



Sanitary investigations as a sanitation monitoring tool

By Michael D. Smith and Samar M. Husary

Monitoring and evaluation are important tools for assessing water and sanitation projects. This articles looks at why monitoring and evaluation are important, and a means by which they can achieved and results compared with those from similar projects.

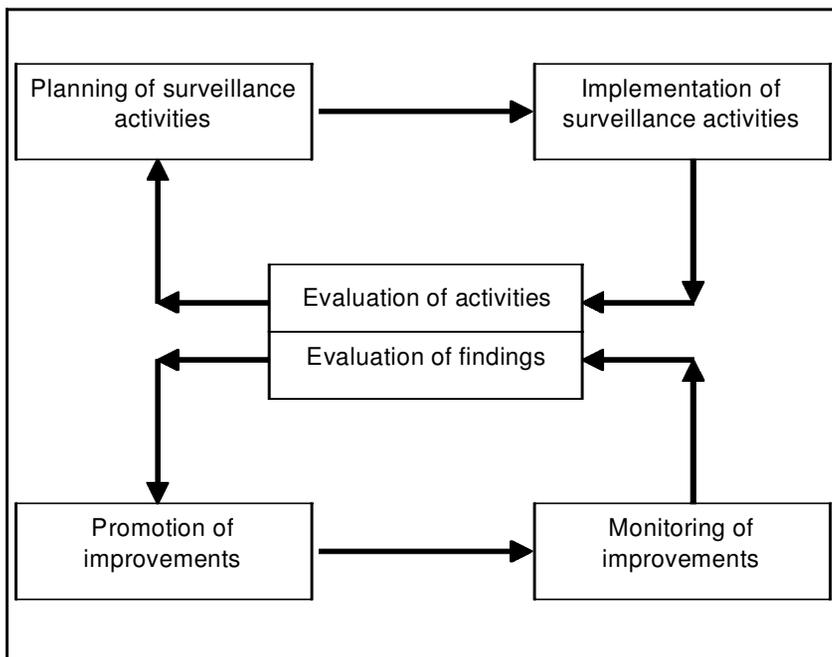
Monitoring and evaluation (M and E) activities are widely recognized as being important components of water supply and sanitation projects, contributing to the achievement of maximum health benefits on a project both in the short and long-term. Monitoring and evaluation can help to identify improvements in individual projects, and help to improve the planning, implementation and M and E of future projects. This is illustrated in Figure 1 (WHO, 1997, adapted), showing how M and E can lead to the improvement of both water supply and sanitation projects and M and E activities.

Health improvements resulting from water supply and sanitation projects are often difficult to quantify, and are unlikely to be achieved quickly (Almedom et al.1997). The number of latrines or toilets completed is not necessarily an indication of improved hygiene. A latrine that is used and maintained well can be a very effective barrier to the transmission of faecal-oral dis-

eases, whereas a latrine that is not used correctly or well-maintained can become a focus for the transmission of diseases. M and E activities for sanitation projects therefore frequently focus on both the number of facilities provided, and proxy indicators to show improvements in hygiene practices. Proxy indicators may include, for example, whether people wash their hands after using the latrine or toilet, and whether they wash hands before preparing food or eating meals.

Identification of objective verifiable indicators to monitor the impact of sanitation projects is therefore difficult. Questionnaires have been prepared for some projects to consider the quality of sanitation facilities provided, but there are currently not widely used systems for evaluation of latrines as constructed or when in use. This paper describes the concept of using simple sanitary inspection forms for systematic evaluation of the quality of sanitation facilities. Use of standard forms permits direct comparison of sanitation facilities from different projects, assessment of the impact of new facilities, and monitoring of changes to sanitation facilities and user behaviour over a period of time.

Figure 1
The dual cycle procedure for evaluation of watsan surveillance (adapted from WHO, 1997)



Sanitary Inspections

In the field of water supply, sanitary inspections are used to complement bacterial analyses to assess water quality. Bacterial analyses provide facts about the quality of the water samples analysed, but the samples may not be representative, and the results of analyses do not suggest explanations for the water quality as measured. Sanitary inspections, however, identify risks of contamination, offer possible explanations for water quality analyses, identify possible faecal-oral routes for the transmission of diseases, and treat all risks as being of equal importance. Assessment and analysis of the relative importance of individual risks is very difficult without detailed analysis, because many risks are inter-dependent. The relative importance of risks may also vary between different areas, so that it is not valid to allocate differential scores to risks.

Sanitary inspection report forms have been prepared for a range of different low-cost water supply options, and examples have been published in Lloyd and Helmer (1991) and WHO (1997) to name just two. Waterlines Technical Brief 50 (Smith and Shaw, 1996) provides a simple introduction to sanitary inspection. The report forms should be adapted to suit local circumstances. Sanitary inspection forms are quick and easy to use, providing a useful record of possible causes of water contamination.

Assessment of sanitary facilities using sanitary inspection forms

It is also possible to use sanitary inspections in the sanitation sector as many development projects contain both water supply and sanitation components. While working on a rural development project near Hebron in the West Bank, the authors developed sanitary inspection forms for both the water supply and sanitation components.

It is not practical to use a standard sanitary inspection form for use with different latrines. Six draft sanitary inspection forms for use on sanitation projects have been prepared to date, to reflect local needs. These list questions that identify possible risks to transmission of faecal-oral and other excreta-related diseases, and an example of the form for household VIP latrines is shown in Box 1. Preparation of a drawing for each form is also planned, following field-testing of the forms to illustrate the risks identified. The forms currently available are:

- Household latrines (single pit VIP)
- School toilets (VIP)
- Household latrines (pour-flush)
- School toilets (pour-flush)
- Septic tanks
- Communities without latrines or toilets

For simplicity all risks are considered as being of equal importance, and questions have been phrased in such a way that the answer is 'Yes' if a risk is present. This requirement can lead to some questions being rather clumsy in structure, and it is therefore important that people who use the forms receive adequate training in their use, to avoid possible misunderstandings about how questions should be answered. Some questions relating to the facilities and user behaviour have been grouped together on the forms, and no questions about pollution risks for water sources have been included, because sepa-

rate sanitary inspection forms can be used to identify these risks. Most questions can be answered by visual inspection of the facilities, and no special equipment is required for conducting the sanitary inspections. The number of questions on the different forms varies from 9 to 18, depending on the type of sanitation, so an attempt has been made to classify the level of risk for each form, based on the number of risks identified. This allows the risk ratings, ranging from 'low' to 'very high', from different sanitary inspection forms to be compared directly. It is hoped that the variable number of questions does not prove to be a limitation to the use of the forms, and that use of risk ratings (indicated on each form) will make it possible to assess whether sanitation interventions are likely to reduce health risks.

Some of the sanitary inspection forms are currently being field tested in two Palestinian villages, where new sanitation facilities are being prepared. Different forms are being used for the baseline survey (pre-project) and post-project, because different risks apply to pre and post-project conditions. The forms are being used to evaluate the impact on levels of health risk as a result of the project. The forms can also be used to identify specific risks resulting from poor construction or poor operation and maintenance, so that deficiencies can be remedied.

Future plans

Additional sanitary inspection forms for other sanitation options (for example, simple pit latrines) will be prepared and refined as required. Copies of the draft sanitary inspection forms are available from the authors for evaluation purposes. Some changes to questions may need to be adapted to suit local conditions.

Dissemination materials will be prepared documenting the authors' experiences of using the sanitary investigation forms, incorporating information received from others who use the forms as a monitoring and evaluation tool for sanitation projects. Field experiences will assist the authors in developing and refining the forms further.

References

Almedom, A. M. Blumenthal, U. and Manderson, L. (1997) Hygiene Evaluation Procedures, International Nutrition Foundation for Developing Countries, London School of Hygiene and Tropical Medicine, London.

Lloyd, B. and Helmer, R. (1991) Surveillance of Drinking Water Quality in

'Sanitary inspection forms are quick and easy to use, providing a useful record of possible causes of water contamination.'

Rural Areas, Longman Scientific & Technical Books, London. (Published for WHO and UNEP.)
 Smith, M. D. and Shaw, R. (1996) Technical Brief No 50, Sanitary surveying. *Waterlines*, 15:2 pp15-18, Intermediate Technology Publications, London.

WHO (1997) Guidelines for drinking-water quality. Volume 3: surveillance and control of community supply, World Health Organization, Geneva.

Acknowledgements

The authors wish to express their thanks to colleagues for their constructive comments; in particular to Guy Howard, Dr Margaret Ince, Darren Saywell and Brian Reed. They also wish to acknowledge the encouragement of colleagues working on the DFID-funded H-WASP project, which inspired the development of sanitary inspection forms for sanitation facilities.

Box 1
 Sanitary inspection form for household latrines (single pit VIP)

Sanitary inspection form for household latrines (single pit VIP)	
Date of visit for sanitary inspection:	_____
Specific diagnostic information for assessment	Risk
1. Is the latrine not in working order? (For example is it blocked or seriously damaged?)	Y/N
2. Is the vent pipe incorrectly constructed? (cracked, broken, blocked or obstructed by spiders' webs, etc.)	Y/N
3. Does the vent-pipe lack a fly screen, or is the fly-screen torn and damaged?	Y/N
4. Is the vent pipe not straight, of less than 100 mm internal diameter or less than 300 mm taller than the latrine superstructure?	Y/N
5. Is the interior of the latrine superstructure light, or is the latrine door (if fitted) usually left ajar?	Y/N
6. Does the latrine fail to provide privacy? (Is the door or screen missing, or can the door not be closed securely?)	Y/N
7. Is the floor, pedestal or squat slab soiled with excreta or urine?	Y/N
8. Is there evidence of flying or crawling insects (flies, cockroaches, maggots) in the latrine superstructure?	Y/N
9. Is there an unpleasant or offensive smell within the latrine superstructure, which could discourage use of the latrine?	Y/N
10. Is there evidence of excreta or urine on the ground around the latrine?	Y/N
11. Is there evidence of cracking or damage to the toilet pedestal or squat-slab?	Y/N
12. Is the pit uncovered or is the cover slab incompletely sealed?	Y/N
13. Is there evidence that the pit is full, overflowing or allowing wastes to leak onto the ground?	Y/N
14. Are any members of the household not allowed to use the latrine? (Due to age and sex.)	Y/N
15. Are appropriate anal cleansing materials not available?	Y/N
16. Are facilities for handwashing (with soap) not available within or close to the latrine?	Y/N
17. Is there no management system in place to maintain the latrine?	Y/N
Total score of risks ('YES' answers)	/17
Contamination risk score:	9 – 17 = very high 6 – 8 = high 3 – 5 = intermediate 0 – 2 = low
The following points of risk were noted:	
Recommendations:	
Signature of inspector:	_____

about the authors

Michael Smith is a Programme/project Manager for WEDC, Loughborough University, UK.
 Samar Husary is an Engineering Hydrology Specialist, Palestinian Hydrology Group, West Bank
 The authors may be contacted at:
 Michael D. Smith, WEDC, Loughborough University, Loughborough, LE11 3TU, UK
 Tel: +44 1509 222640 or 222885
 Fax: +44 1509 211079
 Email: m.d.smith@lboro.ac.uk.