Training non-technical workers for rural water and sanitation projects

by Ray Isely and Fred Rosensweig*

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IN many countries, it is implausible to expect water supply agencies to hire new field staff to work with communities. Constraints such as limited budgets and lack of transportation make it difficult to add new staff.

For the immediate future, a better solution would be to employ the cadres already working at the community level. This nucleus of personnel, including nurses assigned to rural health posts, health assistants, health promoters, social affairs agents, and rural development workers, for the most part, lack technical skills in water supply and sanitation. They tend to have broad-based responsibilities in either health or community development. Although they are well aware of the water and sanitation problems faced by communities, they often do not have the technical expertise to assist the communities in overcoming such problems.

Some have been exposed to water supply and sanitation issues in their training, but have generally had little practical experience. What is required, therefore, is the re-training of these workers so that they have the necessary skills and knowledge. They should work with community leaders, local skilled tradesmen and government technical personnel to promote low cost technologies.

The problem

The ambitious goal of the International Drinking Water Supply and Sanitation Decade is to initiate global efforts to furnish safe drinking water and adequate sanitation to rural and urban dwellers in developing countries by 1990. There are serious personnel deficiencies in the water supply agencies charged with carrying out Decade plans and programmes. Because many of the agencies have focused their energies and resources on urban areas and high technology, they lack staff to serve the essentially unsophisticated technological needs of rural people. Even where rural water supply is assigned to a special agency, only a few staff are usually available to cover wide areas of the countryside. Further, sanitation is almost never a part of the programme, because the responsibility for this area usually lies with the Ministry of Health. Instances of effective collaboration between water supply agencies and Ministries of Health, while increasing, are still the exception rather than the rule. Decade goals, therefore, may not be reached in many countries unless a solution to the shortage of qualified personnel can be found.

In most countries, the field staff of the ministries closest to rural communities are usually primary school teachers, agricultural extension, rural development workers, and health workers. These workers are frequently at the periphery of projects during the installation of water supplies or latrines, but become intimately involved when facilities break down, or are not used properly. All too often they see the problems but, lacking technical skills, are unable to help communities find solutions. Moreover, they are often acutely aware of communities needing improved water supply and sanitation facilities, but are unable to help these communities initiate local projects.

Special skills

While each of these types of people has special skills and knowledge, health personnel, by virtue of their interest and training in sanitation, hygiene, and health education, may have the most to offer. They cannot, however, be expected to acquire all the technical skills related to water supply and sanitation systems, such as those requiring motorized pumping, conventional water treatment, or layout of a piped distribution system. Nonetheless, a grounding in these subjects can be taught to nontechnical personnel. Suggested technical areas in which nontechnical personnel can be trained include:

1. **Maintenance and repair of handpumps**

Building the retaining wall at the Togo spring-capping workshop

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- Fundamental steps for maintaining the handpump models being used in the area, including the ability to train local caretakers in the same skills
- Recognition of breakdowns, simple repairs, and knowledge of where to refer problems to more technically qualified personnel

2. **Development of water sources**
   Springs, shallow wells and cisterns for rain catchment
   - Concrete-making skills
   - Steps to assess a spring for possible capping
   - Steps in spring capping
   - Steps in digging a shallow well, including an assessment of when to ask for assistance from a technical agency (for example, when soft soil is encountered)
   - How to construct a cistern of the right size for the number of users
   - How to assemble a roof-catchment system.
3. **Protection of wells**
   - Parapet construction
   - Well lining
   - Apron and drain construction
   - Animal watering trough construction
   - Protection of well surroundings from domestic animals
4. **Construction of latrines**, both simple and improved
   - Digging the pit, including lining when necessary
   - Making and installing the slab
   - Building the superstructure
5. **Protection of water during transport and storage**
   - Protection of vessels
   - Disinfection
6. **Solid waste disposal**
   - Individual
   - Collective

Putting the finishing touches to the site of the spring capping in Togo

7. **Sullage**
   - Drainage
   - Use of sullage for gardens

Since its inception in 1980, the WASH Project has accumulated field experience in training non-technical workers in some of these areas.

Overloaded

The WASH approach is based on a realistic assessment of the role and job responsibilities of nontechnical workers. First, these workers have responsibilities other than the areas of either water or sanitation. Because they are the focal point of services at the rural level for their ministries or agencies, these individuals are usually over-worked, and, therefore, have little time for new responsibilities.

Second, because it is unrealistic to expect to turn them into trained water and sanitation technicians, it is most effective to provide them with skills for planning and community organization as well as basic technical skills for village-level projects. Because most community workers work with between 10 to 20 communities, it is important to use an approach that puts them in planning and supervisory roles.

WASH emphasizes a project-oriented approach during its training courses. The two-week workshops lead the participants through a series of activities related to each stage of the project cycle, that is, pre-planning and assessment, planning and design, construction, maintenance and repair and evaluation: a balance of technical and organizational skills.

Supervision

It is expected that the non-technical worker will ensure that the community is interested, carry out the detailed planning tasks, and supervise – but not carry out – the construction. The construction is usually completed by local masons or other skilled village tradesmen, who are assisted by community labour. The field worker supervises and monitors progress. They are prepared for this by constructing a system during the workshop.

In short, the WASH approach is intended to turn the non-technical worker into a developer and implementer of village water and sanitation projects. This 'hands-on' approach was used to train social affairs agents in Togo in spring capping and rainwater roof catchment. These agents are the field workers with primary responsibility for implementing a rural water supply project funded by the US Agency for International Development (USAID).

The original technology chosen for the project was drilled wells with handpumps. But because a high percentage of the wells were dry, the project decided to expand the low-cost technologies at its disposal. The social affairs agents had three years diploma training after high school but little technical background. As a result, WASH sponsored two workshops, one for each technology. During the workshops, a spring was capped using a retaining wall system and a roof catchment cistern with a capacity of 19.2cu m was built.

In Bakel, Senegal, 16 nurses assigned to rural health posts were trained in latrine construction, solid waste disposal and sullage disposal. Because they had all been trained as clinical nurses in a two- to three-year programme after secondary school, they were aware of disease cycles and the need for excreta disposal and safe water supplies. Most, however, had no technical skills. As the chief primary health care workers at the village level, however, the nurses held the only solution to expanding water and sanitation coverage. During the workshop, five latrines were built, using a type of latrine and a method of

WASH

The Water and Sanitation for Health Project, in operation since September 1980, is managed by Camp Dresser & McKee, Inc, in conjunction with the International Science and Technology Institute, the Research Triangle Institute, and the University of North Carolina through a contract with the United States Agency for International Development (Project No AID/DSPE-0080).

WASH provides services to USAID Missions. Services are initiated through requests on behalf of AID field projects, host country institutions and agencies, private voluntary organizations, and multilateral donor groups. To date, WASH services have extended to over 50 countries in a wide range of activities related to water supply and sanitation.

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construction appropriate and familiar to that specific area of Senegal.

Also under the auspices of the WASH Project, two workshops were held in the Dominican Republic on latrine construction. The participants, community organizers, were high school graduates and a few had a university education. None had a technical background. They were working for the Ministry of Health in a USAID-funded rural water supply and sanitation project with three main components: handpumps, latrines, and health education. Their role was to do the preliminary work with the communities before the drilling rig and handpump installation teams arrived and to promote the construction and use of latrines. As such, the workshops were designed to prepare the community organizers to work with the communities more effectively and to monitor the construction of the latrines. Six latrines were constructed in a community during the workshop, using the latrine design adopted by the project.

To make the training of non-technical workers a less formidable task, WASH has developed four training guides on low-cost water supply and sanitation technologies. These training guides contain all of the information a trainer needs to plan and conduct a comprehensive workshop, including training designs, trainer guidelines, participant handouts, and trainer reference materials. Each workshop is approximately two weeks long.

The guides use highly participatory training methods based on the principles of adult le rning. They contain a variety of tra g techniques, including demonstrati s, small group tasks, role playing, ase studies, and 'hands-on' field tasks. Training takes place in a rural setting similar to the participants' normal work situation and uses village labour and local masons, just as in an actual project. In addition to the four training guides currently available, others are planned for the future on hand-dug wells, domestic sanitation (excluding excreta disposal), and community participation. They are available from WASH.

Recommendations

Although the major purpose of the work reported was to pre-test and revise the training guides in the technical areas mentioned, it is possible to make some preliminary recommendations, based on lessons learned, regarding the feasibility of training non-technical workers in water supply and sanitation technologies.

First, there is the obvious conclusion that health, social, and other non-technical workers are able to acquire skills needed to play significant roles in water supply and sanitation, with the provision that such skills be restricted to those required in a certain minimal package needed for community-level projects. We did not teach skills related to motorized pumps, multi-branched gravity flow water systems, and other complex installations.

Putting the prefabricated slab in place (Togo spring-capping workshop)

Context

Skills are best learned if they are acquired within the context of planning a community project, that is, mobilizing the community, planning for construction, organizing a village labour force, planning for maintenance and repair, and the education of the population in the proper use of the water and sanitation installations.

Lastly and most importantly, these skills should be taught to non-technical staff only if there is an opportunity in which to use them. In Togo, the acquisition of spring capping or rainwater catchment skills was linked to project planning by villagers in the project area, so that a village could receive a grant of $8,000 for a local project if its plan was approved. Some of these projects would undoubtedly involve spring capping or rainwater catchment, but when the trainees finished their workshops, no village had yet started one. Further, it was decided to delay the initiation of subsidiary projects related to water supply until after the arrival of a project engineer in mid-1984. Thus, nearly a year was expected to pass until workers could put their new skills into operation. The workshop, while useful for pretesting the training guide, was poorly co-ordinated with project operations.

This article describes an attempt to show how nontechnical health, social and other workers can be trained in simple skills across a wide range of water supply and sanitation technologies to complement and supplement the work of water supply agencies. These agencies, as a result of personnel shortages and a failure to focus on sanitation, can only partially achieve the coverage of rural populations needed to meet the goals established by the International Drinking Water Supply and Sanitation Decade. Non-technical personnel, if properly trained, have the potential to greatly expand coverage of services to rural populations by 1990.

The capped spring and members of the Togo workshop