



## Assessing hygiene cost-effectiveness: a methodology

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### Front page photo

Primary school children in the Kyenjojo district in Uganda washing their hands (Carmen da Silva/ IRC)

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WASHCost is a five-year action research project investigating the costs of providing water, sanitation and hygiene services to rural and peri-urban communities in Ghana, Burkina Faso, Mozambique and India (Andhra Pradesh). The objectives of collecting and disaggregating cost data over the full life cycle of WASH services are to be able to analyse costs per infrastructure and by service level, and to better understand the cost drivers and, through this understanding, to enable more cost-effective and equitable service delivery. WASHCost is focused on exploring and sharing an understanding of the costs of sustainable services (see [www.washcost.info](http://www.washcost.info)).

## Contents

<b>Acknowledgements</b> .....	<b>2</b>
<b>Abbreviations and acronyms</b> .....	<b>4</b>
<b>Summary</b> .....	<b>4</b>
<b>Introduction</b> .....	<b>5</b>
<b>1 Capturing costs of hygiene interventions</b> .....	<b>6</b>
1.1 Step 1: Identification of cost categories.....	7
1.2 Step 2: Quantification of resource use.....	8
1.3 Step 3: Valuation of resources.....	9
<b>2 Capturing behaviour change using the effectiveness ladder</b> .....	<b>10</b>
2.1 Collecting information on key behaviours.....	10
2.2 Defining effectiveness levels.....	11
2.3 Assessing hygiene behaviour change.....	11
<b>3 Comparing costs against behaviour changes</b> .....	<b>18</b>
3.1 Comparing costs against effectiveness levels.....	18
3.2 Study limitations.....	19
<b>Conclusions</b> .....	<b>20</b>
<b>References</b> .....	<b>21</b>
<b>Appendix 1 - Questionnaire</b> .....	<b>23</b>

## Boxes

<b>Box 1:</b> Timeline and research design of the Hygiene and Cost-effectiveness studies.....	<b>6</b>
<b>Box 2:</b> The life-cycle costs approach.....	<b>19</b>

## Tables

<b>Table 1:</b> Cost components of hygiene promotion interventions.....	<b>7</b>
<b>Table 2:</b> Cost data sources.....	<b>8</b>
<b>Table 3:</b> Hygiene effectiveness ladder.....	<b>11</b>

## Figures

<b>Figure 1:</b> Faecal containment and latrine use.....	<b>12</b>
<b>Figure 2:</b> Handwashing with soap flowchart.....	<b>14</b>
<b>Figure 3:</b> Drinking-water management at home flowchart.....	<b>16</b>

## Abbreviations and acronyms

CapExH	Capital Expenditure Hardware
CapExS	Capital Expenditure Software
CapManEx	Capital Maintenance Expenditure
CoC	Cost of Capital
ExpDS	Expenditure on Direct Support
GDP	Gross Domestic Product
LCC	Life-Cycle Costs
HCE	Hygiene Cost-Effectiveness
OpEx	Operating and minor maintenance Expenditure
WASH	Water, Sanitation and Hygiene

## Summary

This Working Paper describes a methodological framework that is being proposed to assess the cost-effectiveness of a number of hygiene interventions. Currently being tested in Ghana, Burkina Faso, Mozambique and Andhra Pradesh, India – the methodology is designed to:

- Capture the financial costs of labour and materials associated with the intervention, using a three-step approach. First, costs are categorised (e.g., investment costs, maintenance costs, etc.); second, data is gathered and basic statistic treatments are applied; finally, other economic costs (e.g., cost of health) are valued as financial costs.
- Examine three key household hygiene behaviours: faecal containment and latrine use, handwashing with soap, and drinking-water management; and assess their levels of effectiveness. The levels – defined in a hygiene effectiveness ladder – allow for the systematic categorisation of hygiene behaviour data; from ‘not effective’ to ‘improved’. Several flowcharts are also introduced as tools to simplify data capture and the identification of failure points (if any), within the chain of events of certain hygienic practices and behaviours.

The cost-effectiveness measure of each intervention is intended to result in a comparison of household costs with measured efficacy, in terms of behaviour change: moving from one set of behaviours (prior to intervention) to the current set of behaviours (post intervention). The proposed methodology aims to provide further evidence for policy decision-making and investment in the WASH and public health sectors. As it is in its testing phase, this working paper also articulates its main limitations.

## Introduction

After more than 40 years of implementation and research in Water, Sanitation and Hygiene (WASH) in developing countries, there is little evidence of the cost-effectiveness of hygiene promotion interventions related to water and/or sanitation infrastructure development and service delivery (DFID and UKAID, 2012).

Hygiene promotion interventions are project-based activities aimed at measurably improving hygiene behaviours in targeted populations within a particular timeframe. Hygiene promotion interventions typically occur in water and sanitation projects to improve related health outcomes. There are many approaches, methodologies and tools developed and used by the WASH sector to facilitate and support users to manage and use water and sanitation services more hygienically. Although each context is unique, by measuring and comparing the respective interventions within and across countries, it is important to identify common factors that contribute to cheaper and more effective interventions.

**The purpose of this Working Paper is to operationalise the concepts developed in WASHCost Working Paper 6<sup>1</sup>.** They should be read together. The methodology presented in this Working Paper is currently being tested in Hygiene Cost-Effectiveness (HCE) studies in the WASHCost focus countries, namely Ghana, Burkina Faso, Mozambique and Andhra Pradesh, India. The timeline for these studies is available in Box 1 on the next page. **The reader should bear in mind that the methodology does not aim to support a longitudinal study, but rather a before/after picture of hygiene behaviours and costs within a short timeframe of no more than a year.**

The methodology is guided by the following three questions:

- What are the costs involved in hygiene promotion interventions in selected regions of Burkina Faso, Ghana, Mozambique and Andhra Pradesh, India?
- How effective are these interventions in changing hygiene behaviour in the target population?
- How to compare the cost-effectiveness of each intervention in terms of improvements in key hygiene behaviours?

The methodology, key criteria and indicators are generic and need to be adapted to different contexts to enable comparability of data and processes. By investigating these three questions, within and across all four countries, the methodology seeks to: 1) enable the collection of more accurate information regarding the costs of hygiene promotion interventions and their effects on behaviours, thereby contributing to the evidence base for policy decision-making in the WASH and public health sectors; and 2) develop knowledge on cost-effectiveness in order to improve health and reduced health costs. Better information on cost-effectiveness also contributes to the rationale for continued investment in hygiene promotion, and towards improved budgeting and planning.

This Working Paper has three sections. The first section explores the cost categories, quantification processes and value allocation. The second addresses behavioural criteria and indicators, and effectiveness levels. The final section highlights methodological considerations when comparing costs against behaviour changes, as well as the main limitations of the proposed methodology.

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<sup>1</sup> Potter, A., et al., 2011a. *Assessing hygiene cost-effectiveness*. (WASHCost Working Paper 6) The Hague: IRC International Water and Sanitation Centre.

**Box 1: Timeline and research design of the Hygiene and Cost-effectiveness studies**

Each study will be conducted over three stages:

**Stage 1: Prior to the intervention**

Before the intervention, a household questionnaire is used to obtain an understanding of:

1. The blend of existing hygiene behaviours in three critical areas: the safe containment of faeces and the regularity of latrine use by all household members; handwashing with soap or substitute at critical times and by all; and safe domestic water management from source to consumption.
2. The current level of household expenditure for each hygiene behaviour: this incorporates historic investment by the household in fixed assets such as a household latrine; annual expenditure in hygiene resources such as soap and other cleaning materials; as well as the economic cost of time committed to undertake hygiene activities.

**Stage 2: The intervention**

The second stage focuses on the intervention, capturing the expenditure of implementers. The hygiene promotion interventions examined have a duration ranging from a few weeks to a few months, and include costs of programme development and preparation, costs of implementation through household visits, sensibilisation/mobilisation or awareness-raising campaigns, social-marketing activities, and so on.

**Stage 3: After the intervention**

Six to eight months after the end of the intervention, hygiene behaviour indicators and household expenditures are measured once more to determine the influence of the intervention on behaviours, using the same questionnaire and survey tools, allowing a comparison with the baseline data. This stage completes the data collection.

'Before and After' data is then processed and analysed to allow: 1. An assessment of individual interventions; 2. A comparison of interventions within a country; and 3. cross-country comparisons. Rather than using control samples to measure the behaviour change, the study assumes behaviour change is due to the study's intervention.

## 1 Capturing costs of hygiene interventions

The costs considered in this document refer to the sum of resources used to deliver the hygiene intervention. Such resources can be monetary, but can also include activities that have no direct financial costs; such as the time spent by participants. Changing behaviours happen at a cost incurred by the household and the intervention implementer. For clarity, resources or expenditures by the implementer are referred to as 'intervention costs', and resource or expenditures are referred to as 'household costs'.

All costs are captured by a three-step approach, after Drummond, et al. (2005: pp. 89-90). This approach, detailed below, provides a structured way to capture the financial costs of labour and materials associated with the intervention. This three-step approach is based on the following rationale: The total cost of an intervention in a specific year is equal to the sum of all the resources used in that year, multiplied by their unit costs, and divided by capita and/or household to allow comparisons.

*N.B. Costs are captured and analysed in an input sheet. To access the input sheet, contact the lead author of this Working Paper.*

## 1.1 Step 1: Identification of cost categories

Cost data collected in this study is subdivided into categories, according to its own function. The categories used in these studies have been guided by the Life-cycle costs approach for costing sustainable services (Fonseca, et al., 2011). The use of these categories allows for comparisons to be made between capita and/or household and implementation expenditure data collected in different contexts.

Table 1 presents the main cost components of hygiene promotion interventions related to water and sanitation improvement. It also identifies typical costs incurred by the intervention implementers and the households. The first column in the table defines each cost component; the second and third columns provide typical examples of these costs for the intervention and for the household.

**Table 1: Cost components of hygiene promotion interventions**

Life-cycle cost components of hygiene promotion	Implementer/ costs	Household / costs
<b>CapEx Hardware (CapExH)</b> The capital invested in constructing fixed assets such as handwashing facilities	Material required for the intervention (promotion materials, materials for participatory work, etc.)	Hygiene goods required for hygiene behaviour change, e.g., handwashing facilities, water-storage vessels, latrines, etc.
<b>Capital Expenditure Software (CapExS)</b> One-off work with stakeholders prior to implementation	Intervention preparation costs (defining approach, training trainers, etc.)	Costs for hygienic behaviour change: household investment of time and money for participating in campaigns for handwashing, safe sanitation for all, etc.
<b>Costs of Capital (CoC)</b>	Cost of interest payments: World Bank loans and others	Cost of interest payments: personal or group loans for e.g., household latrines and other microfinance schemes related to sanitation
<b>Operating Expenditure (OpEx)</b> Operating and minor maintenance expenditure	Costs of monitoring and overhead costs such as support staff salaries, office rent, vehicles and IT-systems	Costs of hygienic behaviour: e.g., use of water and soap; time spent on hygiene-related activities, e.g., cleaning toilets, fetching extra water required for hygiene purposes
<b>Capital maintenance expenditure (CapManEx)</b> Expenditure on asset renewal, replacement and rehabilitation	Replacement costs of hygiene goods at intervention level (i.e. replacing handwashing facilities, latrines, etc.)	Replacement costs of hygiene goods at household level (i.e. replacing hand-washing facilities, latrine superstructure, etc.)
<b>Expenditure on direct Support (ExpDS)</b> Post-construction support activities for local-level stakeholders, users or user groups	Costs of supporting community-based organisations at local level: WASH committees, sanitation and hygiene groups etc.  Subsidies to household for WASH facilities	N/A

Source: adapted from Fonseca, et al. (2011).

This table is indicative of the types of costs incurred by households and implementers in relation to hygiene promotion. In reality, not all of these costs are relevant in all cases. For example, capital maintenance expenditure and costs of capital are not likely to be incurred in a hygiene promotion intervention; the former because the short timeline implies no long-term rehabilitation costs, and the latter because not all interventions are based on programmes supported by bank loans. Nevertheless, this categorisation of costs enables cross-country comparison.

## 1.2 Step 2: Quantification of resource use

Capturing resource use takes place both at institutional and household levels. Table 2 below indicates which methods can be used to collect cost data from different types of actors.

The collection method used, and the actors involved may change from intervention to intervention. For guidelines on how this data can be collected, see Working Paper MOZ WP1 “Sampling methodology Mozambique” (WASHCost Mozambique, 2010).

**Table 2: Cost data sources**

	Key informant interviews	Project reports, financial statements, etc.	Household questionnaires & observations	Market prices
<b>Intervention implementers</b>				
International development organisations	X	X		X
Local non-governmental organisations	X	X		X
Governmental organisations	X	X		X
<b>Households</b>				
Households	X		X	X

Source: WASHCost Mozambique (2010).

The main tool used for quantification of resources used by households is a questionnaire and observational data (available in Appendix 1). Resources used by intervention implementers can be captured through a mix of documents and interviews, and validated by market-price data. Complementary qualitative information may be used to provide indications on the successes of an intervention.

In order to allow comparison within and between countries, the cost data needs to undergo a number of processes, including<sup>2</sup>:

- 1. Bringing all data to current value.** All expenditure should be brought to its current value in US\$ (year) using Gross Domestic Product (GDP) deflators and the relevant official exchange rate to account for the effect of inflation on historical expenditure. For comparison purposes findings should be presented in US\$.
- 2. Calculating and annualising recurrent costs.** The recurrent costs of operational expenditure, and expenditure on direct and indirect support, are typically accounted for on an annual basis. When data is available over a number of years, the average of these values can be taken. Direct and indirect support expenditure is calculated by dividing the support costs by the population size of the target intervention area.
- 3. Comparison of expenditure using the purchasing power parity (PPP).** A complementary analysis can be made using the purchasing power parity (PPP) approach – giving results in US\$ PPP per year. The PPP between two countries is the rate at which the currency of one country needs to be converted into that of a second country to represent the same volume of comparable goods and services in both countries.

<sup>2</sup> More details on these processes can be found in Fonseca, et al., 2011.



### 1.3 Step 3: Valuation of resources

Resources used by implementers and households can be either financial or economic. Financial resources are those that can be directly monetised, e.g., salary costs, office rental, soap purchase, etc. Economic resources are those that cannot be readily monetised; for instance, volunteer time invested in the intervention, and time spent building a latrine. Occasionally, the life-cycle costs categories have components that are both financial and economic. Household participation in the intervention, for instance, has both economic and financial elements in that it requires a time commitment, in addition to a financial one.

#### Financial resources

Resources identified and quantified in the previous two steps: identification and quantification of resources need to be valued according to reported actual expenditure at the time of use or purchase. There are, however, a few important methodological issues which need to be considered. With regard to the intervention costs, this includes the allocation of overhead costs. Overhead costs can be allocated directly or estimated based on implementer inputs. This means that the total organisational overhead cost needs to be quantified and multiplied by the proportion attributable to the organisation's hygiene promotion intervention. Other expenditures such as handwashing facilities or soap can be valued by determining the market prices of these items.

#### Economic resources

An important methodological issue with regard to the valuation of resource use by participating household members and volunteering staff in hygiene promotion is the value of time itself. Time spent on hygiene promotion-related activities and on hygiene practices by local actors creates a loss in productivity, as time can only be spent once. Time spent on hygiene promotion cannot be spent on other activities such as paid employment, childcare, or other labour. Valuing this loss in productivity, or time, is complex. There are many possible solutions, all of which result in a 'best' estimate. To that end, the method known as the *human capital approach* – commonly used in health economic analyses – is applied (Drummond, et al., 2005).

In the human capital approach, changes in the value of a person's time are derived from employment data or labour statistics. The value of a person's time could be the person's actual income when employed, or alternatively the value might be set at the national minimum wage. The first method: actual income is more precise but requires detailed information on the employment status of the target population. This method also tends to undervalue the time (or productivity changes) of those who are unable to work; such as very young or old people, child caretakers and people with disabilities. Valuing productivity changes using the national minimum wage may be less precise, but is more equitable and requires less data on employment status and income from the target population included in the study.

The research methodology aims to quantify the different resources used by households and implementers during implementation. Together, these form the total cost of the intervention. The breakdown of resource use by each actor into the various life-cycle cost classifications allows for detailed comparisons to be made between the methodologies employed by each intervention, and crucially, its impacts on the total cost of the intervention.

## 2 Capturing behaviour change using the effectiveness ladder

The framework designed for assessing the effectiveness of hygiene promotion is set out in section 2.2 below. 'Effectiveness' in these studies refers to the degree of success in producing a desired result, i.e. the safe and hygienic use of water and sanitation and handwashing with soap at critical times. Effectiveness is different from impact, which implies long-term monitoring of health. Ascribing the hygienic use of water and sanitation implies proper storage and use of water for consumption (including food preparation and personal hygiene), and safe use of a toilet facility. The following section breaks down this process in three stages.

### 2.1 Collecting information on key behaviours

The key criteria of hygiene behaviour used here are aligned with the three main hygiene behaviours known to have the greatest positive impact on individual health, as suggested by Hernandez and Tobias (2010), based on a thorough review of confluence in the existing literature. These criteria are:

1. Faecal containment and the use of a latrine
2. Handwashing with soap or substitute at critical moments, particularly after defecation and before handling food
3. Safe drinking-water source and management of drinking water at household level

The causal link between hygiene behaviour change and its impact on morbidity and mortality is already discussed by Potter, et al. (2011a). It therefore makes sense to assess the efficacy of hygiene promotion by quantifying the outcome of the intervention, namely: behavioural change or key hygiene behaviours in the target population.

These three criteria can be used to determine household behaviours by breaking them into a number of indicators. Although the questionnaire in Appendix 1 has been adapted to specific country contexts, the following information has been systematically collected across all the studies:

#### **Criteria 1: Faecal containment and the use of a latrine**

- Defecation behaviours
- Presence and type of latrine
- Profile of household members using the latrine
- Hygiene of toilet use and maintenance (pit closed against flies, absence from faeces/ faecal stains)
- Consistency of use

#### **Criteria 2: Handwashing with soap or substitute at critical moments**

- Access to a protected source of water and/ or treated water
- Presence of handwashing facility with a tap or pouring device
- Access to soap (or substitute)
- Handwashing at critical times

#### **Criteria 3: Safe drinking-water management in the home from source to mouth**

- Use of protected water source(s) for drinking, and/or treatment of drinking water in a safe way<sup>3</sup>
- Use of safe water-collection methods which do not allow hands to contaminate the collected water by touching
- Use of covered storage vessels to prevent contamination
- Water-drawing methods which do not allow hands to contaminate the collected water by touching, e.g. by pouring, from a tap or by long-handled ladle

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<sup>3</sup> For example, by effective and properly used ceramic household filters, home-chlorination methods, solar disinfection or boiling.

## 2.2 Defining effectiveness levels

Building on existing literature on hygiene behaviour change criteria and indicators, levels of effectiveness have been defined and summarised in Table 3. The rationale behind these levels is further discussed in Potter, et al., (2011b). This effectiveness ladder is central as it provides a framework for behavioural analysis, allowing systematic categorisation of hygiene behaviour data.

**Table 3: Hygiene effectiveness ladder**

Effectiveness levels	Faecal containment and latrine use	Handwashing with soap/ substitute	Drinking water source and management
<b>Improved</b>	<ul style="list-style-type: none"> <li>- All household members use a latrine all the time</li> <li>- The latrine used separates users from faecal waste</li> </ul>	<ul style="list-style-type: none"> <li>- Accessible designated handwashing facility</li> <li>- Sufficient water is available for handwashing</li> <li>- Water for handwashing is poured/ not re-contaminated by handwashing</li> </ul>	<ul style="list-style-type: none"> <li>- Protected water sources are always used</li> <li>- Collection vessel (if necessary) is regularly cleaned with soap or substitute</li> <li>- Water storage vessel (if necessary) is covered</li> <li>- Water is drawn in a safe manner</li> </ul>
<b>Basic</b>	<ul style="list-style-type: none"> <li>- All or some household members use a latrine some or most of the time</li> <li>- When there is no access to a latrine, faeces are generally buried</li> <li>- The latrine separates users from faecal waste</li> </ul>	<ul style="list-style-type: none"> <li>- Soap or substitute available and used</li> <li>- All household members wash their hands with soap/ substitute at critical times</li> </ul>	<ul style="list-style-type: none"> <li>- Protected water sources are always used</li> <li>- Collection vessel (if necessary) is regularly cleaned with soap or substitute</li> <li>- Water storage vessel (if necessary) is uncovered and/or</li> <li>- Water is not drawn in a safe manner</li> </ul>
<b>Limited</b>	<ul style="list-style-type: none"> <li>- The latrine does not provide adequate faecal separation and/ or</li> <li>- All/ some family members generally do not bury faeces when not using a latrine and/or</li> <li>- All family members practice burying faeces</li> </ul>	<ul style="list-style-type: none"> <li>- Most household members wash their hands after defecation but not at other critical times and/ or</li> <li>- Water for handwashing is not poured and the same water is used each time and/ or</li> <li>- No soap or substitute is available and/or is not used for handwashing</li> </ul>	<ul style="list-style-type: none"> <li>- Protected drinking water sources are not always used and/ or</li> <li>- Collection vessel is not cleaned (not collected safely)</li> </ul>
<b>Not effective</b>	Open defecation	Household members have no specific place to wash their hands and usually do not wash their hands after defecation	Unsafe sources are mostly/ always used to collect drinking water

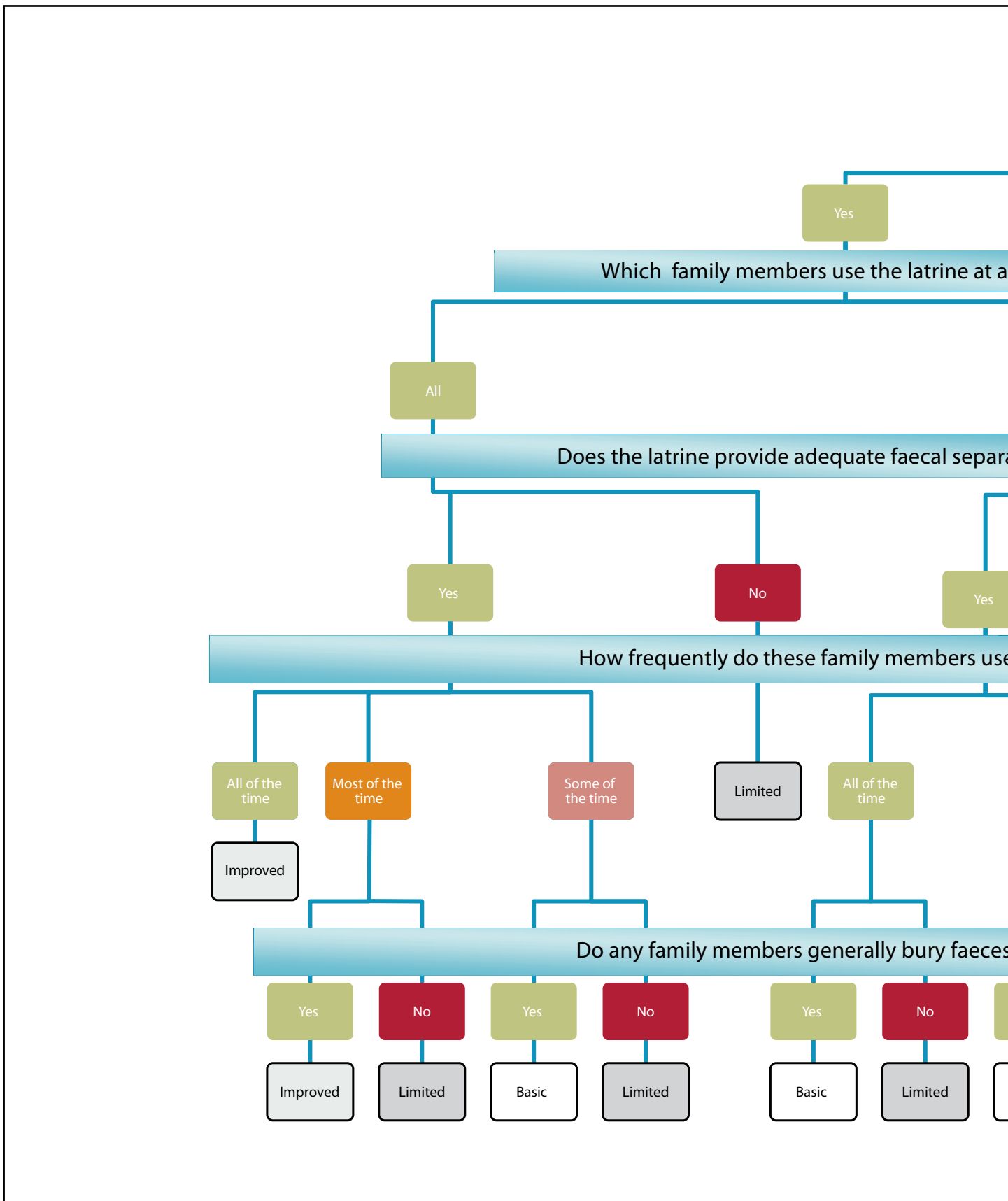
Source: adapted from Potter, et al. (2011a).

## 2.3 Assessing hygiene behaviour change

Hygiene behaviour is measured before and after the intervention; to assess if any changes have taken place. Secondary or primary data from comparable sample areas should be used as a control. In order to operationalise the hygiene effectiveness ladder as a tool to assess changes in key hygiene behaviours, the research team underwent a two-step process.

In the first step, a flowchart was developed for each criterion in the effectiveness ladder. Each criterion is conditioned by a chain of sub-behaviours, referred to as indicators. The use of the flowcharts enables the identification of failure point (if any) in the chain of events, resulting in certain behaviours.

Figure 1: Faecal containment and latrine use



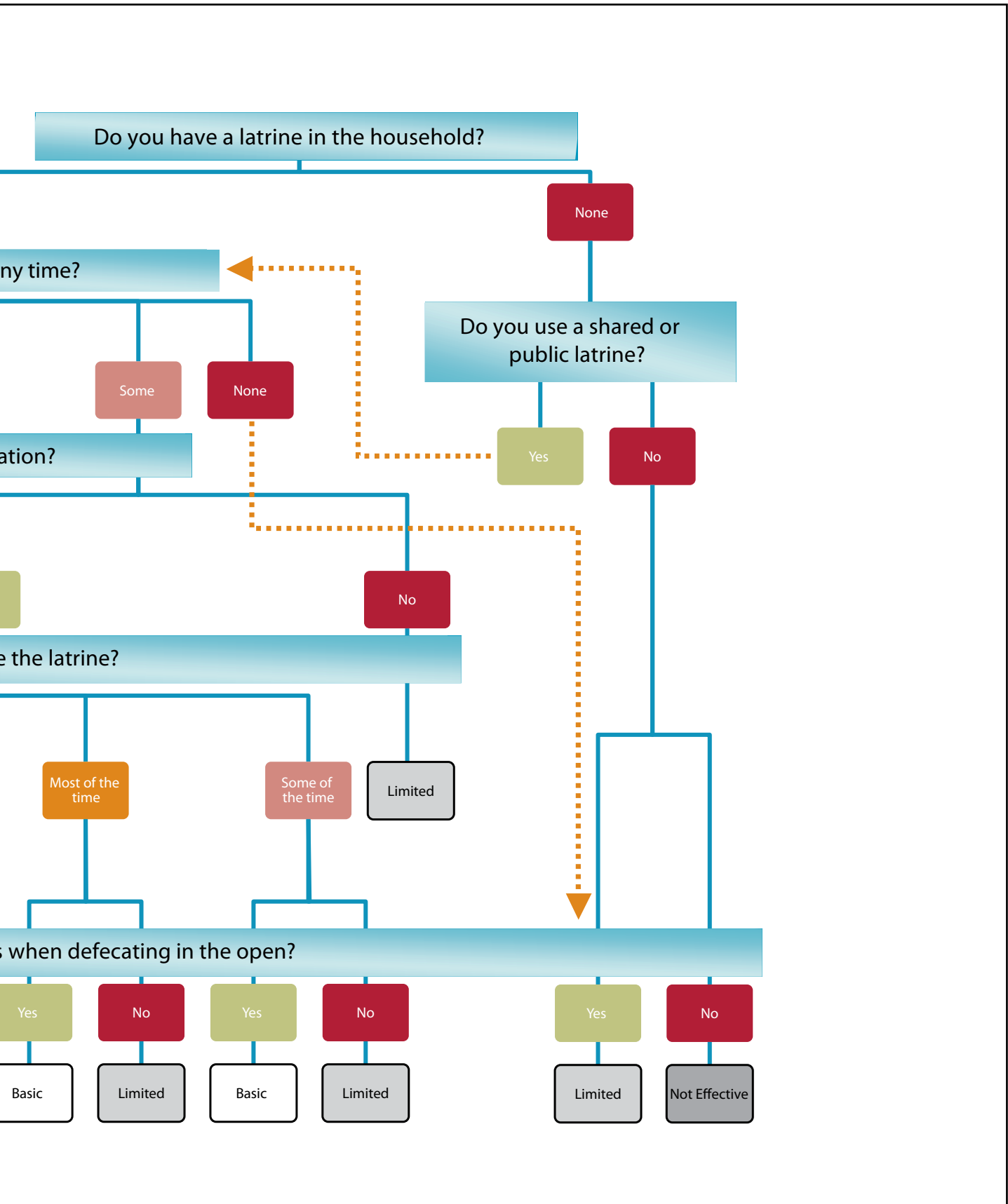
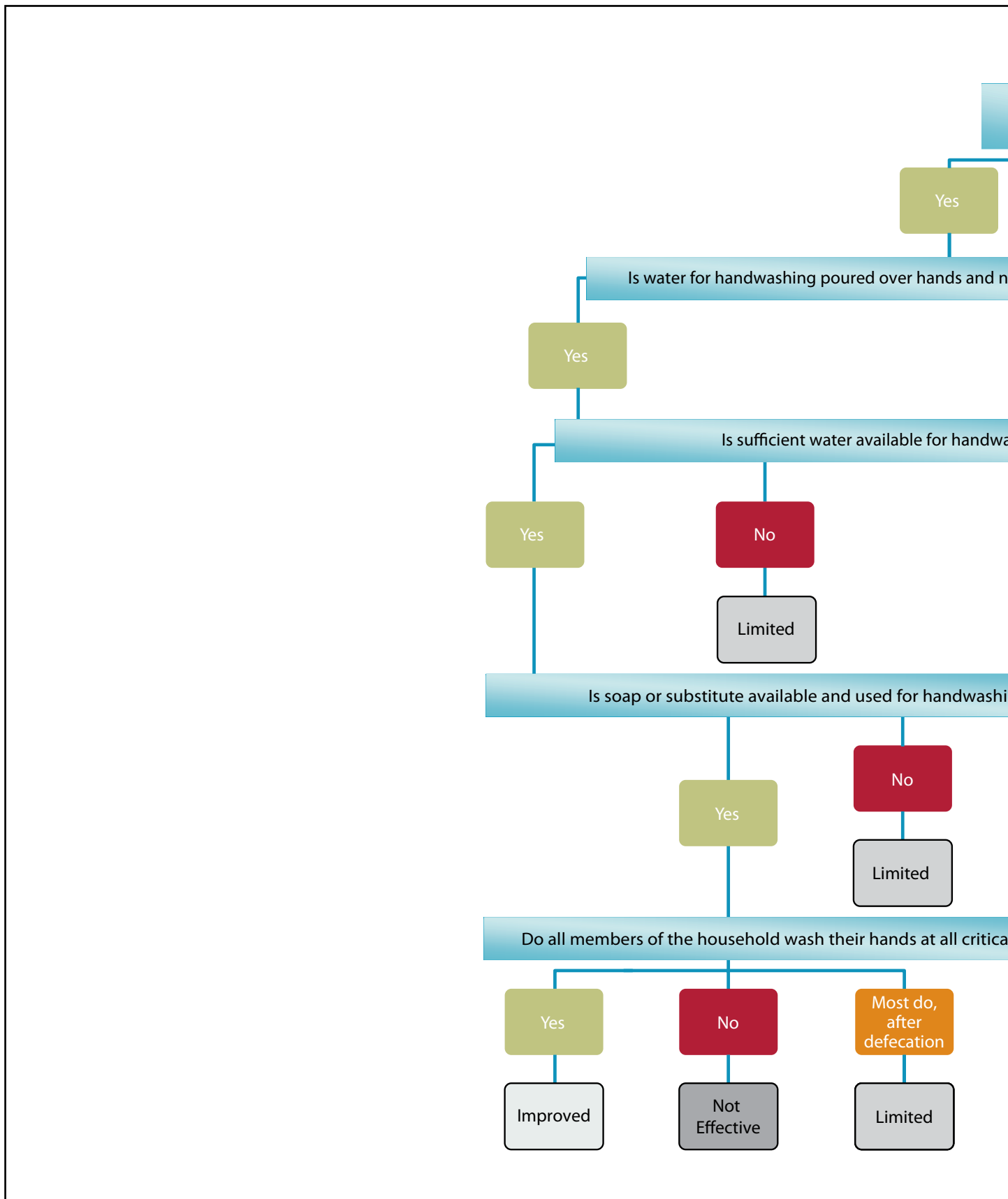


Figure 2: Handwashing with soap flowchart



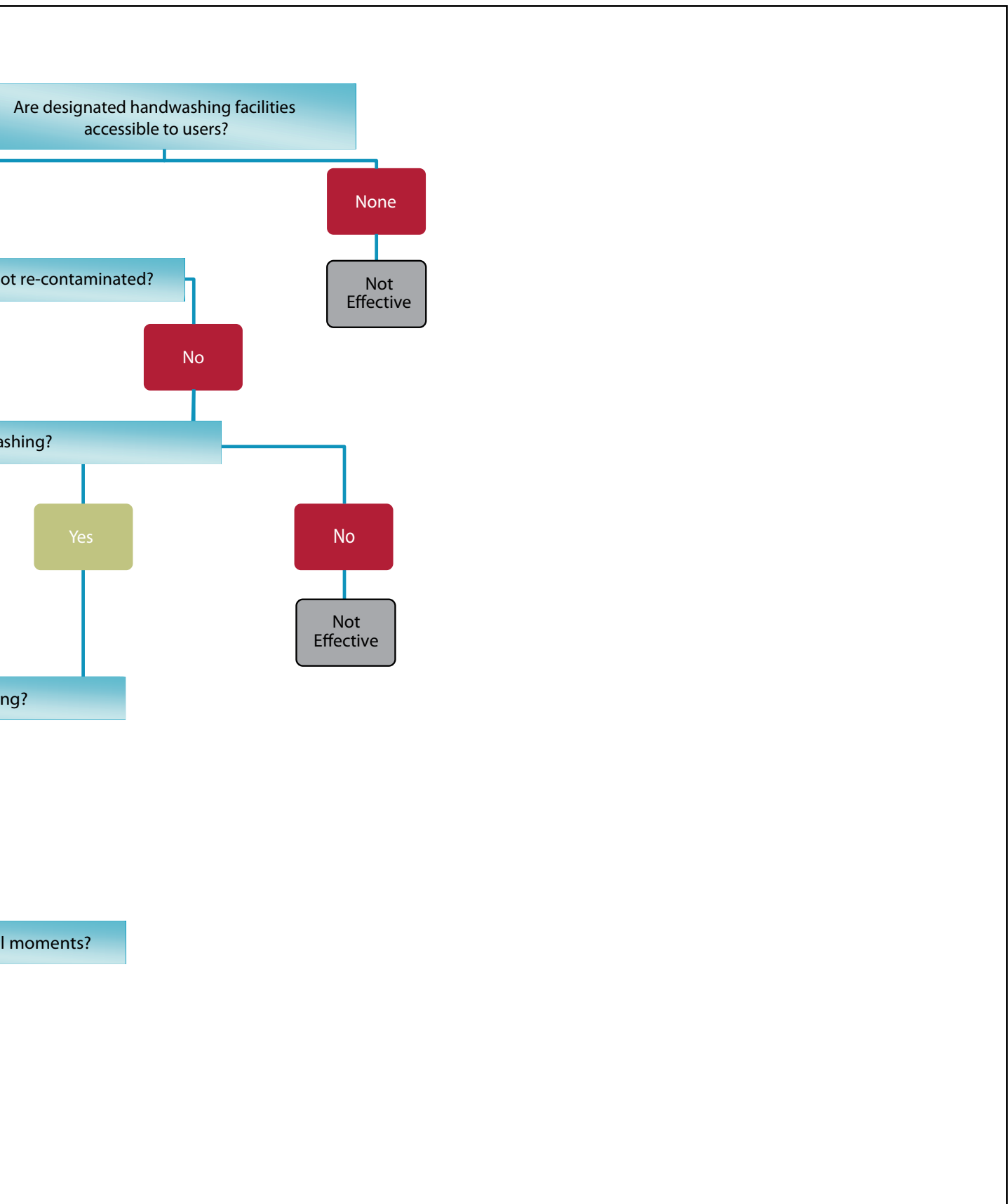
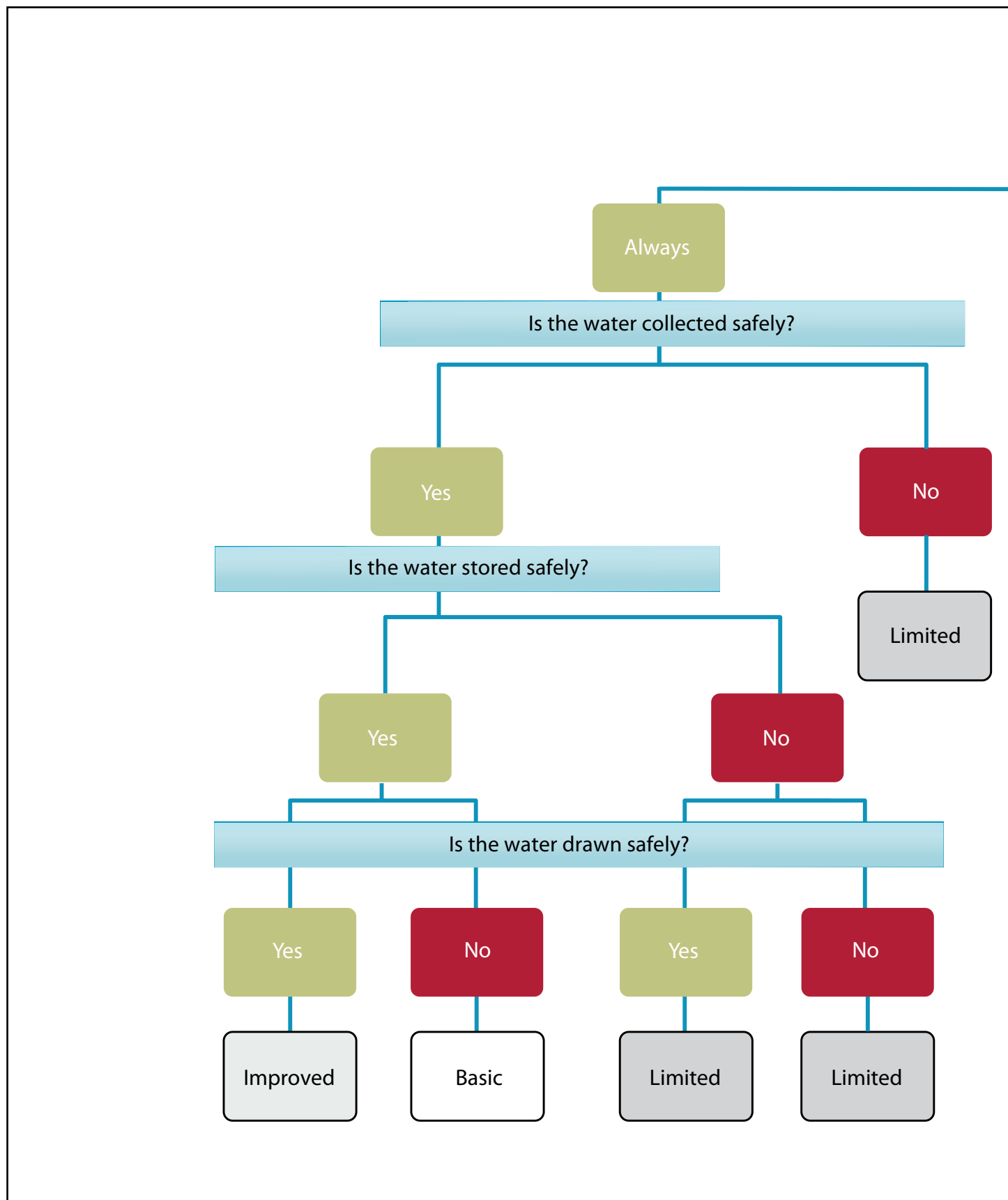
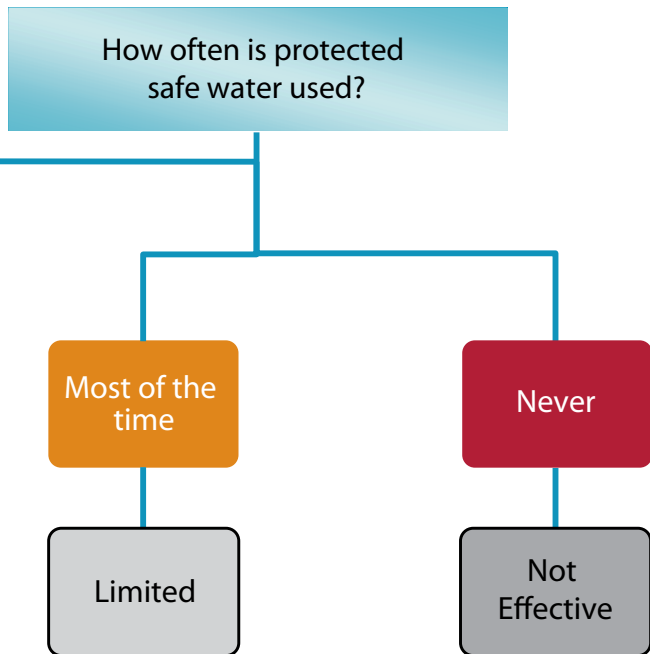


Figure 3: Drinking-water management at home flowchart







In the second step, a data-input sheet was developed using the flowcharts as the logical bases. The input sheet gives a value to each indicator collected at household level. By linking the values for each indicator, the data from each household informs all three studied behaviours.

Data is to be entered into the input sheet twice: once before the intervention to provide a baseline, and once after the intervention to enable comparison with the baseline. The efficacy of the intervention is assessed by analysing the differences in hygiene behaviours before and after the intervention.

The data-input sheet enables a nuanced analysis of the changes in key hygiene behaviours. Changes before and after the intervention in each of the indicators of each of the three key hygiene behaviours can be analysed, compared and discussed. A composite effectiveness level can also be ascertained, but the nuanced comparison across indicators may provide additional valuable information concerning the efficacy of particular hygiene promotion interventions. In the WASHCost hygiene cost-effectiveness studies, data was collected that enabled a comparison of different types of hygiene promotion interventions within and between different countries.

*N.B. Contact the lead author of this paper to access the data-input sheet used for the second step.*

## 3 Comparing costs against behaviour changes

The final section of this paper explores the analysis of costs against efficacy of the intervention evidenced by hygiene behaviour changes. In view of further developing the methodological issues around 'costing' behaviour change and measuring intervention effectiveness, this section also underscores the limitations of the methodology.

### 3.1 Comparing costs against effectiveness levels

In the arena of development economics, cost-effectiveness studies typically involve a comparison of at least two alternative interventions. In this study, the comparison of alternative interventions in different countries is accompanied by a comparison between hygiene behaviours after an intervention against baseline hygiene behaviour data collected before the intervention. The 'cost-effectiveness' of each intervention is determined by comparing the cost of each intervention, both in financial and economic terms, with its measured efficacy, in terms of behaviour changes.

Household effectiveness levels (prior and after the intervention) are then put against intervention and household costs. Such an approach informs the following:

- Prior-intervention behaviours and related costs per household
- Percentage of households experiencing behaviour changes against the intervention costs
- After-intervention behaviours and related costs for the household

In other words, the analysis provides the intervention and household costs of moving from one set of behaviours (prior to intervention), to the current set of behaviours (post intervention). The methodology also includes capturing changes in both directions: towards safe as well as towards risky practices.

Comparisons take place first at site level, before and after the intervention. Ultimately, cross-country analysis is needed to explore if significant differences exist between the expenditure of different intervention types and the level of effectiveness reached. This approach has been inspired by the water and sanitation service level analysis conducted by WASHCost. Moriarty, et al. (2011), Potter, et al. (2011a; 2011b), further develop the service levels-rationale and its applications to water, sanitation and hygiene.

## 3.2 Study limitations

Although the analysis of cost-effectiveness aims to contribute to the development of a credible evidence base on the cost-effectiveness of hygiene promotion interventions, there are at least three main limitations.

First, measuring an intervention limits hygiene cost-effectiveness studies to a specific period in time. Capturing behaviour change and the factors which influence it is a complex task. A fully proofed method to assess the efficacy and impact of interventions, while assessing the weight of other external factors, has yet to be established. Attempts have been made, but they have been both complex and limited (Curtis, et al., 2001; Sijbesma and Christoffers, 2009). Moreover, safe hygiene practices can revert to unsafe practices. Over time, research has shown that the quality of the interventions plays a role in whether or not behaviours are sustained effectively. (Appleton and Sijbesma, 2005; Shordt, 2003).

Second, it is expected that behaviour changes will not be adopted in the same way by men and women, girls and boys. Although behaviours and practices are best observed at individual level, the hygiene cost-effectiveness studies are less detailed because they solely examined intervention effectiveness at household level. Further, an individual, gender-based analysis would only be possible if the intervention was conducted by the same implementer and with the same targeted behaviours, using the same material. This is not the case for the hygiene cost-effectiveness studies.

Third, when the hygiene cost-effectiveness studies focus on one-off interventions as a first step in linking costs and effectiveness, the continuity of hygiene interventions in a never-ending service perspective is not considered (see Box 2 below). This limitation has already been raised in previous work<sup>4</sup>. The hygiene cost-effectiveness studies are not looking at the life-cycle costs as developed and applied for water or sanitation in WASHCost, as this approach *“represents the aggregate costs of ensuring delivery of adequate, equitable and sustainable WASH services to a population in a specified area”*<sup>5</sup>. However, costing the intervention using the life-cycle costs approach categories: CapEx, OpEx, etc., is a first step in applying such an approach to WASH-related hygiene promotion. Taken together, on-going household costs and the costs of interventions can be seen as one aspect of the costs required to sustain hygiene behaviour change. The methodology set out here aims to analyse the cost of interventions rather than the ‘ideal’ on-going costs required to maintain an integrated hygiene promotion service.

### Box 2: The life-cycle costs approach

Life-Cycle Costs (LCC) represent the aggregate costs of ensuring delivery of adequate, equitable and sustainable WASH services to a population in a specified area. The term ‘life-cycle’ indicates that in a sustainable system, the costs follow a cycle: from initial capital investment, to operation and minor maintenance, to capital maintenance and replacement of infrastructure that has come to the end of its useful life (which may well be extended or renewed with additional capital expenditure). The life-cycle refers both to the life of the individual system components and to the overall costs required to develop and run a service indefinitely.

Source: Fonseca, et al., 2011.

4 Potter, A., et al., 2011a. *Assessing hygiene cost-effectiveness*. (WASHCost Working Paper 6) The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/1629>> [Accessed 8 August 2012].

5 Fonseca, C. et al., 2011. *Life-cycle costs approach, costing sustainable services* (WASHCost Briefing Note 1a) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/1557>> [Accessed 10 August 2012].

On the methodological side, as this study was exploratory and undertaken with limited resources, one limitation is the absence of control sample groups. A convenience sample was used (defined by V.C. Phua in Lewis-Beck, et al., 2004) with the assumption that hygiene behaviour changes were induced by hygiene promotion interventions alone. In three of the four focus countries, these were the only known hygiene promotion interventions undertaken in the sample areas studied. It is however recommended for future research that primary or secondary data from comparable sample areas should be used as a control.

## Conclusions

The methodology presented here is a work in progress and every reader is invited to comment, discuss, and share opinions and experiences. Adaptation of the methodology at country level, data collection, and analysis and dissemination, are among the next steps of these particular studies.

The data collected in Burkina Faso, Ghana, Mozambique and Andhra Pradesh, India, using this methodology, is being analysed and compared at various levels, including the following:

- Within a single country, one approach (intervention) to hygiene promotion is being assessed. Comparing the behavioural outcomes and costs before and after an intervention and comparing these to the alternative of not having an intervention will enable conclusions to be drawn about the intervention's cost-effectiveness.
- Within a single country, two (or more) different approaches to hygiene promotion are being assessed. Comparing the costs and effects of different approaches to hygiene promotion within a single country will allow conclusions on which approach is more cost-effective for the country and the households.
- Across two or more countries, a comparison of costs and outcomes of one or various approaches to hygiene promotion interventions is being made. This will allow stronger conclusions on the more cost-effective hygiene interventions.

All studies are being conducted in 2012, during the final implementation year of the WASHCost project. At the time of publication of this Working Paper, the methodology and tools have been developed, and baseline effectiveness data has been collected and entered in all three African countries. Mozambique also has end-line data. In India no data entry has yet been done. Cost data has not yet been entered in any of the countries. Results will be available by the end of 2012.

It is hoped that there will be a two-fold benefit from the life-cycle costs approach: 1) to provide decision-makers with more accurate information regarding the costs and the effectiveness of hygiene promotion interventions on behaviours, thus facilitating evidence-based policy decision-making in the field of public health; and 2) to increase scientific knowledge on the cost-effectiveness of hygiene promotion, which will in turn contribute to more effective interventions and lead to improved health.

Developing a credible evidence base on the cost-effectiveness of hygiene promotion is also important in order to advocate for continued and improved investment in hygiene promotion, and to strengthen knowledge in the sector on the kinds of interventions that are effective.

## References

- Appleton, B. and Sijbesma, C., 2005. *Hygiene promotion*. (Thematic Overview Paper 1) [online] Delft, The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.irc.nl/page/27611>> [Accessed 18 July 2012].
- Curtis, V. et al., 2001. *Evidence of behaviour change following a hygiene promotion programme in Burkina Faso*, Bulletin of the World Health Organization, 79, pp. 518–27.
- DFID and UKAID, *Water, sanitation and hygiene portfolio review*, March 2012. Available at: <<http://www.dfid.gov.uk/Documents/DFID%20WASH%20Portfolio%20Review.pdf>> [Accessed 21 August 2012].
- Drummond, M. et al., 2005. *Methods for the Economic Evaluation of Health Care Programmes*. Oxford: Oxford University Press.
- Fonseca, C. et al., 2011. *Life-cycle costs approach, costing sustainable services* (WASHCost Briefing Note 1a) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/1557>> [Accessed 18 July 2012].
- Hernandez, O., Tobias, S., 2010. *Access and behavioural outcome indicators for water, sanitation, and hygiene*. [online] Washington DC: USAID. Available at: <<http://www.hip.watsan.net/page/4148>> [Accessed 18 July 2012].
- Phua, V.C., 2004. Convenience sampling. In: Lewis-Beck, M.S., Bryman, A. and Futing Liao, T., eds., 2004. *The Sage encyclopedia of social science research*, vol. 1. London: Sage.
- Moriarty, P. et al., 2011. *Ladders for assessing and costing water service delivery*. (WASHCost Working Paper 2, 2<sup>nd</sup> edition) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/753>> [Accessed 18 July 2012].
- Potter, A., et al., 2011a. *Assessing hygiene cost-effectiveness*. (WASHCost Working Paper 6) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/1629>> [Accessed 18 July 2012].
- Potter, A. et al., 2011b. *Assessing sanitation service levels*. (WASHCost Working Paper 3, 2<sup>nd</sup> edition) [online] The Hague: IRC International Water and Sanitation Centre. Available at: <<http://www.washcost.info/page/902>> [Accessed 18 July 2012].
- Shordt, K., 2003. *Sustaining hygiene behaviours*. (WELL factsheet) [online] Loughborough: WEDC-Water, Engineering and Development Centre. Available at: <<http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/shb.htm>> [Accessed 18 July 2012].
- Sijbesma, C. and Christoffers, T., 2009. *The Value of Hygiene Promotion: Cost-Effectiveness Analysis of Interventions in Developing Countries*, Health Policy & Planning, 24(6), pp. 418-27.
- Sijbesma, C., Sikoki, B., Suriastini, W. and Ponsonby, M., 2011. Methodological lessons and findings from an impact evaluation of a WASH project in Indonesia. In WEDC- Water, Engineering and Development Centre, 35<sup>th</sup> WEDC International Conference: *The future of water, sanitation and hygiene in low-income countries: innovation, adaptation and engagement in a changing world*. Loughborough, UK 6-8 July 2011 [online]. Available at: <<http://www.irc.nl/page/70190>> [Accessed 22 July 2012].

WASHCost Mozambique, 2010. *Sampling methodology Mozambique: using the MICS as base for WASHCost*. [online] Maputo: WASHCost Mozambique. Available at: <[http://www.washcost.info/media/files/washcost\\_moz\\_sampling\\_methodology](http://www.washcost.info/media/files/washcost_moz_sampling_methodology)> [Accessed 18 July 2012].

## Appendix 1 - Questionnaire

A. Location data	
A1	CITY/VILLAGE: .....
A2	DISTRICT: .....
A3	SUB-DISTRICT: .....
A4	HOUSE NUMBER/ ID: .....
A5	COMPOUND: .....
A6	HEAD OF COMPOUND: .....

### COST-EFFECTIVENESS OF HYGIENE PROMOTION: HOUSEHOLD QUESTIONNAIRE

B. Visit data	
B1	DATE OF INTERVIEW <input type="text"/>
B2	TIME INTERVIEW STARTED/ ENDED <input type="text"/> <input type="text"/>
B3	SIGNATURE/ NAME OF INTERVIEWER <input type="text"/> <input type="text"/>
<p>PLEASE NOTE: IF THE <u>QUESTIONNAIRE AND/OR OBSERVATION FORM COULD NOT BE COMPLETED</u> GIVE IT TO SUPERVISOR FOR DISCRETE REMOVAL AND <u>GO TO RESERVE HOUSEHOLD</u> FROM YOUR SAMPLING LIST - NO MATTER THE REASON, <u>INCOMPLETE FORMS WILL NOT BE USED FOR ANALYSIS.</u></p>	

	SUPERVISOR	DISTRICT COORDINATOR	DATA ENTRY
SIGNATURE/ NAME	<input type="text"/>	<input type="text"/>	<input type="text"/>
DATE	<input type="text"/>	<input type="text"/>	<input type="text"/>

Write an introduction that is appropriate in the local context and explain the purpose of the data collection.  
I would like to speak to one of the adults from this house.

**QUESTIONNAIRE:**

<b>C. Willingness to participate</b>	
<b>C1 Are you willing to participate in this survey?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, thank the respondent and go to reserve household from your sampling list – no matter the reason	

<b>D. Household composition</b>	
<b>D1 How old are you?</b>	[ ] Years old
<b>D2 How many people, in total, live in this household?</b>	[ ] Total number of people
<i>Write down the total number of household members</i>	
<b>D3 How many adults live in this household?</b>	[ ] 1. Men
<i>Write down the number of men and women</i>	[ ] 2. Women
<b>D4 How many boys live in this household?</b>	[ ] 1. Boys less than 2 years old
<i>Write down the number of boys in each age group</i>	[ ] 2. Boys 2-5 years old
	[ ] 3. Boys 6-12 years old
	[ ] 4. Boys more than 12 years old
	[ ] 5. None
<b>D5 How many girls live in this household?</b>	[ ] 1. Girls less than 2 years old
<i>Write down the number of girls in each age group</i>	[ ] 2. Girls 2-5 years old
	[ ] 3. Girls 6-12 years old
	[ ] 4. Girls more than 12 years old
	[ ] 5. None



E. Sanitation					
	1. Men	2. Women	3. Young children 2-5 years	4. Children 6-12 years	5. Adolescents > 12 years
<b>E1 Where do the household members defecate?</b>					
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>If one of the answers to questions E1 includes a latrine/ toilet go to question E2. If none of the household members use a toilet or latrine go to question E9</p>					
<b>E2</b>	<p><b>Do you/ your household own the toilet/ latrine mentioned in the previous question?</b>    <input type="checkbox"/> Yes, it is owned by me / this household  <input type="checkbox"/> No, it is owned by others  <i>If NO skip questions E6, E7 and E8</i></p>				
<b>E3</b>	<p><b>Is this toilet / latrine used by other people that do not belong to this household/ compound?</b>    <input type="checkbox"/> Yes  <input type="checkbox"/> No</p>				
<b>E4</b>	<p><b>How many people use this toilet/ latrine?</b>    [ ] people</p>				
<b>E5</b>	<p><b>For how long have you owned/ shared this toilet / latrine?</b>    [ ] Years  <i>Write down the number of years or months or weeks</i>    [ ] Months  [ ] Weeks</p>				
<b>E6</b>	<p><b>How much did the materials used to build this toilet/ latrine cost?</b>    <input type="checkbox"/> A. [ ] CURRENCY (own money)  <i>A combination of A and B is allowed, a combination of A and C or B and C is NOT</i>    <input type="checkbox"/> B. Donated / free material  <input type="checkbox"/> C. Don't know</p>				

- E7 How much was the labour cost needed to build this toilet/ latrine?**  A. [ ] CURRENCY (own money)  
*A combination of A, B, C is allowed, a combination of A, B, C with D is not*  B. Donated / free labour  
 C. Used own labour  
 D. Don't know

- E8 Did your household have any of the following costs in the last 12 months?**  A. Repairs of the latrine / toilet: [ ] CURRENCY  
*Multiple answers allowed, If YES specify the cost*  B. Repairs of structure / house: [ ] CURRENCY  
 C. Fixing drainage problems: [ ] CURRENCY  
 D. Emptying the pit or tank: [ ] CURRENCY  
 E. Other, ..... : [ ] CURRENCY

If there are children of 0-2 years old in the house, continue here.  
 (check question D4 and D5 under household composition). If no children of 0-2 years, go to question E10

- E9 Where were the faeces of the child disposed of the last time?**  1. In the toilet  
 2. Burned with the garbage  
 3. Collected with the garbage  
 4. Buried  
 5. In the yard, street, gutter, river  
 6. Other, specify .....  
 7. Don't know

If there are children of 2-5 years old in the house, continue here.  
 (check question D4 and D5 under the composition). If no children of that age, go to question E11

- E10 Where were the faeces of the child disposed of the last time?**  1. In the toilet  
 2. Burned with the garbage  
 3. Collected with the garbage  
 4. Buried  
 5. In the yard, street, gutter, river  
 6. Other, specify .....  
 7. Don't know

F. Water management			
<p><b>F1 Which water do you use for drinking, washing dishes and washing yourself and children?</b>  <i>If there is difference in source between seasons, specify the main source of the dry season.</i></p> <p>1 Tap inside the house</p> <p>2 Tap in the compound</p> <p>3 Public tap</p> <p>4 Borehole</p> <p>5 Protected well</p> <p>6 Unprotected well</p> <p>7 Protected spring</p> <p>8 Unprotected spring</p> <p>9 Rain water</p> <p>10 Water tank</p> <p>11 Rainwater</p> <p>12 Other, specify .....</p>	<p>Drinking</p> <p>Washing dishes</p> <p>Washing yourself and children</p>	<p><input type="checkbox"/></p> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p><input type="checkbox"/></p> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<p><b>F2 Did you pay an initial fee for connection or installation of the water system?</b>  <i>If yes fill in amount and go to question 19</i>  <i>If no or don't know go to question 20</i></p>	<p><input type="checkbox"/> 1. Yes; [ ] CURRENCY</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p>		
<p><b>F3 What year did you pay this fee?</b></p>	<p>[ ] Fill in year; example 2007</p>		
<p><b>F4 Do you pay for the water?</b>  <i>If yes go to question E15</i>  <i>If no or don't know go to question E16</i></p>	<p><input type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p> <p><input type="checkbox"/> 3. Don't know</p>		
<p><b>F5 How much do you normally pay each month for the water that the household uses?</b>  <i>If they use a meter, specify last month's bill.</i></p>	<p>[ ] CURRENCY (fill in amount spend per month)</p>		
<p><b>F6 In the last year, were you ever forced to use unsafe water for drinking/ cooking, e.g., from a shallow well, river or other un-protected source? For example because of a breakdown of the water supply and no storage facility?</b></p>	<p><input type="checkbox"/> 1. Never</p> <p><input type="checkbox"/> 2. Once a year</p> <p><input type="checkbox"/> 3. A couple of times a year</p> <p><input type="checkbox"/> 4. Once or more per month</p> <p><input type="checkbox"/> 5. Don't know</p>		
<p><b>F7 Do you treat your water?</b>  <i>If YES answer questions E18 and E19, if NO or DON'T KNOW go to question E20</i>  <i>If 'sometimes' ask the interviewee to specify when (occasion) the water is treated</i></p>	<p><input type="checkbox"/> 1. Yes, always</p> <p><input type="checkbox"/> 2. Yes, sometimes. Only when (specify) .....</p> <p><input type="checkbox"/> 3. No</p> <p><input type="checkbox"/> 4. Don't know</p>		

**F8 How do you treat your water?***Multiple options allowed*

- A. Boiling  
 B. Put chlorine into it  
 C. Use (ceramic) filter  
 D. Other, specify .....

 E. Don't know**F9 For what purpose do you use treated water?***Multiple options allowed*

- A. Drinking  
 B. Cooking  
 C. Washing dishes  
 D. Washing self and children  
 E. Preparing baby formula  
 F. Other, specify .....

 G. Don't know**F10 Do you store water in or near the house?***If YES answer question 22 and 23, if NO or DON'T KNOW go to question 24*

1. Yes  
 2. No  
 3. Don't know

**F11 How do you store water?***If DON'T KNOW, go to question 24*

1. Open pot or bucket  
 2. Pot, jerry can or bucket with lid  
 3. Kettle  
 4. Bottle  
 5. Other, specify .....

 6. Don't know**F12 For what purpose do you use stored water?***Multiple options allowed*

- A. Drinking  
 B. Cooking  
 C. Washing dishes  
 D. Washing self and children  
 E. Preparing baby formula  
 F. Other, specify .....

 G. Don't know

<b>G. Handwashing</b>																																																							
<p><b>G1 Who in the household has the habit of washing their hands and at which times (occasions)?</b> <i>Do not read the options, let the interviewee respond. Multiple options allowed</i></p> <p>A Before using the toilet</p> <p>B After using the toilet</p> <p>C After cleaning baby's bottom</p> <p>D Before eating</p> <p>E After eating</p> <p>F Before feeding infants</p> <p>G After touching animals</p> <p>H Before preparing food</p> <p>I Other, specify .....</p>	<table border="0"> <tr> <td></td> <td style="text-align: center;">1. Men</td> <td style="text-align: center;">2. Women</td> <td style="text-align: center;">3. Young children 2-5 years</td> <td style="text-align: center;">4. Children 6-12 years</td> <td style="text-align: center;">5. Adolescents &gt; 12 years</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>		1. Men	2. Women	3. Young children 2-5 years	4. Children 6-12 years	5. Adolescents > 12 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<p><b>G2 What method/ way do you, and the others in the household use to wash your hands?</b> <i>If NONE go to question G5</i></p>	<p><input type="checkbox"/> 1. None</p> <p><input type="checkbox"/> 2. Cup/ bucket</p> <p><input type="checkbox"/> 3. Container with tap (e.g., jerry can)</p> <p><input type="checkbox"/> 4. Pour directly from container (e.g., jerry can)</p> <p><input type="checkbox"/> 4. Modern sink</p> <p><input type="checkbox"/> 5. Other, specify .....</p>																																																						
<p><b>G3 What were the costs (money) for buying the materials needed for using this method of washing your hands?</b></p>	<p><input type="checkbox"/> 1. 0 - 10 CURRENCY</p> <p><input type="checkbox"/> 2. 10 - 50 CURRENCY</p> <p><input type="checkbox"/> 3. 50 - 100 CURRENCY</p> <p><input type="checkbox"/> 4. &gt; 100 CURRENCY</p>																																																						
<p><b>G4 Did you use soap in the last week?</b> <i>If no go to question G9</i></p>	<p><input type="checkbox"/> 1. Yes</p> <p><input type="checkbox"/> 2. No</p>																																																						
<p><b>G5 For what purposes do you use soap?</b> <i>Multiple options allowed</i></p>	<p><input type="checkbox"/> A. Washing clothes</p> <p><input type="checkbox"/> B. Washing body (bathing)</p> <p><input type="checkbox"/> C. Washing hands</p> <p><input type="checkbox"/> D. Washing plates, cups, etc.</p> <p><input type="checkbox"/> E. Other, specify .....</p>																																																						
<p><b>G6 How many times per month do you buy soap?</b></p>	<p>[ ] Times per month</p>																																																						
<p><b>G7 What does it cost each time you buy soap?</b></p>	<p>[ ] CURRENCY (fill in amount spent)</p>																																																						
<p><b>G8 Total amount spent on soap in the last 1 month</b></p>	<p>[ ] CURRENCY (fill in amount spent)</p>																																																						

**G9 Have you or another household member participated in Hygiene Promotion activities recently (last 6 months)?**  
*If NO or DON'T KNOW the questionnaire is done, go to OBSERVATIONS*

1. Yes once  
 2. Yes ..... times  
 3. No  
 4. Don't know

**G10 What type of activity did you or another household member participate in?**  
*Multiple options allowed*

A. Group/ community meeting  
 B. Individual meeting  
 C. Theatre performance  
 D. Other, specify .....

**G11 How much time did you or the other household members spend on these activities?**

[ ] persons [ ] times [ ] hours OR  
 [ ] persons [ ] times [ ] days

**OBSERVATIONS:**

**H. Observation cooking area**

**H1 Is water available in the kitchen/ cooking area for washing hands at the moment?**

1. Yes in storage vessel  
 2. Yes in tap  
 3. Yes other, specify .....  
 4. No

**H2 Do you see soap (any kind) in the cooking area?**

1. Yes  
 2. No

**H3 Do you see drinking water stored in the cooking area?**

1. Yes in open pot/ bucket/ jerry can  
 2. Yes in covered pot/ bucket/ jerry can  
 3. Yes in kettle  
 4. Yes in bottle  
 5. Yes in tap  
 6. Yes other, specify .....  
 7. No

**H3 If water is stored in a closed storage vessel, is there a dipper or a tap (to draw the water in a safe way)?**

1. Yes  
 2. No

I. Observation washing area				
<b>I1</b>	<b>Do you see soap (any kind) in the washing area?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>I2</b>	<p>Ask the interviewee to show you where household members usually go to defecate.</p> <p><b>Which type of toilet / latrine do you see?</b></p> <p><i>In case of 11. Cat system or open defecation go END. Thank the interviewee for their time</i></p>	<input type="checkbox"/> 1. System connected to running water and sewage <input type="checkbox"/> 2. System connected to running water and septic tank <input type="checkbox"/> 3. Siphon system connected to septic tank (bucket) <input type="checkbox"/> 4. System with water tap on latrine <input type="checkbox"/> 5. VIP latrine <input type="checkbox"/> 6. Latrine with slab <input type="checkbox"/> 7. Improved traditional latrine <input type="checkbox"/> 8. Traditional latrine <input type="checkbox"/> 9. Ecological latrine <input type="checkbox"/> 10. Bucket <input type="checkbox"/> 11. Cat system <input type="checkbox"/> 12. Other, specify		
<b>I3</b>	<b>Is water available in the toilet/ latrine for flushing and washing hands?</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <b>For flushing</b>  <input type="checkbox"/> 1. Yes in container  <input type="checkbox"/> 2. Yes in tap  <input type="checkbox"/> 3. Yes other, specify    <input type="checkbox"/> 4. No .....             </td> <td style="width: 50%; vertical-align: top;"> <b>For washing hands</b>  <input type="checkbox"/> 1. Yes in container  <input type="checkbox"/> 2. Yes in tap  <input type="checkbox"/> 3. Yes other, specify    <input type="checkbox"/> 4. No .....             </td> </tr> </table>	<b>For flushing</b> <input type="checkbox"/> 1. Yes in container <input type="checkbox"/> 2. Yes in tap <input type="checkbox"/> 3. Yes other, specify  <input type="checkbox"/> 4. No .....	<b>For washing hands</b> <input type="checkbox"/> 1. Yes in container <input type="checkbox"/> 2. Yes in tap <input type="checkbox"/> 3. Yes other, specify  <input type="checkbox"/> 4. No .....
<b>For flushing</b> <input type="checkbox"/> 1. Yes in container <input type="checkbox"/> 2. Yes in tap <input type="checkbox"/> 3. Yes other, specify  <input type="checkbox"/> 4. No .....	<b>For washing hands</b> <input type="checkbox"/> 1. Yes in container <input type="checkbox"/> 2. Yes in tap <input type="checkbox"/> 3. Yes other, specify  <input type="checkbox"/> 4. No .....			
<b>I4</b>	<b>Do you see soap (any kind) in or near the toilet/ latrine?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>I5</b>	<b>Is the toilet free from faeces on walls and floors of toilet?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>I6</b>	<b>Is the toilet free from used toilet paper with excreta on it or are sanitary napkins out in the open, e.g., on the floor or in an open basket?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>I7</b>	<b>Is the toilet free from flies around the toilet?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		
<b>I8</b>	<b>Is there a brush or similar implement to clean the toilet?</b>	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No		

