

Frontiers of CLTS: Innovations and Insights



Norms, Knowledge and Usage

Robert Chambers and Jamie Myers,
Institute of Development Studies

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About the CLTS Knowledge Hub

IDS has been working in support of Community-Led Total Sanitation (CLTS) since its beginnings. CLTS has now become an international movement for which IDS is the recognised knowledge hub.

The Knowledge Hub is dedicated to understanding the on-the-ground realities of CLTS practice and to learn about, share and promote good practices, ideas and innovations that lead to sustainability and scale. We seek to keep the CLTS community well connected and informed and to provide space for reflection, continuous learning and knowledge exchange. We work in collaboration with practitioners, policy-makers, researchers and others working in the development, sanitation and related communities.

Ultimately, the Hub's overarching aim is to contribute to the dignity, health and wellbeing of children, women and men in the developing world who currently suffer the consequences of inadequate or no sanitation and poor hygiene.

Front cover

DEFUNCT TOILET IN PANNA, MADHYA PRADESH, INDIA.

CREDIT: ANDRÉS HUESO, WATERAID

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For further information please contact:

CLTS Knowledge Hub, Institute of Development Studies, University of Sussex, Brighton, BN1 9RE

Tel: +44 (0)1273 606261

Email: CLTS@ids.ac.uk

Web: www.communityledtotalsanitation.org

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Norms, Knowledge and Usage¹

Introduction

The consistent usage of toilets has emerged as a major and growing problem, especially in India. Some members of a household with a toilet do not use it at all, while others use it only some of the time. This can start as soon as a toilet has been constructed, or may develop over time together with second and third generation problems. This prevents or ends open defecation free (ODF) status. Toilet quality, maintenance and accessibility can be factors, but recent evidence points to mind-sets, social norms and cultural preferences also playing a significant role.

India faces an additional problem of total non-use. Unlike most African countries, Nepal, Indonesia and others, the universal household hardware subsidy in India has limited the full CLTS approach to exceptional pockets. Combinations of subsidy, corruption, standard toilet designs built for and delivered to people, and incomplete and faulty construction have led to many toilets built never being used. *The Economic Times* of India reported on 23 November 2015 that according to the National Sample Survey Office, of the 9.5 million toilets constructed in rural India in the first year (2014-5) of the Swachh Bharat (Clean India) Mission only 46 per cent were being used (Sharma 2015). And of these many will likely only have been used partially.

In this issue of *Frontiers of CLTS* we focus on the growing problem of partial usage, drawing on academic and grey literature. Partial usage is emerging in communities some years after achieving ODF conditions. We ask how widespread and serious this is, why it occurs, what can be done about it, and what more needs to be known?¹ We draw on evidence from Africa and Asia, with the bulk of it from India where there has been more relevant research, according to which partial use is rampant. We believe that there are important implications for India and the Swachh Bharat Mission, as well as those around the world confronting this problem.

¹ This edition of *Frontiers of CLTS* complements and adds to issue 4 '[Sustainability and CLTS: Taking Stock](#)'.

Scale and seriousness

Usage is much more difficult and expensive to measure than just counting toilets. Partial usage is even more difficult to monitor and requires household surveys that ask about sanitation habits of all members within a household or extensive observations. Statistics for partial usage are sensitive to survey methodology and the questions asked (for a critical analysis for India see Coffey and Spears 2014),



Defunct toilet in Madhya Pradesh.
Credit: Aashish Gupta, RICE.

further complicating matters. Methodology is rarely described in reports and wording of qualifying statistics is often vague. In consequence, the statistics on this that are available and presented below must be taken as indicative rather than precise.

Outside India, the reported scale and seriousness of non-use and partial use varies considerably. In Bangladesh, in areas where CLTS had been used, 11 per cent of households were recorded

as admitting that one or more members were still defecating in the open (Hanchett et al 2011). In Ethiopia, one study (Ashebir et al 2013) found that only 37 per cent of households were using their toilets consistently, while 54 per cent did not use them at all. Another study in Ethiopia (Yimam et al 2015) reported that despite 87 per cent self-reported use, only 61 per cent of toilets were used satisfactorily, 24 per cent had no sign of use and 14 per cent had faeces in the compound.

The highly professional and credible Sanitation Quality, Use, Access, and Trends (SQUAT) survey conducted by the Research Institute for Compassionate Economics (RICE) in Bihar, Haryana, Madhya Pradesh, Rajasthan, and Uttar Pradesh found that 48 per cent of households with functional toilets had at least one household member who continued to defecate in the open (Coffey et al 2014), while a later study in Gujarat, Haryana, Uttar Pradesh and Parsa in the southern plains of Nepal found an equivalent figure of 56 per cent (pers. comm. Sangita Vyas). In a randomised control trial in Madhya Pradesh (Patil

et al 2014), where the treatment was a CLTS-like approach combined with a household hardware subsidy to build toilets with offset pits, 41 per cent of men and 38 per cent of women in the treatment group who had improved sanitation reported practising open defecation (OD) daily.



Women interviewed about sanitation practices as part of SQUAT survey in Rajasthan. Credit: Aashish Gupta, RICE.

Four relevant studies have been carried out in Odisha. The percentages of those with a functioning toilet recorded as defecating in the open were 27 (Jenkins et al 2014), and 24 (defecating in the open in the previous 7 days) (Dreibelbis et al 2015). One study found 37 per cent of people with latrines never used them (Barnard et al 2013), while a randomised control trial found 37 per cent of latrines in the control group were not being used (Clasen et al 2014).

Partial usage, with continuing OD or reversion to OD, is then a serious problem, especially in India. Usage can be partial from the start with newly constructed toilets, or can develop over time. With CLTS, a few years after a community becomes ODF, the filling of pits and partial use or non-use can be expected to be a growing problem (Myers, forthcoming), meaning that total toilet coverage will give an ever more misleading impression of true ODF conditions.

Factors associated with non- or partial usage

We have found nine clusters of factors associated with non- or partial usage:

- Social norms.
- Taboos, beliefs and prohibitions.
- Preferences and convenience.
- Age and disability.
- Gender and gender relations.
- Pressure on use.

- Full pits and fear of pits filling up.
- Dirt, smell, disgust, fears and cleaning.
- Design, construction and ownership.

These factors may work in isolation but it is more likely that partial usage occurs due to a combination of these reasons.

Social norms

Social norms are socially accepted or agreed values, beliefs, attitudes and behaviours – reflecting what a person considers right and expected behaviour. Social norms are related to how people think others expect them to behave and how they expect others to behave. Widespread rural OD can only be overcome through a transformation of social norms: everyone must want a toilet, want to use it all the time, use it all the time, and expect others to want the same and do the same.

This is part of the collective behaviour change induced by successful CLTS. It has to overcome the force of habit, and in India, deeply held beliefs about purity and pollution. These lead people to believe that toilets in or near the home are polluting, particularly those with smaller pits, even when these meet international norms for size (Routray et al 2015; Coffey et al 2015). A study in North India found that OD was rarely seen as socially unacceptable (Coffey et al 2015). Norms about purity and pollution of the body and ideas about private spaces support the practice of OD distant from the dwelling, even when there is access to a toilet. Many see OD as a wholesome activity promoting purity, and good for health (Coffey et al 2015). Conversely, toilets near the dwelling are seen as polluting. Collective behaviour change has to turn all this on its head.

Even when norms change collectively, deviations may be accepted – for instance on the part of children, elderly people or those with disabilities. OD can also be deemed more acceptable in certain circumstances, for example when traveling or when away from the home. In Bangladesh, elderly people who from habit continue OD when others have stopped are not severely criticised (Hanchett et al 2011). In India and elsewhere, these norms and tolerances present widespread challenges to the achievement of fully ODF conditions.

Taboos, beliefs and prohibitions

Using the same toilet as close relatives, especially fathers and daughters-in law in patriarchal societies and mothers and sons-in law in matriarchal societies, can affect toilet usage (Thys et al 2015). Other examples of taboos, beliefs and prohibitions are:

- In the Far West of Nepal, cases have been reported where women are barred from using the toilet when menstruating and have to revert to OD. At any time a quarter of women aged 13-50 can be menstruating and defecating outside (pers. comm. Pamela White).
- In Bangladesh, a man whose son had constructed a toilet four years earlier, when asked, 'Where do you defecate?' replied that he had hardly ever used the toilet to avoid embarrassing his daughters-in-law or himself, as they had to clean their menstrual blood. Rather, he felt comfortable defecating in the bushes (Hanchett et al 2011: 53).
- In Idoma communities in Nigeria, it is taboo to defecate in a building or a superstructure. Husbands have also refused to use the same toilets as their wives and daughters (WaterAid 2009).
- In Eastern Zambia, traditional taboos make it difficult for male heads of household to share toilets with their mothers-in-law, children-in-law, adult children, grown-up daughters and younger children if there is a high risk of being seen or if young children use the toilet straight after their father (Thys et al 2015).
- In Ethiopia, a study found that it is taboo for men and women to share a toilet and the sight of faeces is unacceptable. Men have been recorded continuing to defecate in the open to avoid this (Ashebir et al 2013).
- In Nigeria, it is a common belief that warm air coming up from the pit makes women more vulnerable to diseases. In a baseline study this was given as a possible explanation why women were less likely to use toilets than men (Abramovsky et al 2015).

In CLTS, problems like these are thrown back to communities to solve for themselves, either by building extra toilets, overcoming their taboos or in other ways. For example, a CLTS facilitator is reported to have asked if it is better for the shit to mix in the toilet or one's stomach. Still, some households may require more than one toilet if a sharing taboo persists.

Awareness of such taboos, beliefs and prohibitions can usefully inform behaviour change communication, post-triggering and post-ODF activities, and verification and certification of ODF status. Information and awareness raising about menstruation and ways to challenge taboos with CLTS programmes have been discussed previously (Roose et al 2015).

Preferences and convenience

In India, OD is often preferred and considered healthier. The SQUAT survey in Northern India found that of those with a toilet who continued to defecate in the open, 74 per cent found it pleasurable, comfortable or convenient (Coffey et al 2014). Places can often be found – a stream, river, lake, pond, spring, irrigation channel or groundwater pump – where water is available for anal cleansing. Lack of water for anal cleansing and post defecation ritual bathing next to the toilet has been given as a reason for OD (Routray et al 2015).

Those less able: Poverty, age and disability

Those less able to construct and maintain toilets may, unless helped, continue or lapse into, OD (Cavil et al, forthcoming). In many contexts, young children's faeces are considered relatively harmless and not disposed of hygienically. The safe disposal of child faeces is a huge topic and one that has until recently been largely overlooked in research, policy and programme interventions (WSP 2015). Case-studies in 26 locations across Africa, Asia, the Pacific and the Caribbean found that all countries reported some unsafe child faeces disposal among households with improved sanitation (WSP 2015). Elderly people's reluctance to abandon the habit of OD tends to be tolerated. For their part, disabled people may be unable to use toilets because of problems of access (see Wilbur and Jones 2014). Some people with mental health problems can be difficult to persuade or control and their continued OD accepted.



Boy squatting. Credit: Rod Shaw, WEDC.

Gender dimensions

Women have many reasons for using toilets which do not apply to men (see House and Cavill 2015; Roose et al 2015). In South Asia, toilets remove the physical and mental stress of having to go before dawn and the loss of sleep entailed, or of having to hold out until dark. The SQUAT survey (Coffey et al 2014) found that in households with toilets, men were less likely to use them than women. Men defecate in the open more than women for many reasons, including that:

- They have more time. Women are busier in the early morning.
- Men have fewer household and childcare commitments in or near the dwelling.
- During the day men travel further afield.
- It is less shameful for men to be seen than women, and they are not similarly vulnerable to sexual harassment or humiliation by voyeurs.
- Men can rationalise their OD as enhancing the dignity of women by allowing them unrestricted access to a toilet, and with the macho view that toilets are not for them but for women, children, the very old, the sick and the disabled.
- Men may abstain from using the toilet to delay its filling up.
- Men are more likely to have used and been disgusted by public toilets.

However, in South Asia and in communities where women are restricted in their movements, women can value going together to defecate in the open as a social occasion when they can get out of doors and meet and talk without men being present. A recent study in Odisha (Routray et al 2015) found socialising an important factor contributing to low toilet usage. Women reported that OD gave a rare opportunity to leave their homes and have time away from chores and responsibilities. Some women also reported that this was a time they were able to relieve stress by sharing family problems. For daughters-in-law it was their only chance to leave the household.

In India, there have been varying opinions on the use of campaigns which appeal to men to build toilets for the dignity of women in their household. Some argue that it reinforces purdah and movement restrictions (Srivastav and Gupta 2015; Doron and Raja 2015) and

campaigns that associate toilets with women risk failing to convince men to use them (Srivastav and Gupta 2015). Others dispute this, arguing that in practice it increased women's participation, helped women gain access to sanitation in a highly patriarchal society and highlighted that dignity is one component used in a wider campaign for ODF (Dogra 2015).

Other factors can affect women as well as men. Fear may be a factor: men and women may fear being seen visiting a toilet, or being heard farting (especially when a toilet is indoors), or leaving the toilet dirty (Thys et al 2015).

Pressure on use

Congestion and queuing can be expected more with shared than individual household toilets. In large households one toilet may not be enough for all members. A study in Bihar found that 19 per cent of households had ten or more people using one toilet (Water, Sanitation and Hygiene Institute 2015). Men may choose OD to relieve queuing or pressure on a toilet in the morning, for instance when children are getting ready for school. A man in an ODF Indian village said he habitually went for OD, using the cat method (digging a hole and burying his faeces), for this reason. OD can also allow more time for defecation: men may want or need to take longer defecating than women or children and want to avoid the embarrassment of being seen to take longer.

Full pits and fear of pits filling up

Following the exponential spread of CLTS in many countries, the number of pits nearly full or full will increase. When pits are filling or full there are four options:

- Dig a new pit.
- Empty the pit.
- Use sparingly.
- Abandon and revert to total OD.

Digging a new pit can be problematical where there is little space or the soil type or topography make it difficult or costly. In Zambia, where pits

are generally abandoned when full and a new toilet constructed, those with small compounds are running out of space (SNV Zambia 2014).

The fear of pits becoming full can dissuade people from using toilets. Cost of emptying is one factor: the availability and perceived affordability of pit emptying services is a key issue in sustaining toilet usage and ODF conditions in Bangladesh (Hanchett et al 2011); in rural Laos, households unable to afford the average emptying



Filled up pit latrine Syedpur Village, Bangladesh. Credit: Suzanne Hanchett.

cost of US\$50 have reverted to OD (Opel and Cheuasongkham 2015); and in Cambodia, increased risk of reverting was noted in households that could not afford emptying services (Wood 2011). A major factor in India is the desire to postpone the polluting and unpleasant operation of emptying. In Odisha, Routray et al (2015) found a fear that single three ringed pits would quickly fill up if used all the time. In rural Northern India, people want deep, large pits, typically septic tanks that will last a lifetime (Shah et al 2013; Coffey et al 2015). Caste plays a part here. Dealing with faeces is considered the work of *Bhangis* (translates as broken identity), the caste responsible for manual scavenging. Despite it being illegal it is still practised. The very presence of the lowest castes for emptying a toilet may itself be regarded as polluting, and they themselves deeply resent the way they are regarded and treated. Other castes may fear that the cost for inducing them to empty their pits will be very high (Gupta et al, forthcoming).

Pits becoming full or wanting to slow and postpone their filling, can deter people from using toilets or using them fully. They then reserve them increasingly for dire need such as sickness, night time, heavy rain, and for those who are elderly, disabled, children and visitors. This issue can be expected to become more marked with time. For CLTS and for rural sanitation programmes generally, pit filling, emptying and size are a frontier of growing importance for sustainability.

Dirt, smell, disgust, fears and cleaning

Dirty and disgusting toilets deter use, make them unpleasant to clean, and provoke reversion to OD. It has been argued that bad smell also presents an overlooked barrier to toilet adoption (Rheinländer et al 2013). In Northwest Ethiopia, households with hygienic toilets have been found over four times more likely to use them (Yimam et al 2014). Dirt and smell are notorious disincentives from using school and market toilets.



Dirty toilet in Mathare, Nairobi, Kenya, where an urban CLTS programme has taken place. Credit: Jamie Myers.

The striking extent of faecal dirt and smell in private or shared toilets is shown in Table 1.

Table 1: Statistics on dirty toilets

Country	Sample size	% smelly	% dirty	Definition of 'dirty'	Source
Bangladesh	1495 improved and shared	26% 'strong bad smell in or around the latrine'	56% of improved and shared toilets	Faeces visible on floor, in pan or water seal	Hanchett et al, 2011
Tanzania	1000 households	n.a.	40% of household toilets visited	Visible faeces on the floor	World Bank, 2009
Myanmar	3993	n.a.	35%	Not clean/ somewhat not clean	UNICEF Myanmar, 2011
Meghalaya, India	960	56% believed disadvantage of using a toilet was the bad smell	n.a.	n.a.	O'Connell, 2014

In Bangladesh, using a toilet has been found associated, though not strongly, with cleanliness (Hanchett et al 2011). Anecdotes are common of dirty and smelly school toilets repelling children who then do OD nearby. On the positive side, CLTS has been shown to lead to cleaner toilets. A randomised control trial in Mali ranked 65 per cent of toilets from CLTS villages as good, compared with 38 per cent in control villages, and only 8 per cent poor toilets compared with 20 per cent (Alzua et al 2015).

That it is overwhelmingly women who clean toilets is confirmed by two studies: in Cambodia in 81 per cent of households the wife was in charge of cleaning the toilet (Ministry of Rural Development 2010), while in Bangladesh it was 94 per cent. In Bangladesh, toilet cleanliness was found to be significantly related to the distance to the source of water for cleaning (Hanchett et al 2011).

Design, construction and ownership

Toilet structure and design affect usage in many ways: construction never completed, small superstructure, darkness, public location, lack of roof for protection against rain and so on are reported deterrents. A study in Nigeria found the type of toilet affected usage rates, with septic tanks most likely to be used, and pit latrines without a slab the least (Abramovsky et al 2015). In Tanzania, it was more likely that all members of a household would use an Improved Ventilated Latrine (VIP) (98 per cent) than an unimproved one (90 per cent) (Kema et al 2012). Study after study (Barnard et al 2013; Routray et al 2015), has found lack of privacy afforded by a toilet a factor in reversion to OD: in Eastern Zambia some toilets had low walls, no roofs or no locks on doors (Thys et al 2015). Other reasons given for non-use include ease or difficulty of cleaning the toilet, and lack of water for toilet cleaning, anal cleansing and in India post-defecation ritual bathing (Patil et al 2014; Routray et al 2015).

Frontiers of CLTS issue 4 [‘Sustainability and CLTS: Taking Stock’](#) covers issues of physical sustainability of toilets. With CLTS, communities and households often choose options at the lower end of the sanitation ladder. These may be adequate but pit walls may collapse, superstructures may erode or rot, and smell can be a

problem if not prevented. In the Plan International ODF sustainability study in four African countries, poor quality, failing toilets and inability to maintain them and repair damage were often identified as causes by those who had reverted to OD (Tyndale-Biscoe et al 2013). On the other hand, permanent structures above and below ground and the slab are sunk costs which cannot be recovered if a new structure is needed, incurring new costs.

Most important of all is a sense of ownership. Those who dig their own pits and build their own toilets, as in CLTS practice, regard them as their own, and are far more likely to use them, and maintain and repair them, than those who have had them designed and constructed for them. To those aware of worldwide experience with CLTS, it will be no surprise that of the toilets constructed for people in the first year of the Swachh Bharat Mission in India, less than half have been found to be in use.

Combinations of reasons for non- or partial usage

For clarity, we have separated causal factors out under headings. In practice they combine. To illustrate, reasons for OD given in one of the Odisha studies (Barnard et al 2013) were:

- Preference (29%).
- Toilet not complete (28%).
- Lack of privacy (23%).
- Used for storage (22%).
- Inconvenience (20%).
- Broken (17%).
- Blocked (9%).
- Difficult to empty (4%).

In another Odisha study (Routray et al 2015), reasons people with subsidised government toilets gave for openly defecating were socialising, purity and health, convenience, less work, structure and design problems, privacy and habit.

Agenda for policy and practice

Three sets of implications stand out.

1. Provoke and foster awareness and change in social norms

In countries without universal hardware subsidies, well implemented CLTS changes social norms. The embedded subsidy programme in India impedes this on any scale. While that persists, a more total, universal, non-partisan, seismic and participatory approach might make better progress, with intense, sustained and inclusive campaigns, with champions in all organisations, of all faiths, and at all levels, together with shock and awe, and rapid learning from action and innovation. To the numerous CLTS triggering methods (leading to 'we are eating one another's shit') already in use could be added how OD and faecally-transmitted infections (FTIs) cause stunting and undernutrition. Triggers that demonstrate the effects FTIs have on the cognitive and physical development of children in the community, their length of schooling, their school performance, earnings later in life, and life-long vulnerability to sickness through damaged immune systems. Brutally direct slogans could include 'Who is stunting your child today?' and 'Whose child are you stunting today?'

In India a challenge of equal severity is the continued discrimination of manual scavengers. It has been discussed in other parts of this *Frontiers of CLTS*. It is important to mention it briefly here as their continued oppression and harsh treatment is a societal/social norm in many communities that needs to be given priority attention.

2. Provide technical knowledge

Informed choice for structures

Programmes to promote rural sanitation have focused on health, with less attention to technical knowledge about toilet construction and maintenance. Appropriate technology varies by physical and social context. Single pits with cement rings are widespread in the relatively uniform conditions of much of Bangladesh. In North India, people lack technical knowledge about both the twin pits promoted as government policy and the more costly septic tanks widely preferred for their storage capacity. In four African countries, slippage was affected by lack of advice or knowledge about how to build or maintain good quality and durable toilets (Tyndale-Biscoe et al 2013). Expensive options may profit entrepreneurs but discourage total sanitation because poorer

people cannot afford them.

Construction and supervision of masons

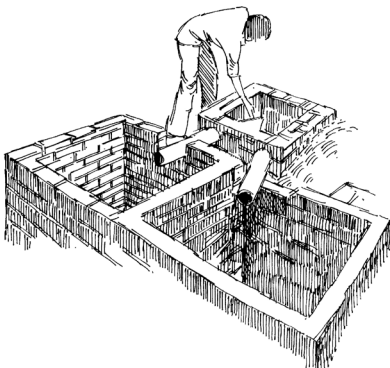
Substructure is critical. Once covered over, it can be hard or impossible to inspect or put right. Where masons construct, householders and village committees need to know how to supervise and what to insist on. This is especially important in areas with high levels of corruption. In a CLTS mode, superstructure is typically left to households themselves.

3. Pit management and pit emptying options

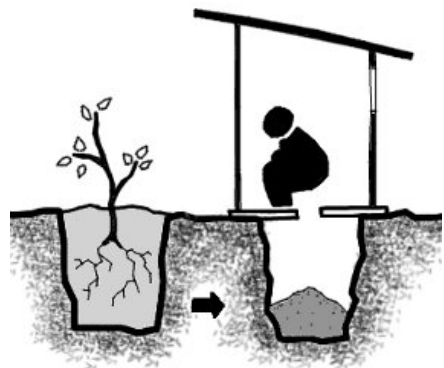
In many rural areas there is widespread ignorance and lack of hygienic options for emptying toilets when they are full. Faecal Sludge Management (FSM) services are more available in urban areas. In the CLTS tradition, communities should be facilitated to discuss what will happen when pit latrines fill up. Should new pits be dug or should they be emptied and contents be disposed of safely? And what support may be needed to offer an adequate user-friendly service?

Technical solutions

No option is perfect. Table 2 shows positive and negative aspects of arborloos, twin-pits and septic tanks. Arborloos are shallow pits with a temporary or mobile slab and superstructure. Just before the pit is full, the slab and superstructure are removed, the pit filled with soil and a tree planted (Tilley et al 2014). An alternating twin pit system and septic tanks both have permanent substructures and require emptying. Solutions need to be found that households are able to and willing to deal with.



Twin pit under construction with pipes showing. Credit: Rod Shaw, WEDC.



Arborloo. Credit: SSWM Toolkit (EAWAG et al 2015).

Table 2: Comparing twin pits, septic tanks and arborloos

	Pros	Cons
Twin pits	<ul style="list-style-type: none"> • Used alternately, their lifespan is virtually unlimited. • Pit humus² is often odourless. • Removal of humus is easier than sludge. • Significant reduction in pathogens. • Pits can be reused. • Humus is valuable fertiliser. • Can be built and repaired using local materials. • Low cost. 	<ul style="list-style-type: none"> • Manual emptying of pits is required. • Often the second pit is never built or households wait for both to be full before paying someone to come and empty (pers. comm. Steve Sugden). • Social acceptance of using pit humus can be low in some areas.
Septic tank	<ul style="list-style-type: none"> • Simple and robust. • Low operating costs. • Long service life. • Small land area required above ground (though large space needed below ground). 	<ul style="list-style-type: none"> • Low reduction in pathogens, solids and organics. • Regular desludging must be ensured • Effluent and sludge require further treatment. • Can contaminate groundwater if not constructed correctly.
Arborloo	<ul style="list-style-type: none"> • Simple to apply for all users. • Low cost. • Low risk of pathogen transmission. • Tree planting and fruit production can lead to income generation. 	<ul style="list-style-type: none"> • New pit must be dug. • Does not eliminate risk of groundwater contamination. • Relatively labour intensive. • Requires large amounts of space. • Not suitable in areas with high groundwater table. • Superstructure and slab have to be moved or rebuilt.

Source: Based on information from Tilley et al 2014 and authors' thinking and experience.

² Pit humus refers to composted human faeces. It can look similar to compost and be used as a soil conditioner (Tilley et al 2014).

Emptying options

The emptying, transportation and disposal of sludge from pit latrines can pose a significant health risk alongside organisational difficulties (Water Research Commission 2007). Covering pits and digging a new one can be a safe and hygienic FSM option. However, as mentioned above this is not always possible where there is little space or the soil type or topography makes digging a new pit expensive and difficult.



Gulper being used in Malawi. Credit: Joseph Magoya, Water for People.

The Gulper, developed by the London School of Hygiene and Tropical Medicine is a manually-operated pump that can be connected to pits via a pipe. The user raises and lowers a handle which pumps the sludge out of the pit. It has been used in urban areas and also tested in remote areas (Cranfield University et al 2011). Of all the manually driven collection systems the Gulper has reached the largest number of pit emptiers. However, no cases of uptake without interventions from external organisations have been found (Mikhael et al 2015). Gulpers are even less likely to be paid for by those working in rural areas where there is less money.³

Social considerations

Even for those wanting to make a career out of pit emptying, the social costs can be heavy (Sugden, 2013). In India, manual scavengers are seen as both permanently polluted and polluting to others, which is used to justify their persistent oppression and social exclusion (Gupta et al, forthcoming; Coffey et al 2015). A recent report by Human Rights Watch found manual scavengers are still denied access to communal water sources and temples, unable to purchase certain goods and services and prevented from taking part in community religious and cultural events (2014). When discussing pit management services it is essential that those who handle the shit are not treated like shit.

³ For more information on a range of human-powered and motorised emptying options see: *The Compendium of Sanitation System and Technologies*: www.susana.org/resources/documents/default/3-454-7-1413804806.pdf
And *Methods and Means of Collection and Transport of Faecal Sludge*: www.eawag.ch/fileadmin/Domain1/Abteilungen/sandec/publikationen/EWM/Book/FSM_Ch04_Collection_and_Transport.pdf

Tiger Worms: A win-win solution?

The 'Tiger Toilet' is an onsite sanitation system which uses composting worms to process fresh human faeces, while the effluent infiltrates into the soil below. The system is connected to a superstructure by a low volume pour flush pan. It is compact (1m³ for 10 people) and adaptable and can be built by people themselves, above or below ground, from locally available materials. The bottom of the pit is open to the soil below and covered in locally available drainage and bedding material. 1kg of human faeces is converted into 100-200g of worm waste (vermicompost), reducing the volume of pit contents and delaying filling. The vermicompost is generated at the top of the system and is a dry odourless humus, easy and safe to empty (see photograph). The worms process the amount entering the system on a daily basis, so there is no build-up of fresh waste and no smell. The composting reduces the volume of pit contents and delays filling which is estimated to take five years.

User feedback from trials in Uganda, Myanmar and India has been very positive, with all households happy to continue using the systems. This technology is currently been scaled up in Maharashtra, through a collaboration between Bear Valley Ventures Ltd and PriMove Infrastructure Development Consultants Pvt. Ltd.

For more information contact: c.furlong@lboro.ac.uk



Tiger Toilet being installed, India. *Credit: Claire Furlong.*

Agenda for innovation, learning and research

As a relatively new area of exploration and investigation, much remains to be learnt, and we expect much in this issue of *Frontiers of CLTS* to be modified as more comes to light. Priorities for learning and research will vary by context, and conditions elsewhere in Asia and in much of Africa will differ from those in India. Suggested key topics for innovation, action learning and research are:

Effective ways to:

- Carry out formative research before a programme to understand relevant social norms, ensuring that findings do not undermine confidence in CLTS.
- Consult, work with, and support, Natural Leaders and others concerning norms and usage.
- Facilitate communities to identify people (men, women, elderly, disabled, children and so on), and times and conditions (night, rains, early morning when many need to use the toilet) vulnerable/ leading to continued OD, and to take action.
- Re-verify post-ODF with special attention to partial usage and action to make usage total.
- Regional and national variations, mapping the distribution and intensity of factors and problems affecting usage.
- Introduce and encourage community action on issues of social norms, taboos, toilet cleaning and pit emptying, and whether and when to do this.
- Find, train, equip (if necessary) and encourage entrepreneurs to provide a pit emptying service.
- Generate reliable statistics for toilet usage, paying attention to differences within a household.

Research to learn more about:

- Who cleans toilets, what factors affect cleanliness, and what struggles they face.
- How can toilet cleaning and pit emptying be ensured, and what support is needed for service providers.
- How to convince people in rural India that well composted excreta are harmless, non-polluting and valuable.
- How to break caste-based exclusion and violence linked to

sanitation practices and FSM.

- How widespread is partial usage in India and other countries. How misleading are ODF statistics, and statistics for toilets constructed taken as a proxy for population ODF.
- Behaviour related to pits filling with reversion to OD by some or all of a household, including gender dimensions.
- To what extent is this predominantly an Indian problem.

Concluding

This is an early stage in exploring and learning about social norms and toilet usage. In this issue of *Frontiers of CLTS* we have summarised and categorised what we have been able to learn, and suggested some actions. Nothing here is cast in stone. We invite comment, criticism, correction and further insights to CLTS@ids.ac.uk to help us collectively learn how to confront these increasingly burning issues more effectively.

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Norms, Knowledge and Usage

The partial or total non-use of toilets, with some or all in a household defecating in the open, is a growing concern. Although all households may have a toilet, communities cannot remain open defecation free unless they are always used by everyone. This is not just an issue of maintenance and accessibility but also of social norms, mind-sets, and cultural preferences. The problem is widespread but most evident in India. This issue of *Frontiers of CLTS* asks how serious the problem is, why it occurs, what can be done about it, and what more needs to be known. It is an attempt to summarise current knowledge as a first step in exploring and learning about this growing obstacle to attaining and sustaining ODF status in some parts of the world.

About the authors

Robert Chambers is a Research Associate at the Institute of Development Studies, University of Sussex, and works in the CLTS Knowledge Hub.

Jamie Myers is the CLTS Knowledge Hub's research officer based at the Institute of Development Studies, University of Sussex. His focus is on CLTS and CLTS-related activities across Africa and Asia.



Institute of Development Studies
at the University of Sussex, Brighton BN1 9RE

Web www.communityledtotalsanitation.org

Email CLTS@ids.ac.uk

Twitter [@C_L_T_S](https://twitter.com/C_L_T_S)

Tel +44 (0)1273 606261

Fax +44 (0)1273 621202

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