Report

WaterAid

Sustainability and equity aspects of total sanitation programmes

A study of recent WaterAid-supported programmes in three countries: global synthesis report

Acknowledgements

This synthesis report is the final product of a piece of research which has been commissioned and carried out by the Programme Effectiveness Unit of WaterAid in collaboration with WaterAid in Bangladesh, WaterAid in Nepal and WaterAid in Nigeria.

This report is a synthesis of three individual country studies carried out in Bangladesh, Nepal and Nigeria in 2008-2009. Preliminary analysis of the joint findings was carried out at a Synthesis workshop (11/12 November 2008) held at the Water Engineering and Development Centre, Loughborough University in the UK.

The workshop was attended by Jeremy Colin, Andy Cotton, Barbara Evans, Hasin Jehan, Hazel Jones, Oliver Jones, Anuradha Joshi, Craig Kulman, Micah Mendie, Ada Oko-Williams, Tom Palakudiyil, and Andy Robinson.

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Any errors are, however, the responsibility of the authors.

A WaterAid report

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Front cover image: WaterAid/Juthika Howlader

Contents

List of terms and acronyms

ASEH Achieving Sustainable Environmental Health (a five-year DFID-funded programme of support to rural and urban water and sanitation, implemented by WaterAid in Bangladesh

CLBSA Community-Led Basic Sanitation for All (an adapted form of the previous WaterAid/ NEWAH CLTS approach, now being implemented in Nepal)

CLTS Community-Led Total Sanitation

DFID Department for International Development

NEWAH Nepal Water for Health – a Nepali NGO and WaterAid partner

NGO Non Governmental Organisation

NOD No Open Defecation (the term used as an alternative to ODF in Nepal)

ODF Open Defecation-Free (a term used to describe either communities that have eliminated the practice of open defecation or households who no longer defecate in the open. ODF can be used to describe the actual state of having no open defecation or the point at which a community or household are declared to have reached this state)

Pukka Signifies 'permanent' (usually referring to the condition of a latrine in Nepal, in comparison to temporary latrines)

Tarai Lowland areas of Nepal

UST Unnayan Shahojogy Team (a Bangaldeshi NGO and WaterAid partner)

VERC Village Education Resource Centre (a Bangladeshi NGO and WaterAid partner)

WSUC Water and Sanitation Users' Committee

Section 1

Introduction

WaterAid has been closely linked with Community-Led Total Sanitation (CLTS) since the development of the approach in Bangladesh by the Village Education Resource Centre (VERC) in 1997. A number of organisations and governments have since adopted, and adapted, the core elements of CLTS as organising principles for wider rural sanitation programming. Nevertheless, most 'total sanitation' programming involves:

> 'facilitating a process to inspire and empower rural communities to stop open defecation and to build and use latrines"[1]

WaterAid's own body of experience includes several variants of the CLTS approach, but all with common elements:

- All approaches attempt to work with the entire community rather than with selected individuals and households
- The focus is always on the elimination of open defecation rather than on the construction of a particular type of latrine.

WaterAid now has significant experience of implementing **community-wide Open Defecation-Free (ODF)** sanitation programmes in rural areas. The three WaterAid country programmes with the broadest experience are Bangladesh, Nepal and Nigeria. WaterAid is now in a position to contribute to the empirical knowledge of CLTS (and its variants) by examining the rich body of experience in these three countries.

This global synthesis report summarises the findings of the three country studies. Details of each country study are in the accompanying study reports.

1 Kar and Pasteur, 2005

Section 2

Objectives

The purpose of the study was to contribute to the global understanding of community-wide ODF approaches, with a focus on the extent to which these approaches result in sustained and equitable improvements in sanitation behaviour. The study tested the following research hypothesis:

Achieving ODF status is a necessary but not sufficient condition for the entire community to use and maintain hygienic latrines in the long term

Where possible, the study also explored the additional factors that enhance the probability that ODF status will translate into entrenched behaviour change, as well as the capacity of communities to move upwards on the 'sanitation ladder'.

Key research questions included:

- What sanitation behaviour changes have taken place?
- Are sanitation facilities hygienic?
- Does sanitation behaviour change last?
- Does sanitation behaviour change result in lasting benefits?
- Are there any differential sanitation behaviour changes (ie do the improvements include all members of the community, even disadvantaged and vulnerable groups)?
- Are the poor able to build durable latrines without any external subsidy?
- Has there been any upgrading or improvement of latrines?

These questions respond both to the global CLTS debate and to WaterAid's internal debate on the effectiveness, sustainability and equity of CLTS-based approaches. A number of other current studies, some of which utilise far greater resources and expertise than is available to WaterAid, are examining CLTS outcomes and impacts, thus WaterAid has decided to limit the scope of its assessment. In particular, WaterAid has decided not to examine wider environmental sanitation outcomes (solid waste, wastewater, drainage), hygiene behaviour changes (handwashing, safe water use, food hygiene etc), health or economic impacts.

Section 3

Outline of the study

In each study country a research team carried out a combination of consultations and field work. The study had three phases, as follows:

- An **inception phase** during which the relevant records and data on all project communities were analysed. In this phase the communities for detailed study were selected and the research protocol finalised
- The **fieldwork phase** during which study teams carried out in depth fieldwork in up to 12 selected communities to test the study hypothesis
- An **analysis phase** which included the analysis and writing up of study findings as well as discussions with national and local stakeholders.

Finance of communities for detailed study

In each country a number of communities were selected from within the set of 'programme villages' where WaterAid and its partners have carried out community-wide ODF sanitation programmes, for detailed fieldwork. The exact criteria for selection were determined in the inception period but, as far as possible, selection included communities where the period since the intervention was as long as possible. At least one community was selected from a group considered to be 'high performers' (ODF status), one a 'low performer' (non-ODF status) and one 'median' case. Where the data set was sufficiently rich, the selection process also took into account areas with specific technical challenges such as a high water table.

Fieldwork

Fieldwork in study communities was focused over a period of around two days. The fieldwork included background data collection, mapping, observations of sanitation status and hygiene behaviours, latrine observations, focus group discussions, interviews with key informants and household visits and interviews.

A summary of the scale of the fieldwork is shown in **Table 1**. A key point to note is that the relative size of the sample is small in Bangladesh (due to the large scale of the programme) compared to the other two countries.

Table 1: Study communities

	Number of intervention communities	Communities where fieldwork was carried out	Number of households interviewed	Number of latrine inspections
Bangladesh	16,000	12 (plus two detailed case studies of latrine sharing)	142	142
Nepal	19	4 (Plus one from a newer project 'CLBSA')	49	61
Nigeria	98	8	203	109

Section 4

Study context

WaterAid has been closely associated with the development of CLTS in **Bangladesh** since its inception by VERC in 1997. Since 2003, WaterAid has worked with local partners to implement a large programme of rural sanitation covering 14,000 communities in all, as part of the five year Department for International Development (DFID)-funded Achieving Sustainable Environmental Health (ASEH) programme (2003–2009) which also supports rural and urban water supply and urban sanitation.

ASEH is a multi-sector programme and engages with rural communities through a two and a half to five year programme cycle, with sequenced interventions in sanitation (CLTS), water supply and hygiene promotion.

Several contextual factors distinguish the experience of implementing CLTS in Bangladesh, including:

- A supportive policy environment – CLTS is recognised in national policy while both national and local government (Upazillas) have played a part in rolling out the approach across the country. At Upazilla level, 20 percent of the Annual Development Budget (ADB) is allocated for incentives, hardware and software aspects of rural sanitation
- A widespread presence of Non-Governmental Organisations (NGOs) who often work in the area for many years
- A track record of successful rural water supply programming and, to a lesser extent, sanitation projects and programmes
- A reasonably well established and widespread private sector with a well developed retail market and small businesses manufacturing cheap latrine components

CLTS is a much newer concept in **Nepal**. WaterAid piloted the approach in 19 communities between 2003–2007. As a result of a major internal evaluation, WaterAid and its parner, Nepal Water for Health (NEWAH), have now modified the approach and are implementing new projects entitled Community-Led Basic Sanitation for All (CLBSA). Under CLBSA a two step process is used; once the community has achieved elimination of open defecation, a community fund is available to assist the least able to upgrade and build permanent toilets. While WaterAid and NEWAH have been the major players promoting the approach to date, other donors and NGOs are now showing an interest. Sector actors in Nepal are reasonably well informed about CLTS from the close proximity of Bangladesh and the process of regional information sharing through the SACOSAN conferences.

In **Nigeria,** WaterAid are pioneering CLTS-type projects with increasing support from the national sanitation sector. The programme is relatively young compared to the other two cases, and on a very small scale. Nigeria has previously had a heavy reliance on subsidies in its rural sanitation

programme. The programme in Nigeria differs from the other two cases in the sense that WaterAid are working directly with local government as the implementing partner. In Bangladesh and Nepal, while local government officers have played a role, the primary responsibility for implementation lies with the NGO partner.

Section 5

Limitations of the study

While the study was designed to provide a rigorous analysis of the three country programmes, certain limitations of the approach must be borne in mind.

The first, and possibly most significant, is that interventions amongst the study population of communities are all either ongoing or relatively recently completed. This study therefore cannot give definitive empirical evidence of the sustainability of either the infrastructure or the changed behaviours observed. At best, the study provides a 'reasonable' assessment of **likely** sustainability based on some carefully selected, but nonetheless proxy, indicators.

The second limitation is the small number of communities from which sampling can be taken. While Bangladesh has a large scale and relatively long-established CLTS programme, the other two countries in the study have a much smaller and younger cohort of CLTS communities from which samples can be taken. However, the size of the Bangladesh programme and the resources available to this study do mean that the relative size of the sample for the Bangladesh study is extremely small. As described above, purposive sampling was used to identify a representative group of communities for detailed study. Findings may not represent average performance across the entire country programme – they are more useful in showing a range of possible outomes and parameters.

Finally, the extremely different contexts of the three countries in the study mean that comparisons between countries are difficult and often meaningless. While the three country studies provide an illustration of a range of experiences, they cannot be used to judge comparative performance of the three programmes.

Section 6

Findings

6.1 Summary of findings

The picture which emerges from the three country studies is somewhat mixed.

In **Bangladesh,** the interventions studied are part of a widespread and widely agreed national programme implemented at scale. The WaterAid interventions alone have targeted upwards of 16,000 communities over the past five years. The outcomes are generally good – all of the project communities are reported to have achieved ODF status. Sharing of latrines is surprisingly common but amongst households with their own latrines, upgrading and rehabilitation are also prevalent. The interventions appear to have resulted in sustained behaviour changes and are highly cost effective.

In **Nepal,** the scale of the programme is much smaller and the experience of CLTS is relatively new. WaterAid have led the way in piloting and evaluating experience and are still in a process of developing an approach which can be rolled out nationwide. While all the communities studied (apart from Darbesha) had achieved ODF status there was evidence of fairly widespread non-compliance in the form of now hidden open defecation. It is worth noting that in most communities, the achievement of ODF status (known as No Open Defecation (NOD) in Nepal) is a planned event, the date for which is fixed at the start of the process. This means that the NOD date does not necessarily reflect an actual achievement of ODF. In the more successful communities there was evidence of continued upgrading and an interest in investing over time to improve sanitation. Costs were higher than those seen in Bangladesh and there had been limited technical innovation.

In **Nigeria,** the programme is only in its third year. While the research noted that the findings of the study may be affected by seasonality (recent heavy rains) the higher performing communities have undoubtedly achieved a widespread shift in behaviours. This is despite the fact that the effectiveness of the approach may have been impacted by the change over from more subsidy focused approaches and limited time for early projects to be completed. Change has begun but there is limited evidence as yet that communities will sustain the change and progressively improve their sanitation status.

Overall, the impression created is of a dynamic process which has varying rates of initial uptake. Triggering leads more or less rapidly to change but the cases where it is completely ineffectual seem to be rare. In the early years, however, the process may be rather static and slow when compared to the dynamic change that has been seen in Bangladesh. It is possible that over time within communities the rate of change accelerates – progress in Bangladesh may be a product of both the CLTS interventions and earlier investments in the sanitation sector as a whole.

The following sections examine the findings in more detail – readers are referred to the country reports for a more in depth presentation of these findings.

6.2 ODF status in the study communities

Rates of achieving ODF status is 100 percent in Bangladesh and ODF appears to have been maintained. In Nepal, the ODF rate was also 100 percent but in practice there appears to be some open defecation continuing. In Nigeria, the findings were more mixed.

In **Bangladesh,** all of the 12 study communities had officially been declared ODF. The time to achieve ODF varied between 22 days and 54 months. The coverage (percentage of households with a toilet) in ODF villages ranged from 72 to 93 percent.

In **Nepal,** all 19 CLTS villages had been declared ODF/NOD (although as mentioned before, this can be interpreted to mean simply that an event had been celebrated on a planned date). With the exception of one study village, toilet coverage rates ranged from 53 to 93 percent. The outlying community had initially achieved 100 percent coverage but this had fallen subsequently to 28 percent. In all of the communities there was some evidence that some open defecation was still being practiced, albeit on a smaller scale than previously and often in 'hidden' locations.

In **Nigeria,** the rate of achieving ODF in all communities where the intervention has been implemented is reportedly much lower (around 15 to 19 percent) overall. Of the three communities which had reportedly achieved ODF, only one had maintained ODF behaviours, while in one, 18 percent of households reported reverting to open defecation. In the final community, open defecation had in fact only been achieved in one section of the community. In communities which had yet to be declared ODF, between 38 and 90 percent of households were still practising open defecation.[2]

Table 2 and **Figure 1** summarise the general findings.

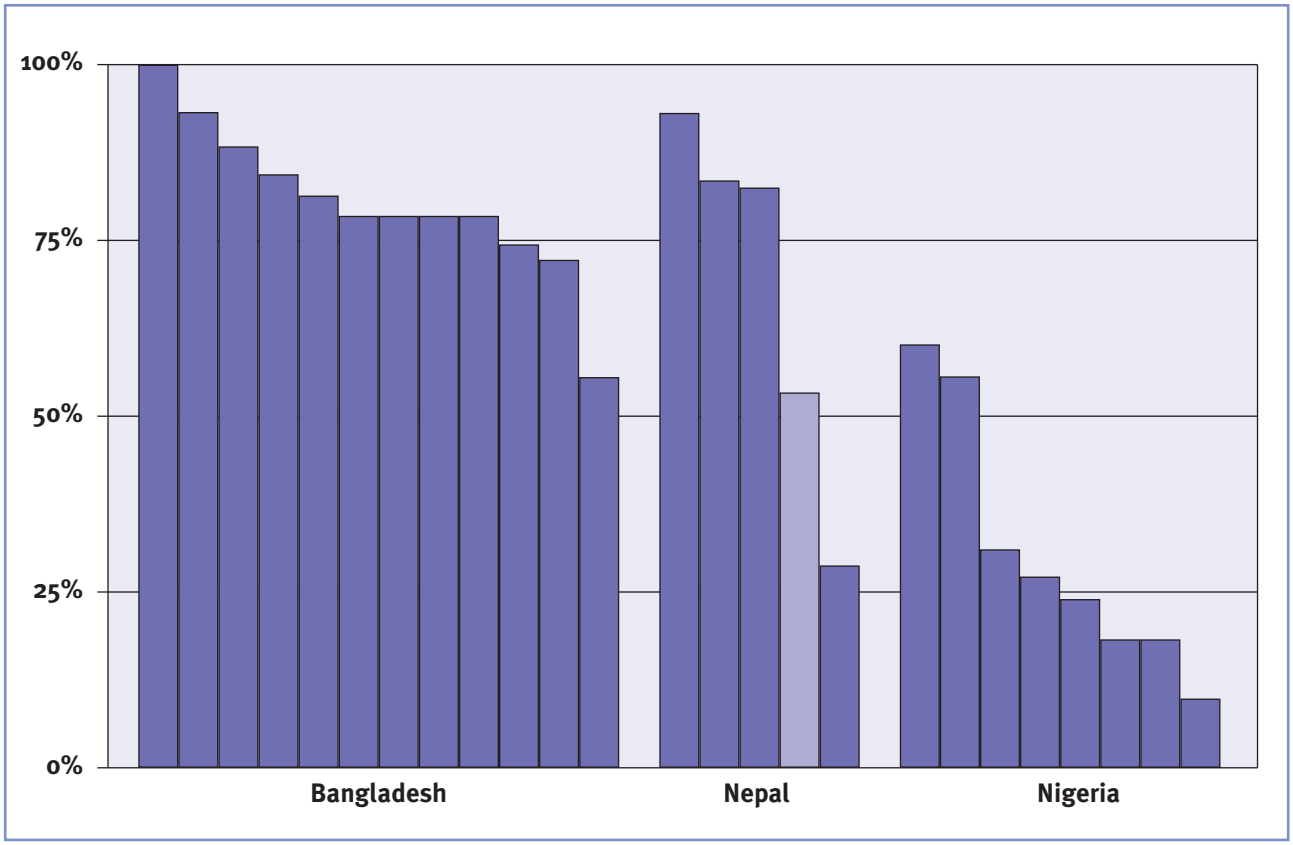
2 The Nigeria study was the only one that explicitly revealed open defecation behaviours in interviewed households. This should not be taken to mean that open defecation rates are necessarily higher in these communities, it merely reveals that the interviewers were able to elicit acknowledgement of open defecation behaviours from the interviewed households.

Table 2: Summary findings – ODF status and latrine coverage

		Baseline[3]		At ODF declaration[4]		Study	
	Cat.[2]	No. of HH	No. (%) latrines	No. HH	No. (%) latrines	No. HH	No. (%) latrines
Bangladesh							
1. Hindu Pakutia	H	102	57 (56%)	105	73 (70%)	105	92 (88%)
2. Barta Purba Para	H	92	69 (75%)	92	86 (93%)	92	81 (88%)
3. Baldi Shikder Para	L	46	19 (41%)	46	30 (65%)	46	36 (78%)
4. Kursha Benu	L	108	84 (78%)	117	88 (75%)	117	86 74%)
5. Bara Poi Kha Para	L	42	5 (12%)	60	43 (72%)	60	43 (72%)
6. Bara Poi Master Para	H	53	5 9%)	74	60 (81%)	74	60 (81%)
7. Shahpur Karigar Para	H	48	5 (10%)	73	68 (93%)	73	68 (93%)
8. Koya Para	L	124	24 (19%)	168	84 (50%)	233	127 (55%)
9. Hedayet Ukil Para	L	59	14 (24%)	64	61 (95%)	64	64 (100%)
10 Mahajan Para	H	43	6 (14%)	45	38 (84%)	45	38 (84%)
11 Chota Jambaria	L	67	11 (16%)	73	53 (73%)	94	73 (78%)
12. Bara Jambaria	H	97	4 (4%)	115	69 (60%)	115	83 (72%)
Nepal							
1. Dumre Ekta Chok	H	70	6 (9%)	70	68 (97%)	80	66 (83%)
2. Chisapani	H	85	16 (19%)	86	66 (77%)	88	72 (82%)
3. Darbesha[6]		195	8 (4%)	195	133 (68%)	195	104 (53%)
4. Devisthan	L	131		131	131 (100%)	131	37 (28%)
5. Amarkhu	H	101	7 (7%)	96	94 (98%)	101	94 (93%)
Nigeria							
1. Duhuwa	H	128	0 (0%)			144	10%
2. Efopu-Ekile	H	15	3 (20%)				27%
3. Igba	H	124	49 (40%)				55%
4. Molori[7]	M	130	0 (0%)			68	18%
5. Mbagbor	M	264	24 (9%)				18%
6. Mbaazenger	L	330	34 (10%)				31%
7. Amegu-Ada	L	230	41 (18%)				60%
8. Mburubu	L	280	29 (10%)				24%

3 Nigeria: baseline household (HH) data was from WaterAid in Nigeria records; baseline latrine data was from focus group discussions
4 Bangladesh: status of the community at ODF was from community records available in each community
5 For sampling purposes, communities were categorised by WaterAid and partners into High (H), median (M) and low (L) performers
6 Darbesha is a CLBSA community still in implementation phase, so a full comparison cannot be made with CLTS communities
7 Molori data is based on the revised figures provided by the WaterAid state manager for Jigawa

Figure 1 : Percentage of houses with latrines in study communities[8]



6.3 Shared latrines

In all three country studies there was strong evidence of households sharing latrines as part of the community-wide process of eliminating open defecation.

In **Bangladesh,** on average 27 percent of households in the sample didn't have their own toilet, but this number was as high as 50 percent in some cases. This suggests that levels of sharing are very high (potentially universal in those communities where half the households do not own their own toilet).

In **Nepal,** sharing was seen in all four of the study communities.

In **Nigeria,** shared latrines were found to be common in the study communities. In five of the communities, between 65 and 89 percent of households using a latrine share it with at least one other household. Igba, the only ODF community, has the lowest proportion of shared sanitation, with only 19 percent of those using latrines sharing with another household.[9] Overall, around half of the study households were using a shared latrine.

A closer analysis of two communities in Bangladesh confirmed that around half of households were indeed using shared latrines (**Table 3**). It was generally reported in all three countries that sharing was 'between related families' and that the number of families sharing one latrine was limited, although up to six families were found sharing a single latrine in some cases.

8 Note that Bangaldesh data is as reported as Shaded bar is a CLBSA community

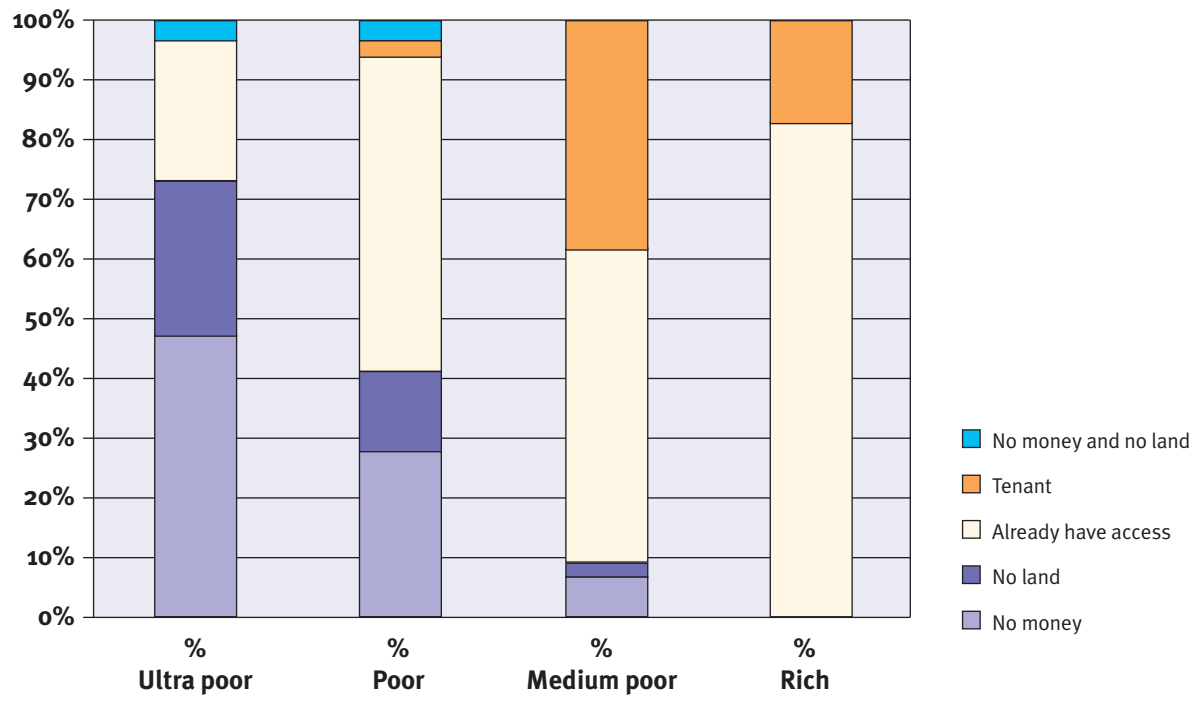
9 Insufficient data was collected to report on the proportion of shared latrines in the two Enugu communities **Mburubu** and **Amegu-Ada**

Table 3: Shared latrines in two communities in Bangladesh

	At ODF declaration		Study (December 2008)				
Community	No. of HH	No. of latrines	No. of HH	No. of latrines	No. of HHs with sole use of latrine	No. of HHs	Average HH per shared latrine
Bara Jambaria	115	58 (50%)	115	83 (72%)	61 (53%)	54 (47%)	2.5 (range reported 2-6)
Koya Para	168	84 (50%)	233	127 (54%)	80 (34%)	153 (66%)	3.2 (range reported 2-5)

Households without their own latrine in Bangladesh were asked why they did not have one (**Figure 2**). All said they had access to a shared toilet, though not all gave this as the reason for not building their own. Among poor families, just over half reported that they already had access to a toilet elsewhere, just over one quarter cited cost as the reason, and another 15 percent said they had no land on which to build one. A further three percent gave the fact that they were renting as the reason. Interestingly, 17 percent of richer households explained that they were tenants, though the sample size was very small.

Figure 2 : Reasons for not building a private latrine (Bangladesh)



6.4 Open defecation

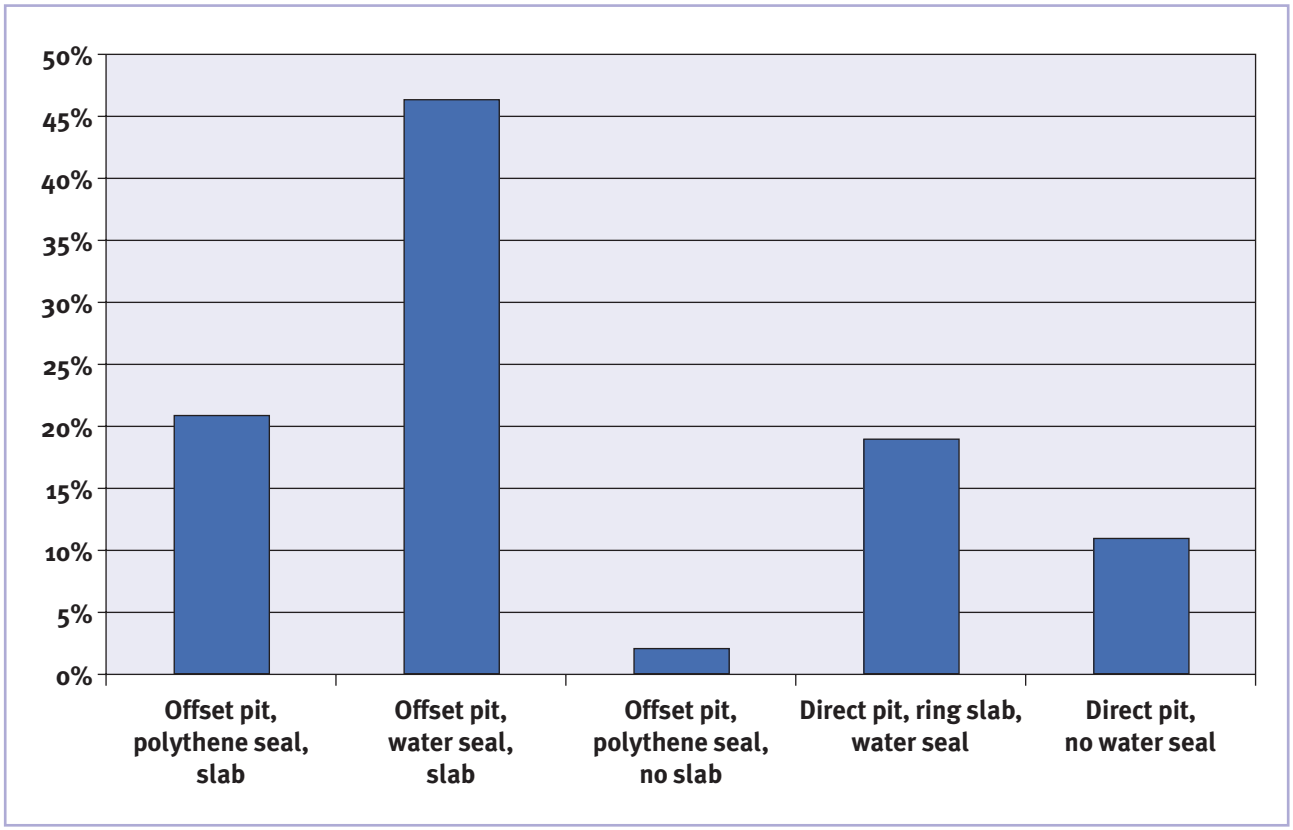
The research in **Bangladesh** found no evidence of systematic open defecation but NGO staff and community members acknowledged that a small amount of open defecation was still taking place. As already mentioned, open defecation continued to be practiced in all but one of the study communities in **Nigeria.** In **Nepal,** the community were able to talk quite openly in some cases about the fact that open defecation was still practiced although the evidence suggests that there has been a shift from open defecation in public locations to open defecation in remote or 'hidden' locations. The research team certainly saw no evidence of open defecation in the public areas of the communities visited.

6.5 Innovations in latrine design

There was a significantly higher degree of variation between different latrines in the case of **Bangladesh** when compared to the other two study countries.

In **Bangladesh,** five broadly-defined types of latrines were found (**Figure 3**). All had a single pit and the most common type (47 percent) comprised of a slab with water seal and offset pit. A common innovation is the use of a flexible polythene seal at the outflow which opens when there is a discharge from the latrine and collapses to reseal itself when there is no flow, thus dispensing with the need to maintain a water seal. Typical pit depths were reported to be in the range of three to four metres. However, this could not generally be checked as the latrines were in use and many were concealed. In flood prone areas it was common to raise the pit lining above ground, if lining was used.

Figure 3: Latrine types observed in Bangladesh



In **Nepal,** latrines are characterised as either 'pukka' (permanent) or 'temporary'. The majority of latrines were either direct or offset single pits. The pukka latrines invariably used a standard 'set' consisting of three or four concrete rings, a ceramic or concrete pan, and a concrete slab usually laid in situ rather than pre-cast. There was virtually no innovation with the exception of two latrines which used old cooking oil cans for the pan.

In **Nigeria,** all of the latrines observed in the study communities were pit latrines. Out of the 109 latrines surveyed, only five (five percent) were flush or pour-flush toilets; fully 95 percent of the latrines surveyed were dry pit latrines of which just less than half had a cover over the squat hole. Around one third had vent pipes but almost none were proper ventilated improved pit latrines.

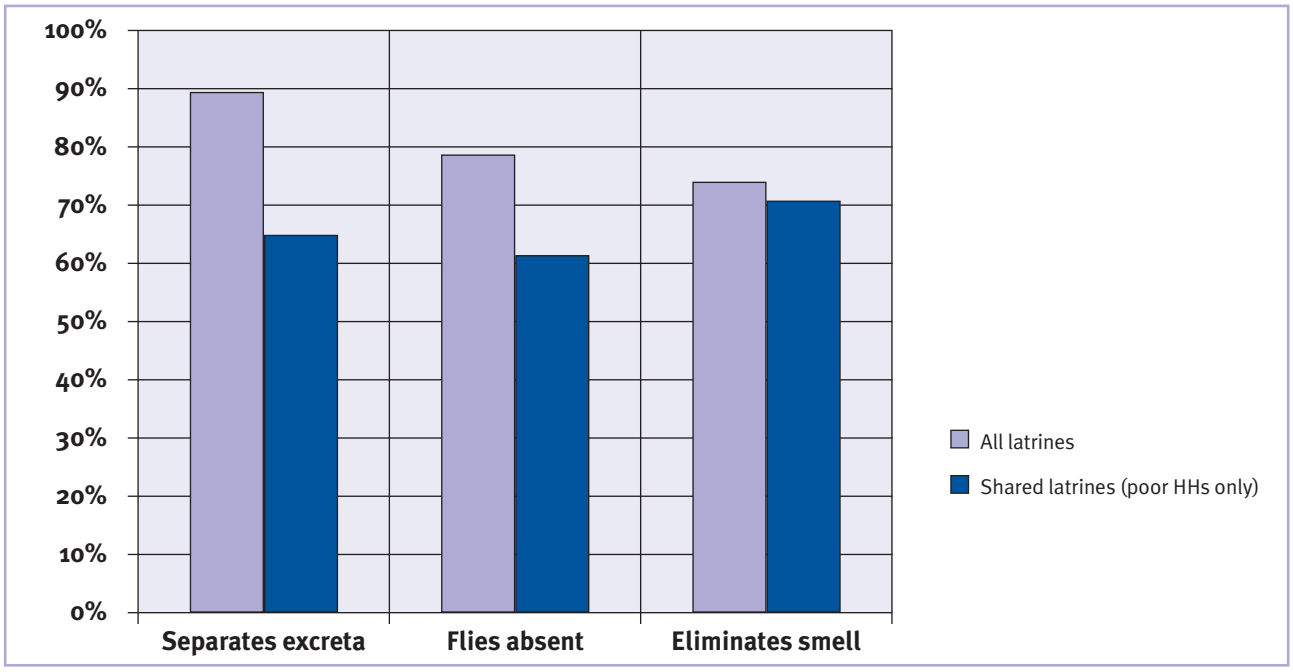
6.6 Hygienic latrines

The Research design brief identified four proxy indicators of hygienic latrines:

- Separates human excreta from human contact
- Fly-proof (preventing flies from spreading faecal matter to the wider environment)
- Eliminates smell
- Does not contaminate surface water

In **Bangladesh,** the research team found that a significant majority (at least three quarters) of the latrines inspected were hygienic, although there is no data from the study with regards to impacts on surface water. The data for shared latrines showed slightly worse results (**Figure 4**). Interestingly, 35 percent of the latrines surveyed later (which were predominantly shared latrines) were observed to have damaged polythene or water seals and were therefore not considered to be hygienic. There was little detailed information on ease of cleaning, although more than 90 percent of all latrines were reportedly easy to clean.

Figure 4: Incidence of hygienic parameters in observed latrines in Bangladesh



In **Nepal,** 77 percent of the 61 latrines inspected were considered to be hygienic. None of the pukka latrines were found to be unhygienic, whilst 63 percent of the temporary latrines were hygienic.

In **Nigeria,** all of the latrines were pit latrines and there was no contamination of surface water. A few collapsed latrines were observed and as these provided no protection at all, the households were recorded as practising open defecation. In almost all the other observed cases there was an adequate depth of pit and a slab that provided effective separation of excreta from human contact. A third had washable slabs and 40 percent had sweepable slabs. The effect of this was that 90 percent of the observed latrines were clean.

However, very few of the observed latrines were fly-proof and flies and/or fly maggots were observed in 16 percent of the latrines. This was partly due to poor implementation of elements of VIP latrines, notably unscreened vent pipes which allowed ingress of flies for breeding.

Overall, there was a mix of hygienic and non hygienic latrines; by and large around three quarters of latrines in Bangladesh and Nepal were judged to be hygienic. The percentage was lower in Nigeria but it is difficult to tell to what extent this is due to more rigorous inspections and to what extent it is due to failures in implementation of the technology.

6.7 Equity

Introduction

The literature on CLTS emphasises repeatedly both a need for and focus on working across the entire community to achieve 100 percent change in behaviours. The justification for this is strong both in terms of health benefits and equity. However, three specific questions arise:

- Firstly, the extent to which community-wide sanitation is actually achieved. Whether there are certain groups who, despite an initial willingness to participate, are more likely to continue to practice open defecation at least some of the time, and whether there are certain groups who are unable to use any of the facilities for fixed-place defecation either for physical or cultural reasons
- Secondly, whether there are some groups who are disadvantaged by the process, either because of relative poverty, or because they are subject to inappropriate coercion in order for the wider community to achieve its objective
- Thirdly, whether sanitation facilities are available for use throughout the course of the working day, even where community members move away from the home to school, work, the market or the fields.

Reasons for building latrines

In Bangladesh many households already had toilets prior to the project intervention. Only a quarter of household respondents, for example, had built their toilets within the last three years.

A wide range of reasons were given for constructing the toilets. In Nepal and Bangladesh, health came quite high up on the list of reasons to build a latrine which suggests that the health-related aspects of the triggering process have at least made respondents aware of the health aspects of poor sanitation.[10] Privacy was also commonly cited as a factor which is slightly surprising given the high levels of sharing of latrines.

Specific benefits were reported for the elderly, disabled and sick people.

Equity and Inclusion

Poverty and disadvantage

In Bangladesh, the study found no evidence of systematic exclusions, with the exception of a small Hindu minority in one community who were nonetheless relatively wealthy and who all had toilets already.

Nearly half of the ultra poor, and about a quarter of households overall who did not have a latrine cited affordability as the main reason. This seems surprising given the availability of extremely cheap options (some of which cost as little as US$1.50 to build).

Around a quarter of the ultra poor and poor households sharing latrines cited lack of land as a reason that they had not constructed their own latrine. Beyond that, NGO staff and WaterAid in Bangladesh staff report that sharing is sufficiently acceptable that households simply do not feel the need to construct their own latrines. This view was partially confirmed in the household interviews where nearly half of those without latrines cited this as the main reason. Tenancy also played a part across all income groups.

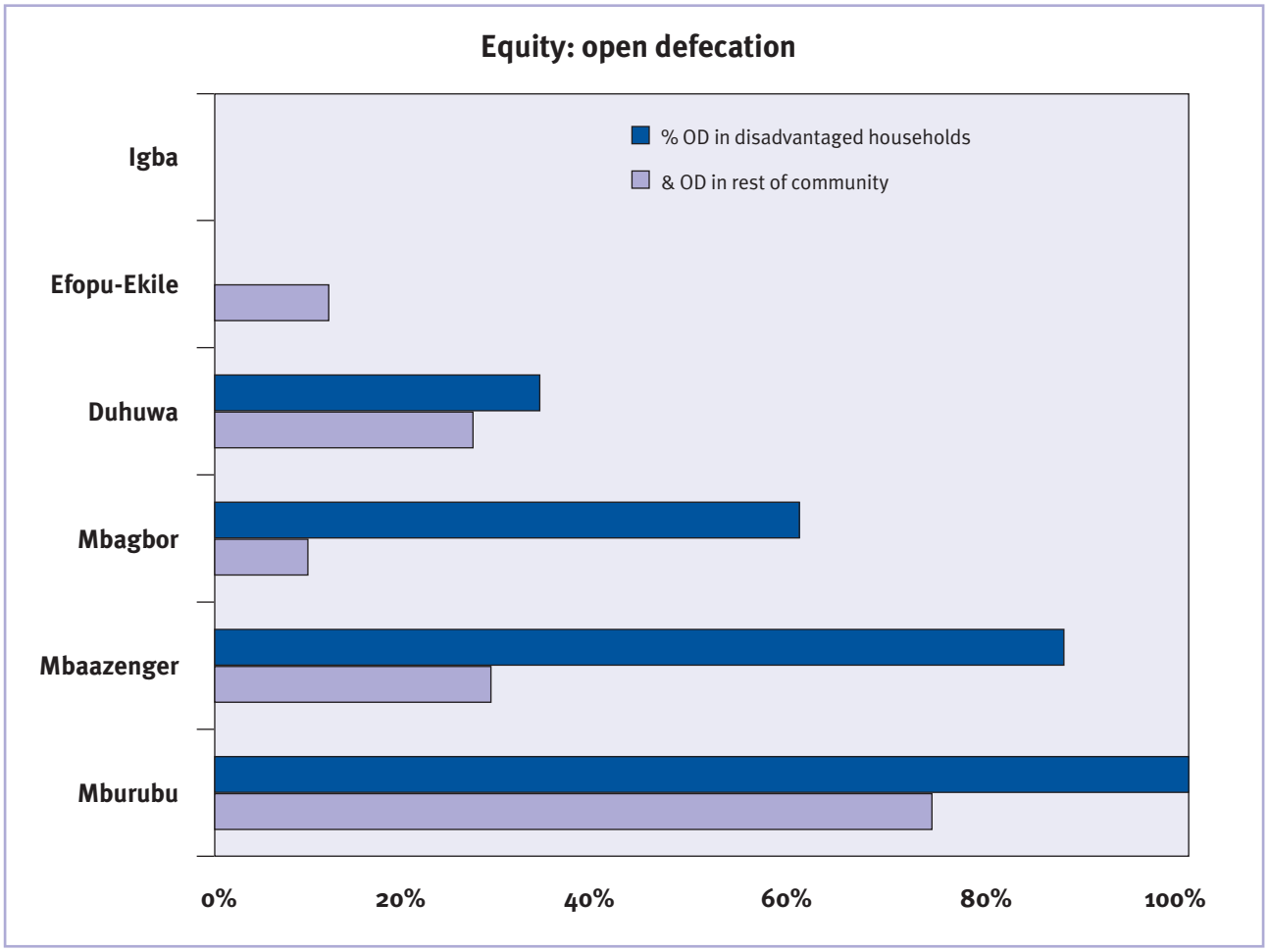
In three of the four communities in **Nepal**, there was clear evidence that poorer members of the community were more likely to be using unhygienic latrines or practising open defecation.

Temporary pit latrines are commonly built by the poorest households. These are more susceptible to damage, thereby placing high labour demands on those households with usually the least capacity. One respondent said she had dug eight pits since the project started. A very small number of households were too old or infirm to carry out labouring activities.

In **Nigeria,** the data suggest that equity of access is reasonably good between different groups when outcomes in the general area also good (**Figure 5**). The main disadvantaged groups present in these six communities were female-headed households, elderly-headed households, and households with disabled members.

10 What it probably doesn't tell us is whether this was a true motivating factor or something that households now feel comfortable to talk about with interviewers

Figure 5: Open defecation in six communities in Nigeria



The data confirm relatively equitable outcomes in the three high-performing communities Igba, Efopu-Ekile and Duhuwa. However, the disadvantaged households fare far less well in the median and low performing cases, with open defecation rates 26 to 59 percent higher than in the rest of the community. In the high-performing communities, the observation data also suggest that the disadvantaged households had generally built similar latrines to those built by the bottom 35 to 45 percent of the community, and had maintained them to a similar standard.

The analysis relating to wealth ranking showed a similar result: reasonably equitable outcomes in the well-performing communities but greater disparities in communities that had performed less well. In Igba, all of the rich households had improved sanitation facilities with concrete slabs compared to only eight percent of the middle-ranked households and none of the poor households. However, open defecation was zero across all wealth categories.

Ethnicity

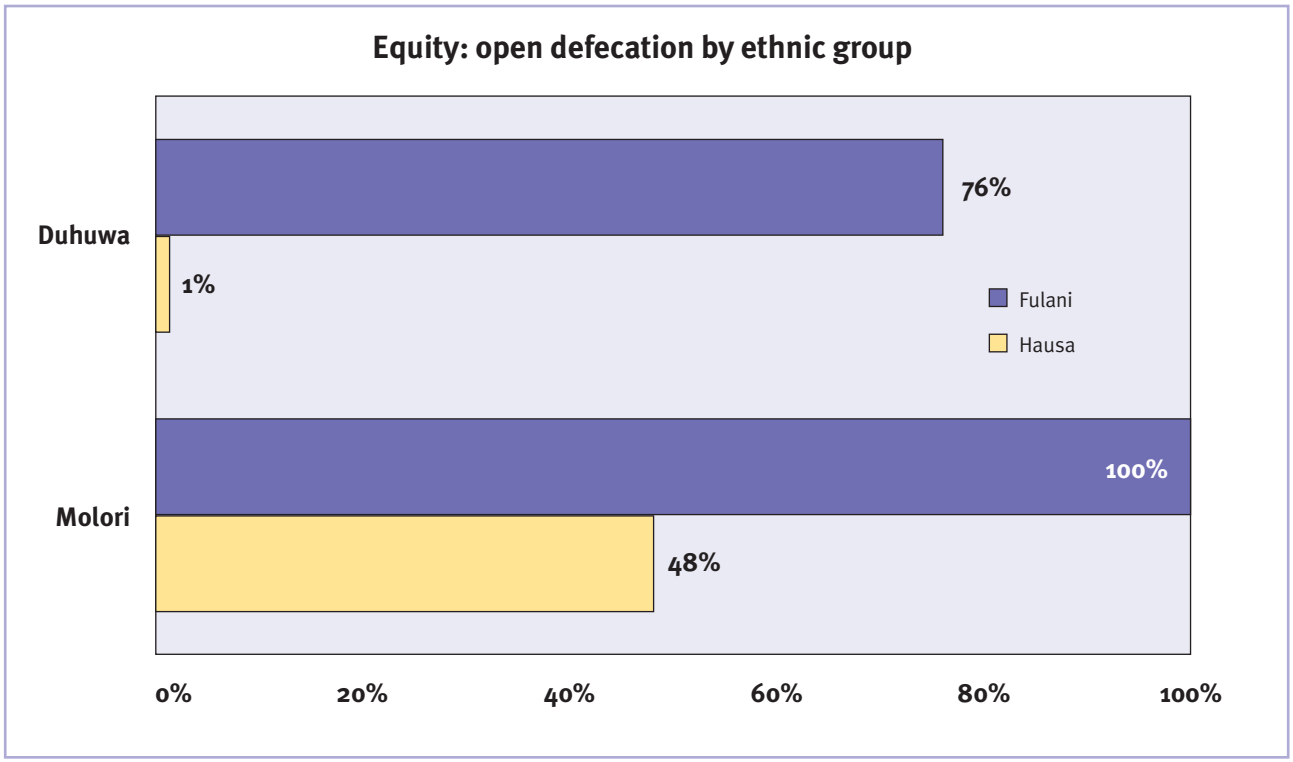
The Nigeria study identified a particular issue related to ethnic groups. Only two of the eight study communities contained more than one ethnic group. The two communities in Jigawa State, Duhuwa and Molori, are both made up of a mix of households from the Hausa and Fulani ethnic groups.

In both cases, the Fulani households comprise about half of the community population:

- 71 Fulani households out of 144 households in Duhuwa (49%)
- 62 Fulani households out of 130 households in Molori (48%)

Despite an understanding that the CLTS approach requires every household to stop open defecation and the inclusion of the Fulani households in the baseline survey lists in both communities, it appears that the Fulani households did not play an active part in the CLTS process and, as a result, constructed very few latrines (**Figure 6**).

Figure 6: Open defecation by ethnic group in two communities in Nigeria



The open defecation rate among Fulani households is more than 50 percent worse than that found in Hausa households. The Fulani are semi-nomadic, and the study concluded that this mobility prevents them from investing in a permanent latrine. Another cultural factor is the Fulani cleanliness and preference to defecate in private, well away from their home, and even to conceal the practice from other members of their household. It was also stated that, although the Fulani requested to be included in the project, they keep themselves fairly separate from those in the main settlements and tend to stay outside on their farms. Further discussion revealed that only one of the 15 member water and sanitation committee in Duhuwa was a Fulani.

Sanitation available throughout the working day

Hygienic sanitation was available in the local schools in Nepal. There were no schools in the study communities in Nigeria and no data was available from the Bangladesh study.

In Nepal, most community members admitted to practising open defecation when they were far from home eg collecting firewood in the forest, or collecting grass, although they try to find hidden places to defecate, and avoid open places, paths, or water points.

Several children admitted to openly defecating if they were away from home, such as by the river. There were no latrines at any of the nearby markets, so open defecation was the only option. Insufficient information was obtained about whether any of these open defecation situations, especially at the market, affects men and women differently.

The one institutional latrine observed in Nigeria was in a recently completed rural health clinic in Duhuwa, where the community was very proud of the fact that a latrine had been constructed (in recognition of their efforts to create an ODF settlement).

Impacts of pro-poor strategies

In all three countries there are some mechanisms in place that are specifically designed to remove financial barriers for the poorest.

In **Bangladesh,** the local government (Union Parishad) has an earmarked allocation of funds which are intended to be used to promote sanitation through both software activities and hardware subsidies. In the study communities, ward members were free to allocate Union Parishad assistance for toilets as they saw fit. Not all of this assistance went to the ultra poor, and not all ultra poor households received help. Only 14 out of 142 households interviewed were assisted, half for their first toilet and the other half for replacement or upgrading, despite the fact that the interviewers purposively sampled from poorer households. The inference here is that the funds available through the Union Parishad will be insufficient to reach all of the hardcore poor unless allocations continue to be made available even to ODF communities in the following years. On the other hand, given that the reported costs of the cheapest latrines are extremely low and sharing of latrines is reported to be acceptable, it seems unlikely that this will result in exclusions from at least basic access for the poorest households.

In **Nepal,** the project made provision for hardware subsidies to the poorest which were to be distributed on the basis of a wealth ranking exercise. In Amarkhu, 16 ultra poor households received latrine materials (pan, pipe, cement and rod) and one day's worth of skilled labour. In addition, five households were assisted by the community in digging pits or with some materials. In this community the approach to provision of subsidy appeared to have been quite flexible and the outcome relatively well-targeted.

In the two projects where well-being ranking had not been carried out, there were clear examples of households without latrines due to poverty. Whilst in the three communities that have carried out well-being ranking, the majority of the poorest households had (or would soon have) hygienic latrines.

It is slightly difficult, however, to interpret these data since it is only in the newer communities that well-being ranking has been carried out. The less good results in the other communities may be due to poorer households failing to replace temporary latrines and reverting to open defecation. The data cannot be used to infer that less poor people made the initial switch in behaviours in these communities.

In **Nigeria**, WaterAid has promoted the establishment of a **sani-centre** in each project community to tackle the transport and market access problems faced by remote rural communities in Nigeria. WaterAid trains several community members as artisans (able to construct low-cost concrete latrine slabs) and provides each community with N80,000 (US$700) as seed money for the sani-centre – sufficient to build 20 to 30 slabs in each community. The goods supplied to the sani-centre are supposed to be sold to the community members at affordable prices, with any income used to replenish the material stocks held by the sani-centre. In most cases, the WES unit and the water and sanitation committee members set the price for a concrete latrine slab at about N1,300 – N2,000 ($11.50 – $17.70).[11]

The combined sani-centre costs (training and seed money) account for almost 50 percent of the project costs (excluding household contributions). Evidence from the study suggests that the sani centres are not effectively reaching the poor within these communities (**Table 4**).

Table 4 – Sani-centre production in Nigeria

Study community	Sani-centre Slabs in use	New latrines In use (No.)	% households benefiting
Efopu-Ekile	14	8	100%
Igba	9	36	25%
Duhuwa	4	42	10%
Mbagbor	1	44	2%
Molori	1	13	8%
Mburubu	1	0	0%
Amegu-Ada	0	10	0%
Mbaazenger	0	60	0%
Total	***30***	***213***	***14%***

Key: No. = number

In total, only 16 sani-centre slabs were found in use in the other seven study communities. Assuming that the seed money provided to each sani-centre was N80,000 (US$700), this means that each of these slabs cost WaterAid in Nigeria about US$300. In addition, the main people to have benefited from these free slabs are the community heads and water and sanitation members, who are generally non-poor households.

11 The exchange rate at the time of the fieldwork was US$ 1 = Naira 113

6.8 Sustainability

Introduction

The body of evidence gathered so far seems to indicate that facilitated community-wide approaches which focus on eliminating open defecation have had a marked success in moving communities onto the first 'step' of the sanitation ladder. The outstanding questions then relate to:

- The extent to which this behaviour is entrenched and becomes permanent
- How communities are capacitated to move on from this point towards behaviours which may have greater health benefits (the use of sanitary latrines, and hygienic behaviours)

The assumption in the literature to date has been that, where communities have previously been practising widespread open defecation, community-wide facilitation with a focus on empowerment and generating knowledge about the implications of open defecation will result in entrenching 'better' behaviours (fixed place defecation and the use of latrines). This study sought to question this assumption by exploring two counterfactuals:

- The approach does not always achieve this initial behaviour change
- Additional interventions are needed to ensure that changes in behaviour are entrenched and result in long term shifts in sanitation knowledge and practices

For the purposes of making a realistic assessment of sustainability the study took 'long term use' to mean the use of latrines beyond their immediate short term (one pit-full) life and by community members who were not present at the first stage of 'ignition'. Given the short time frame since many of the study communities achieved ODF (3 to 5 years maximum) proxies for long term change were needed. These must be treated cautiously in the analysis. The proxies used were evidence that:

- Full pits are emptied and/or replaced
- New members of the community (in-migrants or new adults) construct and use latrines
- Some individuals and households are moving up the sanitation ladder
- Breakages, pit collapses and latrines damaged by natural disasters are replaced

Use and maintenance of latrines (full pits are emptied and/or replaced)

In **Bangladesh,** the absence of open defecation was perhaps the strongest indicator that latrines, even if they were shared, were being used. The research found very few examples of latrines which had been completely abandoned although some had been replaced when destroyed by flooding and some households appeared to revert to sharing under similar circumstances.

Twenty-five percent of respondents had carried out some form of maintenance or repairs. Nearly one third of these had done so at zero cost while another third had spent less than $1.50. Forty percent of respondents had experienced a full pit, half had emptied it while nearly one third had relocated the toilet to a new pit (as

recommended by WaterAid). 'Sweepers'[12] were sometimes used, at relatively high cost. The sweepers manually handled untreated pit wastes in the process.

In **Nepal,** of the 61 latrines observed, 93 percent (57) were in use.

In both the hill and tarai communities, 'temporary', ie unlined, pits are not emptied, simply buried with soil and a new pit dug, and there was evidence from all the communities that this was happening. Of 49 households interviewed, 37 percent (18) had unlined latrine pits that had filled up or been damaged which they had buried and replaced with a new pit.

In the tarai communities, 'permanent' ie lined, pits are usually emptied by sweepers. In hill communities, these itinerant emptiers are not available. In Amarkhu, the plan proposed by the Water and Sanitation Users' Committee (WSUC) was that once a pit was full, a second pit should be dug to turn it into a twin pit latrine system. This solution was also mentioned by one respondent, whilst other respondents did not seem to know what they would do when their pit was full.

In **Nigeria,** almost every one of the observed latrines was in use and well kept (only three percent were dirty). Few, if any, had filled up due to the relatively recent nature of the intervention.

Rehabilitation, replacement and new latrines

In **Bangladesh,** at least one quarter of households had upgraded or replaced their latrine, the majority within the last three years. In 75 percent of cases the new toilet was different from the old one; two thirds of improvements were to the sub-structure (improved or upgraded seals, linings, pipes, slabs and floors) and one third to the superstructure (more permanent walls and roof).

In **Nepal,** upgrading was only observed in one of the two older communities (Ekta Chok) where, although the total number of latrines had fallen since ODF declaration, there was a trend to convert temporary latrines to 'pukka' latrines. Of the 19 latrines observed, five households were on their second latrine, and three on their third latrine. Ten of the latrines observed were two years old or less, of which five were hygienic (four pukka and one temporary), indicating that construction and upgrading were still continuing. In the other older community, Devisthan, no significant upgrading appears to have taken place,

At least 41 percent of households interviewed had temporary unlined pits that had become full or damaged. Just over half of these had upgraded to a lined pit; those who had not upgraded were all poor or ultra poor.

12 Locally known as 'Dum', these are people who are born and spend their life in the occupational caste of 'sweeping', scavenging, and pit emptying. They are itinerant, going from one community to the next in search of work

In **Nigeria,** there was almost no evidence that any households had upgraded their latrines. However, the evidence relating to incoming and new households is more informative. In the three well-performing communities there is evidence that new households are adopting ODF behaviours (**Table 8**).

A similar pattern was observed when the research team looked in detail at what happens when latrine pits collapse (due, for example, to heavy rains). In the high performing communities, households used various coping strategies (usually sharing) but did not revert to open defecation (**Table 9**).

Table 8 – Observed outcomes among new households

			New households			
Community	**Perform**	**State**	**No.**	**OD%**	**Shared %**	**Latrine %**
Igba	High	Benue	4	0%	100%	0%
Efopu-Ekile	High	Benue	3	0%	100%	0%
Duhuwa:	High	Jigawa	19	47%	37%	16%
Hausa			*9*	*0%*	*67%*	*33%*
Fulani			*10*	*90%*	*10%*	*0%*
Mbaazenger	Low	Benue	2	50%	0%	50%
Mbagbor	Median	Benue	4	50%	50%	0%
Molori	Median	Jigawa	6	100%	0%	0%

Key: OD% = percentage of households practising open defecation.
Shared = shared latrines. No. = number.

Table 9 – Observed outcomes among households with collapsed latrines

			Households owning collapsed latrines			
Community	**Perform**	**State**	**No.**	**OD%**	**Shared %**	**Latrine %**
Igba	High	Benue	4	0%	100%	0%
Efopu-Ekile	High	Benue	4	25%	75%	0%
Duhuwa:	High	Jigawa	3	67%	33%	0%
Hausa			*2*	*50%*	*50%*	*0%*
Fulani			*1*	*100%*	*0%*	*0%*
Mbaazenger	Low	Benue	1	100%	0%	0%
Mbagbor	Median	Benue	4	100%	0%	0%
Molori	Median	Jigawa	7	100%	0%	0%

Key: OD% = percentage of households practising open defecation.
Shared = shared latrines. No. = number.

6.9 Costs

Household and project costs of toilets

The costs of toilets varied enormously across the three countries and are difficult to verify. Most of the data presented here are as reported by households themselves.

In **Bangladesh** there was a wide range of toilet designs and some important innovations that reduced costs significantly (such as the polythene seal). Toilets could be built for as little as US$1.50 although more costly models were also found.

In **Nepal,** households built a latrine with an unlined pit (usually termed a 'temporary latrine), a lined pit and permanent structure using local materials or, in a minority of cases, a pukka latrine comprising the standard 'set' of three or four concrete rings for lining the pit, water seal and a concrete slab. Temporary latrines could be built without cash outlay using local materials (wood and stone) and household labour in the hills. In the terai they cost in the range of NRs 500–1000 (US$6.25–12.50). The cost of the pukka concrete latrines was reported to be in the range of NRs 5,000–8,000 (US$62.5–100) in the terai, rising to NRs12,000–15,000 (US$150–187.5) in the hills due to the high costs of porterage. In reality, in the hills, households were able to significantly reduce the cash cost of a pukka latrine by using local materials (usually stone) for pit lining, and wood or stone for the superstructure. The cost of the purchased materials (ceramic pan, pipe and cement) could be reduced if the household portered goods themselves from the market. Good quality permanent latrines probably cost in the range of NRs 5,000–6,000 (US$62–75), still a significant outlay for poor households.

In **Nigeria,** the minority of households that bought latrine materials or paid for labour reported toilet expenditures in the range of N1,500–2,000 (US$13–17.50) but most low-income households made no financial investments as their toilets were built using freely available local materials (timber, mud, thatch, bamboo) and their own labour.

Overall project costs

The researchers set out to examine the total project costs in each of the three countries. This proved challenging as data was hard to disaggregate, particularly at the local community level. Financial reporting systems tend to focus on inputs within a certain geographical region rather than on work related to sanitation specifically, and published reports tend to under-report on support costs and overheads. Notwithstanding these constraints, some detailed analysis was carried out. Details are available in the accompanying country reports but are summarised below in **Table 11**.

Table 11: Summary costs[13]

	Bangladesh[14]		Nepal[15]		Nigeria
	VERC	UST	Hills	Terai	
Programmemes costs (Training and support)					
Local NGO support and overheads[16]	369	282	5,146	5,443	
Wateraid national support	152	152	904	970	1,853
Software (Hygiene/ IEC)	33	52	83	83	1,311
Software (CLTS, training and follow up)	56	20	423	258	457
Hardware	0	0	149	330	448
Total WaterAid	**610**	**506**	**6,705**	**7,084**	**4,069**
Local government / UNICEF contributions[17]	31	31			407
Household contributions	200	200	3,300	2,500	1,140
Total	**829**	**724**	**10,005**	**9,584**	**5,616**

Cost effectiveness

The available field data were then used to examine the cost effectiveness of each intervention. In particular we were interested to see what the cost effectiveness was of sweepers. Locally known as 'Dum', these are people who are born and spend their life in the occupational caste of 'sweeping', scavenging, and pit emptying. They are itinerant, going from one community to the next in search of work. The study also looked at WaterAid investments in terms of outcomes (households benefited and latrines constructed). The average per-community costs shown in **Table 11** (but excluding local government and household contributions) were applied to the field data (numbers of households and numbers of latrines) obtained from the study communities to generate average values for all study communities.

Across the three countries, average **per household** costs were in the range of US$6–84. When it came to costs **per latrine** the range was from US$12–126. Most of the lowest costs (an order of magnitude lower) were seen in Bangladesh which is not surprising given the much larger scale of this programme (three orders of magnitude larger than the Nepal programme for example) and the fact that it is embedded in a well established national programme. The relatively high costs in Nepal probably also partly reflect the high cost to households of constructing latrines, particularly in the hills, which may push up the level of support required by the community in moving towards ODF.

13 Due to the non-compatability of the financial reporting systems in the three countries, it is difficult to draw direct comparisons of costs under various budget headings. The budget breakdown shown here is indicative only.

14 Household contributions for Bangladesh are estimated based on the average number of new latrines built in study communities (37) and assuming an average household investment of around US$5.50.

15 Household contributions for Nepal are calculated based on the assumption that 50 percent of latrines in the hills are permanent structures using a combination of purchased materials (pans, pipes, cement) and local materials (stone and wood) and 50 percent of latrines in the terai use the full concrete ring and slab set. The remaining latrines are assumed to be temporary latrines with minimal cash cost involved in their installation. The average number of new latrines is estimated from study data to be 110 in the hills and 56 in the terai. The higher average cost of hardware subsidies in the terai reflects the fact that these communities benefited to a greater extent to later changes in project design which allowed for greater contributions to the community fund. In the study villages in fact, the largest hardware subsidy was provided in one of the hill communities, Amarkhu.

16 The full cost of local NGO staff time for all community-level activities is included under this heading for Bangladesh and Nepal. In Nigeria, implementation was carried out by local government and financed by WaterAid.

17 Note that the cost of local government contributions in Bangladesh reported by staff to researchers in this project are somewhat lower than the figures recently reported from a WSP-supported study of another CLTS programme in Bangladesh (Dishari). Further investigations would be needed to clarify these data.

Cost findings are summarised in **Table 12.**

Table 12: Average cost effectiveness of WaterAid investments in study Communities (2008) (US$)

	Bangladesh		Nepal		Nigeria
	VERC	UST	Hills	Terai	
Per household	7	6	58	84	30
Per latrine	12	42	61	126	71
Per latrine in use	n/a	n/a	108	122	77

Cost effectiveness of subsidy mechanisms

As already mentioned, the approach to hardware subsidies in Nigeria has had limited success and thus the unit costs of the subsidy appear very high. In Nepal, the only community project with a relatively high level of hardware subsidy is Amarkhu where 16 ultra poor households received a subsidy in the form of free materials and a fixed quantity of free skilled labour. Not surprisingly, unit costs for Amarkhu are higher than for the other three communities.

The analysis does not provide conclusive evidence either in support of or against hardware subsidies. In the case of Nigeria it does, however, indicate that the existence of a subsidy mechanism in the programme design does not guarantee the delivery of those subsidies to the target population. In the case of Nepal, the data suggest that delivering effective progressive subsidies may require additional effort in terms of community support but further research would be needed to confirm this.

6.10 Is the hypothesis valid in the study communities?

Achieving ODF status is a necessary but not sufficient condition for the entire community to use and maintain hygienic latrines in the long term

The findings of the study confirm that in many of the communities that have declared themselves ODF, a very large majority of households have ceased to openly defecate and that the change shows signs of being permanent.

Across all three countries there was evidence that the better performing communities (in terms of achieving ODF – including the high performing communities in Nigeria and all the communities in Bangladesh) tended to have better longer term outcomes than other communities (the low performers in Nigeria, for example).

However, it was also clear that simply declaring ODF status was not sufficient to achieve this. A significant number of study communities that had declared ODF status were no longer open-defecation free often less than two years after the end of the intervention. In most cases only a handful of households admitted they had reverted to open defecation – the exception was Devisthan in Nepal where latrine use had dropped away dramatically.

In general, the CLTS-type triggering process appears to have been quite effective in reducing disequity in terms of access to and use of hygienic latrines. The communities, where triggering had been successful, had a better understanding of the reasons for stopping open defecation and seemed more concerned and upset when exceptions were uncovered. Those communities who had never achieved ODF tended to have a far more relaxed approach to their sanitation situation. Open defecation was not considered especially problematic, and there was less sense of the need to achieve a collective sanitation outcome.

The study suggests several factors which may contribute to relatively more effective, equitable and sustained outcomes in some cases:

- Well defined communities which represent meaningful units for the effective elimination of open defecation
- An absence of distinct cultural groups with significantly differing lifestyles from the majority (ie semi nomadic Fulani communities Nigeria)[18]
- A well developed market for the supply of sanitation goods and services and/or experience of technical innovation in sanitation (as, for example, in Bangladesh in general) which reduces the cost of latrines
- A system of follow up and support to households for management and upgrading and to communities for joint decision making and dispute resolution

In communities that achieved and maintained ODF status (or close to it) the approach was extremely cost effective, even in the two country programmes where support costs were relatively high (Nepal and Nigeria) due to the small scale of the programme.

18 The findings in Nigeria may also suggest that an adapted approach would be needed with semi-nomadic communities such as the Fulani but this would require further research to be confirmed.

Section 7

Discussion

What happens in an ODF community?

Most of the communities in this study used a range of temporary, unimproved and/or unhygienic latrines, individual and shared latrines as part of the process of eliminating open defecation and most were experiencing changes a few years after the intervention had ended. Households made changes which we might consider as moving up *and down* the 'sanitation ladder' including:

- Upgrading temporary latrines to permanent latrines (Nepal)
- Upgrading and replacement of damaged latrines (Bangladesh)
- Replacement of temporary latrines with other temporary latrines (Nepal)
- Sharing and reversion to open defecation in the short term when latrines are damaged (Nepal, Nigeria)
- Investment in new latrines for incomers and intention to replace damaged latrines (Nigeria).

In Bangladesh, the slight increase in the total number of latrines in some communities suggests also that people with shared latrines may build their own eventually.

Thus, while some of the CLTS literature talks about households moving up the sanitation ladder, there seemed to be a more multi-dimensional process going on whereby families might move from private latrine use to sharing when a latrine was damaged and back again at a later date. Still others remain using temporary latrines for the long term. These types of dynamic changes seemed to be important to maintain ODF status and were possible in those communities where the process of achieving ODF had been sufficiently robust.

One of the interesting implications of this finding is that **triggering** is only one point along the trajectory towards improved sanitary conditions. It raises interesting questions relating to the nature of ongoing support required or even how appropriate it is. It also raises the question of whether in some situations the **ongoing use of low cost temporary latrine solutions and their repeated replacement could be a realistic and acceptable outcome, particularly for the poorest**.

Initial sanitary status

Initial sanitary status may have an influence on outcomes in several ways. Firstly, at the community level it may be that experience with household sanitation for some households has accelerated the speed at which communities as a whole changed their defecation behaviours.

Secondly, the initial status influences the total investment that the community need to make; where the numbers of households who need to change behaviours is relatively small, the influence of those already practising fixed place defecation may be correspondingly higher. The time needed to build all the required latrines will also be less and the level of effort needed overall may be lower.

The data are not, however, conclusive. Initial rates of access to sanitation were generally high in the Bangladesh cases but in Nigeria, the three more successful communities had widely differing starting points in terms of access to sanitation (from 0 to 40 percent).

It is possible, however, that broader knowledge of alternative technologies, such as might be seen if the level of sanitation access as a whole is higher, may also help to stimulate local innovation (which may be a factor in the relative speed of change in Bangaldesh and the limited innovation observed in Nigeria and Nepal).

Subsidies, incentives and cash prizes

The findings on subsidies and pro-poor mechanisms are mixed. In Nigeria, the subsidies delivered through the sani-centres are clearly not reaching their targets while in Bangladesh, the money provided by local government allocations to provide support to all of the ultra poor reaches only a small number (estimated to be around ten percent of the population). In Nepal there is evidence that the distribution of intra community support on the basis of an internal wealth ranking exercise has worked in some cases, but there are also a number of communities without hardware subsidies that have been successful. There is not enough evidence to say whether the two step process of reaching ODF/NOD to trigger release of a community fund is working. Overall, the study cannot conclude that hardware subsidies are either effective or ineffective. However, we can say that the sani-centre subsidies were relatively expensive and that the existence of a subsidy does not *by itself* guarantee more equitable outcomes. Context and attention to process may be more important.

ODF declaration

The study did reveal some interesting approaches to the declaration of ODF status, most notably that this was not necessarily clearly defined. In Nepal, the communities tended to plan the date for ODF/NOD declaration well ahead of time and use the occasion as part of the motivational process (presumably irrespective of whether ODF was actually achieved). In Bangladesh, the concept has become so entrenched that it is hard to tease out what people understand it to mean. In Nigeria, there is not, as yet, an agreed definition. Like many terms in development it has become delinked from its true semantic meaning and become more of a milestone or marker in programme development.

Linking/coordinating sanitation with water supply

The study provided no conclusive evidence that links with water supply were either positive or negative. Most households in Bangladesh, for example, reported that they already had access to water and that the link between the two embedded in the project design was therefore not critical. The very low cost of the cheapest latrines in

Bangladesh suggests also that households would be able to build a latrine even if they were called upon to make contributions to a water supply scheme at the same time. The study team in Nigeria found that the combined interventions limited the development and visibility of genuine demand for sanitation, and thus recommended that water supply be delinked from sanitation. This separation would both increase the focus on sanitation for the communities most in need and improve the success rate of sanitation interventions by working with communities that express clear demand for sanitation improvement.

The private sector

The depth, reach and capacity of the private sector for sanitation goods and services may have been an influencing factor in the level of innovation, speed of uptake and lower costs seen in Bangladesh. The track record of sanitation activities, and evidence from simply observing the range of goods and materials available in local markets, does indicate that the private sector is significantly more mature here than in the other two study countries. Furthermore, the availability of these goods and services has meant that NGOs have not had to concern themselves with the supply side of the sanitation problem. By contrast, in both Nepal and Nigeria, efforts were made to influence the supply of goods and services and this may have diverted resources from the creation of effective demand.

Institutional latrines

There are indications that the impact of the impressive changes in community behaviour may be constrained by the lack of appropriate facilities for sanitation and hygiene away from the household in schools and local markets. Lack of latrines in schools and markets may force householders to revert to open defecation, thus reducing the impact of the behaviour changes achieved by the community. However, the study also suggests that at least equally significant is what individuals do when they are at work or travelling in the fields and forests around the community. Provision of non-household latrines would have to be considered very carefully to be effective; this study does not provide any evidence as to how this can best be achieved – it is an area that requires significant further investigation.

Length and intensity of post-triggering support

Finally, the Bangladesh case study has highlighted the long term relationship that most of the CLTS communities there have had with NGO partners both before and after the CLTS activities. Communities *may* have benefited from post-ODF support both on technical issues (emptying pits, rehabilitation, upgrading) and on social issues (dispute resolution, sanctions, rewards etc). The exact influence of this longer term relationship cannot be identified through the current study but the findings suggest that the Bangladesh communities have achieved more in terms of progressive development of their sanitation situation than was seen in the other two countries.

How do the national programmes compare?

It is interesting to see to what extent the CLTS experience in Bangladesh has gone to scale. This is in contrast to the relatively small scale of the two other country

programmes but care must be taken when drawing conclusions. The process in Bangladesh has been helped along by a number of factors already discussed, and is also much more mature than in Nepal and Nigeria. In particular, the efforts of the team in Nigeria to work through local governments directly (in contrast to the other two countries where NGOs are the main implementing partner) will probably slow down the initial process and early period of upscaling may prove effective and robust in the long term. In Bangladesh, where the density of NGOs is high and partnerships with local government common, a different approach was probably appropriate. One of the effects of the scale of the programme in Bangladesh is to make it appear more cost effective than the others but again, this finding should be treated in context. Costs are not directly comparable and the relative size of the smaller programmes necessarily means that support costs and overheads are high. Over time (as both the programmes themselves and the sanitation sectors of the two countries evolve) we may well expect cost effectiveness to fall towards those levels reported for Bangladesh. Most notable is that, while there are differences between these programmes, with costs per household in the range of US$5–90, they all compare exceedingly well with international benchmarks for rural sanitation.

7.1 Programme design issues

Focusing effort

The most successful communities in terms of sustainability and equity seem to be those which reach ODF relatively quickly. The evidence of the study also suggests that these tend to be well defined and reasonably homogeneous in terms of key behaviours. The evidence further suggests that once ODF is established and a community is showing some capacity to cope with external shocks (flooding, new households etc) then there is a higher probability that the behaviour change has become entrenched. Access to some post-project support may also be important in maintaining behaviour change. Achieving ODF seems to be harder in larger communities, where there are different social groupings or geographical areas. It may also be harder where technological choice is constrained (either by lack of knowledge or by lack of real technical options).

All of this suggests the need to focus effort carefully. Where the conditions are challenging, communities may need to be supported for longer and there must be scope for a more intensive period of initial support. Understanding the true extent and social dynamics of the community is important to ensure that a logical ‘unit’ for collective action is identified. Careful monitoring of progress in the initial months after ODF may also help to identify communities which are having difficulties and could do with additional external support. A robust monitoring system which picks up warning signals from the community may be one of the most effective tools for programmers.

Encouraging elimination of open defecation

In successful communities, households use a number of strategies to eliminate open defecation. Where the elimination of open defecation is an objective, understanding and recognising these strategies is important. The use of terms such as ‘temporary’ to describe latrines which are not of a certain type (eg Nepal) may create the impression that these latrines are not good enough and will need to replaced in the short term, whereas in reality, fully 63 percent of these latrines were judged to be

hygienic and some of them were clearly going to be used permanently. Terminology is important in determining what is promoted and measured and as such should be considered within the design of the programme. Where the short term use of regular replacement of cheap and simple latrines is recognised as a widespread and appropriate strategy, the use of the word 'temporary' or 'short term' may be useful. Crucially however, terms need to be understood in the local context. In Nepal there seems to be widespread agreement about what constitutes a 'temporary' latrine and, as such, the use of the term is understandable.

Measuring the right things

This study has also highlighted the very significant challenges associated with monitoring and evaluating progress in a programme that deals with community-wide changes in behaviour and which positively encourages local innovation and problem solving.

The study team worked hard to develop some usable proxy indicators for key aspects of performance in the study communities (see **Box 1**). These proved to be both robust and relatively easy to use and are included here for the information of readers interested in both monitoring and evaluation.

The study also highlighted some other key issues for the design of effective monitoring of community-wide open defecation focused programmes. These include:

- The need for careful **identification and definition of communities.** This may require a two step process which may initially be 'top down' but which will triangulate subsequently with communities' own knowledge of what the community is
- The need for robust and workable indicators developed at the local level to measure **key aspects of equity**. These cannot be generally defined for all programmes since the dimensions of disequity vary in differing contexts
- Linked to this is the need for careful and rigorous tracking of **hardware subsidies** (if used) to ensure maximum impact on improving equity and/or overall outcomes and cost efficiency
- The need to recognise and define **appropriate ways in which latrine coverage is achieved**. For example, in this study it was useful and appropriate to identify five key 'types' of latrine in Bangladesh, and to record where latrines were deemed to be 'permanent' or 'temporary' in Nepal. In both cases, adherence to an internally-developed norm would have resulted in the absence of much of the empirical richness of the country studies. Accurate information on sharing is also clearly important.
- Linked to this, indicators that adequately capture **dynamic change** over time perhaps, to identify households or groups who tend to move 'up' and those who tend to 'stick' on the sanitation ladder. This is helpful information for policy makers; if beneficial outcomes are being achieved it is important to understand what strategies at the local level lead to these outcomes. For example, it may be appropriate and acceptable for some people within the community to continue to use a series of very cheap 'temporary' hygienic latrines rather than move to something that outsiders deem to be 'better'. The relationship between levels of sharing and outcomes needs to be understood. In both cases appropriate indicators can generate the needed information.

Box 1: Proxy indicators used in the study

Use and maintenance of latrines

Proper use and maintenance of latrines is difficult to measure directly, particularly in such a short timeframe, so the study will use four proxy indicators to examine the probability that latrines are used and maintained. These are:

- Latrines which are easy to clean
- Pits which are filling up
- Evidence that sludge has been safely disposed of or re-used
- Evidence that pits could be emptied and there are plans for treatment/ re-use or disposal

Hygienic latrines

Hygienic latrines were defined in the study as those which have benefits for human health. Measuring how hygienic a latrine is, is complex. However, there are some aspects of latrines which the literature confirms will tend to be more associated with hygienic outcomes. The study used four of these as proxy indicators. A latrine will be considered to be likely to be more hygienic if it:

- Is fly proof (preventing flies carrying feacal contamination to the wider environment)
- Separates excreta from human contact
- Eliminates smell
- Does not contaminate surface water

Long term

Sustainability is a word that is often used and rarely defined. One practical aspect of sustainability for a sanitation programme is the use of latrines beyond their immediate short term (one pit-full) life and by community members who were not present at the first stage of 'ignition'. A study such as this cannot at this stage measure real long term effects given the short time frame since many communities achieved ODF (3 to 5 years maximum). Proxies for the long term nature of change were therefore needed and were evidence that:

- Full pits are emptied and/or replaced
- New members of the community (in-migrants or new adults) construct and use latrines
- Some individuals and households are moving up the sanitation ladder
- Breakages, pit collapses and latrines damaged by natural disasters are replaced

Section 8

Follow up research

The study provides a useful snap shot of progress in these three country programmes and has triggered some valuable discussions and policy analysis in each case. The attention to careful design of the evaluation process and the use of well defined proxy indicators for important aspects of programme outcomes has been valuable both for the research teams and for their partners implementing these projects at scale.

Further research is of course needed as community-wide ODF approaches are rolled out worldwide. The emphasis should as much as possible on the rigorous ongoing evaluation of outcomes by country teams themselves to continue the process of internal and reflective learning started in this study. Specifically, further research could be divided into two sets.

Firstly, the ongoing evaluation of long term sustainability of programmes over time. This study could serve in part as a baseline for such a process in these three countries. Specific areas could include:

- Sustainability of behaviour changes in real time
- Impact of high rates of sharing of latrines on long term open defecation behaviours
- Dynamic changes in latrine types, access and usage patterns over time
- Full costs of both short and long term support to open defecation communities
- Impact of shortfalls in institutional latrine provision on community behaviours

Secondly, the further investigation of aspects of programme design that were not included in this study.

These might include:

- Approaches to institutional latrine provision and their outcomes
- Long term impacts of community wide sanitation on health and welfare, including impact on the health of those involved in management of pit wastes
- Long term impacts of community wide sanitation on the environment and environmental health

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Notes

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