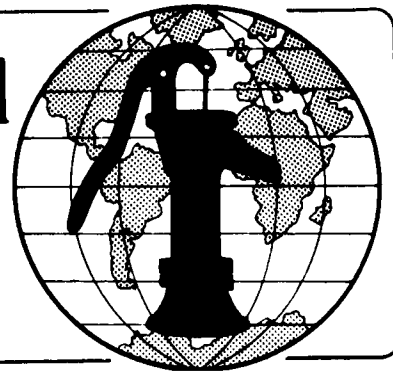


Water for the World

Implementing Operation and Maintenance Training Technical Note No. HR. 3.I.1



Training is very important to successful water and sanitation system operation. Training is necessary when a new operator begins a job, when an experienced operator needs to perform a new task, or when an operator does not have enough skill or knowledge to perform a job well.

Training must be directly applicable to local circumstances, understandable to local trainees, technically appropriate and technically correct. Training should be practical to the extent that trainees learn operational procedures on equipment identical to that which they will operate, if they are not trained on village equipment itself.

Training should take into account local learning techniques and educational methods so that credibility for teaching authority and prestige for training are created. Training should be conducted in a manner which meets local work standards and ethics, attaching a sense of dignity and pride to both the training process and the operation and maintenance job itself.

Training should be provided at appropriate levels for all personnel involved with the operation and maintenance of the water and sanitation system. This may include system operators, bookkeepers, local health educators and the village committee. Extensive training of this sort will provide a catalyst for wider community education and understanding of the water and sanitation system and will prevent one trained operator from monopolizing proper system operation. In case of the absence of one trained person, several other trained people will be available. There will also be a balance of power. For example, the village committee can select a system operator for training but the committee can also manage the water and sanitation system along with the system operator.

Management of Training Courses

Training programs must be well organized to work effectively. It is extremely important that trainers and trainees communicate well during the training sessions. The roles and responsibilities of both should be understood before training begins.

The roles of trainer and trainee are partially dependent on the location of the training program. See Table 1 in "Planning Operation and Maintenance Training," HR.3.P. Training in the village where the water and sanitation system will be operated has these advantages:

1. Trainees have more time for training sessions.
2. Trainees can learn on equipment they will actually be working on later. Special problems and conditions can be handled during training.
3. Local routines, people and conditions can be integrated into the training program.
4. The entire community can be helped to realize the importance of training.

Training at a central site has these management advantages:

1. Trainers are available to trainees at all times.
2. Operation and maintenance practices are taught in a standard manner to each trainee.
3. More teaching aids are available.

The role of the trainers and trainees may vary somewhat depending on where training takes place.

Roles and Responsibilities of Trainers

Trainers must be technically competent in the technology to be used. They must also be capable of handling administrative duties from both technical and management standpoints.

The training staff is responsible for determining the job tasks of all system personnel, determining the training course content based on those job tasks, organizing the material to be presented, selecting an instructional method and conducting the training programs.

Trainers responsibilities will be:

1. To learn the trainees' needs and adapt the training program to meet those needs.

Trainees may be divided into learning groups. Courses can then be molded to the needs of the individual groups while still covering necessary procedures. Trainers should personally examine local circumstances and determine what job tasks will need to be performed. They should then determine what the trainees already know and what they will need to be taught. Standard procedures for the defined tasks should be established and taught. Tool and equipment supplies should be adequately provided.

Operation and maintenance personnel with little mechanical background and little other education will probably need very structured and practical training programs. This is especially true if the system operators to be trained have not participated in the construction of the water and sanitation system they are being taught to maintain. Trainers must understand the procedures well and be able to explain them clearly to trainees in the trainees' own language.

If the operation and maintenance personnel have some mechanical background or are experienced in operation and maintenance, and have actively participated in the construction of the

system and demonstrate a good understanding of its use, training may not need to be as regimented as it is for the inexperienced operation and maintenance trainee. The trainer can demonstrate procedures and have trainees practice them with trainer direction as needed for evaluation. One trainer can manage several trainees at the same time this way.

If trainees have been trained in the operation and maintenance procedures before, and demonstrate a good understanding and skill in their work, they may only need a refresher course. The trainer may only need to explain new types of equipment and procedures and be available to answer questions the trainees have while experimenting on their own.

2. To maintain a positive and helpful attitude toward trainees.

A "reward" may be established by the training co-ordinator as an incentive to create and maintain positive attitudes toward training. "Rewards" should be appropriate to local desires and circumstances. Public recognition, a special privilege, increased responsibility and pay increases are often used as incentives. Job security and official recognition for trainees by the village committee or regional center are usually more effective as incentives than financial benefits.

3. To help install local respect for the proper operation and maintenance of the water and sanitation system.

This may involve working with the entire village to some extent, and especially with community leaders and health educators. If training is taking place in the village, special efforts can be made to integrate local schedules, people and problems into the training program.

4. Creating and maintaining a desire for learning and understanding during training.

It is important that trainees understand that proper operation and maintenance can improve life in the

village. It is also very important that trainers conduct training sessions in a manner that attaches a sense of pride and dignity to the training process which will be continued on the job.

Roles and Responsibilities of the Trainees

Trainees' responsibilities may be more circumstantial than trainer responsibilities. Overall, of course, the trainees' greatest responsibility is to learn how to operate and maintain the local water and sanitation system in order to provide good service to the rest of the community. Trainees' specific training duties may include:

- Clearly explaining to the trainer the extent of their experience with and knowledge of the water and sanitation system.
- Co-operating with the trainer's course structures.
- Actively participating in all training exercises and drills.
- Asking questions that are applicable to the trainee's local working situation.
- Maintaining a positive and co-operative attitude throughout training.

It is very important that the roles and responsibilities of all persons involved in the operation of the water and sanitation system be defined. Review those agreed upon during the planning stages of the system. Refer to "Community Participation in Planning Water Supply and Sanitation Programs," HR.2.P. The responsibilities of the project planner, others in the action agency, the system operators, the village water and sanitation committee and the community as a whole should be clearly explained and agreed upon at the outset of the training program.

Content of Training Courses

The content of the training courses will be an explanation of the defined job tasks. See "Planning for Operation and Maintenance Training," HR.3.P.

Generally, the action agency is responsible for providing logistical support and major repair services. The community will be responsible for the administration, operation, preventive maintenance and basic repairs of the system. For each position on the local level, the trainer should identify:

- job tasks and responsibilities;
- the degree of authority the position holds;
- financial responsibilities;
- support responsibilities.

The action agency is responsible for providing training for project planners, trainers and all village personnel. The project planner will be responsible for providing action agency support to the village while the system is in use. Community personnel, especially system operators, will need outside assistance when facing problems they cannot solve themselves. Back-up resources, such as information, skilled assistance, tools and parts should be readily available in the regional office of the action agency. The project planner should be prepared to:

- provide maintenance and repair services which village system operators have not been trained to perform;
- provide system and water quality control checks;
- supervise, assist and instruct local operators in operation and maintenance procedure reviews;
- assist in extensions of systems.

The regional office of the action agency should:

- maintain replacement parts to supplement the local supply;
- provide dependable central services for ordering other materials and spare parts;
- provide transportation of personnel and materials to community.

It may be possible for a supervisor or team from the action agency to visit villages on a regular basis to supervise procedures, answer questions, check the condition of facilities, perform needed repairs and provide other preventive maintenance services. Qualified advisors who provide regular refresher training to local operation and maintenance personnel are useful. This will minimize costly breakdowns and the length of time systems are out of order and increase community satisfaction and use of the system. Action agency support should emphasize that preventive maintenance is essential to the long-term operation and use of the system.

The responsibilities of local personnel will vary with local arrangements and with the design of the local system. System operators should be supervised by the village water and sanitation committee and by the project planner and trainer of the action agency. System operators are generally responsible for:

- basic daily operation of equipment;
- preventive maintenance of water supply equipment and sanitation facilities;
- protection of the water source from pollutants, children, and animals;
- simple repairs;
- reporting to the village committee, requesting new parts and asking for action agency assistance when needed;
- recognizing and reporting major problems.

Operation and maintenance training must prepare system operators to help the village committee create respect for the facilities among the rest of the villagers so that the facilities are properly used. System operators should know where they can obtain help at either the local or the regional level.

The village water and sanitation committee is generally responsible for:

- demonstrating proper use of facilities;
- teaching villagers to understand and appreciate the advantages of safe water supply and sanitation systems;
- assisting individual households to care for individual facilities and installations;
- retaining a bookkeeper to maintain system finances;
- establishing flat or metered rates for water supply and sanitation services;
- collecting and retaining fees;
- paying for operation and maintenance with collected fees;
- ordering and purchasing needed equipment, perhaps at an agreed price from the action agency;
- requesting the services of the action agency, including the purchase and provision of major materials.

Fix an Implementation Routine

Regular methods of operating and maintaining the local water supply and sanitation system should be established as part of a training course. Regular times (daily, weekly, monthly) for the procedures should also be established. Any preventive maintenance or cautionary procedures should be incorporated into the regular operation and maintenance routines.

System operators' performance on the job can often be improved by using job manuals and visual aids such as posters to remind them of the established routine. Manuals and aids can be introduced as part of training, and may even serve as the outline for a training course. They can help trainees avoid having to memorize information they may remember incorrectly.

A basic manual can:

- explain operation and maintenance procedures step by step, as simply as possible;
- include illustrations for procedures;
- list and illustrate tools, supplies and equipment needed to carry out procedures;
- stress the importance of potable water and sanitary waste disposal.

Visual aids, such as posters and picture manuals can replace written instructions for those unable to read well and supplement any manuals on the job. Training, operation and maintenance manuals and visual aids can be developed by the regional office of the action agency. The regional office

staff should know better than the national office staff how the tools, equipment, supplies and procedures should be applied to the local situation.

Reports

Monthly reports on the functioning of the system should be made by the system operator. Oral reports can replace written reports for those who do not write well and can be given directly to the action agency maintenance supervisor or inspector. A system operator who does not read or write well can be taught to check an illustrated chart in order to make reports, or another member of the community can write up the system operator's oral report. Periodic inspections of the system should be made by the project promoter from the action agency.