# Making hygiene promotion cost effective

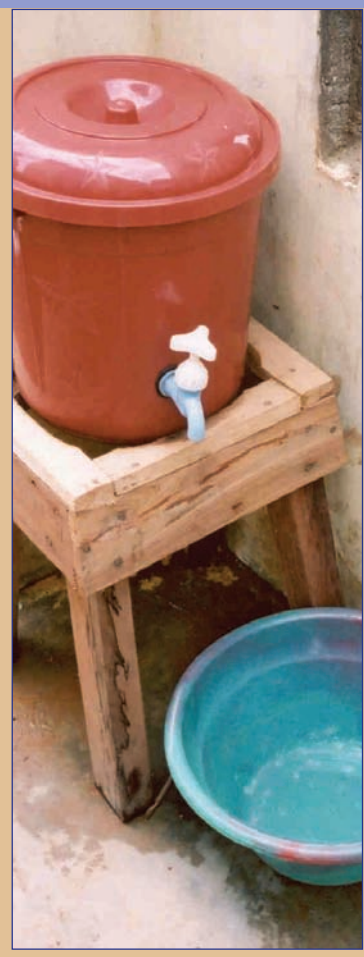
## The issue of cost effectiveness

Water and sanitation related diseases are amongst the most prevalent causes of disease and death in developing countries. Billions of dollars have been spent in improving community water supply and sanitation, but still little is known about whether these facilities are being used effectively by the poor. This is important as access alone is not enough. It is use that makes the impact.

It is imperative therefore to investigate whether such investment really results in improvements in hygiene behaviour and has a positive impact in terms of lower morbidity and mortality rates.

Cost effectiveness is defined as the monetary cost of producing a unit of effect (such as a reduction in the number of diarrhoea cases) through some form of intervention. A cost effective analysis looks at whether intended results are achieved, if these result in the desired impact and whether that impact is achieved at the lowest possible cost.

## Headline facts



- Hygiene promotion has a substantial positive impact on people's health, and in particular on the reduction of diarrhoeal diseases.
- Hygiene promotion is more cost effective than other water and sanitation sector interventions and is as cost effective as some of the most important child survival interventions in the health sector.
- Various methods of Cost Effective Analysis (CEA) exist, including the use of Disability Adjusted Life Years (DALY).
- The inclusion of CEA in proposals and evaluations ensures that interventions provide value for money in achieving the Millennium Development Goals.

## Measuring cost effectiveness using DALY

Disability-Adjusted Life Years (DALY) estimations are widely used to determine the cost-effectiveness of health sector interventions. This method measures a programme's performance by reductions in morbidity and mortality figures. Effectiveness is expressed as the amount spent in US$ per case of illness averted, death averted and averted DALY.

### *Using DALYs to assess the cost-effectiveness of hygiene promotion*

DALY Cost Effectiveness Analyses (CEAs) show that interventions in a particular sector can be more beneficial than, or as beneficial as other sector interventions. Several studies have applied the DALY measurement at *sector* level. The outcomes strongly indicate that hygiene promotion is more cost-effective than other water and sanitation sector interventions. It is also as cost-effective as some of the most important child survival interventions used by the health sector, although they suggest differing degrees of cost-effectiveness. This is because a lack of available data means that estimations are sometimes used that reduce accuracy.

### *The limitations of DALY estimates*

Most CEAs using DALYs are at *global sector* level due to limitations for use at *programme* level:

- Programme level data may not be easily available
- A single calculation method can be easily applied and verified
- Improved water supply, sanitation and hygiene offer many health impacts that require different data
- Non-health benefits e.g. convenience and time gains are not considered when calculating DALYs.

However, hygiene promotion programmes can use existing literature on DALYs to show the potential benefits of their interventions, if it can be demonstrated that the required hygiene conditions and practices have been realised.

## Assessing cost-effectiveness in hygiene promotion in programme studies

Figure 1 outlines the hygiene promotion steps, with the shaded boxes indicating factors which are not measured well as part of programme studies.

- ***Inputs:*** activities, materials and equipment and financial inputs.
- ***Processes:*** ways of working.
- ***Outputs:*** number of sessions or participants or facilities installed.
- ***Effectiveness:*** quality of process, direct results (e.g. behaviour change) and sustained results (continuous intervention v. self-sustaining change).
- ***Impact:*** improvement of the health of the population.
- ***Cost-effectiveness:*** compares costs with quality of process, direct and sustained results and impacts.

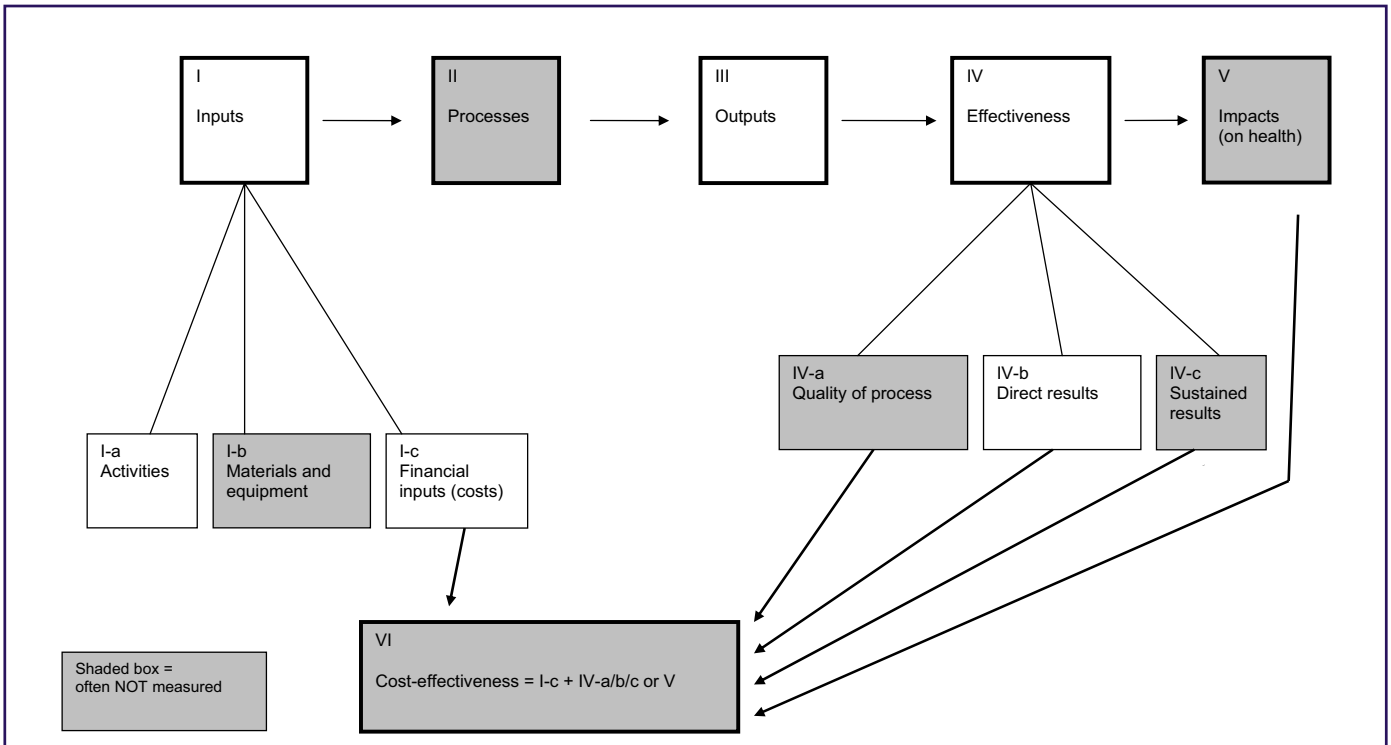



**Figure 1. Position of cost-effectiveness analysis in the overall structure of a hygiene promotion intervention**

## Programme cost effectiveness studies

***Saniya Programme, Burkina Faso***
The cost-effectiveness of the three-year Saniya hygiene promotion programme was estimated by measuring behaviour change linked to the prevention of diarrhoeal disease. The rate of handwashing with soap after cleaning a child's bottom by mothers rose from 13 to 31% and safe disposal of children's stools from 80% to 84%. Hand-washing with soap after latrine use increased from 1 to 17%. It was concluded that the programme changed the hygiene practices of 18.5% of mothers of young children and was therefore effective.

Health impacts were not measured, but examples in the literature show the impact of hand washing with soap on reducing diarrhoea, the ratios of children seeking medical advice or requiring hospital admission and the percentage of child deaths from diarrhoea. These figures combined with the above results led to estimates of the programme's impact in averting diarrhoea, outpatient visits, hospital referrals and deaths. The data show that the cost of the intervention was US$ 292,000 or US$ 0.65 per head. 8638 incidences of diarrhoea were diverted at US$ 24 per case. Additional costs of improved hygiene were US $7.3 per household per annum, mostly to buy soap. However, households saved US $15 in medical care and lost productivity.

Cost-effectiveness here is not expressed in DALYs, but in costs per diarrhoeal episode, outpatient visit, hospital admission or death averted. The study concludes that the programme was cost-effective as it reduces childhood diarrhoea at less than 1% of the Ministry of Health budget and less than 2% of the household budget and could be replicated at even lower costs.

***ZimAHEAD, Zimbabwe***
Cost-effectiveness of the Community Health Clubs Approach was examined in the Makoni and Gutu Districts. This successfully increased hand washing with soap in the districts by 6% and 37% respectively and decreased open defecation by 29% and 98%. The cost of the intervention was US$ 4.00 per member -an average of US$ 0.67 per member of each affected household (rising to US$ 1.40 including staff salaries).

In a third district, the proportion of households using a ladle to draw water increased from 3% to 93% and the proportion with an improved pit latrine from 40% to 80%. Other aspects of hygiene behaviour also improved, at a cost of US$ 3.33 per household.

***Hygiene Education, Guatemala***
A review of a hygiene education programme in Guatamala estimated a cost of US$ 5.00 in 1982 to educate a mother in hygiene practice. This is equivalent to US$ 0.50 per capita. The annual incidence of diarrhoea in children under 5 whose mothers had participated in the programme was 14% lower than those who had not. 0.31 episodes of diarrhoea in children under five are averted annually per educated mother at a cost of US$ 16 per case.

***Community Managed Services, Niger***
An evaluation of the Community Managed Services project compared the effectiveness of two hygiene promotion approaches in similar populations. These were based on social marketing of improved sanitation and hygiene by project paid village promoters, and on community managed hygiene and sanitation improvements. Under the latter, each neighbourhood chose a man and a woman to promote sanitation and hygiene with the same sex in their area. The results was a village social map. The leadership used this, coordinating the programme and monitoring progress. After 18 months, where leadership was strong, the approach proved more successful than social marketing. Use of the facilities was not measured. The cost of the programme was only 1.8% of the cost of constructing water supply services.

## Recommendations

- Due to its cost effectiveness, greater priority should be given to hygiene promotion as either a separate component in programmes or as a discreet project or programme.
- CEAs using DALYs are useful for advocating hygiene promotion interventions. Where they are not appropriate, alternative CEAs are:
  - — studies of hygiene conditions and practices before and after interventions;
  - — longitudinal studies of behaviour change with participatory learning;
  - — cost-effectiveness studies of processes; and
  - — comparative studies of different approaches to hygiene promotion.

- Cost-effectiveness studies of hygiene promotion interventions require a full range of inputs, processes, outputs and results. Impact data on health and/or socio-economic development should constitute part of the analysis.
- The sustainability of behaviour change is a fundamental calculation of cost-effectiveness. A measure of the morbidity/mortality averted should extend to at least five years following the intervention.
- Methodologies for evaluating all aspects of programmes have been developed, to ensure both reliability and replicability. They provide a clearer picture of the behaviour change resulting from hygiene promotion interventions.
- Planners should be aware of the existence of cost effective CEA methods and tools, in order to maximise the impact of their efforts.
- The case study methodologies cited are generally ad hoc. A clear, simple methodology for use at project/programme level is currently under development under the WELL programme.
- CEA should be part of every project proposal and evaluation. Hygiene promotion methods can then be compared in terms of cost-effectiveness and replicated by the sector to ensure 'value for money' in achieving the MDGs.

WELL

**WELL is a network of resource centres:**

WEDC at Loughborough University UK
IRC at Delft, The Netherlands
AMREF, Nairobi, Kenya
IWSD, Harare, Zimbabwe
LSHTM at University of London, UK
TREND, Kumasi, Ghana
SEUF, Kerala, India
ICDDR, B, Dhaka, Bangladesh
NETWAS, Nairobi, Kenya

This note was funded by the UK Department for International Development (DFID). The views expressed, however, are not necessarily those of DFID.

Published by WEDC on behalf of WELL

**This briefing note focuses on the assessment of the cost-effectiveness of hygiene promotion methods.**

## Key references


- World Bank Water and Sanitation Programme, (2003). *Meeting the Financing Challenge for Water Supply and Sanitation*.
- Borghi, J. et al., (2002). *Is hygiene promotion cost-effective? A case study in Burkina Faso.* Tropical Medicine and International Health, Vol. 7, No. 11, p. 960-969, November 2002.
- Waterkeyn, J., (2003). Cost-effectiveness of Health Promotion: Community Health Clubs. 29th WEDC conference 2003.
- Phillips, M.A., Feachem, R.G. & Mills, A., (1987). *Options for Diarrhoea Control. The cost and cost-effectiveness of selected interventions for the prevention of diarrhoea.* London, London School of Hygiene and Tropical Medicine.
- Nibakure, I & van Wijk, C., (1997). *Rapport de mission d'appui au Programme d'Hygiene et Assainissement du Programme Hydraulique Villageoise au Niger, Phase IV*, Departement de Dosso. Delft, the Netherlands, IRC.


Briefing Note source material by Trea Christoffers, Christine van Wijk and Vincent Njugana.

The full report is available at : www.Lboro.ac.uk/well

Full details of all the material used in support of this briefing note are available at www.Lboro.ac.uk/well

DFID Resource Centre in Water, Sanitation & Environmental Health
www.Lboro.ac.uk/well

**Briefing Note compiled by Julie Fisher of WEDC**

**Photographs by: Julie Fisher, Peter Harvey, Darren Saywell and Rebecca Scott.**

**For further information, contact:**
**WELL**
**Water, Engineering and Development Centre (WEDC)**
**Loughborough University**
**Leicestershire LE11 3TU UK**

Email: WELL@lboro.ac.uk
Phone: 0 (44) 1509 222885
Fax: 0 (44) 1509 211079
Website: http://www.Lboro.ac.uk/well/