



An Evaluation of Evaluation Systems for Rural Water Supply and Sanitation Systems

TUNG NGUYEN NHU*

Vietnam National University, Ho Chi Minh City, Vietnam

Email: nntung@hcmiu.edu.vn

Received 14 December 2012 Accepted 10 June 2013 (*Corresponding Author)

Abstract An evaluation of evaluation systems applied to water supply and sanitation systems in rural areas would contribute to improving the validity and quality of the evaluation results. An evaluation system is supposed to be based on latest indicators in the field, theory-based evaluation principles, in consideration of threats to the validity of the evaluation. A case study of the Mekong Delta Rural Water Supply and Sanitation Project (AUSAID Project) is used for a review of its evaluation system. This project was implemented in five provinces in Vietnam for the period from 2000 to 2007. Information on this evaluation is collected from regular project monitoring and evaluation reports and the Activity Completion Report. The author's work as an evaluation officer for the project improves the understanding of the project's evaluation approaches. The project evaluation reports serve the purpose of measuring the effectiveness and sustainability of the project's activities. Several potential threats to the validity of the evaluation include some missing assumptions and intermediate outcome for the project's impacts. Notwithstanding the above threats, this evaluation system of rural water and sanitation was the first in this field in Vietnam, and its indicators satisfy the evaluation standards. This evaluation of evaluation, based on theory-based evaluation principles, for a specific case of rural water supply project in Mekong Delta has never been conducted before.

Keywords threats to validity, effectiveness, evaluation systems, water supply, sustainability, participatory

INTRODUCTION

Because of its importance, an evaluation report must be a useful document for learning. However, Busby (1999) has stated that evaluation reports are not used effectively because their contents are too shallow: they fail to explicitly identify the true causes of problems, lack of objective outcome of data and misinterpret data. The validity of an evaluation report depends on the quality of its evaluation system design and implementation. Therefore, it is necessary to determine whether an evaluation system is free of technical errors, misinterpretation, and bias. This type of auditing helps to improve an ongoing evaluation process. A review of post-project evaluation also audits the completeness and soundness of final evaluation reports to provide information to future project managers. Because of this importance, international donors conduct reviews of evaluations. For example, AUSAID audited 162 evaluation reports of its funded activities from July 2006 to June 2010 and found that approximately one-quarter of these evaluation reports were of "insufficient quality to be published", and that only 11% of them were of excellent quality (Bazeley, 2011).

An evaluation of an evaluation is defined as a way "to aggregate findings from a series of evaluations. It is also used to denote the evaluation of an evaluation to judge its quality and/or assess the performance of the evaluators" (glossary for M&E terms, OECD-DAC 2002). Other names for an evaluation of an evaluation are a secondary evaluation, a meta-evaluation and an evaluation audit. This evaluation category includes professional critiques of evaluation reports, reanalysis of data and external evaluations of internal audits. In this paper, the term "meta-evaluation" is used to refer to the evaluation of evaluations.

OBJECTIVE

The purpose of this study is to compile meta-evaluation criteria for a Rural Water Supply and Sanitation (RWSS) evaluation based on an intensive literature review and to assess the evaluation system used by an AUSAID-funded project, the Mekong (Cuu Long) Delta Rural Water Supply and Sanitation (CLDRWSS) Project. Specifically, the research questions are as follows: 1) What should be reviewed in an evaluation of a RWSS evaluation system? 2) What are the evaluation methodologies used by the CLRWSS Project? 3) What are some threats to the validity of the evaluation results in the CLRWSS Project?

This research will contribute by providing a proposed framework of meta-evaluation to which future evaluation efforts in the relevant sector may refer. Evaluators will be able to determine which aspects of their evaluation content will be checked to allow their auditing to be more complete, accurate, accountable, and usable.

The limitation of this paper is that it ignores considerations of some meta-evaluation indicators, including cost-benefit or cost-effectiveness issues (e.g., was the evaluation conducted at a reasonable cost?) and the extent of learning from evaluation results (what did people learn and how well did people learn from these lessons?). It is important that future meta-evaluations include these contents.

METHODOLOGY

For the first research question, literature review is used to compile a set of relevant meta-evaluation indicators to answer the first question. Substantial research has been conducted to include relevant meta-evaluation indicators in the rural water and sanitation sector. The sources of this information are mainly evaluation books, journal articles and websites. I also refer to the guidelines published by the World Bank, OECD, AUSAID and UNICEF for evaluation standards.

To answer the second and third research questions, desk research is used to retrieve the CLDRWSS Project's Monitoring and Evaluation (M&E) reports and the M&E Summary Report for the Activity Completion Report to provide evidence of the evaluation system. The above evaluation reports are scrutinised through the lens of theory-based evaluation model to understand how and why the project activities would lead to outcomes (Weiss, 1995; Fitz Gibbon et al., 1996; Rogers et al., 2000). Theory-based evaluation is more and more popularly used in designing evaluation of community-based interventions and the CLDRSS project evaluation system is not an exception. The theory-based evaluation normally uses a form of logic framework (Logframe) to guide the collection and analysis of data for evaluation reports.

RESULTS AND DISCUSSION

What should be reviewed in an evaluation of a RWSS evaluation system?

Stufflebeam (1974) proposed eleven specific criteria to determine the quality of an evaluation (Table 1). Weiss (1995) and Rogers (2007) suggested that theory-based evaluation should include a logical framework, or Logframe, which has increasingly been applied in health community-based interventions such as water and sanitation projects. According to these authors, the outcomes of an intervention are based on theories of how and why this intervention will work or through a pathway in a particular context. Therefore, a theory-based evaluation must be designed based on a logical framework or Logframe, and its focus should be on collecting and analysing data as required by the framework. Chelimsky (1995) regarded the political dynamics or environment as one of the constraints to the quality of an evaluation, which may lead to "the total restriction or classification of information". Furthermore, according to the World Bank, three major criteria for evaluating rural water supply and sanitation systems are sustainability, effective use, and replicability. Capacity building is central to the progress of these dimensions. Narayan (1993) has emphasised the importance of a participatory approach to the evaluation of Rural Water Supply and Sanitation

community-based (RWSS) interventions for the purpose of sustainability (Table 1).

Table 1 Summary of Meta-Evaluation Considerations/Indicators

Authors/ Organisations	Meta-Evaluation Considerations/Indicators
Stufflebeam (1974)	1) Internal validity, 2) External validity, 3) Reliability, 3) Objectivity, 4) Relevance, 5) Importance, 6) Scope, 7) Credibility, 8) Timeliness, 9) Pervasiveness, 10) Cost/ effectiveness
Weiss (1995) and Rogers (2007)	Theory-based evaluation (logical framework, input-outcome model, assumptions, context)
Narayan (1993)	Rural Water Supply and Sanitation (RWSS) indicators (participatory evaluation, effectiveness, sustainability, capacity building, replicability)
OECD Development Assistance Committee Evaluation Criteria	Effectiveness (e.g., Independent Completion Report effectiveness, gender, M&E system, lessons learned); relevance (theory of change/intervention logics, context); sustainability (use of government systems, transactional vs. transformational); efficiency (e.g., size and scale, expenditure)
AUSAID criteria	Gender equality, monitoring and evaluation, analysis and learning, overall quality
Chelimsky (1999)	Political dynamics as a constraint

Source: Compilation from literature

What are the evaluation methodologies used by the CLRWSS project?

Evaluation Indicators: A set of indicators, with checklists, were established to review the major components (Table 2).

Table 2 Major Components of CLDRSS Evaluation Indicators

Component	Project Indicators	Relevance to literature indicators
A. WATER SUPPLY AND SANITATION SYSTEMS	1. System Quality (4 sub-indicators) 2. Coverage and Access (2 sub-indicators) 3. Costs and Affordability (3 sub-indicators) 4. Operation – Maintenance – Management (3 sub-indicators)	Sustainability Effective Use Efficiency
B. RWSS AGENCY CAPACITY	1. Capacity to promote water supply and sanitation 2. Capacity to support institutional capacity building 3. Capacity to implement RWSS investments 4. Capacity for project management	Capacity building Replicability
C. INFORMATION, EDUCATION AND COMMUNICATION (IEC)	1. Focus group analysis of key IEC activities, including clean water sources, canal water treatment, looking after piped water sources 2. Focus group analysis of IEC healthy schools model 3. Reported cases of diarrhoea (Department of Health data)	Effective use
D. COMMUNITY ENVIRONMENTAL SANITATION ACTIVITIES	1. Activity is an appropriate solution, matches design and is well implemented 2. Number of direct beneficiaries disaggregated by activity type	Effective use

Source: CLDRWSS Project M&E Report

The indicators, the first ones applied in this field in Vietnam, were designed by an Australian M&E Specialist and project consultants in compliance with the Vietnam Monitoring and Evaluation Manual developed by the Vietnam Australia Monitoring and Evaluation Project 2005. The measurements of sub-indicators for these components are based on 5-point, 4-point or 3-point scale with scoring guidelines and checklists.

Theory-based Evaluation: Figure 1 shows reporting hierarchical structure. Different evaluation reports from four teams, i.e. household survey team, technical evaluation team, IEC evaluators and

school IEC evaluators, are compiled and summarized into an M&E Summary Report. Each evaluation team performed a different function using different data-collecting methods. Household surveys conducted by external consultants for rating customer-based water and service quality; technical site visits for standard-based system quality inspection; household surveys and interviews for IEC outcome auditing; school IEC team for school hygiene and water using checklists and interviews.

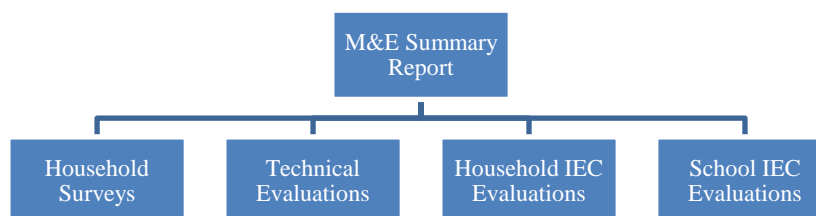


Fig. 1 The CLDRWSS Project's M&E Document Hierarchy

Source: CLDRWSSP

The above indicators and function structure are guidelines for conducting post-project evaluation. The Project also formed a core M&E team, comprised of an Australian M&E specialist, an M&E project officer, an IT officer and five provincial M&E liaison officers for both processes of evaluation and post-project evaluation.

Table 3 Potential Threats to Evaluation Results

Component	Summary Description	Threats to Evaluation Reliability
Logic Framework (Logframe)	Logframe consists of narrative summary at project, component outcome and output levels; verifiable indicators and means of verification; achievements (i.e. inputs).	<p>Possible missing inputs: other health promotion interventions outside of project influence water use behaviour during 5 project years; such factors as social norms, behaviour control, service quality, price, etc would impact intention to use.</p> <p>Missing assumptions: food bacterial contamination controlled; diarrhoea seasonability</p> <p>Unidentified intermediate outcome: would the reduced incidence of diarrhoea be an impact or an outcome? The answer to it is not clearly found in the Project M&E IEC reports.</p>
Process Evaluation	<p>Indicators: investment information, IEC activities, performance progress, beneficiary number</p> <p>Methods: synchronized data files</p> <p>Time: monthly</p> <p>Tools: RUWASS Management Information System (MIS)</p>	None
Post-project Evaluation	<p>Indicators: See Table 2 for major indicators</p> <p>Methods: Site visits, surveys, interviews</p> <p>Time: 3 months upon completion</p> <p>Tools: checklists, questionnaires, records</p> <p>Sampling: for household survey, about 10% beneficiary households.</p>	<ul style="list-style-type: none"> ▪ No weighted factor scoring system. Specifically, the importance weight for system quality is 0.67 while that for coverage and access is only 0.04. ▪ Three months is too short to see a behaviour change in a context with deeply-rooted health practices ▪ Sample size (about 20 per commune) may be small as total beneficiary population per commune is 200. ▪ Good reports on achievements are more likely to be appreciated (political dynamics).

What are some threats to the validity of the evaluation results of the CLRWSS project?

In consideration of the theory-based evaluation model and other literature, the following table summarizes some threats to the evaluation results as perceived by the author.

Most of uncovered failure to mention assumptions falls on the information-education-communication (IEC) impacts. For example, one note is that prior to the Project, local people already had high demand for improved water hence the Project IEC delivery programs might be unlikely to have much impact on increasing the demand. Take another example of assumption. Safer drinking water is assumed to produce better health because it eliminates the risks of water-borne diseases (e.g., diarrhoea). In fact, some health studies conclude that other factors that cause diarrhoea in poorer countries include flies, poor hand-washing practices, food bacterial contamination, and diarrhoea seasonality (Blogg, 2005). Another point for justification is weighing importance to each evaluation indicators (Table 4).

Table 4 shows that the weighted factor of “Coverage and Access” component is only 0.04 (5/135), which is too low compared to that of system quality (0.67). This component should deserved a higher score because it is important to have more water users to prove that the water scheme is effectively used. Also, some sub-indicators are on 5-point measurement scale whereas the others on 3-point measurement scale. Some justification is needed to explain why.

Table 4 Score structure for evaluation in a rural piped water system

Components	Max Score (points)	Weighted Factor
System Quality	90	0.67
Coverage and Access	5	0.04
Costs and Affordability	14	0.10
Operation, Maintenance & Management	26	0.19
	135	1.00

Source: CLDRWSS Project M&E Report

CONCLUSION

An evaluation report should be read and applied hence its quality needs to meet some standards. This study proposes a new model for evaluation systems in a rural water supply and sanitation project. Firstly, it should measure the degree of capacity building achievement as a result of effective use, replicability and sustainability of the intervention. The evaluation system should stipulate that six months and even some years after water supply construction, site visits should be conducted to inspect if the water scheme is well functioning, if more villagers change their behaviour to the use of improved water and if the model of the project success could be copied to other rural locations. This inspection is critical because it is a waste of investment money if the water supply system breaks down just a short period of time after being constructed due to limited capacity in management. Previous studies have shown that a rural water supply activity is more likely to be sustainable with active participation of community members, especially women. Therefore, evaluation indicators should include the measurements of community participation, with considerations of gender issues, in the process of project implementation. Secondly, evaluation methodology should be based on participatory approach. Community members, as direct beneficiaries, would have more exact answers to evaluators' questions on the impacts of the water project. Lastly, a review on an evaluation report sticks to the logic framework of the project. Therefore, the design of an evaluation should include an adequate and clear logic framework. A logical framework, with clear description of inputs, outputs, outcomes and impacts, with stated assumptions and contexts would be critical in an evaluation system as they would be used as guidelines to steer evaluators to fairly assess the achievements of a project. Future evaluations should use these indicators to verify the robustness and soundness of evaluations in this sector. Generally, the evaluation reports of the CLDRWSS Project served the purpose of measuring the effectiveness and sustainability of the Project's activities. Several potential threats to the validity of

the evaluation, as described above, include the lack of some assumptions and intermediate outcomes, timing for mature outcomes and assigning more resources for larger sample size.

ACKNOWLEDGEMENTS

I owe a debt of gratitude to the following specialists for their inputs to this paper: Mr. Ray Miles, the former Australian Team Leader; Mr. Bruce Bailey, Australian Evaluation Specialist; Mr. Chris Trewethey, the M&E coordinator; and Mr. Vince Keogh, Senior Engineer. Without them, I would have been unable to produce this study.

REFERENCES

- Bazeley, P. 2011. Study of independent completion reports and other evaluation documents. Ausaid., Australia.
- Bailey, B. 2007. Monitoring and evaluation report. Cuu Long Delta Rural Water Supply and Sanitation Project. Ausaid., Australia.
- Busby, J.S. 1999. An assessment of post-project reviews. *International Journal of Project Management*. 30 (3), 23-39.
- Blogg, J.R. 2005. Health impact of Cuu Long Delta. Cuu Long Delta Rural Water Supply and Sanitation Project. Ausaid., Australia.
- Fitz-Gibbon, C.T. and Morris, L.L. 1996. Theory-based evaluation - What do we mean by theory-based evaluation? *Evaluation Practice*. 17 (2), 177-184.
- Chelimsky, E. 1995. The political environment of evaluation and what it means for the development of the field. *Evaluation Practice*, 16, 215-225.
- Cuu Long Rural Water Supply and Sanitation Project. 2007. Monitoring and evaluation report for activity completion report. Ausaid, Australia.
- Narayan, D. 1993. Participatory evaluation – Tools for managing change in water and sanitation. World Bank Technical Paper No. 207. World Bank.
- OECD-DAC, 1991. Glossary of terms used in evaluation, in: *Methods and procedures in aid evaluation*.
- OECD, 2000. Glossary of evaluation and results based management (RBM) terms. The 32nd Meeting at OEDC, Paris, France. February 10-11, 2000.
- Prosavac, E.J. and Carey, R.G. 1997. Program evaluation. Methods and case studies. Prentice-Hall, Inc. New Jersey, USA.
- Rogers, P.J. 2007. Theory-based evaluation. *Reflections Ten Years On. New Directions for Evaluation*, 64-65.
- Stufflebeam, D.L. 1974. Meta-evaluation. Evaluation Center, College of Education, Western Michigan University. USA.
- Weiss, C.H. 1995. Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. *New approaches to evaluating community initiatives. Concepts, methods, and contexts*, 65-92.
- UNICEF.(nd). Evaluation standards. (from;http://www.unicef.org/evaluation/files/Evaluation_standards.pdf.)
- Vietnam Australia Monitoring and Evaluation Project. 2005. Monitoring and evaluation manual. FERD/Ministry of Planning and Investment of Vietnam. Vietnam.
- World Bank. (nd.) Glossary of M&E terms. (from; http://www.worldbank.org/ieg/ecd/docs/annex_e.pdf)