It does last! Some findings from a multi-country study of hygiene sustainability

Sandy Cairncross and Kathleen Shordt

After a hygiene promotion programme ends, are hygiene practices continued in the household and community? A study has investigated this question and found that hygiene promotion is important and that the changes in behaviour do last.

Are investments in hygiene promotion effective? How should we design projects for lasting effect? These are basic and important questions, but surprisingly few studies have been undertaken to find the answers. Therefore, partner institutions in eight countries worked to investigate the sustainability of hygiene behaviours after the end of water, sanitation and hygiene interventions.

About the study

The objectives and overall arrangements for the study have been described elsewhere in this issue of *Waterlines*. Details of the study design in each country are in Table 1.

All of the communities involved in the research had water and usually sanitation facilities constructed during the project period. In Kenya and Sri Lanka, the project design included control groups. In the remainder, comparisons were made between communities or groups of communities. Hygiene promotion was integrated into each project, although with differing degrees of intensity and for differing lengths of time. The particular hygiene promotion strategies varied between countries. In Uganda and Nepal there was also considerable variation among the communities, with differing ethnic groups and NGOs involved.

Three groups of hygiene behaviours were studied:

- Handwashing
  - knowledge of handwashing times that provide the greatest health advantage (before eating, after defecation, after handling young children's faeces)
  - skills (rubbing both hands with water and a cleaning agent)
  - practice, usually reported by pocket voting methods (see article by Awunyo-Akaba et al.).
- Latrine use and maintenance
- Household hygiene
  - safe water storage
  - covering cooked food
  - environmental cleanliness (no solid waste or excreta visible in and around the household).

Two partners (NETWAS in Kenya and Volta RWSP in Ghana) also investigated sanitation and hygiene education in schools.

The data was collected in two periods (in one case, three periods), one year apart. The first collection was in 2001. Random sampling was done in Ghana, India and Sri Lanka.

Table 1 Outline of the studies in the six countries

Country	Institution carrying out research	Duration of intervention in a community	Time elapsed since intervention ended	Sample size (HH = households)
Ghana	Volta Rural Water Supply Programme	3–8 years	2–4 years	10 communities 220 HH in 2 collection periods. 20 schools
India	Socio-Economic Unit Foundation	1–7 years	2–9 years	10 districts in 2001 345 HH in 2002 plus informant interviews
Kenya	NETWAS International	1–2 years	2–4 years	6 communities 215 HH in 2001 112 HH in 2002 plus group and informant interviews 29 schools
Nepal	NEWAH	1–2 years	1–4 years	10 communities 150 HH in 2001 150 HH in 2002 242 HH in 2003 plus focus group discussions
Sri Lanka	COSI	variable	1–3 years	6 communities with 110 HH in 2001 6 communities with 150 HH in 2003
Uganda	WaterAid	1 year	2–4 years	6 communities 212 HH in 2001 180 HH in 2002 plus group and informant interviews

Most of the hygiene behaviours had remained at the same level

In the other countries a purposive selection was needed to identify a sufficient number of households having latrines. Measurement tools were pretested and included questionnaires, demonstrations, observation, informant interviews, focus group discussions, and pocket voting (for details see the article by Awunyo-Akaba et al. in this issue).

Example of the outputs

The data sets are very rich in information. To provide an idea of the types of outcomes assessed, Table 2 draws upon part of the 2002 data, collected two to nine years after the main project intervention ended.

Note that indicator definitions and sample selection methods vary. Therefore the data should not be compared between countries; rather, patterns within each data set can be examined. For example:

- Knowledge of appropriate handwashing times (before eating and after defecation) tends to be at the same level or more common than handwashing skills or practice.
- Promotion of handwashing after handling children's faeces was introduced only recently, so that knowledge of it is far less prevalent.
- In general latrines tend to be used (78–97%), but consistent use by each person is lower (55–83%).
- The confidentiality of pocket voting helped many people to admit that they do not always wash their hands or use latrines. Such data may not be very precise, but it can be used to diagnose problems.

Are hygiene behaviours sustained?

The research data demonstrated that hygiene behaviours are sustained beyond the end of an intervention. The issue was investigated from two points of view. If hygiene behaviours are sustained, then we would expect to see that:

- Practices would not be more prevalent in communities where the interventions ended more recently (for example, in 2000) than in communities where the interventions ended earlier (1998 or before).
- The behaviours continue undiminished through the two data collection periods (i.e. from 2001 to 2002).

Applying these comparisons to the various indicators measured in each country, it was possible to test

Table 2 Prevalence of selected hygiene indicators (% of households[1])

Indicator	Ghana	India	Kenya	Nepal	Sri Lanka	Uganda
HANDWASHING						
Knowledge of critical times (before eating, after defecation)	85	88[2]	–	99	–	77
Knowledge of handwashing after handling child faeces	–	26	18	19	38	9
Skills (demonstration of handwashing)	65	80	34	57	90	86
Consistent handwashing practice (pocket voting)	–	50[1]	41	–	–	54
Soap and water available (observed)	48	78	–	79	44	13
LATRINES						
Latrine shows signs of use	–	–	97	88	96	78
Latrine consistently used by all (pocket voting)	–	83[1]	74	–	–	55
Latrine visibly clean	–	88	96	58	92	70
Latrine maintained/ built correctly	–	62	63	–	88	48
HOUSEHOLD HYGIENE						
Environment clean around household	–	89	–	80	–	–
Food covered	–	–	–	74	95	–
Drinking water covered	69	–	–	31	84	–

1. In India, % of people
2. After defecation only

Table 3 Testing sustainability of learned behaviours

		Handwashing			Latrines				
	Countries where study tested this	HW skills	HW practice	Provision of soap + water in HH	Latrine use is consistent	Latrine shows signs of use	Latrine clean	Latrine maintained	Food covered
Hygiene better where intervention ended more recently	All six were tested	Ghana							
Results decreased from 2001 survey to 2002	Ghana Kenya Nepal Uganda tested			Ghana				Uganda	

sustainability for 46 comparisons. Only three of these comparisons suggested a significant decrease in hygiene indicators with time (Table 3). Blank squares in Table 3 and other tables show where no statistically significant ($p < 0.05$) association was found. To summarize the findings:

- only one behaviour (handwashing skills tested in Ghana) was related to whether the end date of the intervention was recent or not
- the changes between survey periods (2001 to 2002) were minimal. In Ghana the provision of soap and water in the household for ease of handwashing decreased from 2001 to 2002. In Uganda, the proportion of latrines maintained fell.

External variables

A few external variables were investigated as these are often said to determine whether new hygiene practices will be taken up and continued (Table 4). The variables were:

- access to water through convenient water points (does availability of water result in improved hygiene?)
- educational level of women (are better-educated women more likely to adopt hygiene practices?)
- the socio-economic status (SES) of the community (is hygiene better in richer communities?)

Table 4 shows that access to water does not determine behaviour. The results indicated only one statistically significant relationship between the provision of water sources close to the homestead and good hygiene behaviour. This implies that merely providing convenient sources of water is not sufficient to induce good hygiene practice. In other words, water and sanitation programmes that focus exclusively, or largely, on construction will probably not lead to sustained hygiene behaviours.

Table 4 also shows that the education level of women was a determinant of hygiene behaviour in the Kenya and Nepal studies where it was investigated. There is a very strong relationship between the education of women and their hygiene knowledge, skills and behaviours. This means more-educated women do better in adopting hygienic practices. Stronger hygiene interventions (i.e. more inputs, time, efforts to reach the harder-to-reach and strategies suitable to the less educated) are needed if more of the less-educated women are to do better in adopting hygienic practices.

What type of hygiene interventions are most effective?

We also investigated the impact of hygiene promotion activities on hygiene outcomes, by looking for associations between each household's contact with such activities and its hygiene indicators. This was done by comparing communities where intervention took place with control groups (Kenya, Sri Lanka), and also by comparing similar communities having different types, or different lengths of intervention (India, Nepal). Three studies involved longitudinal comparisons of the same communities. As before, Table 5 shows the countries where a significant association was found between each activity and indicator.

Hygiene promotion is usually carried out through a combination of actions such as: (a) mass activities (campaigns, drama, videos, camps, rallies, village councils), (b) group activities such as meetings and formation of women's groups, (c) formal training classes and (d) through personal communication. In these studies, home visiting was the major form of personal communication. Home visits and group activities were organized both by members of the community and also by project field workers. The researchers in India and Ghana indicated that home visits and small group meetings were more frequently carried out by members of community groups (water committees, women's groups, local professionals).

The data in Table 5 supports this approach. All four main categories of activity were found in one setting or another to have an impact upon hygiene. In addition to the quantitative results in Table 5, focus group discussions in Nepal pointed strongly to the importance of small group meetings with field staff in stimulating and sustaining new behaviours. The Indian data set, which allows particularly detailed analysis of this issue, shows how small group meetings are sufficient to encourage people to keep their courtyards swept, but that the more intense contact provided by a series of up to ten home visits is required to bring about more demanding changes in practice, such as regular hand washing and consistent use of a latrine.

The need for more intensive contact for more demanding changes in

Table 4 Countries where access to water, education and socio-economic status has an impact of on hygiene behaviour

		Hand washing (HW)				Latrines			
	Countries where variable was studied	Knowledge of HW times	HW skills	HW practice reported	Provision of soap + water in HH	Latrine use consistent	Latrine shows signs of use	Latrine maintained	Food covered
Access to water	All six tested				Ghana				
Education of woman	Kenya Nepal India	Kenya	Kenya Nepal	Kenya		Kenya		Kenya	Nepal
SES of community						India (men)			

Table 5 Countries where there is a significant association between promotional activities attended and hygiene behaviour

Countries where study tested this	Promotional activity	HW skills	HW practice	Provision of soap + water in HH	Latrine is used consistently	Latrine maintained	HH environment free from waste	Drinking water covered/ safe storage
All six	Hygiene promotion in general	Ghana	India Uganda*	Ghana	Uganda*			Ghana
Ghana Sri Lanka	Small group meetings	Ghana		Ghana		Sri Lanka		Ghana
Ghana India	Home visits	Ghana	India (women)	Ghana	India (women)			
India	Classes (training)		India (women)		India (women		India	

* In 2 out of 3 districts

behaviour is also supported by the data from Ghana, where the 'less prevalent' behaviours (those practised by the fewest households) were the only behaviours in each cluster that were significantly associated with home visits. Home visits were related to having the recommended dipping cup, storing soap and water near each other, and (a logical consequence) being able to get handwashing materials together quickly.

However, the data also indicates that no single approach is likely to be sufficient. In India, for example, the home visits were part of a deliberate gender-sensitive strategy to reach women. However, if the men folk are likely to be absent during such visits, other approaches are needed to complement the home visits and ensure that the whole target population is reached successfully.

In summary

In spite of the diversity of countries and study designs, there were a number of common themes in the general findings. We believe that these general findings can be judiciously extended to other developing countries.

It is not inevitable that behaviours will fade or that as years go by people will revert to earlier, less hygienic practices. However, in water and sanitation programmes, continued access to services is not enough to sustain hygienic behaviour: it is the so-called 'software' aspects of the programme that are more important. Thus hygiene promotion and education should not be low-visibility 'add-ons' to water and sanitation programming. Sustained behaviours result from giving high priority and adequate resources to hygiene promotion and education.

Project variables determine hygiene behaviours. These include: the intensity of the programmes, support from influential groups in the local community, attendance in hygiene classes and training. The studies show that intensive hygiene promotion interventions, including small groups and personal contact, will probably have a tangible and sustained impact.

Last but not least, our study shows that practitioners in the field can carry out high-quality research on globally significant issues and deliver results that are of value not only to the projects on which they are engaged, but to the billions who lack water, sanitation and hygiene throughout the world.

About the authors

Sandy Cairncross is the Director of WELL and Head of the Disease Control and Vector Biology Unit, London School of Hygiene and Tropical Medicine, and Kathleen Shordt is Senior Programme Officer with the IRC, the Netherlands.