

WATER AND SANITATION  
FOR HEALTH PROJECT



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Strengthening Linkages Between  
Primary Health Care and Water Supply Projects

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## 1. INTRODUCTION

Primary health care and water supply projects in developing countries are often planned and implemented separately; yet there should be important linkages between them. The failure to make the linkages can mean that project objectives are not realized and benefits to target populations not obtained.

Primary health care projects usually contain one or several of the following components (WHO/UNICEF 1978):

- promotion of proper nutrition
- water supply
- basic sanitation
- maternal and child care and family planning
- immunization against major infectious diseases
- prevention and control of locally endemic disease
- health education
- appropriate treatment for common diseases and injuries

However, primary health care is more than a combination of these components. It is a new approach to health care delivery in which populations participate a priori in decisions about planning, implementing, and evaluating services. Projects so designed aim to increase the utilization of services and coverage of populations and ultimately to lower morbidity and mortality.

Water supply projects normally emphasize certain elements, notably improvements in water supply, sanitation and health education, but the best ones also emphasize involving populations in decision-making and work toward convenience and reliability of water supply, increased water use, and improved personal and domestic hygiene.

Thus we note a certain overlap of these two types of projects: water supply projects are actually a subset of primary health care, but to be successful they must stress two particular elements of primary health care, namely sanitation and health education. A primary health care project without water supply in many parts of the world, for example, would be unable to respond to the deepest felt need of the population. A water supply project without health education and sanitation risks early breakdown in water supply facilities and a failure of populations to make optimal use of available water.

In the sections that follow, these linkages between water supply and primary health care will be examined in three scenarios taken from experience in the field:

- Water supply projects seeking to incorporate elements of primary health care.
- Primary health care projects seeking to incorporate water supply.
- Projects established from the outset with water supply and primary health care included.

## 2. WATER SUPPLY PROJECTS SEEKING TO INCORPORATE PRIMARY HEALTH CARE COMPONENTS

### 2.1 The Approach

Broadening the base of a project, or of an administrative unit responsible for carrying out projects, is a difficult task that goes against ingrained tradition, professional training, and often vested interests. Both water supply projects and primary health care projects have a host of characteristics that work against the establishment of linkages between them. In many ways, however, these limiting characteristics, whether they concern institutional, management, or personnel issues, are common to both types of projects and that commonality offers a possible approach for developing the necessary linkages.

The approach is to identify the limitations and then seek a solution that benefits both types of projects. The following sections take this approach by first describing the primary characteristics of both water supply and primary health care projects then highlighting limitations they have in common, and then finally suggesting courses of action. Several examples of water supply projects seeking to incorporate primary health care components will be given.

### 2.2 Water Supply Project Characteristics

In most developing countries, water supply projects are carried out within a technically-oriented ministry of water or of public works. The water supply agency tends to be urban oriented, capital intensive, and dependent upon western technologies in terms of water pumping, treatment, and standards of design. Most of the capital investment in water is normally in a relatively small number of urban systems closely patterned after European models. If there is a rural water unit, it is almost invariably small, poorly staffed, and underfunded in comparison to its urban "cousin." The personnel that work on water supply projects, moreover, are normally technicians with little formal training or experience in working on non-engineering aspects. As a result, they have a preference for technological solutions rather than institutional or social solutions.

There tends to be little lateral mobility between urban and rural water supply units. Career demands and the need for professional certification often lock the urban water engineers into a high technology track while leaving the rural water engineers outside the professional mainstream. Under such circumstances the career differentials between the two services become readily apparent to the ambitious national water engineer. Senior positions in the ministry are filled from the ranks of technical personnel who worked their way through the urban water supply track.

### 2.3 Primary Health Care Characteristics

Primary health care operations usually occur within the most specialized ministry of most developing countries: the ministry of health. Health ministries, in much the same way as water ministries, are urban oriented,

capital intensive, and tied to western health care technologies. Much of the capital investment is tied up in a few modern hospitals serving a very small proportion of the people.

Ministries of health have a further liability not necessarily shared by ministries of water. The health ministry is normally a weak ministry in a government. Part of this problem stems from the practice of appointing medical personnel to senior policymaking and management positions within the ministry. Such personnel often lack experience in the political arts at the policy level and in management matters at the administrative level. As a result, the ministry of health often suffers when competing with other ministries for its allocation of national resources and, except for the small modern core, is poorly funded and poorly staffed.

Health ministries almost always have a curative orientation. Preventive health, which is a key function of primary health care, is the forgotten stepchild relegated to units that are even less endowed than the ministry as a whole. Career advancement within the ministry normally illustrates the importance given to curative over preventive health. The senior administrators tend to be drawn from doctors who have run large hospitals noted for their heavy patient throughput.

Even in the rural areas where primary health care facilities exist, the status differential will be evident. The health officer in charge of a rural facility will usually be oriented toward curative health. The positions where one would expect to see a balancing of preventive health personnel, such as sanitarians and health educators, often are unfilled for lack of personnel or lack of funds. Even when there are such personnel at a rural facility, they usually suffer the most from lack of supplies, equipment, and transport. In addition, sanitarians commonly have such a heavy load of time-consuming responsibilities, such as meat inspections and vaccination campaigns, that they have no time to work on water supply and sanitation activities. When time is limited, the mandated inspections and campaigns will always take precedence over the less-structured environmental sanitation needs.

#### 2.4 Common Limitations

There are at least three major limiting characteristics common to both water supply and primary health care projects:

1. There is little formal encouragement to work collaboratively with other ministries on problems of mutual interest or to request or give assistance.
2. High technology, capital intensive, urban-oriented facilities dominate each ministry. In both cases, there is a bias towards fixed facilities rather than people.
3. Career advancement is biased away from the people-serving, low-technology, rural assignments to the facility-based, high-technology, urban facilities. This is a liability in staffing both rural water supply operations and primary health care projects.

## 2.5 Possible Courses of Action

The limiting characteristics described above are often so deeply seated in both water and health ministries that pressures for change must come from outside organizations. To a great extent, external aid donors have the interest and the financial leverage to influence such changes, and, in fact, donor funding has been responsible for some of the most innovative efforts to integrate primary health care elements into water supply projects, especially in Africa.

The leverage of external funding is being increasingly used to establish joint water and health projects that address the needs of rural populations. Such projects are geared to utilize the simple, low-cost technologies appropriate to remote rural areas. These include hand dug wells, protected springs, pour flush latrines, simple visual aids for health education workers, bicycles for sanitarians, and so on. By expanding the roles of the rural water and primary health care agencies, external donors help to expand the career opportunities for water and health workers in the rural sector. This serves, in turn, to improve the overall quality of staff and strengthens the basic institutions.

In short, an outside catalyst, often an external donor, seems to be a key factor in integrating primary health care elements in water supply projects. Such was the case in Malawi where the U.S. Agency for International Development (USAID) five years ago became the main external supporter of the highly successful gravity-piped rural water supply project operated by the Malawi Department of Lands, Valuation, and Water. As a condition of USAID support, however, the Ministry of Health was required to establish a Health Education and Sanitation Promotion unit to provide direct public health support to villages served by the water project. At first, this led to some problems at the village level because it seemed that parallel, but separate, committees were being established. In many communities, a narrowly focussed village tap committee responsible for water tap maintenance already existed. To that was added the more broadly-based village health committee required for the project. The solution to this problem has been to appoint one or two members of the tap committee to serve with and participate in the activities of the health committee. In this way, the two committees are aware of mutual problems and the two ministries are integrated at the grass-roots level.

Sometimes external donors are not successful in incorporating primary health care elements into existing water projects. In another country, a funding donor was concerned with the limited impact of a water well and spring improvement project. Water quality was poor, maintenance was ineffective, and the project was unable to induce any behavioral changes in the populations served. Despite numerous recommendations and discussions, the donor was unable to effectively involve the ministry of health in a substantive health education effort in the project. As a result, almost no health benefits were generated and the project was generally viewed as a failure.

In other cases, donor leverage can be effective if it takes account of the basic weaknesses in institutions. There is the case of an external donor that wanted a strong health component incorporated within a water supply project it was planning to finance. The donor did not want to give funds directly to the health ministry because it was feared that poor management would lead to undesirable increases in recurrent costs within the ministry. The problem was

handled by directing all project funds to the national water board responsible for the water projects. The water board, in turn, subcontracted with various units in the health ministry for the health services required in the project. In this manner, the health funds were directed to the desired activities more efficiently than if they had been given to the ministry of health by the donor.

### 3. PRIMARY HEALTH CARE PROJECTS SEEKING TO INCORPORATE WATER SUPPLY

#### 3.1 Water -- A First Priority Need for Health

Primary health care projects, as we have seen, may contain one or many of the elements named in the Alma-Ata Declaration. Some projects, following the philosophy of "selective primary care" (Walsh and Warren, 1979), emphasize a few elements in a categorical or vertical fashion, such as oral rehydration, immunizations, or family planning. Others take a broad-based approach, seeking to shape the project around those elements that offer the greatest promise of meeting locally perceived needs. In both approaches project managers and implementors frequently encounter the stumbling block of human behavior in the way of reaching project goals. If one is implementing an oral rehydration project, for example, the behavior of the mother in administering the oral rehydration solution or in feeding the child is essential to the child's ultimate recovery from an episode of diarrhea. If other episodes are to be prevented, the mother's personal and domestic hygiene become a concern. Pursuing this logic leads to the conclusion that hygiene is only possible with an adequate supply of water.

Broad-based primary health care projects seeking to meet locally perceived needs from a "shopping cart" of primary health care components, often find rather soon that drinking-water supplies for populations and their livestock are a first priority need, even above the cure and prevention of disease. By responding to this perceived need a project can frequently open a crack through which other primary health care elements can flow: sanitation, health education, oral rehydration, nutrition education, etc.

#### 3.2 Management: the Key Ingredient

The key to moving from either type of primary health care project to incorporate support of community water supply lies in the management of the project itself. Is the project management able to administer the project as initially conceived so that adding other elements is facilitated? Do bridges of communication and understanding already exist between the health ministry and the ministry responsible for water supply or does project management need to build those bridges? Are field staff sensitive to locally felt needs or do they need training in how to deal with populations at their level of understanding? Is middle-level supervisory staff in a position to develop both vertical relations with ministry headquarters and field staff and horizontal relations with middle-level staff of the ministries responsible for water supply? The way in which these and many other questions are answered will largely determine whether or not a project is able to move from the logical assumption that water supply should be linked to primary health care to establishing a program that actually makes the linkage.

### 3.3 Securing Resources for Water Supply Development

When the decision has been reached to incorporate water supply in the project, what approach can be taken to assure proper technical design and implementation of the installations? As frequently observed, water supply may be housed in one or several ministries and/or parastatal agencies. The number and distribution of field technicians is often extremely limited. In one African country, for instance, the Rural Water Supply Division of the Ministry of Rural Development consisted of a single person, the director. Not only personnel may be in short supply, but also garages, spare parts, vehicles, fuel, and equipment. Yet it is to this agency that project managers must turn for assistance in rural areas.

The chief barrier to cooperation, as we have seen, may not be these shortages, however, but differences in attitude and method of work. Water supply agencies, however technically qualified, prefer to plan and execute a project quickly so as to complete as many projects in a given period of time as possible. This approach stands in contradistinction to that of most health workers, who, aware of the slowness of human response, manage programs in a less hurried manner. Another difference is in a concern for maintenance over the long term. Water supply agencies measure success by the number of systems installed. Health ministries are more concerned with long-term changes in behavior and health status.

Keeping in mind these issues, one can proceed to build bridges between the health ministry and the water supply agency. In one country a social scientist attached to the health education bureau of the ministry of health was seconded for over two years to the water supply agency to help execute a study of beliefs and practices related to water supply and sanitation in two districts. That bridge made it possible to enlist the support of the ministry of health in formulating a new project.

In still another country a sanitary engineer has been working for eight years in the ministry of health. During that time he has built multiple bridges of communication and understanding to engineers in other ministries seeking to bring about a multiagency focus on the problems of water supply and sanitation in rural areas of that country. His drive and enthusiasm in addition to his attention to networking have resulted in joint efforts in the field.

As communication is increased not only at the upper level but at mid- and field levels as well, then concrete plans for helping health projects to design, and implement, and maintain water supply installations can be formulated.

Among the best examples of a primary health care project reaching out to incorporate community water supply is that of the SANRU (Santé Rurale) Project in Zaire. This project, when first conceived, was a rather broad-based primary health care project, with some emphasis on family planning. It was expected to operate through a series of mission hospitals, health centers, dispensaries, and community health workers. Nurses at various levels were responsible for supervision and implementation.

Water supply and sanitation had been mentioned in various parts of the project paper but no specific plans for a water and sanitation component were



formulated. At the suggestion of a visiting consultant, a well-defined component for water supply was created. In the following year a train-the-trainer workshop followed by workshops on spring capping techniques were held. By the end of two years, roughly 25 percent of project activities concerned water supply and sanitation. In the course of these developments the Rural Hydraulics Division of the Ministry of Rural Development, a small and fledgling unit, was contacted and their service enlisted in both the spring capping workshops and subsequent field activities. As a follow-up the Government of Zaire decided to engage in the process of developing a national plan for rural water supply. That process has not been completed as yet, but it holds promise of success.

In these examples we see how varied is the composition of primary health care projects and therefore how varied must be the manner in which water supply and/or sanitation are incorporated. Constants in the process are competent management of the project, openness to motivation, ability to comprehend and respond to locally-felt needs and development of collaborative relationships at the middle level. The existence of a network at the community level further permits a wide distribution of skills through training.

## 4. PROJECTS ESTABLISHED FROM THE OUTSET WITH BOTH WATER SUPPLY AND HEALTH COMPONENTS

### 4.1 Introduction

Given the time it takes to develop effective linkages between water supply agencies and health ministries and the relatively short time span of most projects (three to five years), it is probably better to begin a project with such linkages in mind. The process will be difficult whether one starts early or late, but in terms of reaching project goals an early start is preferred.

### 4.2 Start-up Management Problems

In Togo, where a rural wells program was begun with a socio-health component, there was little cooperation between ministries in the beginning. The villages that were to receive wells were selected for political reasons. Every village receiving a well had to form a health committee to look after the well and pump and to promote hygiene and health in the village. However, some villages that had set up health committees still did not receive a well because the geologic survey did not indicate a favorable site. In others a well was attempted but with a negative result on the first try. Without making the requisite three attempts, the drilling brigade would go on to the next village. In no case was the site for the well a community decision. As a result many were dug far from the center of the village, one even in a sacred graveyard. Furthermore the socio-health component found itself playing "catch-up" with the well-drilling, pump installation, and masonry teams for most of the first two years of the project.

A different set of problems emerges from the experience in Burkina Faso. In this case the project design envisioned a water supply component responsible for well drilling and digging, pump installation, masonry, and maintenance of installations. The health component was in turn responsible for sanitation and health education and mobilization of the population. The relationship between the water supply and health components got off to a rocky start because the respective directors had a relationship that was inimical to collaboration. The rift between them took dramatic form when the health director refused to house his offices in the same building with the Rural Water Supply services. Instead, Health occupied a cramped headquarters across town from Rural Water Supply.

Further, the health director, seeing the project as an opportunity for implementing the government's long awaited primary health care strategy, emphasized village pharmacies and the training of village health workers to the detriment of organizing village health committees and promoting water supply maintenance and hygiene. On the positive side a training program for itinerant health agents, each to be responsible for 10-20 villages, was started, although on a delayed schedule.

Delays in contracting and in delivery of vehicles and equipment added to the slow beginning. After three years an evaluation concluded that the water supply component was up to date in terms of numbers of wells, but that there

were serious technical deficiencies. The health component, however, was substantially behind in numbers of trainees (itinerant health agents and village health workers) and in formation of village health committees.

The initiation of a joint project, involving both water supply and health agencies, can be fraught with difficulties ranging from site selection and timing of programs to serious personal and professional differences. All are compounded by inevitable delays in contracting and in deliveries of needed materials and equipment. In the examples too little attention was given to cultivating human relationships at multiple levels. As we shall see in the next section, some of these start-up problems were resolved during implementation.

#### 4.3 Issues During Management

Our contention that joint projects should give attention to the time needed to develop relationships, protocols, and methods of working together is borne out in the implementation of the examples just given.

During the implementation of the Togo wells project a strategy of structured problem-solving was devised for use at the village level. Supervisory staff, field staff, and then village health committee members were trained to identify, analyze, and solve problems. Because the first problem in all cases was how to maintain the pump, the maintenance performance in project areas proved ultimately to be superior to any other in the country. After two years of strained relationships, the Ministries of Health and Public Works came to recognize the mutual need for each other. A series of accords set in motion a cooperative effort in site selection, timing of well drilling, other technical inputs, and spare parts supply. Meanwhile, local villagers, having successfully maintained a well, began to attack other health and environmental problems.

These positive achievements more than offset other problems that beset the project: at one point USAID had to stop project funds until expenditures could be accounted for. During that period the field agents paid for their own gasoline. Among other problems were vehicle breakdowns with delays in delivery of spare parts, endless delays in reimbursement of field agents, abrupt transfer of agents -- all of which led expatriate staff to be over-involved in administrative matters. As a program element sanitation advanced very little because the Chief Sanitarian insisted on a latrine model too expensive for villagers. The policy of one well per village was, however, resolved for large villages needing two or more. Peace Corps volunteers who had served early in the project concluded that they were no longer needed because the field agents were performing well.

In Burkina Faso both directors have changed and the relationship has thus improved. Itinerant health workers are insufficient in number but appear motivated to organize villages. Meanwhile there remains no official agreement as to how to manage "animation." The water supply director visualizes teams going from village to village; the health director sees the process more as a permanent matter -- itinerant health workers supervising village health workers. Unfortunately most village health workers are young men lacking the respect of their elders. Adding to this dilemma is the absence of viable

health committees in most villages. Such structures were needed to supervise and support the village health worker and, more importantly, to manage the maintenance of the pump and well. Most villagers have little sense of responsibility for the well. Many fundamental questions in the project, therefore, remain unanswered.

So it is also with many projects seeking to create a balanced approach among the technical and the health and social aspects. As more experience is gathered, it will become clearer just how agencies with differing orientations can manage projects containing both kinds of inputs.

## 5. CONCLUSIONS

The success of the remaining years of the International Drinking Water Supply and Sanitation Decade will depend at least in part on the successful resolution of the problem of interministerial collaboration. Having reviewed several examples of attempted collaboration, what can we conclude that will help the planning of future or the revision of existing projects?

First, it seems quite clear that ministries of health and water supply do not naturally collaborate. As we have seen, there are built-in inhibitors to collaboration. For collaboration to occur, an external stimulus such as a donor may be necessary. Donors can and have been influential in bringing collaboration about.

Secondly, interministerial collaboration, if it is to bring its desired fruits to projects on the ground, must take place, not only at the upper levels of government but also at the middle management level, among supervisors, technicians, and regional administrators.

Thirdly, achieving collaboration takes time in terms of years. Attention must be paid to philosophies, modes of working, and to relative strengths and weaknesses of each ministry.

Lastly, when collaboration is achieved it will result in water supply projects with better maintenance performance and primary health care projects with better acceptance because water, a highly appreciated commodity, has been introduced.