of sanitation programs to ascertain the levels of slippage back to open defecation.
2. Further research should be undertaken into the possible causes of slippage back to open defecation, in particular to try to rank the influencing factors in terms of relative importance.
3. Further research should be undertaken into the linkages between CLTS and sanitation marketing with a view to increasing the durability of latrines built as a result of CLTS triggering.

Recommendations for WaterAid in Timor–Leste

1. Undertake further studies to quantify the sustainability of its sanitation interventions.
2. Further examine the possible causal factors affecting sustainability.
3. Continue support to sanitation marketing and supply chain services.
4. Review the quality of CLTS facilitation and improve if necessary.
5. Ensure households are aware of a wide range of durable latrine options.
6. Encourage local NGOs to help transport durable latrine materials for households.
7. Continue to integrate with relevant Timor-Leste government authorities particularly regarding the potential for sub district facilitators to provide long term monitoring and support to ODF communities.
8. Consider extending WaterAid provided boundary rider support beyond the current two-year period until government or other long term support services are in place.

GLOSSARY, ABBREVIATIONS AND ACRONYMS

| | |
|---------|--|
| BESIK | <i>Bee, Saneamentu no Ijeneiha Komunidade</i> (Community WASH program) in Timor-Leste funded by AusAID |
| CLTS | Community-Led Total Sanitation |
| DNSA | National Directorate of Water Supply, Ministry of Infrastructure |
| DNBSS | National Directorate of Sanitation, Ministry of Infrastructure |
| FGD | Focus group discussion |
| GMF | <i>Grupo Maneja Facilidade</i> (village water and sanitation committee) |
| HH | Household |
| IDS | Institute for Development Studies |
| JMP | Joint monitoring program (UNICEF/WHO) |
| KII | Key informant interview |
| NGO | Non-government organisation |
| OD | Open defecation |
| ODF | Open defecation free |
| MSATM | Ministry of State Administration and Territorial Management |
| Plan | Plan International |
| SanMark | Sanitation marketing |
| SAS | <i>Serviço de Águas e Saneamento</i> (Water &Sanitation service) |
| SDF | Sub-district facilitator |
| SEPI | Secretary of State for the Promotion of Equality |
| SIBS | <i>Sistema Informasaun Bee no Saneamentu</i> (Water&Sanitation Information System) |
| UNICEF | United Nations Children's Fund |
| WASH | Water, sanitation and hygiene |
| WHO | World Health Organisation |
| WSP | Water and Sanitation Program of the World Bank |

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CHAPTER 1: INTRODUCTION

The water and sanitation sector is normally concerned with the provision of safe convenient domestic water supplies, sanitation and related hygiene behaviours, in particular handwashing at critical times. These three components have been shown to be key determinants of human health by way of preventing diarrhoea, particularly in children under five years of age (Cairncross&Valdmanis, 2006:Ch41).

Many who work in the water and sanitation or WASH (water, sanitation and hygiene) sector in developing countries maintain that WASH is traditionally under prioritised and underfunded within government and donor budgets (UNDP, 2006:v-vi). However the sector was successful in having water and sanitation included in the Millennium Development Goals (MDGs), albeit listed under “environmental sustainability”.

The main cause of diarrhoea is through ingesting an infective dose of faeces contaminated with pathogens such as bacteria, viruses and amoebas, and the transmission routes have been shown to be ingesting infected faeces through hand to mouth, eating infected food or drinking infected fluids such as water.

As a consequence the three main diarrhoea prevention measures are:

- removing faeces from the environment through the use of sanitary latrines
- washing hands after defecation and before handling food
- drinking safe or uncontaminated water

It has been established that within the WASH sector a large percentage of funding has been invested in the provision of safe domestic water supplies, with most of the remainder on sanitation and an extremely small percentage on hygiene or handwashing (UNDP, 2006:Ch3).

It is therefore not surprising that while the MDG target for water has been claimed to have been achieved, the sanitation MDG is the worst performer of all the MDGs. As of 2012 out of a world population of approximately 7 billion, an estimated 780 million still lack access to basic safe water, while a huge 2.5 billion still lack access to basic improved sanitation (WHO/UNICEF, 2012). It is for these reasons that this research paper focuses on sanitation in developing countries.

Within the sanitation subsector the relative needs are far greater in rural areas. While it is true that the world is rapidly urbanising, JMP data clearly shows that of the 2.5 billion

people without sanitation, 70% live in rural areas. Additionally of these 1,796 million people, 949 million have been found to practice open defecation. This research has therefore concentrated on efforts to end open defecation as the priority need within rural sanitation (WHO/UNICEF, 2012:19, 23).

One contributing factor to this difference is that when people move to more urbanised areas they are more motivated to use latrines. There is less open space and privacy and people are also motivated to adopt more “modern” or “civilised” habits of fixed point and hygienic defecation. These factors have also influenced the author to choose rural sanitation as the focus of this paper. Indeed major WASH sector actors such as WSP, UNICEF and WaterAid have rural sanitation as a key focus of their program strategies.

Until recently progress in providing access to improved sanitation in developing countries has been slow. This has not only been as a result of underfunding and under prioritisation of sanitation within the development agenda, but also because the methodologies that have been employed over the past 50 or so years have had only minimal rates of success. This is particularly the case with respect to rural sanitation, where initial demand is low and the dominant methodology has involved a mix of health messaging and technically based solutions.

Typically communities have the health implications of lack of sanitation explained to them and then households are encouraged to build and use relatively expensive but technically sound latrines. External subsidies have usually been provided to households to assist with the cost of these latrines. Reviews of this approach have shown that in general health messaging has not raised demand for sanitation, and that households often built latrines with the assistance of external hardware subsidies but that many people did not use the latrines for sanitation purposes (Cairncross, 1992; UNDP, 2006:Ch3; DFID, 1998:38-39).

Also, as external subsidies were expensive many WASH programs were only able to support a limited number of latrines usually termed "demonstration latrines". This lack of financing further slowed down progress when households had to rely on waiting their turn from revolving loan funds or annual budget allocations from governments in developing countries.

The overall result has been slow progress, and a high level of criticism about supply led approaches and the failure of associated health messaging in sparking demand for sanitation especially in rural communities in developing countries (Cairncross, 1992).

However around the turn of the century, two promising demand led approaches to sanitation came to the attention of the WASH sector, Community Led Total Sanitation (CLTS) and Sanitation Marketing.

1.1 Community Led Total Sanitation (CLTS)

Community Led Total Sanitation (CLTS) is an extension of the Participatory Rural Appraisal approach, where communities are facilitated through an awareness raising process, which usually leads to people deciding to end open defecation and building their own latrines. Commencing in Bangladesh in 1999, it has now spread to over 40 countries across the developing world (Mehta & Movik, 2011: x-xi).

The key advantage of CLTS is that it aims to “trigger” whole communities to end open defecation and build and use household latrines. CLTS often works well in remote rural communities where the poorest people usually reside. Its essential features are that it creates or brings out latent demand for sanitation. So it is a demand led approach as opposed to being supply driven. It does not propose the use of external hardware subsidies, and households build latrines according to their own aspirations and financial capacity.

Importantly it is not built on health messaging, but usually on feelings of disgust and shame resulting from the realisation that people are eating their own and each other’s faeces, albeit in small amounts (Kar & Chambers, 2008).

CLTS has consequently led to significantly improving progress in sanitation coverage in a number of developing countries, Bangladesh being the key example (Mehta & Movik, 2011:28-34).

1.2 Sanitation Marketing

Sanitation Marketing is another promising demand led approach to improving access to sanitation. It has had a long history within the sanitation sector particularly being championed by the Water and Sanitation Program (WSP) of the World Bank. However it has begun to gain more prominence across the sector in the past 15 years, following criticisms of supply led subsidy programs increasingly taking effect (Cairncross, 1992).

It essentially involves the use of modern marketing principles, asking people what sort of toilet they would like, why, and how much they are prepared to pay. Products are then developed and marketed to households (WSP, 2004). Although this has resulted in a certain amount of uptake, the spread is typically by diffusion, usually out from urban

centres; so many households in each rural settlement, especially the most remote ones, still do not have toilets (Jenkins & Curtis, 2004).

In summary, while CLTS can be seen to work well in remote rural communities where the needs are greatest, there are emerging and growing concerns about its sustainability over time. Many CLTS latrines have been built with locally available materials, typically of wood, rocks, mud and scrap metal, and the limited number of studies available indicates that durability is problematic, leading some people to return to open defecation.

On the other hand, sanitation marketing, while gaining currency in the WASH sector has seen most gains from its application in more urban areas and a number of WASH sector actors are looking at the potential of combining the power of sanitation marketing with CLTS in order to address some of the sustainability issues in low quality latrines that often result from the CLTS process.

While the author acknowledges the "game changing" nature of CLTS and its potential to transform sanitation coverage particularly in rural areas, this research paper will aim to look at the sustainability of CLTS both through the global literature and also through some direct research in a number of villages in Timor-Leste. These villages formed part of a WaterAid program in Liquica district where CLTS has been implemented since 2007. In more recent years WaterAid has also been supporting some sanitation marketing activities in an effort to complement the effectiveness of their CLTS program.

The overall aim of the research is to look at the global evidence combined with the research in Timor-Leste with the aim of quantifying the level of slippage back to open defecation, investigate the possible contributing factors and suggest ways to improve the effectiveness of sanitation programs in rural areas.

CHAPTER 2: AIMS AND OBJECTIVES

2.1 Project Aim

To identify the factors affecting the sustainability of CLTS in WaterAid's program in Timor-Leste

Community Led Total Sanitation has been introduced into more than 40 countries since its beginnings in Bangladesh around 1999. It has been generally acknowledged that it has been effective in creating or enhancing demand for sanitation especially in rural areas. However there is considerable concern about its sustainability over time, in that there are a number of reports, both documented and anecdotal, of people returning to open defecation. This research project aims to investigate what the literature shows about this "slippage" and uses WaterAid's program in rural Timor-Leste, as a case study.

2.2 Project Objectives

2.2.1 Objective 1: Examine current global sanitation status

As a starting point this paper will investigate the current global access to basic improved sanitation. Primarily this will involve looking at and discussing the latest JMP figures relating to global coverage. An analysis will be made of why current coverage is so poor and where there would seem to be areas for improvement.

The relevant research questions have been identified as:

- What is the current sanitation coverage status at a global level?
- Why is the sector performance so poor?
- What is the potential for improvement and what are the most promising methodologies?

2.2.2 Objective 2: Examine the sustainability of sanitation improvements relating to CLTS at a global level and the potential influencing factors

The research will then focus on first quantifying the level of sustainability of CLTS at a global level and examining the possible factors that may be contributing both positively and negatively.

The relevant research questions have been identified as:

- What is the level of sustainability of improved sanitation resulting from CLTS in various countries and programs around the world

- What are the potential contributing issues documented in the global literature?

2.2.3 Objective 3: Examine the sustainability of WaterAid's sanitation work in Timor-Leste and identify the potentially contributing factors

While the global analysis will enable a broad brush examination of the sustainability of CLTS, this research project will use WaterAid's sanitation work in Timor-Leste as a case study opportunity to look at CLTS sustainability within a particular program and country context.

The relevant research questions have been identified as:

- What is the sustainability of CLTS sanitation interventions at a national level in Timor-Leste
- What is the sustainability of WaterAid's CLTS interventions in Liquica district in Timor-Leste?
- What are the potential factors influencing the sustainability of both CLTS at national level and within WaterAid's sanitation work in Timor-Leste?

2.2.4 Objective 4: Analyse information, draw conclusions and make recommendations to improve CLTS sustainability

The research project aims to look at the sustainability of CLTS at a global level and also at a village level in Timor-Leste using WaterAid's program as a case study. In this way a link can be drawn between both the levels of sustainability of CLTS interventions at global level and at a village level within Timor-Leste. As well as identifying sustainability levels, potential global and local influencing factors can be identified and discussed with a view to recommending possible ways to improve sustainability outcomes at both a global and local level in Timor-Leste.

Proposed conclusions and recommendations:

- What are the levels of sustainability of CLTS interventions both globally and within WaterAid's program in Timor-Leste?
- What can be concluded about the possible issues affecting sustainability?
- What suggestions can be made to improve CLTS sustainability within WaterAid's Timor Leste program?
- Which of these conclusions and suggestions may be relevant to the sustainability of CLTS at a global level?

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

The purpose of the literature review was to ascertain what studies have already been undertaken on the sustainability of CLTS both at a global level and in Timor-Leste, examine their findings and identify knowledge gaps. The gaps then helped inform the research questions and methodology for the study of CLTS sustainability in Timor-Leste.

3.2 The Sanitation Problem

An estimated 2.5 billion people do not have access to basic improved sanitation, and current progress is hardly keeping up with population growth (WHO/UNICEF, 2012; Mara et al., 2010:3). There is beginning to be general recognition that traditional approaches involving health messaging and providing hardware subsidies has not worked well enough to meet MDG targets (Mara et al., 2010; Heierli & Frias, 2007). As previously outlined, 70% of those who lack access to basic sanitation live in the rural areas, which makes their needs a priority concern within the WASH sector (Mara et al., 2010:3; Sijbesma, 2008:189-90). For these reasons this research focussed on sanitation in rural areas. As also previously documented, of the 2.5 billion people without basic sanitation, approximately 1 billion still practice open defecation, resulting in human faeces being deposited directly into the environment and posing great dangers from diseases such as diarrhoea. As a consequence this research has concentrated on efforts to end open defecation in rural areas.

3.3 Demand Led Approaches - CLTS and Sanitation Marketing

Two relatively new approaches, usually referred to as "Sanitation Marketing" and "CLTS" (Community Led Total Sanitation), have shown good signs of success (Peres et al., 2010; Mara et al., 2010:4). As previously outlined, sanitation marketing comes from the field of commercial marketing and involves researching what could motivate people to build and use latrines, then what they would be prepared to pay for, and then linking people with suppliers (Heierli & Frias, 2007). CLTS involves facilitating communities through a process where they become aware that they are ingesting human faeces, leading to community members ceasing open defecation, and building and using latrines (Kar & Pasteur, 2005; Chambers, 2009).

While both approaches have been shown to stimulate demand for latrines, sanitation marketing tends to work best in areas where there is a good supply chain of latrine materials and services (Mukherjee, 2011). It therefore tends to work outwards from urban centres by diffusion, especially along road lines and through other networks. For

example, in Benin take up of purchasing sanitation products and installing latrines in built up areas was shown to be around 50%, whereas in remote rural areas it was only 1.4 % (Jenkins & Curtis, 2004:5).

This research has focused on CLTS as the author considers it is currently the most applicable sanitation methodology for rural areas in developing countries, and in particular because it's key aim is to end open defecation, as a critical first step on the sanitation ladder.

3.4 CLTS Success Factors

There is considerable evidence that CLTS is a potential “game changer” in relation to the WASH sector, with an estimated 10-20 million people having gained access to basic sanitation since the year 1999 as a result of the implementation of CLTS in over 40 countries around the world (Robinson 2012; Mehta & Movik, 2011:1-2).

There have been a number of research studies and evaluations of CLTS programs around the world, and while sustainability is the focus of this research, most of the literature to date has looked at the factors that have affected whether CLTS programs have led to communities becoming open defecation free (ODF), rather than the sustainability of ODF. This literature is considered relevant to this study as the factors that are often linked to **achieving ODF status** have also been linked to the **sustainability of ODF** through the continued use of latrines.

Although most improved sanitation involves individual households building and using their own “family” latrine, one of the key points of CLTS is that it aims to engender collective action for the whole community to mutually decide to end open defecation, presumably on a permanent basis (Kar & Chambers, 2008).

While logically it would seem preferable to remove all human faeces from a community, there is some conjecture about what the relative benefits, particularly from a health perspective, might be. This issue has become more important now that many CLTS programs have only been able to motivate varying percentages of households in villages to end open defecation. The latest evidence has indicated that the health benefits are more or less linear, meaning that every household which ends open defecation by building and using a latrine results in an incremental health benefit for the whole community (Spears, 2012; Spears 2012a).

In Bangladesh where CLTS was first developed, the rates of success in achieving ODF communities was quite high. For example almost 100% in a study of WaterAid's

programs (Evans et al, 2009:10) and up to 80% in another study of 3 NGO programs (Shayamal et al., 2008:263). Also in Himachal Pradesh in India one successful program had a success rate of approximately 80% (Robinson, 2012a:16).

However as CLTS has spread to many other countries conversion rates to ODF have been more varied. For example only 21% for the East Asia region as whole (Robinson, 2012: 36), 10-95% in Indonesia (Mukherjee et al., 2012:18-19), 15-19% in Nigeria (Evans et al., 2009:10-12), and 20% in Mozambique (Godfrey, 2009:1).

These varied and often relatively poor success rates, in many other countries outside CLTS's birthplace of Bangladesh, have led several reviewers to examine what factors may be influencing these results. While this discourse is not directly related to sustainability issues, many of the reasons given to explain the low conversion rates to ODF are also frequently presented to explain why households and communities may have slipped back to open defecation.

The CLTS Approach

Although CLTS is to a certain degree non prescriptive in its approach the basic tenets are as follows:

- A "triggering" process is facilitated with the whole community involving a number of techniques people become aware that they are ingesting significant amounts of human faeces. The tools used to bring this awareness about vary but typically include:
 - a transect walk to uncover areas or incidents of open defecation;
 - some demonstration of how some of these faeces are 'accidentally' "ingested, e.g. flies and a plate of food or a hair dipped in faeces and then dipped in a glass of water; and
 - a calculation of the amount of human faeces produced by the community each year and put into the general environment.

The typical outcome of these processes is that people are revolted and ashamed and motivated to end open defecation

- Communities are then encouraged to make action plans to end open defecation which typically involve building and using latrines to prevent human faeces from entering the environment;

- Communities may be supported in their endeavours to implement their action plans through supportive follow-up visits and showing some latrine options and
- When all households have built a latrine some sort of declaration is made to indicate that the community has achieved ODF (Kar&Chambers, 2008).

Quality of Triggering

One of the primary components of CLTS is that communities are not told what to do but through the triggering process they discover for themselves some of the effects of open defecation and are "empowered" to do something about it. This empowerment requires "subtle" facilitation which is quite different from other more traditional approaches of "informing" village people about the health benefits of sanitation.

When triggering does not lead to community action Kamal Kar, the founder of CLTS, has referred to this as a "damp matchbox". This has been explained as resulting from poor facilitation or other factors such as the community not being ready to be empowered and take charge often because they may be waiting for hardware subsidies (Kar& Chambers, 2008; Chambers 2009).

Follow-up Visits and Support

While the triggering process is not always successful, many studies and evaluations of CLTS programs have concluded that it was generally effective in stimulating demand, and that communities have proceeded to develop action plans to build latrines. However the reason ODF conversion rates have frequently been low is that these plans have not been fully implemented. The reason frequently given for this is the failure of external agencies and governments to provide sufficient follow-up visits and support to communities. The inference has often been that support agencies may incorrectly believe that triggering by itself is sufficient to enable communities to become ODF, whereas follow-up and encouragement is also an integral part of the CLTS process. (Bevan&Thomas,2009:8;FHDesigns,2012:7;Robinson,2012;Magala& Roberts,2009:46-47;Hickling& Bevan, 2010:58).

The "project approach" of many external support agencies has also been criticised as being too construction focussed and not providing support to communities long enough for many of them to reach and then maintain ODF(Kar &Milward 2011:42, 52).

A number of other factors have been identified as affecting the performance of CLTS programs in communities reaching ODF, including:

- the dampening effect of the existence and availability of hardware subsidies
- local CLTS champions
- government support
- local availability of affordable latrine options
- rewards for attaining ODF
- community size (small being better than larger)
- community cohesiveness
- resource sharing between households
- availability of credit
- integrating water and sanitation
- seasonality of CLTS interventions (FHDesigns, 2012; Bevan & Thomas, 2009:4-5; Hickling & Bevan, 2010:51-60)

A number of these factors will be examined further below as they may pertain to the sustainability of CLTS.

3.5 Sustainability Studies

The literature review found a considerable number of documents on CLTS, but only a limited number specifically on the sustainability of CLTS. This might be mostly due to the fact that CLTS has been a relatively new approach, having only been introduced in Bangladesh in 1999 (Chambers, 2009:9).

It is only relatively recently that issues have begun to be raised about its long term sustainability, including concerns about the quality and durability of the latrines (Robinson, 2012, Kalimuthu & Hossain, 2008; Whaley & Webster, 2011).

One of the tenets of CLTS is communities taking control of their own development and using the principle of self-help (Kar & Pasteur, 2005). This has often resulted in households building “initial” or “temporary” latrines using local materials such as wood, rocks and mud (Kalimuthu & Hossain, 2008; Bevan, 2011; Faris & Rosenbaum, 2011). In response to these criticisms of the durability of latrines, proponents of CLTS have postulated that once households get on the first rung of the “sanitation ladder”, by ending open defecation, they will upgrade their latrines to more durable models over time (Kar & Chambers, 2008; Chambers, 2009; Movik & Metha, 2010; Mara et al., 2010:4-5).

As CLTS is such a promising approach, and sustainability presents a significant threat to its long term success, it is considered important to investigate the issue despite the current lack of well researched studies on the topic.

The experiences of CLTS in relation to its sustainability in a number of countries and regions are documented below:

Bangladesh

In Bangladesh a sustainability study (Evans et al., 2009) looked at WaterAid's program of implementing CLTS in 16,000 communities over the past 12 years, and found both that ODF had been effectively achieved and that there was no observed evidence of reversion to open defecation. However there was recognition by both NGO staff and communities that some open defecation was still taking place. The research included a sample of 142 households in 12 villages, and showed that 75% of latrines constructed were hygienic, while 25% of households had upgraded their latrines, and there was also evidence of full pits being emptied. Approximately 90% of latrines had concrete slabs, 66% had water seals, and lining rings were reported to be common in flood prone areas (Evans et al., 2009:15). This study indicated the CLTS processes had been effective in motivating people to become and sustain ODF and also that there was a ready availability and use of durable latrine construction materials and methods.

A 2011 WSP report on Bangladesh (Hanchett et al., 2011), surveyed 3,000 households from a CLTS program that had included 4,329 villages. The villages surveyed had had CLTS interventions at least 4 years ago and had all been declared ODF. Overall the results were consistent with the WaterAid report, indicating that open defecation was low at approximately 3% and that approximately 90% of latrines safely confined faeces (Hanchett et al., 2011:iii-iv). This indicates a slippage rate of 3-10% depending on whether open defecation is taken as the benchmark or the use of a latrine that safely confines faeces.

While there was some slippage overall the study indicated improved sanitation practices were sustained. In addition 70% of households had had their current latrines for at least 3 years, indicating that most latrines were relatively durable; and that 95% reported that they were able to access durable latrine materials and skilled masons locally (Hanchett et al., 2011:iv-v).

One other element or success factor mentioned in the Hanchett report is that households reported that post ODF follow-up visits were important in maintaining ODF

and in upgrading latrines (Hanchett et al.,2011: v). Another important observation was that the 10% of households that did not use a hygienic latrine were usually the poorest members of the communities indicating that affordability was an issue for the very poorest households (Hanchett et al., 2011: vi).

Of the latrines observed during the study, 84% had cover slabs and 39 % had water seals (Hanchett et al., 2011:15). While 45%of households were using the same latrine, 20% had upgraded and 20% had rebuilt using the same type (Hanchett et al., 2011:25-26). So there was clear evidence of upgrading, replacing and emptying.

Several reports indicated that while the CLTS processes had been successful in motivating communities to end open defecation and sustain ODF, Bangladesh was the clearest example of a country where local supplies of cheap durable latrine products were available to most rural communities, and that the success of CLTS in Bangladesh built on the development of approximately 4,500 local suppliers of manufactured latrine materials and services, achieved in the decade prior to the commencement of CLTS (Hanchett et al., 2011; Evans et al., 2009;Heierli&Frias, 2007).

India – Himachal Pradesh

Another CLTS program that could be considered high performing was in Himachal Pradesh in northern India. This state has been able to improve its sanitation coverage over a period of 4 years from 50% in 2007 to 80% in 2010, using a combination of CLTS and other demand led methodologies, in particular sanitation marketing. A study undertaken in 2010 looked at 30 villages in 2 districts, and found approximately 10% slippage back to open defecation looking at villages which had been declared ODF at least 18 months before (Robinson, 2012a).

It is interesting to note the importance given to the enabling environment, in that the state government has been quite supportive, had opposed hardware subsidies and combined CLTS with sanitation marketing by private suppliers. It is further noted that, as in Bangladesh, good supply chains of manufactured sanitation materials were both available and affordable in Himachal Pradesh, which is considered a relatively wealthy state in India. The study found that 100% of the toilets inspected were pour flush with water seals, and that 80% of households used functional toilets (Robinson, 2012a:26).

Nepal

Two studies were found which investigated CLTS and its sustainability in Nepal. A WaterAid study found that, while ODF had been declared in the 4 villages studied and

households had constructed latrines, there was still some evidence of open defecation and many latrines were not fly proof (Evans et al., 2009).

A 2007 Plan International evaluation of its CLTS program in 25 villages showed that only 10 had reached ODF 2 years after interventions and that, although there was some evidence of some households upgrading their latrines, there were significant problems with latrines built from local materials collapsing. It was further noted that, as documented in the WSP study in Bangladesh, it was generally the poorest households who did not rebuild their latrines and returned to open defecation.

The report concluded that in addition to better facilitation and follow-up processes, better availability of more durable, affordable latrine options, including the local construction of concrete lining rings, was needed to achieve sustainability (Shrestha et al., 2007).

No actual estimates were given, by either the WaterAid or the Plan study, of the percentage of slippage back to ODF except to say that it was present and was an issue that needed addressing.

Indonesia

A WSP study in Indonesia looked at 574 households within 80 communities out of a program that involved a combination of CLTS, sanitation marketing and other behaviour change interventions in 3,000 communities between late 2007 and 2010 (Mukherjee et al., 2012).

As well as sustainability, the study also looked at ODF achievement rates, finding that, of the communities triggered, an average of only 35% went on to achieve ODF, but that the success rate varied widely from 10-95%. It further reported that of all those households that achieved improved sanitation, 80% were found to come from ODF communities, indicating that collective community action was an important determinant of advancing improved sanitation within this program.

The study chose 20 communities to study from each of 4 pre-determined ODF performance categories:

- those that attained ODF quickly (< 2 months)
- those that attained ODF later (more than 2 months)
- Those that didn't attain ODF but reached a reasonably high coverage (80%)
- Those that were triggered, but achieved only a small coverage percentage

While the WSP study found this useful for looking at success factors, it did not provide any reference to the relative percentage that these 4 groupings actually represented in terms of the 3,000 communities within the overall project. This made overall slippage rates difficult to quantify. Also the study only reported on slippage from those communities which reached ODF in the first place. In the first category, those communities that achieved ODF quickly, the slippage rate was low at 5%, while in late ODF communities it was 20% (Mukherjee et al., 2012).

In terms of achieving ODF many of the influencing factors mentioned in other reports above were again highlighted, such as:

- quality of triggering and follow-up
- community leadership (local champions)
- community cohesion
- availability of low cost latrine options
- availability of credit facilities
- negative effects of hardware subsidies in neighbouring communities.

Two additional factors noted were the relative remoteness of communities and the proximity of water bodies. This latter point highlighted a local practice of defecating in lakes and waterways if they are nearby, with people believing that as their faeces are washed away and out of sight there is no need to build and use a household latrine. (Mukherjee et al., 2012:10).

With specific reference to sustainability, the study found that follow-up and encouragement both within the community and by external agents was important (Mukherjee et al.,2012:12).Despite one of the critical aspects of CLTS being the empowerment of local communities, who then take charge of their own development with respect to sanitation, in this study communities themselves highlighted the value of follow-up visits from external agents in both the attainment and sustaining of ODF status (Mukherjee, et al., 2012: 67-68).

This latter point may link in with a consideration of the relative remoteness of communities as they may have been less likely to have received visits from government and other agency staff. This may be a negative factor both in terms of the value of ongoing support, but also may have lessened community pride in that it was unlikely anyone would come to visit to witness any reversion back to open defecation.

Another factor noted by the study in relation to sustainability was the durability of latrines built as a result of the CLTS process, and that poor quality latrines were more likely to collapse after a short time and people return to open defecation (Mukherjee et al., 2012: 11-12, 76).

In particular the study found that, in the sampled households, 72% built some form of pour flush latrine with a concrete slab, while 25% built a non-durable latrine from local materials such as bamboo and wood. Interestingly only 3% built a concrete slab over a dry pit, and it was mentioned that almost all people aspired to a pour flush latrine, so a concrete slab was not seen as an option worth investing in (Mukherjee, et al., 2012:79-96).

Affordability was not seen as a major problem, as the study found that the cost of a simple pour flush latrine was within reach of most households, and credit was available to the poorer households. What was of more concern was whether people had been motivated well enough to firstly build a latrine and secondly to invest sufficient funds to build a durable one. There was also a question whether people were well enough informed about what the latrine options were and where they could access them (Mukherjee et al., 2102:11).

While the study didn't specifically examine upgrading or rebuilding, there was mention of some community leaders encouraging households that built latrines from local materials to upgrade to more durable models (Mukherjee et al., 2012:76).

The relative cohesiveness of the communities was also listed as a contributing factor to maintaining ODF, in addition to a culture of sharing resources, presumably assisting poorer households to attain and maintain ODF (Mukherjee et al., 2012:11).

While the slippage rate in ODF communities was reasonably low (5-20%) the study was conducted in communities that had only achieved ODF between 4-28 months previously, so it may be a little too early to draw strong conclusions about their long term sustainability (Mukherjee et al., 2012:9).

Finally the Indonesian study, having identified the success factors in both achieving and sustainability ODF in this particular context, suggested that there now a need for further research to establish the relative importance of each of these influencing factors (Mukherjee, et al., 2012:22).

Cambodia

CLTS had been introduced into Cambodia in 2005, and an evaluation looked at a UNICEF supported program that had triggered 258 villages with 134 villages reported to have achieved ODF, giving a triggering to ODF rate of only 52% (Kunthy&Catalla, 2009).

The study looked at a sample of 20 villages, and found a latrine coverage rate of 70% but the actual usage rate was 42%, resulting in an overall slippage rate of around 58% (Kunthy&Catalla, 2009: 1-8).

These poor results were thought to be in part due to Cambodia being mostly very flat, and many parts of the country become flooded for half the year. Also the study was conducted during the rainy season, and many people said that their latrines often become flooded and collapsed, so the usage rate was at its worst during the wet season.

In the previously declared ODF communities most latrines (66%) were built with local materials such as wood and bamboo, with only 33% having concrete cover slabs and 30% having concrete lining rings (Kunthy&Catalla, 2009:4,36). While 27% of households have rebuilt their latrines, this was usually with local materials again (Kunthy&Catalla, 2009:4).

The study found that sustainability was negatively affected by a lack of locally available, affordable, durable latrine options. The study reported that in general unlined pits without concrete cover slabs only lasted 6-10 months (Kunthy&Catalla, 2009: 6).

While some previously documented success factors, such as the need for better facilitation in triggering and follow-up support, were mentioned, the key factor in Cambodia appeared to be the lack of affordable available durable latrine options (Kunthy&Catalla, 2009).

The study reported that enthusiasm to remain ODF often declined because of the need to repair and rebuild latrines, and that again it was the poorest households that were finding it most burdensome, and were least able to afford or access more durable latrine options (Kunthy&Catalla, 2009:2).

It is interesting to note that a number of agencies are engaged in sanitation marketing in Cambodia, but that at the time of this study there was limited linking between the supply of sanitation marketing and the demand created by CLTS (Robinson, 2007). So, while

the study found that the sustainability of CLTS was threatened by a lack of durable latrine options, this problem may be addressed as local sanitation marketing enterprises expand and their products and services become available to triggered communities.

Laos

Although not especially concentrating on sustainability, an evaluation conducted by SNV of a CLTS program implemented by the Irish NGO, Concern, in Laos has been included in this literature review as it makes some specific references to sustainability issues (SNV, 2009).

CLTS was introduced into Laos by Concern in 2008 in 24 rural villages in Houaphan province. It is not clear how many villages achieved ODF but the evaluation involved visiting approximately 70% of households in 12 of the 24 villages. One limitation was that the villages visited were mostly the closest to roads, as the review was conducted during the wet season making it impossible to get to the most remote villages. This may have skewed the results to more wealthy villages with better access to services and supplies.

The study showed that of the 12 villages, seven had initially achieved ODF with latrine coverage varying from 38-95% in the other five villages. The overall slippage rate back to open defecation was only 10%; however the review was conducted only one year after CLTS intervention.

The review found that 90% of latrines were built from local materials (unseasoned wood, bamboo) and were already showing signs of structural fatigue, and would need repair and replacement within a short period of time (SNV, 2009: 18-19).

Given the relative remoteness of the villages in Houaphan and the lack of development of a private sanitation supplies and services sector in Laos there was concern about the likely long term sustainability of this program. Apart from durability of latrines built from local materials, the review was concerned at the poor hygienic quality of the latrines, and also highlighted the importance of regular good follow-up visits after the triggering process (SNV, 2009: 23-24).

Africa

After some earlier pilots CLTS started to come into the mainstream in sanitation programs in Africa around 2006 (Kar&Milward, 2011; Hickling&Bevan, 2010).By 2011 it had spread to 26 African countries and despite, some mixed results, is now viewed as

being successfully adapted to the African continent, despite originating in Asia, and previous concerns that it may not translate well to Africa (Kar&Milward, 2011).

However, as CLTS has only 6 years' experience of being implemented in Africa, there are few studies of its long term sustainability, although there are a number of reports and evaluations of its effectiveness in reaching ODF status, which contain some views about its current and prospective sustainability.

A **UNICEF** report documented its experience of supporting CLTS implementation in 18 **West and Central African countries** since 2008 (Bevan, 2011).It reports an overall triggering to ODF rate of 39%, but this had risen to 69% where good follow-up was provided, in addition to verification and celebrations of communities attaining ODF. Key success factors identified were quality of facilitation, regular follow-up visits, and good timing in terms of avoiding the rainy season and periods when farmers need to be working in the fields.

In terms of sustainability, while no slippage figures were presented, concern was raised that initial latrines were usually made of non-durable local materials (logs and clay for the slab; and branches, leaves and thatch for the superstructure). It was noted that there was also limited evidence of upgrading to more durable materials, especially concrete slabs, and that sanitation marketing should be explored to provide households with durable, available and affordable options (Bevan, 2011:3).

Reviews of Plan International's experience of CLTS in **Ethiopia and Tanzania**, between 2007-2008, indicated that CLTS effectively raised demand, latrines were built, and in many cases ODF achieved. However, reports commented that the standard of the latrines needed improvement to be sustainable. Other important factors mentioned were that local champions had a catalytic effect, that regular follow-up visits were important, and also that a history of subsidies in the area had had a negative effect (Saha&Negussie, 2008; Tsegaye et al., 2008).

A 2011**WSP report on Ethiopia**, describes a CLTS program implemented by government health workers, which had widely varying success in terms of communities reaching ODF (5-100%), but did achieve an overall coverage rate of 80%. However it also revealed that only 36% of CLTS latrines were well maintained and only 26% had covers (Faris& Rosenbaum, 2011). This again indicated that latrines built in remote rural areas, where more durable options are currently not easily available and affordable, were prone to be unhygienic and may not last long.

In 2010a study in **Zimbabwe** looked at 2-3 year old sanitation programs. The study looked at 140 households in 6 villages, and found that 14% of people were not using latrines, although it was not clear what percentage of households had actually achieved ODF in the first place (Whaley& Webster, 2011).

A number of contributing factors were identified, which were believed to be affecting the attainment and maintaining of ODF. In general triggering was found to have been successful, but that post triggering follow-up was important, as well as local leadership in each village. Another factor mentioned was the amount of forest cover still available (to hide in while defecating), the season of the intervention, and the affordability of cement based latrine models. The relatively high price of cement in Zimbabwe was given as a key reason why most latrines were built of local materials.

The report found that 50% of initial latrines showed signs of damage from termites, wind or cattle and that there was a strong reluctance to rebuild with local materials. A key threat to long term sustainability identified was the difficulty people had in moving up the sanitation ladder to a durable latrine (Whaley& Webster, 2011).

In 2009 an evaluation of a **UNICEF** supported sanitation program in **Mozambique** found that of 173 communities that had been triggered in 2008, 34 had become ODF within a 2 month period. The report studied 13 of the 34 ODF villages, and found that most latrines were built of local materials, as people said they could not afford a concrete slab and, even if they could, they were only available in the towns, and people had difficulties transporting them to their villages (Godfrey, 2009).

Although cement based latrine products had been built in “San Marts” as part of the project, they had yet to build effective links out to the project villages The evaluation suggested that, instead of San Marts, local village based masons could be trained and equipped to make cement based latrine products. There was also a suggestion that plastic cover slabs, that are used in emergency programs, might be a potential option to help address the transport issue (Godfrey, 2009).

Nigeria was one of the country programs reviewed by WaterAid’s 3 country sustainability study in 2008-2009 (Evans et al., 2009). Compared with the other WaterAid programs included in this study (Bangladesh and Nepal), in Nigeria, CLTS had only been implemented in 98 communities over the past 2 years. The triggering to ODF rate was found to be low at 15-19 %, and that of the 3 communities studied that had achieved ODF, the slippage rate ranged from 0-18%.

The quality of the latrines was observed to be much poorer than in Nepal and Bangladesh, and while WaterAid had attempted to rectify this through support to “Sani Centres” (production and sales centres for durable latrine components); these were found to be not effectively reaching the project communities.

The study also found that the linking of water supply construction with sanitation interventions limited the prioritisation and effectiveness of the sanitation activities, and suggested possible de-linking in the future (Evans et al., 2009).

Timor-Leste

In relation to Timor-Leste, no studies or reports were found which related specifically to the sustainability of CLTS. However, a number of documents were found to be of relevance, and these have been reviewed below.

In 2009 WaterAid conducted an evaluation of its Timor-Leste country program between 2005-2009 (Whiteside et al, 2009). While this evaluation was a review of WaterAid’s overall program, it highlighted that WaterAid had been the first organisation to trial CLTS in Timor-Leste in 2007, in Liquica district, and that ODF had been achieved in most of the triggered communities. The evaluation did, however, express concern at the low quality of most of the latrines built, and recommended WaterAid consider increasing the range of durable latrine options available to communities and in particular to trial the introduction of a sanitation marketing component to link in with CLTS activities.

In 2011 WaterAid had also produced 2 other small reports, one on **sustainability** (WaterAid, 2011) and the other on WaterAid’s efforts in relation to **sanitation marketing** (WaterAid, 2011a). Unfortunately the first report dealt almost exclusively with functionality of water supplies, but did describe 2 sustainability initiatives with some relevance to sanitation. The first involves WaterAid providing a “boundary rider “ who regularly visits villages providing support to local WASH committees, termed GMFs in Timor- Leste. This support was provided by WaterAid for a 2 year period post construction. The second initiative involved support for the formation of GMF Federations (federation of village WASH committees), with the strategy that, by federating, mutual support could enhance sustainability and further development of WASH improvements.

The report on sanitation marketing reflected on WaterAid’s efforts to generate and support the development of a local manufacturing and supply chain of durable cement based latrine products. However, as the sanitation marketing component had only been

implemented for 18 months, linkages between suppliers and triggered communities had yet to be well established.

A recent, and as yet unpublished **CLTS overview of the East Asia region** conducted by Andy Robinson, included a section on CLTS in Timor-Leste (Robinson, 2012). The report was not a research study, but rather involved reviews of relevant documents on the rural sanitation in Timor-Leste as well as key informant interviews with key sector actors. It begins by quoting JMP statistics which indicate that improved sanitation in rural areas has increased from 32% in 1995 to 37% in 2010, and that there has been an even faster decline in open defecation rates over the same period.

The report outlines how CLTS has now spread to all 13 districts in Timor-Leste and has been endorsed and supported by the Ministry of Health, BESIK (AusAID funded rural WASH program), USAID, 5 INGOs and 12 local NGOs. Of some concern was that some government agencies and the Red Cross were still favouring hardware subsidy approaches.

On a country wide basis the report documents that 761 communities had been triggered, with 262 achieving full ODF status, giving a conversion success rate of 34%. Robinson concludes that Timor-Leste has been one of highest performing countries in East Asia in relation to ending open defecation, and this is clearly attributed to CLTS, with 19% of the rural population having ending open defecation between 2007-12. (Robinson, 2012: Annex 2: Timor-Leste: 1-7).

However Robinson had not made any allowance for any slippage back to open defecation, due to the lack of sustainability information being available at the time of his report, (Robinson, 2012: Annex 2 :Timor-Leste:5)

He also notes that while CLTS has been successful, and is being linked with supply side activities, this has yet to achieve large scale progress (Robinson, 2012: Annex 2: Timor-Leste: 6). He cites anecdotal reports of low durability of local materials latrines lasting less than a year, as a key concern within the sector, and that significant slippage back to open defecation has been reported.

The key influencing factors Robinson documented were:

- households' expectations of subsidies from government or donors
- lack of skilled facilitators
- common practice of pigs eating human faeces
- lack of awareness by government and people of health benefits of sanitation

- political resistance to low quality latrines
- local NGOs not funded to provide sufficient follow-up to achieve ODF and to help maintain it
- higher density areas more able to sustain sanitation marketing enterprises, resulting in greater proportion of better quality latrines being built
- strong buy-in by local leaders critical to success rates
- sanitation marketing needed to be more closely linked to CLTS based interventions in order to achieve the construction of durable latrines (Robinson, 2012: Annex 2: Timor-Leste).

Two, as yet unpublished, documents were reviewed specifically concerning the AusAID funded rural WASH project in Timor-Leste referred to as **BESIK** (*Bee, Saneamentu No Ijeneiha Komunitade*) standing for “community WASH” in local Timorese language, and AusAID’s rural water supply and sanitation program in Timor-Leste. One report was an **independent completion report** (Crawford & Willetts, 2012) and the other an internal BESIK report outlining the project’s **sanitation experiences including CLTS** (BESIK, 2012).

The BESIK program is the largest rural WASH project supporting the Timorese government. AusAID has been supporting rural WASH in Timor-Leste on a more or less consistent basis for over 10 years, and is scheduled to continue for several more years subject to Australian government budget support. This long term consistent support has provided a good opportunity for Timor-Leste to significantly develop its rural WASH sector.

BESIK has worked in a number of areas in rural WASH, mostly in direct support of the government, including:

- development of national policies and plans
- mentoring and capacity development of relevant government ministries and staff
- supporting government coordination of the rural WASH sector
- direct support to construction and maintenance of rural WASH facilities and services.

The completion report found that BESIK had been instrumental in providing best practice advice and mentoring support to the Timor-Leste government on policies and practice in rural WASH. One particular achievement was the recent promulgation of the

Timor-Leste National Basic Sanitation Policy, which prioritises demand led approaches and CLTS in particular. However the government had still held on to the concept that the poorest households may need some hardware subsidy support, which had led to some confusion and possible failures when CLTS has been implemented in conjunction with, or alongside, hardware subsidies (Crawford & Willetts ,2012; BESIK, 2012).

BESIK had also been instrumental in developing sanitation marketing in Timor-Leste by bringing in some international experts, and supporting the development of local entrepreneurs and sanitation supply chains (Crawford & Willetts, 2012; BESIK, 2012).

BESIK trialled a range of sanitation methodologies, mostly involving a range of variations of CLTS, such as CLTS with and without sanitation marketing, post ODF incentives, and some forms of hardware subsidies to poor households.

The BESIK report used a sample of 104 villages, and concluded that CLTS combined with sanitation marketing and ODF community incentives produced the best outcomes with approximately 86% of households becoming ODF. A key reason suggested for this high success rate was the incentive offered to communities if ODF was achieved (BESIK, 2012:6-9).

In terms of sustainability the BESIK report found that most methods recorded around 70% of people were using their latrines at all times between 1-2 years after the program interventions. This could equate to a slippage rate of 30%, but maybe too harsh a judgement given the “at all times” stipulation. Of those that returned to open defecation, approximately 20% said that households believed that if they built a rudimentary latrine that they would be provided with some manufactured sanitation products at a later stage so they could upgrade and that when this didn’t happen they reverted to open defecation (BESIK, 2012).

Other findings were that overall 87% of latrines were built from local materials, but that when CLTS had been combined with some form of sanitation marketing 23-34% of households invested in more durable cement based options, spending on average around \$50 (BESIK, 2012:6-10).

Other factors mentioned as factors influencing success were:

- committed local community leaders

- skilled facilitators for triggering
- the negative effect of proximity to subsidy programs
- extra funding for implementing NGOs to undertake sufficient follow-up visits
- lack of resources and incentives for district government staff to visit the field
- cultural preference for pour flush over dry pit latrines
- further development of sanitation marketing
- need for wider range of low cost pour flush latrine products (BESIK, 2012: 11-16).

The **independent completion report** on the most recent chapter of the BESIK program outlined how the CLTS processes worked best when undertaken by local NGOs rather than Ministry of Health staff, as they could be subcontracted, whereas Ministry staff already had other roles and were less motivated and incentivised to undertake this work, particularly in remote rural areas (Crawford & Willetts, 2012).

This report supported the BESIK review's finding that households said they wanted better than local materials latrines and had a particular preference for pour flush options. The completion report also concluded that there needed to be much more development of the supply side, and that a greater range of low cost latrine options was needed. In addition that transporting of latrine materials to remote rural areas needed to be addressed, and while the local NGOs were able to provide some technical advice to households in latrine construction, more support was required in order to achieve sustainability (Crawford & Willetts, 2012:14-19).

The completion report also noted that BESIK had successfully installed a water and sanitation monitoring system, so that in theory the government is able to keep up to date records of what facilities had been built and their current level of functioning. However concern was also expressed about the current capacity of the government to keep the data current, and make full use of it.

The report also commended BESIK on training and initial financing of a team of 88 sub-district WASH facilitators (SDFs). The SDF deployments were designed to play a critical linking role between communities and the district government WASH departments and staff, both in terms of construction of new facilities and also their monitoring and sustainability. As the SDFs have only been in the field a short time it was considered too early to say how effective they may prove to be (Crawford & Willetts, 2012).

3.6 Key Points from the Literature Review

The literature review demonstrated that CLTS triggering had generally been successful in motivating households and communities to end open defecation, and to build and use latrines. While most communities proceeded to the next stage of making action plans, the results are mixed in relation to the percentage of communities that then went on to partially or fully achieve ODF status.

In some countries and programs such as Bangladesh and in Himachal Pradesh (in India) the conversion rate to ODF was generally high. In other countries in Africa, Indonesia, Cambodia, Laos and Nepal, conversion rates varied widely, with many well below 100%.

The limited literature available on Timor-Leste indicated that conversion rates within the AusAID supported BESIK program were on average 60%, with the most successful methodology reaching 86% ODF.

In most of the literature reviewed a range of enabling and inhibiting factors were identified, yet to date there has been very little priority ranking of them. Consistently listed factors influencing the achievement of ODF were:

- good quality facilitation skills in both triggering and follow-up processes
- the need for frequent follow-up visits by external agencies to encourage and support implementation of action plans to build and use latrines
- the importance of local champions and leaders in communities to encourage and support the implementation of action plans to achieve ODF, and to enhance community pride
- knowledge of, and access to, a range of affordable and durable latrine options for households to choose from, which meet their needs and aspirations
- knowledge of, or proximity to, hardware subsidy programs tended to spoil and dampen local demand and inhibit local communities from empowering themselves to solve their own problems, rather than waiting for external agencies to provide subsidy support.

While the above were consistently mentioned, a number of factors seemed more local - context specific. For example in Cambodia seasonal flooding was a serious issue which routinely destroyed non-durable latrines, resulting in a high rate of return to open

defecation. In Zimbabwe, massive inflation led to very high prices for cement, making the construction of durable latrines difficult. Whereas in Indonesia the proximity of waterways, where people traditionally defecate, was found to be an inhibiting factor.

With reference to sustainability of CLTS there were very few studies to date which specifically addressed this issue presumably because as CLTS only commenced in Bangladesh in 1999 and has spread slowly to other countries in Asia, Africa and, much more recently, into the Pacific.

What studies there are indicate that sustainability was generally good in Bangladesh, but has yet to be well proven in many other countries. That said, many papers researched during this literature review raised concerns about the long term sustainability of many CLTS programs.

In the author's opinion the range of issues can be distilled down to 2 primary concerns which revolve around firstly the quality and consistency of CLTS processes on the one hand, and secondly the durability (and hence sustainability) of the latrines built on the other.

In terms of CLTS processes the literature consistently referred to the importance of the CLTS triggering, which did not dictate to communities, but rather encouraged them to take charge of their own sanitation situation. This facilitation in turn fostered and promoted good local leadership and champions, who were able to support their communities to attain and maintain ODF status.

Almost all the literature outlined the crucial importance of follow-up visits and support by external agencies after triggering, to ensure ODF was attained, and also for maintaining ODF status. While this may clash to some degree with local ownership and control as espoused by Kamal Kar,(inventor) and Robert Chambers (key supporter), it consistently came through in the literature that communities valued and requested ongoing visits and support from outsiders, and this was considered important to achieving the long term behaviour change of ending open defecation.

The sustainability of CLTS has also been found to have been highly dependent on people either rebuilding latrines built of local materials, or to have moved up the sanitation ladder far enough that they were able to have a durable latrine, usually made from cement based products. Again while this was consistently outlined in most of the relevant literature reviewed, it does clash with the original and often repeated premise of CLTS, that people can solve their own latrine needs through their own innovations and

efforts(Kar&Chambers, 2008). The literature clearly challenged this premise and repeatedly recorded concerns about likely and real return to open defecation when latrines made from local materials continue to collapse.

The question of what the literature had to say about current levels of sustainably or slippage back to open defecation was, in the author's view, open to debate. Clearly in Bangladesh slippage rates were regularly quite low. This was considered likely to be due to a combination of good quality CLTS processes and the relatively easy availability of a range of durable and affordable latrine options.

In Himachal Pradesh it was probably too early to say, but there seemed to be high ODF sustainability, which correlated with a relatively well developed market of low cost durable latrine supplies.

Slippage rates in Indonesia varied widely, and were quite high in Cambodia, possibly because of its flood prone nature and the fact that sanitation marketing programs were yet to reach more remote CLTS project areas.

In Africa it was probably too early to assess slippage rates, but again many reports showed concern that most households have built non-durable latrines from local materials.

In Timor-Leste the available data was collected only 1-2 years after CLTS implementation, and also did not refer to slippage, but rather that approximately 30% were not using latrines "at all times", indicating some level of slippage, but that it was too early to assess long term sustainability.

At the time of writing this report the author was aware that a number of CLTS sustainability studies were currently in process, so greater documentation of actual slippage rates, particularly in Africa, were likely to become available soon. For example Plan international was undertaking a CLTS sustainability study in 4 countries in Africa (FHDesigns,2012), and WaterAid was implementing a 4 year action research project on sustainable sanitation in Nigeria, building on its previous CLTS experience in that country (Harvey, 2012).

In conclusion the literature review showed that a number of factors have been considered to have an effect on both the ending of open defecation and its sustainability. As one study in Indonesia pointed out, more research needs to be undertaken to ascertain the relative importance of each of these factors(Mukherjee et

al., 2012). In addition the actual slippage rates back to open defecation were not well established, and this needed further research in order to ascertain the quantitative as well as the qualitative issues affecting sustainability.

The findings of the literature review can now be related to the situation of WaterAid CLTS interventions in Timor-Leste, in order to ascertain some measure of the slippage rate back from ODF and to also research some of the possible reasons both supporting and challenging sustainability.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

The research methodology employed is outlined below and relates to the aims and objectives presented in Chapter 2.

Project Aim

To identify the factors affecting the sustainability of CLTS in WaterAid's program in Timor-Leste

Objective 1: Examine current global sanitation status

The statistics of sanitation coverage were drawn from the WHO/UNICEF Joint Monitoring Programme (JMP) reports on water and sanitation coverage, which provided the best available data on access to both safe water and improved sanitation at a country, regional and global level. The statistics were also disaggregated into rural – urban data sets. This data was used to extract global, regional and Timor-Leste national coverage percentages. The JMP definitions of sanitation access and coverage were also articulated and their relevance discussed.

Objective 2: Examine the sustainability of sanitation improvements relating to CLTS at a global level, and the potential influencing factors

Available data from research of the relevant literature was collected and discussed in order to establish estimates of the sustainability of CLTS interventions at a global level. Although a considerable number of reports were found on CLTS, there were only a limited number of papers relating specifically to the sustainability of CLTS interventions.

The WEDC library and its connected library resources were searched, in addition to using Google scholar. These searches were supplemented by texts sourced through referrals from key informant interviews conducted by the author.

It was difficult to determine what relevant literature is currently available, but eventually a line was drawn on the amount of time that could be allocated to the literature research. However the author was aware of quite a number of relevant studies that would have been useful to consider, but were not available at the time of writing up. For example, there was upcoming research into CLTS sustainability being conducted by Plan International in Africa, and by WaterAid in Nigeria.

A further frustration was difficulties encountered in obtaining copies of relevant reports from the AusAID supported rural WASH program in Timor-Leste (BESIK).

Some reports were secured on the basis that they were drafts. Where possible these have been included and referred to as “unpublished”.

In addition to the literature review a series of key informant interviews were conducted with what the author considered to be some of the leading WASH experts at a global level. The researcher already had working contacts with most of these WASH experts. The purpose of these interviews was to get these experts’ opinions on what are the current challenges in the sanitation sector, what are the promising methodologies and in particular what their views were on the advantages and disadvantages of CLTS, especially from a sustainability perspective. They were also asked to identify any reports and studies on CLTS sustainability that they were aware of.

The people interviewed were:

- Sandy Cairncross–WASH expert from London School of Hygiene and Tropical Medicine, UK
- Clarissa Brocklehurst - WASH consultant (previous Chief of WASH at UNICEF)
- Richard Carter- WASH consultant, previously Head of Technical Support Unit, WaterAid UK
- Erik Harvey – Head of Technical Support Unit, WaterAid UK
- Andy Robinson –WASH Consultant

Each of the informants was asked a series of standard questions (see Appendix 1).Semi structured interviews were considered the most appropriate, as the interview questions were fairly clear, but some flexibility provided better information by allowing follow up of issues raised. As the number of interviews was relatively small and they were conducted with the researcher present, a rigid questionnaire interview style was not considered necessary or appropriate.

The information gained from these interviews was then used to further inform the author’s overall thinking on the subject, and also to add research papers to the literature review, and to help frame the approach and questions to be asked during the field work component of the research in Timor-Leste.

Objective 3: Examine the sustainability of WaterAid's sanitation work in Timor-Leste and identify the potentially contributing factors

In addition to examining the global situation regarding the sustainability of CLTS, this research paper used WaterAid's program in Timor-Leste as a case study to connect the global with an on the ground situation.

There was limited published information on the sustainability of WaterAid's sanitation work in Timor-Leste. WaterAid began its program in Timor-Leste in 2005, and commenced using CLTS in 2007. A country program evaluation occurred in 2009, and made limited reference to sustainability of sanitation aspects of the program. This has been followed up with a very short paper conducted by two WaterAid staff in Timor-Leste in 2012.

There are two more extensive research projects on WaterAid's CLTS work and its sustainability in Timor-Leste being undertaken by a short term WaterAid intern and a PhD student at Melbourne University, but this research was in process at the time of writing of this report. However some collaboration with these two researchers was possible before this paper was written.

Apart from reviewing current available literature, as an employee of WaterAid Australia, the author was able to access WaterAid staff and resources in Timor-Leste while conducting this research.

Semi structured interviews were also conducted with a number of key WASH sector actors in Timor-Leste. They were asked a similar set of questions to the global WASH experts mentioned above, but special reference was made to the particular context in Timor-Leste.

The people interviewed included:

- Dinesh Bajracharya – Country Representative for WaterAid in Timor-Leste
- Jyoti Pradhan – Manager, Liquica Program, WaterAid Timor-Leste
- Alex Grumbley – Sanitation Adviser, BESIK
- Heather Moran – Behaviour Change Communication Adviser, BESIK
- Antonito da Silva – Community Water Supply District Officer, Liquica District
- Bento da Silva Soares – Department Public Health Officer, Liquica District

This enabled the author to gain further insights into the rural sanitation sector in Timor-Leste and to interact with key sector actors regarding their views on the sustainability of

CLTS in the country. Through these interviews further relevant reports were identified to add to the literature review, and the interview questions for households to be interviewed were further refined.

A schedule of activities was then organised for the author's visit to Timor-Leste in August 2012. A research team was formed including the author, together with Ania and Agi as translators and enumerators who would participate with the field research in Timor-Leste. Apolonia Barreto (Ania) and Longuino Sequeira (Agi) were both staff members of WaterAid in Timor Leste. Ania being a Timorese WASH Engineer, and Agi being WaterAid's Sanitation Adviser.

A schedule was drawn up that involved the following:

- A focus group discussion with Ania and Agi and Antonito from DNSA and the leaders of WaterAid's three local NGO implementing partners in Liquica district of Timor-Leste. This included Marcel from NTF, Marcos from Maledoi and Koko from HTL.
- Household interviews with at least 15 households in (total) in 5 villages in Liquica district where WaterAid had supported integrated water and sanitation programs (including CLTS) at least 2 years previously.

Permission was sought and received from the Liquica District government authorities, and pre contacts were made with heads of the five villages chosen for the household interviews.

On arrival in Timor-Leste the author held a meeting with the other members of the research team and the interview processes and list of questions to be asked of individual households was discussed and finalised. This was considered important in order to check that the questions were well understood by the two Timorese assistants, and were also adjusted to suit the local culture and languages.

Following this the Focus Group Discussion mentioned above was conducted in WaterAid's office in Dili, the capital of Timor-Leste. This discussion was important to the research, as WaterAid doesn't implement programs directly, but rather supports local NGO partners to work with communities in the implementation of integrated water, sanitation and hygiene projects. This focus group meeting enabled the author to gain an understanding of how these local NGO partners:

- viewed the sanitation work
- how well they believed the CLTS processes worked
- what they believed were the challenges to sustainability in the local context in rural villages in Liquica district of Timor Leste

Following the focus group discussion the research team (author, Ania and Agi) spent 3 days in Liquica district and interviewed 22 households in 5 villages, where WaterAid had supported integrated WASH projects between 2-5 years ago.

4.2 Sample Selection

WaterAid had been implementing integrated WASH programs including CLTS in Liquica district since 2007, and at the time of this study had worked in 88 villages. Given the limited time available in Timor-Leste to directly undertake the research a sample size of 5 villages was chosen. This took into account the village's remoteness, the mountainous and dispersed nature of the terrain, and settlement patterns in Liquica district.

The researcher requested WaterAid staff to select 5 villages that could be visited within the three days available in-country. Other requirements were that the villages chosen were a reasonably representative sample of the 88 villages so far supported by WaterAid. The proposed criteria were:

- villages that had had CLTS at least 2 years ago, with a range of 2-5 years
This was seen as necessary in order to assess the sustainability of CLTS a significant time after the project implementation period
- villages that was broadly representative of the range of remoteness and ease of access. For example one village chosen was Dato which took a whole day to get to and complete the interviews. This village was not accessible by road, resulting in the research team needing to spend several hours walking in and out of the village
- a reasonable range of prosperity. In fact most villages had similar levels of prosperity, although some differences could be observed due to either relative remoteness or the suitability for coffee production (which was the dominant cash crop in the district)

Number of household interviews in each village

While it would have been preferable to have interviewed a large number of households in each village, due to time limitations it was decided that it was only feasible to interview 3-6 households in each village.

In the village of Lisaiko the first 3 respondents convinced the researchers that all households had reverted back to open defecation, so no further interviews were judged to be necessary. In the other village as many household interviews as time allowed were conducted until the research team believed they had gained sufficient information to make reasonable assumptions about the state of sanitation in each village.

Attempts were made to identify households at random; however it was often necessary to begin with the village leadership, who tended to be wealthier. Efforts were made to identify some poorer households, but it was felt there may have been some remaining bias towards wealthier households.

4.3 Content of Household Interviews

Each household was asked a number of questions covering the following areas:

- Did you have a latrine before the project intervention?
- Did you build a latrine as a result of the project intervention?
- What sort of latrine did you build, how much did it cost, and how did you do it?
- Do you still use a latrine; if not why not?
- How content are you with your latrine, what sort do you aspire to and how might you go about obtaining it?

After the initial interview questions the latrines were visited and inspected by the research team to (where possible) verify information given by the households.

After visiting the household latrines the researchers conducted a follow-up interview with households, and clarified any information gained through the inspections.

Typical follow-up questions were:

- What is your level of satisfaction with your current toilet?
- What sort of latrine do you aspire to?

- How much would you be able to pay and would be prepared to pay?
- Do you have any plans to upgrade your latrine and how would you go about this?

(See Appendix 2 Household Interview Questions).

As households may have been unaware of, or found it hard to visualise, durable latrine options currently available in Liquica, a flipchart of photos of latrine options was shown to households as a guide (see Appendix 3 Durable Latrine Options).

4.4 Limitations of the Research

Literature review

While a considerable number of reports were available on CLTS, only a limited amount of information was sourced on its sustainability. CLTS commenced in Bangladesh in 1999 and, although it has spread to over 40 countries, the initial spread was slow. As such there are only a few countries with 5 or more years' experience. In addition it seems that only in recent times has CLTS sustainability begun to be questioned. As a consequence, while CLTS sustainability is beginning to become a concern, until recently most focus has been on implementing it and rolling it out to new countries. Most concern about sustainability was anecdotal coming from practitioners and their implementing agencies.

A number of evaluations and research studies into CLTS sustainability were currently in process but were not completed or available at the time of finalising this research paper. These studies included an investigation commissioned by Plan International in Africa, one Gates funded research study in Nigeria being managed by WaterAid, plus two in Timor-Leste by WaterAid and the Nossal Institute (Melbourne University). The author was able to interact with the researchers involved in these projects, but it was too early for the findings to be formally included in this paper.

In addition, as with all literature reviews, it was uncertain whether all relevant studies and reports had been located, so there is the possibility that the author may not have considered all relevant documents.

Sample size in Timor-Leste

This research aimed to investigate the sustainability of CLTS in the WaterAid program in Timor-Leste. However, due to time constraints, it was only feasible to research in 5

villages out of the 51 villages in which WaterAid has implemented CLTS programs at least 2 years ago. This sample size of 10% clearly limited the research and, in particular, the validity of any conclusions that may have been reached.

In order to assess CLTS sustainability it was decided to only look at villages that had experienced CLTS and achieved ODF at least 2 years ago (2-5 years ago, comprised of 1x2yrs, 1x3yrs, 2x4yrs, 1x5yrs). In general WaterAid's program in Timor-Leste has been able to declare most villages it has worked in as ODF, usually within a one year period of commencing project implementation.

Another limiting factor was the number of households that were interviewed. Again due to time constraints between 3- 6 households were interviewed in each of the 5 selected villages. The total number of households interviewed was 22, which represented 14% of the total 159 households in the 5 villages. Fourteen per cent were interviewed in 3 of the villages, while one had 12% and one 17%, so the average was considered a reasonable reflection of the overall sample size. This small sample size inevitably limited the degree to which conclusions could be claimed to have been representative of each village.

Cultural and language issues in Timor-Leste

The author is an Australian who, although having regularly visited Timor-Leste since 2001, did not speak any of the local languages, and had a limited understanding of local cultures, practices and beliefs. This necessarily limits the degree to which answers and information collected could be relied on to be accurate reflections of people's true feelings and practices.

A mitigating factor was that the research team included 2 local Timorese WaterAid employees who spoke the local languages, understood local cultures and had worked for several years in the villages concerned. These research assistants asked all the questions, and both the author and the Timorese assistants were able to ask follow-up questions if any misunderstandings were felt to have occurred.

Years since implementation of CLTS

In an attempt to measure the sustainability of CLTS it was considered necessary to only look at those villages that had had CLTS processes at least 2 years ago. As WaterAid has only been implementing CLTS in Liquica district since 2007, in practice this meant choosing villages that had had CLTs implemented between 2-5 years ago. It was decided to try a cover all year ranges to see if length of time since implementation may be a factor affecting sustainability. As there were four year ranges and five villages, two

villages were chosen that had had CLTS four years ago. The limitations of sample size here clearly meant care needed to be taken in drawing conclusions about length of time since implementation.

Wealth ranking and interviewees

The research aimed to interview a representative range of households by wealth and attempts were made to interview both poorer and richer households within each village. This differentiation was mainly based on looking at the materials used in the house construction. In rural areas in Timor-Leste most houses used locally available wood for most of the construction, while richer households tended to use more cement and concrete.

One confounding factor was that, while normally richer households could afford galvanised steel roofing, quite a number of “poorer” households had been given new steel roofing by the UN or the Timorese government following the routine destruction and burning by the Indonesian army when they left Timor-Leste in 1999.

As previously stated, as the researchers made their entry point into the villages through local government and village chiefs, the first households interviewed in each village was usually either the village chief or someone with relatively high status. Therefore, despite the research team’s efforts to try include a wide range of wealth rankings, it needs to be recognised that there may have been a built-in bias towards interviewing richer households.

Gender and interviews

No specific plan was developed to minimise gender bias. However, although the author was the team leader, most questions in the villages were asked by Ania, the female research assistant, and efforts were made to obtain a roughly equal mix of female and male respondents.

Out of the 22 households interviewed, although there was some variation within individual villages, overall there was a relatively equal representation of both men and women. As the table below shows, 10 households were interviewed as families. In 6 households a male family member was interviewed and in another 6 a female was interviewed.

Table 1 Household Interviews by Gender

| VILLAGE | Males | Females | Family |
|----------------|--------------|----------------|---------------|
| Hatuquesi | 1 | 1 | 3 |
| Lisaiko | 1 | 1 | 1 |
| Lebuae | 2 | 1 | 1 |
| Darulema | 1 | 1 | 2 |
| Dato | 1 | 3 | 2 |
| TOTALS | 6 | 6 | 10 |

Most interviews were conducted during the middle of the day so it maybe that more women were home. Also the time of year was towards the end of the dry season when there was usually less agricultural work, so it was more likely that people were near home rather than away in their fields.

Variations in CLTS interventions

While WaterAid had supported the implementation of CLTS in Liquica district since 2007, three local NGOs have actually undertaken the CLTS processes, and all NGOs have been building their experience over the years, refining and improving their skills in implementing CLTS processes, taking into account the local context.

However it was considered reasonable to assume that there has been some amount of variation in the implementation processes both between the three NGOs and also over time. It was therefore considered important to take these differences into account when drawing conclusions about the sustainability of CLTS within WaterAid's program in Timor-Leste.

CHAPTER 5: RESEARCH RESULTS

5.1 Introduction

As outlined in section 4.3, in order to examine the sustainability of WaterAid's sanitation program in Timor-Leste, a series of activities were proposed to be undertaken:

- review available literature on the effectiveness and sustainability of CLTS in Timor-Leste
- document key informant interviews with key sector WASH actors in Timor-Leste, in particular WaterAid staff, BESIK and Timor-Leste government staff
- conduct a focus group discussion with WaterAid local NGO partner staff
- conduct field research in 5 villages where WaterAid had supported the implementation of CLTS sanitation processes between 2-5 years ago

While a number of relevant research reports have been undertaken by the AusAID supported BESIK program, it was difficult to obtain copies. However a summary report was accessed, which outlined BESIKs experience of CLTS programs in Timor Leste (BESIK, 2012). The findings have been outlined in this Chapter, and then discussed further in the next Chapter dealing with the analysis of the research findings.

Key informant interviews and discussions were held with the following respondents:

- Dinesh Bajracharya – Country Representative for WaterAid in Timor-Leste
- Jyoti Pradhan – Manager, Liquica Program, WaterAid Timor-Leste
- Alex Grumbley – Sanitation Adviser, BESIK
- Heather Moran – Behaviour Change Communication Adviser, BESIK
- Antonito da Silva – Community Water Supply District Officer, Liquica District
- Bento da Silva Soares – Department Public Health Officer, Liquica District

A focus group discussion was arranged and effected with representatives from WaterAid's 3 local NGO implementing partners in Timor-Leste, NTF (Marcel), HTL (Koko) and Maledoi (Marcos).

Field visits were made to 5 villages in Liquica District - Hatuquesi, Lisaiko, Lebuae , Darulema and Dato and in total 22 household interviews were conducted , varying from 3-6 household interviews in each village. The research team also inspected the household latrines and looked for evidence of open defecation in the villages.

In general the research was conducted according to plan. The main differences were that the Ministry of Infrastructure representative (Antonito) was not interviewed separately, but rather joined the focus group discussion, but the director of HTL (Koko) did not attend the focus group discussion and was interviewed separately at a later date.

5.2 Key Informant Interviews & Focus Group Discussions

5.2.1 WaterAid Timor-Leste

In addition to reviewing relevant WaterAid documents and reports, semi structured interviews were conducted with a number of senior WaterAid Timor-Leste staff to gain an understanding of the WaterAid program particularly in relation to CLTS and its sustainability within the WaterAid Liquica program.

WaterAid began working in Timor–Leste in 2005, firstly in partnership with Plan International in a rural WASH program in Aileu district, and then in 2007 started its own separate program in Liquica, introducing CLTS into Timor-Leste as part of this latter program.

WaterAid’s program in Liquica district generally followed an annual planning and implementation process. WaterAid’s program started in 2007 by implementing integrated water, sanitation and hygiene (WASH) interventions in 5 villages, but then building up to approximately 20 villages each year in this particular district program.

Villages were chosen after an annual period of consultation with Timor-Leste government authorities, who prioritised villages for assistance with the construction or repair of their water supplies. Feasibility studies were then undertaken to ascertain what water supplies may be possible, to explain to village communities how WaterAid works, and to ensure each community has agreed to the requirements of each party.

In general WaterAid supplied the water system hardware (cement, pipes and rebar), technical assistance and the communities provided labour and local materials for construction. However as WaterAid doesn’t work directly with communities, local WASH NGOs were contracted to provide on the ground support and advice, with WaterAid staff monitoring and mentoring the local NGOs. In general springs reasonably close to each village were used for the source for gravity flow water systems and, while the water system was being surveyed and designed, a CLTS process was undertaken with

villagers, so that by the time the water system was ready to be commissioned all households had built a latrine.

Three local NGOs had been subcontracted by WaterAid in Liquica district, NTF (Naroman Timor Foun), HTL (Hafoun Timor Lorosae) and Maledoi. Typically each NGO was contracted to work on 1/3rd of the projects to be implemented in each particular year. The overall project implementation process normally took one year depending on access during the wet season.

As part of the process each village formed a GMF (Grupo Maneja Facilidade- WASH committee) of 5-7 people who assist with a number of processes including:

- organising labour from the village for the design and construction of the water system
- formation and implementation of action plans for latrine construction following the triggering process. This typically includes some training in latrine construction.
- operation and maintenance of the water system after implementation and commissioning. Usually one or two GMF members are trained in the technical aspects of this, given some tools and shown where to access spare parts etc.
- collection of monthly water fees from households, used to pay for repairs
- ongoing monitoring and maintenance of ODF status of households
- ongoing promotion of hygienic practices, especially hand washing with soap at critical times, and safe disposal of children's faeces

In addition WaterAid encouraged each GMF to join a GMF federation which has been established (with WaterAid support) in Liquica district with the objective of supporting the sustainability of WASH interventions and services. WaterAid also provided 2 years after implementation support through the provision of a "boundary rider" who visited each village on a regular basis to monitor the sustainability of the WASH interventions and especially to support each local GMF.

Over the past few years WaterAid has also supported the development of a small number of sanitation product manufacturers and suppliers, mainly in Liquica town, and some more rurally based stores with water and sanitation spares and supplies, with a view to assisting households and villages with the sustainability of WASH improvements.

Links have also been made back to SAS (district water and sanitation department within the Ministry of Infrastructure) and the relevant section within the district health department, in order to ensure the Timor-Leste government has had up to date records of WaterAid supported WASH interventions, and for the government to gradually take a more active role in the provision and maintenance of improved WASH services in the district.

Overall the WaterAid staff interviewed believed that the WASH interventions have been quite successful, and that the integrated approach of providing improved water, sanitation and hygiene within the same intervention period worked well. They said that while villager's initial request was for improved water supplies, that once CLTS triggering had been undertaken, communities and households did become motivated to build and use latrines.

WaterAid staff did express concern about the long term sustainability of WASH improvements, particularly of the water systems. This was despite the fact that local village WASH committees (GMFs) are provided with 2 year post construction support by a "boundary rider", who is a WaterAid staff member. The main concern expressed was that, despite maintenance training having been provided to GMFs, there was still limited understanding of how gravity flow water systems worked, and the importance of ongoing maintenance.

A short report produced by WaterAid in 2011 indicated that over 90% of water points were still functioning 2 years after installation, indicating that while the boundary rider service was being provided the GMFs were capable of maintaining their village water supplies (WaterAid, 2011). However no post project intervention data was presented on the sustainability of ODF within the communities, and no data was available on water system functionality beyond the 2 year support period. There was general acceptance amongst the WaterAid staff interviewed that there probably was some degree of slippage back from ODF but, because there has been limited ongoing monitoring of the sustainability of sanitation improvements, particularly after the 2 year post project support, this was based more on feelings than on actual sustainability data.

While WaterAid provides both SAS and the health department with data on their water and sanitation project interventions, and where possible involved government representatives in joint ODF verification inspections, there was a belief that long term monitoring and support to communities should be the responsibility of the government, as Water Aid was not in a position to provide this level of support for ever.

WaterAid staff felt positive about WaterAid's support to the development of local sanitation marketing businesses and the stocking of water and sanitation products in rural stores, but that this was yet to effectively link in with demand created by CLTS in the remote rural project sites. In general staff said there was only limited take up of the products offered, and that households usually built latrines from local materials or used moulds loaned to them by the NGOs during the project implementation process. WaterAid staff felt that a long term view was needed and that it would likely be several years before town based sanitation businesses would develop to the extent that they would be able to link in with what WaterAid was supporting in their village projects.

The other sustainability mechanism WaterAid had introduced into Timor-Leste was the idea of GMF federations. This idea was first piloted by WaterAid and its local NGO partner NEWAH in Nepal and involves encouraging individual GMFs to collectivise in an effort to provide support to each other and to more effectively lobby government (as the ultimate WASH duty bearer) for better services to their communities. WaterAid staff were optimistic about how the federation might enhance the long term sustainability of WASH improvements but, as it had only recently been formed, few examples of tangible outcomes were identified to date. Another aspect was that WaterAid had limited influence over what activities the GMF federation decided to prioritise and put into action. For example one of the activities to date has been to make and sell soap, which could be questioned, as commercial soap products were already available and affordable to rural communities.

In general WaterAid staff felt proud that WaterAid had introduced CLTS and other initiatives such as the boundary rider concept, federating GMFs, and also that WaterAid was supporting the development of the supply side of sanitation in Liquica district through sanitation marketing and supply chain development. There was a general feeling that there was only so much that WaterAid could do, that the government as the ultimate duty bearer in relation to WASH services needed to become more active in the rural areas, and provide a critical link to what WaterAid and its local NGO partners were doing if long term sustainability was to be achieved.

5.2.2 BESIK

Interviews with key BESIK staff reinforced many of the points outlined in the BESIK reports reviewed in Chapter 3 above. However particular emphasis was made about households' strong preference for pour flush latrines, and how difficult this was proving

to be given the current high costs, low level of development of sanitation marketing and the difficulties of transporting heavy manufactured items to remote rural communities. Also that in general Timorese people had an expectation of a high level of WASH services and facilities.

BESIK staff pointed out that Timor-Leste had had a history of hardware subsidies, dating back to 25 years of Indonesian administration and, that now they had their own government and there was oil money available, that the government should subsidise their sanitation improvements.

BESIK staff also felt the quality of facilitation was still in need of upgrading in order to be more effective, and that follow-up visits to villages post-triggering were not always frequent enough. They confirmed that sanitation marketing was relatively new and progressing slowly, and that it would take some time for these fledgling businesses to be able to, and motivated to, extend their services to rural communities.

5.2.3 Timor-Leste Government

In 2012, the Timor-Leste government had celebrated its 10th year of Independence from Indonesia, so was still a relatively new country which was taking time to develop plans, strategies and capacity to enable its population to gain access to sustainable WASH services, particularly in remote rural areas. It has signed up to the MDG WASH targets, and has a national plan to achieve universal access by 2030.

With BESIK support it has developed a National Basic Sanitation Policy, and is in the process of formulating an implementation plan for this strategy, as well as Water and Water Resources policies.

In terms of water and sanitation investments it has been more focused on construction of new facilities, and in recent years there has been significant investment in new rural water supplies executed through the Ministry of Infrastructure(DNSA),which usually involved subcontracting the work to either construction companies or local NGOs.

With respect to sanitation, responsibility was shared between the Ministry of Health and the recently formed National Directorate of Basic Sanitation Services (DNBSS) within the Ministry of Infrastructure. While both these ministries have supported some CLTS programs, most government investment to date has been in hardware subsidies, distributed through DNSSB and the National Development Authority (Robinson, 2012: Annex 2: Timor-Leste).

As in many countries there is some overlap in government responsibilities for water and sanitation. The Ministry of Health has responsibility for environmental and public health, and so in practice has been the lead agency in relation to rural sanitation in Timor-Leste. However the Ministry of Infrastructure has 2 directorates; DNSA, which is responsible for water supplies, and the recently formed DNSSB responsible for basic sanitation services. Within Liquica district rural DNSA and DNSSB services is headed by the Community Water and Sanitation District Officer (Antonito da Silva) of SAS.

In practice WaterAid has developed working relationship with SAS and the Department of Public Health, (DPH), but more with SAS for water supplies and DPH in relation to sanitation.

During the semi structured interviews both SAS (Antonito) and DPH (Bento) representatives said they both appreciated WaterAid's sanitation work in Liquica district, and were also supportive of the CLTS approach. Both said while they had budgets to cover salaries and office costs, they consistently had difficulties in obtaining operating budgets that would enable them to travel out to the rural areas and monitor sanitation activities and their sustainability.

Despite this, both said in recent times they had been able to join WaterAid's ODF verification processes and that this made them feel more engaged, and gave them a better understanding of the sanitation situation and programs in Liquica district.

The DPH representative explained that he had a BESIK provided computer and training in the national WASH monitoring system (SIBS), but wasn't able to provide the researchers with details of the current sanitation coverage in the district. He did say that WaterAid provided him with regular updates of which villages had become ODF, so he was able to enter this information into the SIBS data base. He said there were still problems in getting the system to work, and that he felt he needed more training to become proficient in utilising it.

Both government representatives said that the sub district facilitators (SDFs) had only recently taken up their roles in Liquica, but they were optimistic that the SDFs could help bridge the gap between their currently more office based work with the activities being undertaken in the rural villages.

While the author felt the relationships were clearly positive between WaterAid and the relevant Liquica district government staff, the government role seemed to be quite

passive, and the ideal of a government led and controlled program seemed still some way off.

5.2.4 WaterAid's local NGO partners – NTF, HTL, Maledoi

A focus group discussion and follow-up interviews were held with the directors of each of 3 local NGOs working with WaterAid in Liquica district. Also participating were WaterAid's program manager, sanitation adviser and WASH engineer for the Liquica district program. This proved to be a lively and rich discussion, and the author found it to be very valuable and informative. As previously outlined above, WaterAid typically supported integrated WASH interventions in 20 villages each year in Liquica district, and usually each of the local partner NGOs was subcontracted to work directly with more or less equal proportions of these villages.

All three local NGO directors have five years' experience of implementing CLTS, and all said they were confident that their triggering and follow-up processes were adequate. While they said most communities' initial request was for water supplies, once the CLTS process was undertaken, demand for sanitation almost always resulted in ODF being achieved.

When asked if they felt communities were threatened that if they didn't all build a latrine they wouldn't get the water supply, they said they felt this wasn't true but could see how people might have misunderstood that this was a requirement. They said in general rural communities were appreciative that they were getting some external support, so were willing and genuinely interested in improving their situation.

When asked about sanitation marketing and the quality of latrines, they said in general households were grateful that they were shown a number of low cost options, that they were loaned latrine moulds, and some community members were trained in the construction of simple slabs and pour flush latrines. They said households then knew what latrine they could afford or were prepared to pay for, but that the responses were quite varied. Some communities and households took the opportunity to invest in cement based slabs and pour flush pans, while others seemed content to build a latrine from locally available materials, typically wooden logs or sawn timber, rocks and mud.

All three directors said that transport of cement and rebar and other manufactured items was a key issue with most rural communities. After triggering and training in latrine construction, many households approached the NGOs to assist with buying items for them in the towns and transporting them back to the village. They said in some ways

this subsidised the process, but households always paid upfront for items and as the NGOs were regularly travelling between the towns and the villages during the 6-12 month period of the project intervention, this was not a great burden to them. However the NGOs did say they didn't feel this extra work was sufficiently well understood or allowed for when WaterAid was working out the contract cost for each village project.

Regarding sustainability the NGO directors said they didn't really know how many people might have returned back to open defecation as they were only funded by WaterAid for the construction processes. However they said they would be prepared to provide some after construction support, but would need to be compensated.

When asked what they thought of the sanitation marketing activities that WaterAid had been supporting, they said they thought it was a good idea, but questioned whether it was effective, given that most if the entrepreneurs were based in Liquica and their prospective customers were too remote to be effectively serviced.

Interestingly one of the NGOs, Maledoi, has developed quite a large range of low cost latrine options which they have for general sale as well as being offered to communities when they are implementing WaterAid supported village projects. The director of Maledoi said he's like a travelling salesman, and he had been able to refine his product range quickly as he was able to get direct feedback from communities through his WaterAid contracts.

All directors said that as BESIK, INGO and government programs were scaling up at a rapid rate, they were under pressure to expand their operations, and that this was having an effect on the quality of their processes, such as the triggering and follow-up activities.

5.3 Household Interviews

As outlined in Chapter 4 above a schedule of visits to the selected villages was made up by WaterAid staff in consultation with Liquica district authorities and the heads of each of each of the five chosen villages (see Appendix 1 for details).

To date WaterAid has conducted CLTS in 86 villages between 2007-12. The 5 villages chosen for this study represent a range of years of intervention from 2-5 years ago.

These five villages were chosen from a list of 51 villages that had had CLTS interventions at least 2 years ago. Some of the basic information is presented in the table below:

Table 2 Details of Villages Studied

| WaterAid Project no. | Village | Year of intervention | No.HHs int'viewd | TotalH'h olds in village | %ageHH's int'viewd per village |
|-----------------------------|----------------|-----------------------------|-------------------------|---------------------------------|---------------------------------------|
| 4 | Lisaiko | 2007(5yrs ago) | 3 | 18 | 17% |
| 10 | Lebuae A | 2008(4yrs ago) | 4 | 28 | 14% |
| 14 | Darulema | 2008(4yrs ago) | 4 | 34 | 12% |
| 21 | Dato | 2009(3 yrs ago) | 6 | 42 | 14% |
| 40 | Hatuquesi | 2010(2 yrs ago) | 5 | 37 | 14% |
| | | TOTALS | 22 | 159 | |

The five villages visited were considered remote, being mostly situated along ridge lines approximately 800m above sea level, and accessible by steep unsealed roads and tracks. The district town of Liquica and the sub district town of Maubara are located on the coast and are the main urban conurbations in Liquica district, and where government offices and most shops are located. However there are a small number of stores and shops along some of the district roads and within the villages themselves, which typically sell small items such as soap, cigarettes and cooking oil.

In general people live in family groupings and are subsistence farmers, utilising nearby relatively infertile land to grow maize, cassava, and some rice as staples. In about half the villages, coffee and vegetables are grown as cash crops, and these provide the majority of any funds which may then be used to purchase items from shops and stores in Maubara Liquica.

Although the villages were visited over a 3 day period in the following order, Hatuquesi, Lisaiko, Lebuae A, Darulema and Dato , the findings have been presented in order of actual project implementation in order to give the reader some perspective of sustainability over time from the oldest to earliest.

5.3.1 Lisaiko

This village was only the fourth project that WaterAid supported since it began operations in Liquica in 2007. The community is relatively remote being approximately 50 minutes' drive from the sub district town of Maubara. The village is relatively small, consisting of only 18 households, and was triggered in 2007 and declared ODF in 2008, 8 months after triggering.

The author had visited this village in 2008 and observed that almost all latrines were built of local materials such as logs, sawn timber, rocks and mud for a slab, over unlined pits, with sticks and palm leaves for the superstructure, and that the water supply was quite complex with collection tanks being needed at each tapstand in order for the whole community to access water at peak periods. It was heartening to see that the water supply was still operating relatively effectively, indicating that the GMF (village WASH committee) seemed to have managed to operate and maintain the water system more or less by themselves over the past 4 years.

Three interviews were constructed with different households and all respondents said that they, and all the households in the village, had returned to open defecation. They explained that their latrines had collapsed, usually after 2 years, and not been rebuilt.

Most respondents said that they weren't motivated to rebuild with local materials again as they would only collapse again, and that they really could not see much wrong with open defecation. One household said that they felt there was some pressure to build a latrine, otherwise the NGO may not have proceeded to construct the water supply, and they were also somewhat disgruntled that the water supply was a rehabilitation of an old system, whereas they had wanted a new one.

Although only 3 households were visited and interviewed (17% of the total number of households), the research team felt confident that what the respondents were telling them was correct, that the whole village had reverted back to open defecation, as there were signs of open defecation as the research team walked around the village.

It was not clear whether cement based latrine options were made available to the village during the CLTS process, but it is suspected that, as this was only the fourth village WaterAid had worked in, that maybe only local materials latrines were discussed.

Although the researchers showed households a flipchart of more durable latrine options, and there was some interest in having a concrete squatting plate, households were concerned about how they would transport cement or cement based products from the town and overall there didn't seem to be very much motivation to build another latrine.

Figure 1 Photos of Collapsed and Abandoned Latrines - Lisaiko

(Source- Author, 2012)



5.3.2 Lebuae A

This village of 28 households is approximately 45 minutes by car from Maubara town, again along a series of narrow unsealed roads, and considered to be of similar remoteness to Lisaiko. This project was the 10th supported by WaterAid and was implemented in 2008 with ODF achieved in May after only 4 months since triggering. Four households were interviewed, and all explained that none had a latrine before, but as a result of the CLTS process all had built dry pit latrines with a concrete slab cover.

The mould for the slab was loaned to the community by the local NGO and some villagers were trained how to make the concrete slabs. The NGO also provided assistance with transport of cement, but households paid for the cement themselves, and several shared the cost as one bag of cement made 2-3 small slabs.

The cost of the slabs varied from \$3-5 and all said this had been within their means. One observation was that the slabs were much smaller than the pit that was dug so they needed to rest on a support structure of logs, rocks and mud, making them vulnerable to collapse when the wooden logs rotted or were eaten by termites. Rudimentary concrete lids were also constructed, but at the time of visiting most were not in place.

This village produced mixed results in terms of sustainability. Two households expressed great pride in their latrines, and inspections revealed they were well used

and quite well kept. Either used maize cobs or water was used for anal cleansing, and one household said their slab support had collapsed but they had rebuilt it and made it functional again. These 2 households said their superstructures had deteriorated but that they had repaired them. They said they felt their status had improved because they used a latrine, and that their health was also better. Both households said they were happy with their current latrines, and weren't planning to upgrade to other models such as some of the cheaper pour flush models shown to them.

The other 2 households, despite having built relatively durable concrete slab latrines, had returned to open defecation. In both cases the superstructures had become damaged about 2 years after being built, and they hadn't been repaired. One household said they were afraid to use the latrine because the walls were damaged, and the other households said they had become "lazy" and didn't rebuild their superstructures, and had gone back to open defecation. Both households said they thought it was better to use a latrine because it was cleaner, and it gave them pride and elevated status. These 2 households said they should and would like to rebuild their latrine, but that transporting durable materials to their village was difficult and too expensive.

The researcher felt that while these 2 families had taken the time and expense to build and use a relatively durable latrine, that over time sanitation had fallen back down their priority list and while they said they would like to rebuild there was very little conviction in their voices or body language. Also, as all that was needed were new superstructures which could be built with local materials it was really a question of motivation which was leading them to return to open defecation. By and large the village water supply system was still working reasonably well, although in need of some repairs. The GMF did not seem active at the time of our visit.

In summary this village presented a mixed view. If the 4 households visited were representative of the whole village then the slippage rate was calculated to be 50%. However as the sample of 4 households represented only 14% of the total number of households in the village some degree of caution should be applied.

Figure 2 Photos of Abandoned Latrine & Concrete Slab –Lebuuae
(Source, Author 2012)



5.3.3 Darulema

This village was the fourteenth project WaterAid had supported and an integrated WASH project was undertaken in 2008. Consisting of 32 households this village was situated on a very steep ridge about 4-5 kilometres walking distance from Maubara town but, because of the terrain, it was a 45 minute drive. This village had a more vibrant feel to it than the other villages. Maubara could be seen from the village, and cooperative growing of irrigated vegetables was observed. Villagers said they took the vegetables to Maubara by foot and sold them in the market there.

WaterAid had supported a new gravity flow water system which seemed to be operating and well maintained. The research team met some of the GMF members, one of whom seemed very interested and active. Another householder said he had learnt from the implementing NGO how to make concrete pour flush latrines and cover slabs, and had done this for many of the households in the village. ODF was achieved in five months after initial triggering.

Of the four households interviewed, all had some form of low cost concrete pour flush latrine, some with plastic S bends and offset pits. However only one of the offset pits was well constructed with a concrete cover slab, while the others were loosely covered

with logs and rocks, were vulnerable to rain damage, and were not fly proof. One of the households had stopped using their latrine, the reason given was that they had moved their house about 30 metres away, hadn't built a new latrine, and had stopped using the old one, which had since collapsed.

The other three households had continued to use their latrines, there was good evidence of this, and water was present in them all for flushing and washing. These three families said they used water for anal cleansing and some had lining of their offset pits with rocks. There was considerable evidence of innovation in the concrete pour flush pans. In terms of motivation the three households using latrines said they felt having a latrine made them proud and raised their status, and that it was good for their health. The household that had returned to open defecation said they would re-build but they hadn't had a latrine for several years now, and the researchers felt there didn't appear to be any real conviction to rebuild.

In terms of cost households varied in their estimates from \$15-\$100, as they had used quite a lot more concrete than in Lebuae, and had built pour flush latrines, often with plastic S bends.

Several households said one of the important factors was that they had been assisted with free transport being provided by the local NGO during the time they were in the village, and that this was critical, as getting a truck from Maubara cost around \$80 and was not affordable.

In terms of the future none of the households with a latrine indicated a desire or intention to further upgrade their latrines, and believed they would cover off the offset pits when full and dig new ones nearby.

If these four households are representative of the village, the slippage rate back to open defecation would be 25%, however again as the sample selected represented only 12% of the total households in the village, the slippage figure should not be taken to be statistically accurate.

In general the researcher felt this community was developing and improving itself, and that in general they had grasped the opportunity presented by the WaterAid project to obtain an improved water supply and to improve their sanitation situation. Movement further up the sanitation ladder seemed unlikely in the short term, because of other competing priorities, and the difficulty of transporting manufactured items from the town to the village.

Figure 3 Photos of Abandoned Latrine & Pour Flush Latrine –Darulema
(Source, Author, 2012)



5.3.4 Dato

This village consisted of 168 people living in 42 households and was WaterAid's 21st village integrated WASH project, having been implemented in 2009. The project consisted of a gravity flow water system, and ODF was declared in September 2009 after triggering 8 months earlier. Although only 4 kilometres by straight line from Liquica, this was the most difficult village to access by the research team. After a 30 minute drive over unsealed roads and tracks, the researcher had a 20 minute walk the rest of the way down a steep track. A large fallen log across the track and a wash out from last year's rainy season made Dato inaccessible by car.

The village was very spread out and showed more variation in wealth than the other villages. The water system was only partially functional, and several households explained that there was quite a deal of conflict in the community. Some tapstands were observed to be damaged and some people said they were disenfranchised from accessing the water system.

Six households were interviewed, and quite a wide range of sanitation practices were discovered. Several households said they had latrines before the project due to the

influence of previous Portuguese and Indonesian administrations, while others said they were influenced by the CLTS triggering and had subsequently built latrines.

There was also a wide variation in the types of latrines built. One wealthy household had a ceramic pan set in a concrete slab with a concrete covered offset pit. Two households had concrete pour flush latrines with plastic S bends and offset pits, and the other 2 had simple dry pit latrines made from logs, rocks and mud.

One household had started to dig the pit and had bought cement to make a slab, but had instead used the cement for another purpose. In effect this means ODF was not actually achieved by the whole community.

Two households mentioned that they had rebuilt latrines over the years, usually using local materials again, but some had upgraded to concrete pour flush latrines during the project intervention period. Where pour flush latrines had been built, water was used for anal cleansing, but paper or stones were used by those with dry pits.

The two households which built concrete pour flush latrines said it cost them \$15-20, and that this was affordable. The upgrading was made possible by the local NGO loaning the community a mould and teaching some members how to make concrete pour flush slabs. In addition, support was provided by the NGO with transporting cement to the village from Liquica at no cost to the villagers.

The households with pour flush latrines said they were content with their latrines and didn't intend to upgrade, but 1 of the households with a simple dry pit said they would like to upgrade to a concrete slab but didn't have any immediate plans to do so. The other dry pit user was content to keep using their latrine and rebuild again using local materials. The household that was open defecating said that sanitation was not a priority, although they thought a latrine was important for health, and that open defecation was "disgusting". However they said they may wait for the government to provide them with a subsidized concrete based latrine. The other 5 households with latrines mentioned pride, health and cleanliness as key motivators and benefits of having and using latrines.

In conclusion, as four of the households had latrines before the project there was already a base of improved sanitation behaviour to build on, and several took the opportunity to upgrade to a more durable one while one decided to end open defecation for the first time. The village was remote and affected by internal disagreements which seemed to have disrupted collective community action. If these 6 households can be

considered representative, then the open defecation rate was calculated to be 17%, although this was not formally slippage as ODF had never really been achieved. The number of households interviewed represented 14% of the total number households in Dato village.

Figure 4 Photos of Local Materials Latrine & Pour Flush Latrine –Dato
(Source, Author 2012)



5.3.5 Hatuquesi

This village was the largest of the villages researched, with 215 people in 37 households, of which 5 were visited by the research team. As with the other villages, WaterAid supported an integrated WASH project including a gravity flow water system, combined with CLTS and hygiene behaviour change messaging. The project was undertaken in 2010, and ODF was declared 10 months after triggering. This was the least remote community visited, being only 6 kilometres from Liquica town and relatively easily accessible by car in 25 minutes.

All four households visited said they had latrines constructed from local materials before the project intervention, and all said they had built them during the time of the previous Indonesian administration (at least 10 years ago). One household was noticeably wealthier than the others visited, and was the home of the village head who, after triggering, had upgraded a local materials latrine to a concrete based pour flush model with plastic S bend and an offset pit. The other households had upgraded their local materials latrines to a lesser degree, mainly by making rudimentary concrete slabs to

cover their pits. However, in general, the slabs were poorly constructed, and lids were usually not tight fitting or in place. All five households were judged to still be using their latrines, and open defecation was not practised or believed likely to be practiced in the future.

The benefits described by households having improved sanitation were a mixture of pride and health. One household said they were now used to using a latrine, and would never go back to open defecation. The village chief said he felt great pride when relatives came from the town, and could see that he had and they could use a good latrine,

In terms of future motivations most households said they knew they could access concrete pour flush latrine parts in Liquica and it was relatively easy to access them from a transport perspective. Most also said they would like to upgrade to a pour flush at some stage in the future but that they were reasonably content with their current model and they had other priorities that they wanted to spend their money on.

Again, if these five households are representative of the whole village (14% of the total number of households) then it could be said that the village was probably already close to ODF before the CLTS process, and that ODF status had been maintained to date. The WaterAid project had rather contributed to people moving up the sanitation ladder, most by only a small a step to a more durable dry pit latrine. Although households knew how to upgrade further, and said they wanted to, the motivation was probably not there to do so. Despite only making small investments in their latrines this community seemed to have made the permanent behaviour change to fixed point defecation.

Figure 5 Photos of Moderately Upgraded Dry Pit Latrines –Hatuquesi

(Source, Author 2012)



5.3.6 Summary

In summary, the five villages provided very mixed results regarding the sustainability of CLTS interventions. While all villages were declared ODF between 4-10 months after triggering, in one village all households visited had returned to open defecation, while in another all households were still ODF. The other 3 villages showed slippage rates amongst the households interviewed of between 17-50%.

However, as the sample size varied from 12-17% of the total number of households in each village, caution should be taken regarding the statistical validity of the calculated slippage rates. Also, as only 5 villages were visited out of a total of 51 villages that had had CLTS implemented more than 2 years ago, then this sampling of 10% also limits the quantitative validity of the conclusion that can be drawn.

The qualitative discussions with households, plus the researcher's observations, together with the key informant interviews and focus group discussions, provided further insights, especially regarding the possible factors influencing both ODF success rates and sustainability.

CHAPTER 6: INFORMATION ANALYSIS

6.1 Introduction

This chapter presents an analysis of the findings from Chapter 5 of the research activities undertaken in relation to CLTS in Timor-Leste, and compares this with the information obtained from the literature review of the global situation regarding the sustainability of CLTS. Through this process a more informed picture of the issues relating to the sustainability of WaterAid CLTS program in Timor-Leste has been obtained.

6.2 Sustainability Rates

According to WaterAid project records, all 88 village projects conducted between 2007-2012 achieved ODF at some time during the WASH project intervention process. Usually this verification was conducted by WaterAid, the local implementing NGO and community representatives. Normally some government representatives attended ODF declarations, but it was only relatively recently that the government has developed a process for formal ODF verification. Of the 22 households interviewed during this study, only one said that they had never built a latrine, so it would seem reasonable to conclude that, although total ODF was probably not achieved, the success rate was probably close to 100%.

With regard to sustainability, while a WaterAid report was able to demonstrate that over 90% of water points were functioning after two years since project implementation, no similar percentage figures were available regarding ongoing latrine use and ODF rates. WaterAid's provision of post project boundary rider support for a period of two years was found to be a critical reason why water points were still functional. Further it would seem reasonable to assume that this external support may have had some positive effect with regard to sanitation, but there was no information available to support this hypothesis.

However the fact remains that WaterAid boundary rider support effectively ended after two years, and households and communities were then essentially "on their own" with regard to operation and maintenance of their WASH facilities.

The data collected through the researchers' visits to five villages between 2-5 years post project intervention was therefore "new information" regarding long term sustainability.

Table 3,below, shows the estimated slippage rates for each village, based on the sample taken and then calculated as a weighted average when compared with the number of households interviewed versus the number of households in each village.

Table 3 Estimated Slippage Rates from Timor-Leste Research

| NAME OF VILLAGE | Years since project Impl'n | No. HHolds in Village | Number of HHolds interviewed | Number HHolds returned to OD | Est. % age slippage | Est. weighted %age slippage |
|------------------------|-----------------------------------|------------------------------|-------------------------------------|-------------------------------------|----------------------------|------------------------------------|
| Lisaiko | 5yrs | 18 | 3 | 3 | 100% | 57% |
| Lebuae A | 4yrs | 28 | 4 | 2 | 50% | 45% |
| Darulema | 4yrs | 34 | 4 | 1 | 25% | 27% |
| Dato | 3 yrs | 42 | 6 | 1 | 17% | 23% |
| Hatuquesi | 2 yrs | 37 | 5 | 0 | 0% | 0% |
| TOTALS | | 159 | 4.4 | 6 | | |
| AVERAGES | 3.6yrs | 32 | 4.4 | 2.7 | 38.4% | 30.4% |

Note: The weighted average takes into account the relative size of each village compared with the average of 31.8 households per village

From the above table the best estimate of the overall slippage rate back to open defecation was calculated to be 30.4%.

However two major reservations need to be taken into account. Firstly only 22 households were interviewed out of a total of 159 households in the 5 villages, representing only 14% of the households. Secondly the sample of 5 villages represents only 10% of the total number of villages (51) that WaterAid has implemented WASH projects in between 2-5 years ago. For these reasons it was considered unwise to assert that the 30% slippage figure was statistically valid but better taken an indication that there had been a considerable amount of slippage back to open defecation. The amount of slippage was considered enough to justify concern and further analysis of the possible contributing factors.

6.2.1 Comparison with AusAID Funded BESIK Program

As BESIK was the largest donor supported rural WASH program in Timor-Leste, a comparison between the above results and statistics derived from BESIK documentation was considered useful.

While the WaterAid program was found to have achieved close to a 100% ODF rate, the most effective BESIK methodology utilised a combination of CLTS, sanitation marketing and incentives (CLTS+SM+I),and achieved an ODF rate of 86.5% which was

considered relatively comparable. As the WaterAid methodology involved primarily CLTS but with some assistance, with durable latrine building, this could be seen as roughly comparable with BESIK's sanitation marketing component. Also, while WaterAid didn't provide direct incentives for achieving ODF, it could be argued that, by providing water supplies, this may assist in motivating communities to reach ODF. The research did find in Lisaiko village that several households said they believed that the water supply would be provided after all households had built latrines. While WaterAid staff confirmed that this wasn't a stipulation, it may be that this was a perception that some communities had.

In specific relation to sustainability, estimates based on BESIK data indicated an average figure of 27.3% slippage, and 29.4% for CLTS+ SM+I, were comparable with the average weighted figure of 30.4% slippage for the 5 villages surveyed as part of this study.

Another factor was that the WaterAid study villages had had implementation between 2-5 years ago, while the BESIK figures were derived from villages where projects had been completed only 5-14 months ago. As a consequence the BESIK results were considered a little early for sustainability to be accurately assessed; yet again they were seen as being indicative that sustainability was a significant issue to be addressed.

6.2.2 Comparison with global sustainability information

The literature review documented in Chapter3 concluded that results varied widely both in relation to triggering to ODF conversion rates, and also with respect to ODF sustainability. In this regard several studies showed that a number of CLTS programs in Bangladesh and India achieved high levels of ODF conversion rate which were comparable with the WaterAid and BESIK results.

In many other countries the results varied considerably. For example a WSP program in Indonesia varied from 10-95% with an average of 35%, UNICEF's program in Cambodia achieved 52% ODF conversion rate, while some programs in Africa sometimes achieved rates close to 100% (Faris & Rosenbaum, 2011), while others achieved less than 50% (Bevan, 2011; Godfrey, 2009).

Clearly WaterAid's close to 100% conversion rate put it in the top performing bracket in terms of effectively triggering and progressing on to achieve ODF communities.

As previously indicated, few sustainability studies were found in the international literature, and these were mainly from Bangladesh where CLTS has been practiced since 1999. Those studies indicated that sustainability rates were quite high, with slippage rates ranging from 3-10%. In Indonesia a WSP study found that slippage rates varied from 5-20%. A number of other reports and evaluations produced estimated slippage rates ranging from 0% up to 58% depending on the country and the program (see Table below).

Table 4 Estimated Slippage Rates from Various Countries and Programs

| COUNTRY | ESTIMATED SLIPPAGE RATE | Source |
|----------------|--------------------------------|---|
| Bangladesh | 3-10% | Hanchett et al, 2011, Evans et al, 2009 |
| India –HP | 10% | Robinson, 2012a |
| Laos | 10% | SNV, 2009 |
| Zimbabwe | 14% | Whaley & Webster, 2011 |
| Nigeria | 0-18 | Evans et al, 2009 |
| Indonesia | 5-20% | Mukherjee et al 2012 |
| Timor-Leste | 30% | BESIK 2012, |
| Cambodia | 58% | Kunthy& Catalla,2009 |

The conclusion drawn was that some countries, particularly Bangladesh, can demonstrate low slippage rates, while slippage rates in many other countries varied considerably.

As there have been few actual sustainability studies to date, these figures were best considered indicative that in most countries long term sustainability of ODF is an issue, given that one of the tenets of CLTS is that the process is life changing, and once people realise they were eating human faeces they cease open defecation for life.

The evidence has clearly indicated a degree of slippage has occurred, and the WaterAid Timor-Leste data indicated a slippage problem existed, which was comparable with slippage rates in some other countries. The figure for Timor-Leste is a little on the high side and as such requires further analysis.

6.3 Possible Influencing Factors

Throughout the global literature, including reports on CLTS in Timor-Leste, a more or less consistent list of factors has been identified. These factors are believed to be influential in both the success of households and communities achieving and sustaining

ODF. The researchers also found that many of the factors were found to be important within this local context. As outlined in the literature review in Chapter 4, some factors seemed universal, while others were context specific.

The factors considered most important with regard to this study are listed below:

- quality of CLTS facilitation
- post triggering follow-up
- CLTS champions
- community cohesiveness
- latrine options, availability and durability
- affordability
- remoteness of villages
- hardware subsidies
- ODF incentives
- integration with water supplies
- the enabling environment
- long term monitoring and support

Each of these factors was then dealt with in some depth under the subheadings below.

6.3.1 Quality of CLTS facilitation

Probably the most common success factor mentioned in CLTS studies and reviews was the critical importance of empowering facilitation, especially to motivate people to end open defecation and to make this behaviour change permanent.

CLTS has been designed to be an empowering, rather than a leading or top down approach. This has often clashed with the more “external-expert” led, hygiene and health education approach. This has probably been exacerbated in rural WASH programs where relatively highly educated urban based professionals typically apply their expertise to assist relatively uneducated rural people with improvements such as technically designed water systems and engineered sanitary latrines.

As this empowerment methodology represents such a key shift away from expert led facilitation, when ODF is not achieved or sustained, focus has commonly been focussed back on the skills of the CLTS facilitators. Consequently a consistent refrain within the sector has been for more and better quality training to lift the level and effectiveness of

CLTS facilitators. A compounding issue that has been evident is that, with the growing acceptance and adoption of CLTS, the scaling up process has further threatened the quality of CLTS processes, and there is a need to train many more facilitators and to ensure facilitators don't "cut corners" in an effort to meet the increased need.

In Timor-Leste, reports on the BESIK program echo some of those concerns, but neither WaterAid staff nor their local NGO implementing partners expressed the view that there were problems with the quality of CLTS facilitation. The NGO partners commented that as they had expanded their programs, they had had to employ and train more facilitators. While this may have threatened facilitation quality, they countered that, having now had 5 years' experience conducting CLTS, they were confident that quality was not unduly compromised.

The author's opinion (based on professional experience) was that as "empowering" facilitation is so much a departure from expert led project interventions, the quality of facilitation was still likely to be an influencing factor, and needed to be consistently monitored.

An additional factor in Timor-Leste was the relatively long history of authoritarian rule before gaining independence in 2002. This included colonial rule for over 400 years by Portugal, and 25 years by Indonesia, which has resulted in rural subsistence farming families being reluctant to speak out or take charge as required by empowering CLTS processes.

While there were consistent concerns about the quality of facilitation, the author's view was that CLTS triggering had proven to be a powerful process and, that when done reasonably competently, has resulted in a significant number of households becoming motivated to end open defecation and to build and use latrines. That said, clearly ensuring the quality of the triggering process must always be a key influencing factor in the success of CLTS programs, including the WaterAid program in Timor-Leste.

A key issue was whether the "Aha!" moment, when triggering was deemed to be successful and people realised they were eating human faeces, leads to a permanent end to open defecation. The evidence from Bangladesh in particular seems to indicate that this behaviour change was more or less permanent. In Timor-Leste the researchers found mixed results. In Hatuquesi village all households interviewed seemed to have ended open defecation for at least the past 2 years, while in Lisaiko the whole village seemed to have reverted to open defecation. In the other 3 villages about 2/3rds of

households had remained ODF. This would seem to indicate that some households and communities made a permanent decision to end open defecation and some did not. Whether this was primarily due to the quality of facilitation is not clear, but it was believed to be an important factor.

6.3.2 CLTS follow-up support

Once triggering had occurred, and communities made action plans to build latrines, the CLTS process suggests that external agents provide follow-up support to encourage and assist households and communities to achieve ODF. The global literature indicated that this has frequently not been well understood or implemented and a lack of follow-up has often been documented as a key reason why ODF was not achieved.

The author felt that there was some confusion regarding this issue. The proponents of CLTS have tended to encourage external agencies to empower communities, and then essentially let communities manage their own destiny in relation to sanitation improvements.

On the other hand many studies and reports document follow-up support and advice as crucial to attaining ODF, and frequently cite follow-up support not having been undertaken to a sufficient level, which led to low ODF success rates (Bevan & Thomas, 2009; Mukherjee et al., 2012; FHDesigns, 2012; Whaley & Webster, 2011; Tsegaye et al., 2009).

The evidence seemed to indicate that communities appreciated, and many needed, ongoing follow-up both to encourage them to end open defecation and to support them technically in the construction of latrines.

In Timor-Leste, BESIK experiences documented that local implementing NGOs were concerned that they didn't receive sufficient funding to enable them to provide sufficient follow-up support and visits to communities, following triggering. By comparison, WaterAid staff and local implementing partners said sufficient follow-up support had been provided to communities and was adequately resourced by WaterAid.

This may have been due to the fact that all WaterAid projects involved integrated WASH, so the sanitation aspects of the projects were conducted by local NGOs within the overall time frame required for the design and construction of water supply systems. The WASH projects varied from 6-12 months, so that the local NGOs were regularly in

the village anyway, both implementing water supply systems and assisting communities with sanitation improvements. Therefore, in the WaterAid projects, local NGOs usually provided consistent follow-up in order for community sanitation action plans to be supported and implemented.

6.3.3 CLTS champions

Another almost universally documented critical factor was the presence and influence of motivated and committed local champions or leaders. Clearly local ownership and empowerment was enhanced by the emergence and support of local leaders within communities. Kamal Kar (founder of CLTS) has referred to these people as “natural leaders” and has maintained that they have often emerged from within communities and are not necessarily existing traditional or local leaders (Kar & Chambers, 2008).

Many CLTS reports record the catalytic effect of local leaders and their ability to keep motivation levels high after triggering and particularly in the periods in between external follow up visits. With respect to Timor-Leste BESIK reports also document the importance of local leaders in encouraging communities to achieve ODF.

The research of WaterAid projects found that in at least 2 of the 5 villages visited (Darulema and Lebuae) local leadership seemed to have played key roles. Typically this involved having been trained by local NGOs in how to build durable latrines (particularly concrete slabs and pour flush pans) and then having supported households in their construction. In terms of motivation it may be that local leaders were found to be less important in WaterAid projects, as local NGO staff were regularly present in the villages during project implementation. While this lack of emphasis on local leadership may not have had a negative effect on the achievement of ODF, once the project finished this may have been important for ongoing motivation to sustain improved sanitation practices.

6.3.4 Community cohesiveness

As one of the key components of CLTS is that communities collectively decide to end open defecation, one of the factors influencing success mentioned in the literature is the degree to which communities can be defined, and their degree of cohesiveness.

In reality this is always to a certain degree problematic. Rural communities often grow from family groupings, which become extended families over time, and the degree to

which they form defined communities or villages in rural areas in developing countries is open to interpretation.

However as CLTS theory relies heavily on “community action” both for achieving and maintaining ODF having a cohesive community is considered an important influencing factor.

The international literature included references to smaller communities having been easier to trigger than larger and less cohesive ones, such as in WaterAid’s program in Nigeria (Evans et al, 2009).

The WaterAid research found that in some villages, such as in Dato, there was a lack of cohesion and commitment to collective action. In Dato several households said there was conflict between families, and the researchers observed that the water supply had been re plumbed to exclude some families, and some tapstands had been destroyed. By contrast in Lebuae and Darulema there was evidence, both from household interviews and direct observations, that there was collective action in assisting each other in purchasing manufactured latrine supplies and building household latrines.

It was therefore concluded that community cohesion is an important factor in attaining ODF and (by building durable latrines) enhancing sustainability.

6.3.5 Latrine options, availability and durability

Another consistent theme that came through in the literature was concern about the durability of the latrines built as a result of CLTS processes. On the one hand the CLTS manuals and handbooks (Kar&Chambers, 2008)) champion the idea that communities should be encouraged to innovate and use materials readily available in the community environs. On the other hand it is maintained that ending open defecation, is only a first step on the sanitation ladder and that, once the decision had been made to end open defecation households will, over time, move up the ladder to more durable options.

The international evidence reviewed for this report again provided mixed results. In Bangladesh and Himachal Pradesh, where low cost durable latrines components are usually accessible and affordable, households have either started with a local materials latrine and then upgraded or have built a durable latrine in the first place.

However the literature showed that in many other countries, such as Cambodia, Laos and Mozambique, the sanitation supply market was relatively undeveloped and wasn't within reach of remote rural communities. This resulted in most latrines being built from locally available materials, usually with a design life of only 1-2 years (Kunthy&Catalla, 2009; Godfrey, 2009).

The WaterAid research study and BESIK reviews clearly indicated that in Timor-Leste, households, governments and external agency staff had consistently expressed concern about the durability of latrines built from local materials. While both BESIK and WaterAid had made investments in the development of sanitation marketing , with support to small sanitation manufacturers, and stocking of sanitation products in local stores, the overall view was that this was very much work in progress, and that it would take several years before the entrepreneurs could be actively linked to rural communities.

The extent to which this durability factor has contributed to slippage back to open defecation is unclear. The research of WaterAid communities again showed mixed results. In Lisaiko village the researchers were convinced that all interviewed households had built local materials latrines and all had returned back to open defecation after a couple of years, due to the collapse of these "temporary" latrines. However in Hatuquesi village the researchers found that all households interviewed had local materials latrines before the project intervention, and that most had experiences of rebuilding after collapse. In the other three villages visited, some households had returned to open defecation following latrine collapse, while others repaired or rebuilt.

WaterAid's approach to sanitation was found to have started as a more or less "pure" CLTS approach in terms of triggering and follow-up processes. However it had also, over time, involved local NGOs suggesting a range of latrine options and providing technical advice, training of some local community members, loaning moulds and some assistance with the purchase and transport of cement, rebar, and PVC piping. Links were later also suggested to sanitation product manufacturers and suppliers in Liquica town, but the researchers found this was rarely followed up on by households. WaterAid's overall approach could be described as a mixture of CLTS and post triggering latrine options advice and transport support.

The author felt it was reasonable to conclude that latrine durability was an important factor affecting sustainability, but as some households had regularly rebuilt after

collapse, with local materials latrines again, then clearly motivation to permanently end open defecation was also a key contributing factor.

6.3.6 Affordability

A key reason for the poor performance of the rural sanitation sector has been the belief that poor people cannot afford to build a latrine, and that required hardware subsidies were beyond what most developing country governments could provide.

In this regard CLTS has been a "game changer" as local materials latrines can usually be built at little or no cost. However, in order to achieve sustainability, households either have to repeatedly rebuild local materials latrines or upgrade to more durable but expensive options.

The international literature repeatedly raised the issue of affordability of durable latrines as a key factor threatening sustainability (Whaley & Webster, 2011:21, FH Designs, 2012:9).

Again, studies in Bangladesh (Hanchett et al, 2011), Himachal Pradesh (Robinson, 2012a) and Indonesia (Mukherjee et al., 2012) indicated that, in these countries, low cost durable latrine options were generally available and affordable to rural households.

In Timor-Leste, reports on the BESIK program indicated that rural households had a strong preference for pour flush latrines, and this has been a problem both from an availability and affordability perspective (BESIK, 2012:15).

However, in contrast, the WaterAid researchers found that while there was a general aspirational preference for a pour flush latrine, the households interviewed generally had built latrines according to their affordability, but also to the level of priority they accorded latrines within their family budgets. In Hatuquesi, although the village was closest to Liquica town, most households had made only minimal improvements to their local materials latrines through the construction of rudimentary concrete cover slabs. In Darulema, by contrast, the majority of households interviewed had taken the opportunity to be trained by the local NGO, and had built rudimentary but well-functioning pour flush latrines. In Lebucae most interviewed had built some form of concrete squatting plate.

Indeed very few respondents expressed expectations that the government or INGOs should subsidise any improvements. Even those that had returned to open defecation seemed a little embarrassed during the interviews, but not to the point of taking any

immediate actions and rebuild their latrines. It was as if the WASH project had come and gone, and now people were concentrating on other priorities.

In terms of affordability, the researchers concluded this didn't seem to have been a problem. Most people built latrines according to their budgets, and seemed content about that. In terms of costs, local materials latrines were basically built at no direct cost, simple concrete squatting slabs cost around \$3-5 and concrete pour flush latrines \$10-50. The overwhelming feedback from both households and the local implementing NGOs was that people were quite happy to build latrines on site, but that they needed assistance with the transportation of cement, rebar and plastic fittings from the town to the villages.

6.3.7 Remoteness of villages

Eighty per cent of people in Timor-Leste live in relatively small villages in remote rural areas, making them hard to access during WASH projects intervention, but also difficult to connect into market supply chains and government services.

This was noted as an inhibiting factor in the BESIK sanitation review (BESIK, 2012:9), and also believed to be a contributing factor by the WaterAid researchers.

The international literature documents remoteness as an inhabiting factor with regard to accessing durable sanitation products in some countries such as Mozambique, Cambodia and Laos (Godfrey,2009;Kunthy&Catalla, 2009; SNV,2009); and the WaterAid researchers found this was also the case for the villages visited in Liquica. Although many households said they knew manufactured latrine pans were available in Liquica town, they said the cost of and difficulties of arranging transportation made this option untenable.

Another factor that the author believed related to remoteness concerns the issue of external follow-up visits and support outlined under 6.3.2 above. The researchers found significant variation in the attitude of the households visited, depending on their relative remoteness. In villages closer to towns, such as in Hatuquesi and Darulema, several people said it was important for them to have and use latrines, in case a relative or government official from the town visited them; whereas in the more remote villages such as Lisaiko and Lebuae this was not mentioned, and the researchers felt this may be that these villages rarely get visitors from the town. These observations suggested

that pride, as a motivating factor, was more likely to be stronger where the possibility of external observers was greater.

6.3.8 Hardware subsidies

A key aspect of the CLTS methodology is that communities take control of their own sanitation situation; and do not wait for or depend on external hardware subsidies (Kar & Pasteur, 2005). In effect this means that, after being triggered, households can quickly move on to build latrines while motivation to change their open defecation behaviours remains high.

However two main issues have arisen as a result of this methodology. Firstly, that the very poorest in communities (such as the elderly, widows and the disabled) may struggle to build even a simple latrine from local materials. Secondly that in order for the sanitation improvements to be sustainable, more durable latrines are required, which may not be affordable to very poor rural people. In effect this has resulted in some CLTS programs including limited subsidies, and a number of governments and external support agencies continuing to run hardware subsidy programs alongside CLTS programs.

Much of the international literature has been critical of hardware subsidies within CLTS programs, as it has been hard to effectively target the poor, and has caused conflicts within communities about which households deserved subsidies (Kar & Milward, 2011; Hickling & Bevan, 2010). Also it has been found that hardware subsidy programs running next to CLTS programs have had the effect of decreasing the success of the triggering process.

In Timor-Leste, BESIK reports and staff highlighted hardware subsidies as having had a negative effect on CLTS programs, as households who were aware of subsidy programs did not become effectively triggered, and preferred to wait until government provided subsidies became available to them (BESIK, 2012).

The research of WaterAid projects however didn't find this was a limiting factor, and surprisingly no requests were received for monetary support from the households interviewed. One household in Dato village, who hadn't built a latrine, said they would wait for a government subsidy before they built a latrine, but this may have been because the triggering had been done several years ago, and sanitation had now fallen down their list of priorities.

6.3.9 ODF Incentives

While CLTS handbooks and manuals have been critical of hardware subsidies, they have been more ambivalent about communities receiving rewards after having been verified as ODF.

International reports indicated that incentives have often been provided, particularly by scaled up government programs, but less so within INGO programs. The reports indicated that incentive programs have often achieved higher ODF rates, but raise the question of whether people were truly motivated by the concept of not eating human faeces or by the reward of achieving ODF (Bevan & Thomas, 2009, FHDesigns, 2012).

In Timor-Leste BESIK found that its most successful trial included incentives for ODF. While WaterAid does not provide stated incentives, as mentioned above it may be argued that by providing water supplies, which are typically commissioned at the end of the project, communities may sometimes have seen this as a strong incentive to have achieved ODF. Indeed, in Lisaiko, 2 households indicated that they felt WaterAid had let them down by only having rehabilitated their old water system, rather than constructing a new one. As documented above, this whole community appeared to have returned to open defecation. Whether these two issues are linked, and to what extent, was not clear, but probably should be considered further.

In general, while it can probably be said that incentives have improved initial achievement of community wide ODF, there remained a concern from a sustainability perspective, as it is hard to unpick whether people were motivated by the realisation that they were eating human faeces or by the promise or possibility of a reward for achieving ODF.

6.3.10 Integration with water supplies

As outlined in the introduction in Chapter 1, the number of people living without access to sanitation is 2.5 billion, compared with 780 million who still lack improved water supplies. In Bangladesh and India, where CLTS has been implemented for a number of years, the water supply coverage is relatively high. As a consequence, a relatively large number of CLTS interventions have been “sanitation only” projects.

However, in many other developing countries, water supply coverage is still quite low, so programs frequently involved integrating both water and sanitation, and there has been some debate about whether the 2 activities are more effective if separated or run

together (FHDesigns, 2012). For example, some lack of success of CLTS in Nigeria has been attributed to people's concentration on water supply rather than sanitation (Evans et al., 2009).

In Timor-Leste the WaterAid program in Liquica included water, sanitation and hygiene behaviour change components in each project, and in general, villages were prioritised by the government, based on water supply needs. As previously outlined above, there has been some concern in villager's minds that WaterAid may not commission their water supply systems unless they all build latrines, so to a certain extent the combining of water supply and sanitation in the same project may have had some negative effects. A counter argument can be that the provision of water supplies has enabled households to include water based latrine options, especially pour flush models.

Indeed the BESIK program found that the lack of good water supplies had proved to be a serious inhibiting factor. As they found, many people had a strong preference for pour flush latrines, and households often decided not to build a latrine when water supplies were inadequate (BESIK, 2012; Crawford & Willetts, 2012).

6.3.11 The Enabling Environment

Government buy in and support to CLTS was often cited in the international literature as having been an instrumental success factor (Robinson, 2012 & 2012a). When WaterAid first introduced CLTS into Timor-Leste in 2007 there was considerable controversy within government ministries. However policy advocacy, particularly from BESIK, resulted in the Timor-Leste government promulgating a National Basic Sanitation Policy which promotes demand led strategies and CLTS in particular.

However, as previously mentioned above, some hardware subsidies have been distributed by several different government departments. While WaterAid indicated this has not unduly affected their program in Liquica, BESIK had reported negative impacts on some of the CLTS programs they had been supporting (BESIK, 2012; Robinson, 2012).

The WaterAid research found that the national government sanctioning of CLTS had had a positive effect, in that previously much energy had had to be put into justifying WaterAid's approach. Also, now that government representatives are involved in planning and ODF verification, this has given the program more status and people had more pride in achieving and maintaining ODF.

6.3.12 Long term monitoring and support

Most of the international literature on the sustainability of CLTS has been sponsored by external support agencies such as UNICEF, WSP, Plan and WaterAid. However as national governments are the ultimate duty bearers in relation to WASH facilities and services, it is critical that governments take greater responsibility for ensuring the sustainability of sanitation improvements.

External support agencies generally only have funding and strategies to support the **gaining** of improved access but very little for ongoing operation and **sustainability**.

In some locations, such as in Bangladesh and Himachal Pradesh, governments have taken the lead in implementing large scale programs which include CLTS and to a certain degree in monitoring and supporting sustainability.

In Timor-Leste BESIK has introduced a nationwide monitoring system as well as supporting the deployment of subdistrict facilitators (SDFs) which could play key roles in sustaining sanitation improvements (BESIK, 2012; Crawford & Willetts, 2012).

Below is a quote from a Timor-Leste government official regarding the deployment of sub district facilitators (SDFs):

"We've seen a big change at sub-district level. SDFs have made significant impact. We are now using our own directorate staff, not just relying on NGOs. We have staff at sub-district level to monitor work. Previously we only had staff at district level. This is very positive."(Crawford & Willetts, 2012:22).

However the WaterAid research found that the monitoring system and the SDF program was not yet fully functioning in Liquica district and that, by and large, communities were not receiving ongoing support. WaterAid had provided some level of after project support through regular visits by a boundary rider. However it seemed these visits were more to support water systems' functionality and that also the support ceased 2 years after project implementation. Similarly WaterAid support for federating GMFs maybe has been having some effect, but again it wasn't clear how much emphasis was placed on maintenance of ODF.

It would seem that there is a limit to how much ongoing support external support agencies like WaterAid could and should provide. In addition to government support, other options could be better linking of households to sanitation marketing

entrepreneurs; and also local NGOs could be contracted by government to provide ongoing support, perhaps involving refresher motivational activities possibly based on the successful elements of the triggering processes.

6.4 Synthesis of Influencing Factors

Most of the factors outlined and discussed above have been consistently identified in the international literature as influencing CLTS success in achieving and sustaining ODF. However, as articulated in a report on CLTS in Indonesia, to date there has been very limited attention given to ranking these factors by relative importance (Mukherjee et al., 2012).

The research in Timor-Leste, while providing a snapshot on the influencing factors, represented too small a sample to make too many wide reaching conclusions about their relative importance.

However, in the authors' opinion, and based on the key results collected, the factors can be distilled into 2 main groupings, software and hardware issues. The quality of facilitation, follow-up and the promotion of champions can be seen as issues related to qualitative processes which can be addressed by appropriate training and personal orientation. These factors clearly relate to motivating people to make the decision to end open defecation and to make this behaviour permanent. The research of WaterAid projects showed that some households had made this change permanent, regardless of the type of latrine they has built.

On the other hand, some other influencing factors can be seen as more hardware related, such as the availability of durable latrine options, affordability and integration with water supplies.

While the international literature has been consistent in its contention that more attention needs to be given to the qualitative processes of CLTS, this research work proposes to add to the discourse by recommending that due attention be given to the importance of triggered households building a durable latrine as soon as possible, in order to sustain ODF in the long term.

The WaterAid approach in Timor-Leste of providing communities and households with training in durable latrine making, loaning of concrete moulds and support with transporting materials would seem to be quite effective in the Timor-Leste context in

enabling households to build a durable latrine after triggering. This has meant that households have had the opportunity to get far enough up the sanitation ladder to make a return back to open defecation unlikely.

In countries such as Bangladesh and India, there is a well-developed sanitation marketing supply chain of affordable durable latrine options, however this is currently not the situation in Timor-Leste and in many other developing countries (such as Mozambique, Laos and Cambodia). Therefore, while sanitation marketing may prove to be the long term solution to the durability of CLTS inspired latrines, it is unlikely to in the short term.

Like WaterAid, BESIK and the government of Timor-Leste have been utilising local NGOs in CLTS implementation and, if they can also be utilised to assist households with the construction of durable latrines in much the same way as WaterAid, then this may be the best option at this time in Timor- Leste.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

This research aimed to identify the factors affecting the sustainability of CLTS in WaterAid's program in Timor-Leste. It proposed to do this by first examining the global sanitation situation, then reviewing what the current international literature had to say about factors influencing CLTS sustainability. From this framing of the issue, research was then to be undertaken in Timor-Leste to examine the sustainability of WaterAid's CLTS program, with a view to reaching conclusions about the factors influencing sustainability.

7.1.1 Global Sanitation Situation

An examination of the global sanitation situation described how sanitation forms part of what has commonly been referred to as the WASH sector, including water, sanitation and hygiene; and access to both water and sanitation have formed target 7c of the MDGs.

The 2012 JMP statistics showed that while approximately 780million people still lack access to safe water supplies, the MDG target (of halving the proportion of people without access) has been met. However by contrast 2.5 billion people still lack access to basic sanitation and, further, that the 2015 MDG target was not only unlikely to be met but has also been adjudged to be the worst performing of all the MDGs.

The JMP data also revealed that approximately 70% of those without access to sanitation lived in rural areas in developing countries, and further that 1 billion of these people still practice the dangerous (from a health perspective) habit of open defecation.

From this review of the global situation, the decision to centre this research on sanitation within rural areas of Timor-Leste was found to frame the research within a priority need within the overall human development agenda, and also within the WASH sector in particular.

As CLTS has a primary aim of ending open defecation, the research of WaterAid's sanitation program in Timor-Leste, which predominantly utilised CLTS, was also found to have given the study relevance.

With specific reference to the sanitation coverage in Timor-Leste, the 2012 JMP statistics indicated that the national coverage was 47%, but the coverage in rural areas

was only 37%, with more than half of those without sanitation practicing open defecation. This data was consistent with the global statistics, and further justified the focus of the research.

7.1.2 Global Sustainability of CLTS

The review of the global literature found a number of studies and reports dealing with the attainment of ODF, but very few on the actual long term sustainability of ODF. Also the majority of the literature was in the form of reports and evaluations, often conducted by staff or consultants employed by organisations to review their own programs, which brought into some question their objectivity. Another factor was that CLTS has only been in existence since 1999, and has slowly spread to over 40 countries in Asia, Africa and the Pacific. Consequently not many CLTS programs have been in operation long enough to be able to assess their long term sustainability. The research that dealt specifically with sustainability included studies in Bangladesh, Indonesia and Zimbabwe.

An analysis of the relevant global literature revealed that:

- CLTS had been a powerful tool to raise demand to end open defecation within rural communities. This was primarily due to the CLTS triggering process
- the conversion rate from triggering to achieving community wide ODF varied widely. In some programs such as Bangladesh it was close to 100%, while in Mozambique it was only 20%
- there was limited data on the percentage of households which returned to open defecation, but there was enough information to conclude that “slippage” was a problem in many programs
- slippage data varied widely, again in Bangladesh some results showed around only 3% slippage, while in Cambodia an average rate of 58% was recorded. Programs in other countries fell between these two percentages.

A range of factors were identified in the literature that could have contributed to the above results. Those considered by the author to be of the greatest importance to the sustainability of CLTS were:

- the quality of facilitation skills in both triggering and follow-up processes
- the need for frequent follow-up visits by external agencies
- the importance of local champions and leaders in communities
- access to a range of affordable and durable latrine options
- hardware subsidy programs tended to dampen local demand

There was very little prioritisation or ranking of these influencing factors in the literature, although the quality of CLTS processes, the importance of post triggering follow-up support and access to durable latrine options featured most often and prominently.

7.1.3 Sustainability of CLTS in WaterAid's Program in Timor-Leste

The slippage rates recorded as a result of the 22 household interviews conducted across 5 villages varied from 0% in one village to 100% in another, with the average weighted slippage rate calculated to be approximately 30%, after 2-5 years post project implementation. The limited sample size meant that the results needed to be taken as indicative, rather than as a statistically accurate reflection of the actual sustainability rates. However the limited sustainability information available from the large AusAID funded BESIK program also indicated an estimated slippage rate of around 30%.

7.1.4 Factors Influencing Sustainability

The author considered the primary influencing factors gleaned from the global literature and compared them with other issues that came out of the research in Timor-Leste. As a result the following factors were considered to be most relevant within the WaterAid program in the Timor-Leste context:

- the quality of CLTS facilitation was important in triggering change, but also to make the behaviour change permanent
- local champions in each village enhanced motivation and households to build durable latrines
- community cohesiveness affected collective commitment to sustain ODF
- households with durable latrines showed stronger commitment to sustaining ODF
- the integration of new water supplies enabled some households to build more durable latrines, enhancing sustainability, but also may have been an indirect incentive to achieve ODF

In addition to the above factors the author was concerned that long term follow-up and support may need to be provided to communities if slippage back to ODF is to be minimised. It was noted that the government of Timor-Leste had begun to roll out sub district facilitators who may be able to provide some ongoing support. Other options

considered were linkages to private sanitation service providers (not considered effective at this time), or government contracting local NGOs to provide ongoing support.

While all the preceding factors were considered relevant, in the author's opinion CLTS sustainability could be best maximised through addressing 2 main issues:

- motivating people to end open defecation as a permanent behaviour change. CLTS, if done well, can trigger this change, but ongoing follow-up support and encouragement was probably needed to sustain this behaviour
- assisting households to build durable latrines post triggering, while their motivation levels are high, should greatly enhance the chances of people not returning to open defecation.

While the quality of CLTS processes have been universally identified as critical, the author felt the durability of latrines has not been sufficiently highlighted. The success of CLTS in Bangladesh may well have been built on the base of an already well developed sanitation supply chain that does not yet exist in many other developing countries.

In the context of WaterAid's program in Timor-Leste, as sanitation marketing was found to be currently not capable of being linked in with CLTS in remote rural villages, WaterAid's approach of providing indirect support to triggered households through training local champions, loaning latrine moulds and assisting with the transport of cement, rebar and plastic piping would seem to offer the best chance of households building a durable latrine, and thereby maximising sustainability.

It may be that this WaterAid "model" could be adopted by other CLTS programs in Timor-Leste, and may also be applicable in some other country contexts in other parts of the world.

7.1.5 Summary

In summary, CLTS when done well has been found to be successful in enabling many households in many countries, including in Timor-Leste, to end open defecation. However this research has shown there is now evidence, in Timor-Leste and in some other countries, that there has been some level of slippage back to open defecation. This research concludes that, while there are a large number of possible influencing factors, this slippage could be minimised by a combination of ensuring good quality of

CLTS processes, assisting households to build durable latrines, and by providing long term monitoring and follow-up support to communities.

7.2 Recommendations

Following on from the results of this research a list of recommendations have been made with a view to both furthering the discourse on CLTS sustainability and improving the sustainability of WaterAid's sanitation program in Timor-Leste.

7.2.1 Recommendations for the global sanitation sector

The global sanitation sector should undertake further research into:

1. The long term sustainability of sanitation programs to ascertain the levels of slippage back to open defecation.
2. The possible causes of slippage back to open defecation, in particular to try to rank the influencing factors in terms of relative importance.
3. The linkages between CLTS and sanitation marketing with a view to increasing the durability of latrines built as a result of CLTS triggering.

7.2.2 Recommendations for WaterAid in Timor –Leste

WaterAid should:

1. Undertake further studies to quantify the sustainability of its sanitation interventions.
2. Further examine causal factors affecting sustainability.
3. Continue to support the development of sanitation marketing and supply chain services.
4. Review the quality of CLTS facilitation, and improve if necessary.
5. Ensure households are aware of a wide range of durable latrine options.
6. Encourage local NGOs to help transport durable latrine materials for households.
7. Continue to integrate with relevant Timor-Leste government authorities. particularly regarding the potential for sub district facilitators to provide long term monitoring and support to ODF communities
8. Consider extending boundary rider support beyond the current 2 year period, until government or other long term support services are in place.

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APPENDIX 1: INTERVIEW FORMAT - GLOBAL WASH EXPERTS

NAME:

TITLE/POSITION:

DATE:

1. Introduction to study – sustainability of CLTS especially - durability and acceptability of local materials. Case study in Timor-Leste.

2. What do you think about CLTS and its effectiveness?

3. What do you think its strengths and weaknesses are?

4. How sustainable do you think CLTS has been?

5. What do you know about levels of slippage back to open defecation?

6. Where is it working best and worst?

7. What do you think could to be done to improve sustainability?

8. What reports/studies on sustainability are you aware of?

9. Who else do you advise me to talk to?

10. What other advice do you have for me?

11. Thank you for your cooperation and time

Summary of comments:

APPENDIX 2: FORMAT FOR HOUSEHOLD INTERVIEWS

| | | |
|-------------------------------------|--------------------------------|--|
| Project No: | Village: | Project Year : |
| Names : | | |
| GPS | | Partner: |
| Question | Answer/Comments | |
| No people in household? | Total : Children: | Male : Elderly: Female: Disabled: |
| What is your occupation? | Assess if : rich /middle/ poor | |
| Can we have a look at your latrine? | | |

LATRINE VISIT

| | |
|---------------------------|--|
| 4. Latrine type | Dry Pit - logs/sawn timber /rocks/ concrete/ scrap metal Pour Flush – plastic/ concrete/ ceramic Slab Condition : good /medium/poor / cracked |
| 5. Cleanliness | Good/medium/poor Water stored in latrine: yes / no / maybe Anal cleansing materials: water/paper/maize cobs Washing materials : yes/ no ash/ soap |
| 6. Hygienic | Fly proof – yes/no/maybe Water seal/ flap /lid |
| 7. Use | Well used/ maybe /can't tell/ Recently used – yes/no/maybe Evidence of OD: yes/no |
| 8. Depth of pit | 1m/2m/3m Lined /unlined |
| 9. Direct/offset | Direct /offset Vent pipe: yes / no |
| 10. How full? | Low/medium/full |
| 11. Superstructure | Materials: Wood/ bamboo/ rocks/ woven palm/ tin/mud Quality of construction: – good/medium/poor |
| 12. Location | Connected to house / < 10m / 10-20m / >20m |
| 13. Photo no's | |

QUESTIONS FOR HOUSEHOLDS

| | |
|--|---|
| 1. How long have you had a latrine? - did you have one before the project? | |
| 2. Who built the toilet? | |
| 3. How much did it cost you? | |
| 4. Does everyone use it? - All the time? - What happens in the night? - What about children's faeces? | |
| 5. How happy are you with your latrine? Why? | Very happy / reasonably happy /unhappy |
| 6. What sort of latrine would you prefer? What are the important characteristics of your preferred latrine? | Bush materials/ concrete squatting plate/ pour flush – plastic concrete/porcelain Smell/ superstructure/flies /water seal /privacy |
| 7. How much do you think your preferred latrine would cost? | |
| 8. How much would you be prepared to pay? | |
| 9. How could you get this amount of money? -wait for harvest, get a loan, and wait for govt/NGO? | |
| 10. How would you get your preferred latrine? -where would you get materials/ services? | |
| 11. What problems have you had with your latrine? | e.g. smell, collapse, wind, rain, termites , damage , filling up , moving it |
| 12. What repairs/ replacement /upgrading have you done? | |
| 13. Do you know any households that have gone back to OD? | |
| 14. What is good about having a latrine? | e.g. Pride/ safety/ security/health |

THANKYOU – OBRIGADO BARAK!

APPENDIX 3: FLIPCHART OF LATRINE OPTIONS

