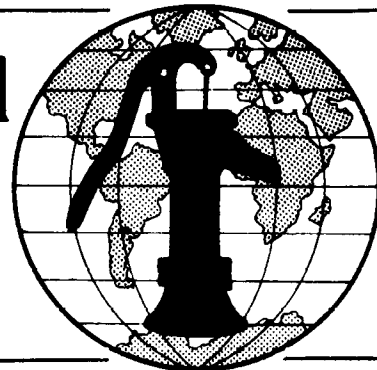


Water for the World

**Evaluating Operation and
Maintenance Training**
Technical Note No. HR. 3.I.2



Operation and maintenance of water and sanitation systems is necessary to provide continuing water and sanitation services. This requires constant evaluation of operation and maintenance procedures and conditions.

Evaluation is a way for the action agency and the village to review the value of the water and sanitation system to the community. A balanced evaluation by both parties working together can:

- identify the benefits of the system;
- provide encouragement and support for the system operators;
- identify weak spots in procedures and services;
- examine mistakes without emphasizing them;
- provide suggestions for improvement.

One objective of training and evaluation is to make the system operators understand the importance of, their role in and responsibility for providing safe and convenient service to the community. The village as a whole can then develop a sense of pride and ownership in the system. Evaluation can help ensure that the people served by the water and sanitation system, the system operators and the action agency do not develop a complacent attitude toward the system.

Evaluation should be a cooperative effort involving the action agency and the village. All persons involved in the water and sanitation system should contribute to the evaluation. Critical, rule-enforcing inspection should be avoided. The action agency should consider its role as supervisor

carefully during the evaluation process, being careful not to treat villagers as subordinates. A full, two-way exchange is very valuable in evaluation.

Evaluations should be as simple and straightforward as possible. It is important, however, to judge the entire water and sanitation system as a whole. All processes, procedures and personnel are interdependent. Isolated criticisms of specific points may not identify an overall problem which may impair smooth operations in general.

Operation and maintenance evaluation includes:

1. Monthly reports on the operation of the system, both mechanically and financially. Reports can be made by the system operators and copies sent to the action agency regional office. See "Implementing Operation and Maintenance Training," HR.3.I.1.
2. Joint analysis of the system by the operator, community leaders, project planners from the action agency and a technical inspector or engineer from the action agency.
3. Evaluation of training programs.

Monthly Reports

No matter how simple a system is, continual follow-up is necessary to ensure that it continues to work properly. Monthly reports, drawn from daily records, should be done by operation and maintenance personnel on the functioning of the water system both physically and financially. Daily or weekly records should be maintained and kept in the village. They should be open to public inspection, and should be read regularly by the water committee. A copy of each monthly report should be sent to the regional office of the action agency.

Joint Analysis of System

A periodic, preferably monthly when the system is new, analysis of the system by members of the village committee, the system operator, the project planner and a technician will be a major aspect of system evaluation. The analysis should cover all facets of the system, including:

- the functioning of the system;
- its acceptance by the villagers;
- any misuse of the system;
- the technical and physical condition of the system;
- the financial status of the system, including a review of fees collection and of the books;
- the supply of spare parts, fuel, equipment, tools and other necessary supplies on site;
- a check on the quality of water being produced;
- an evaluation of the knowledge and skill of the system operator;
- the time needed to perform all operation and maintenance tasks.

Evaluation must first consider whether the total system is effective. When problems are identified, analysis may show whether they are a result of support functions of the action agency, support within the community, poor selection of candidates for system operators, or training failures.

Evaluation of Training

One of the responsibilities of the action agency when examining the village system and analyzing evaluation reports is to determine how training has affected the success of the system. Persons not associated with the development and implementation of the training should evaluate the system if possible.

Two types of evaluation, internal and external, should be carried out to determine if the training program has been effective.

Internal evaluation determines if the training program is providing the trainees with the necessary knowledge and skills to perform their jobs well. This evaluation might consider:

1. The amount of time that was required by trainees to complete the training.
2. The appropriateness of the prerequisites prescribed for the training.
3. The performance of the trainers.

External evaluation determines if the training delivery system is producing trainees who perform well. This evaluation might include:

1. How well do trainees believe they are able to perform on the job?
2. What additional training was required by trainees after arriving on the job?
3. How well did the training program prepare trainees for the job? Do the system operators know how, when, and why to perform tasks?
4. What portions of the training program were most relevant? Have system operators been trained to do the appropriate tasks?
5. What tasks cause the most difficulty?
6. How much improvement do supervisors see in the trainees' performance on the job?
7. How does the project planner evaluate the performance of these trainees compared to previous groups of trainees?
8. In what areas were the trainees inadequate?

9. Was the training adapted to local circumstances or standardized?

The results of the internal and external evaluation are used to improve the training programs. Consideration must be given to making changes based on cost, time available, personnel available, benefits of changes to the program and detriments to the program if changes are not made.

The village and the action agency should be sure to evaluate the system operators on the job to test their skills and knowledge. The following criteria may be used to evaluate a worker's on-the-job performance:

- current water quality,
- change in water-related disease rates,
- maintenance costs,
- supply costs,
- system breakdowns,
- relations with water users, and
- morale of system operators.

Evaluations can contribute information and insights that will help the next training effort be more efficient and effective.