

Précis

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Rural Water Projects: Lessons Learned

Investments in rural water systems can have a profound impact on the economic activity and quality of life of the poor. As the Bank has increasingly focused on the poor, it has expanded work in rural water supply. Loan amounts have grown steadily, and are expected to double in the next two to three years. In this context, the Operations Evaluation Department (OED) launched a review of 15 Bank-supported free-standing water and sanitation projects to inform the continuing development of the Bank's approach to providing safe, clean water to rural dwellers.

In most developing countries, family members usually spend a significant part of each day trying to provide enough water for cooking, cleaning, and domestic animals. Scarce water supplies also mean that personal hygiene is often relegated to infrequent trips to unsafe bodies of water. But to overcome these constraints and achieve sustainability, it is not enough for the Bank to provide wells, pumps, and the technical support to install them. Project designers should focus on "software," or social capital, with the same intensity they give to technical details. It is easier to construct a water system than to leave in place a local organization capable of managing it technically and financially.

For a rural water project to succeed, those involved must be fully committed to the project and prepared to take over operation and maintenance (O&M) of the new and improved facilities. To increase the likelihood of community satisfaction and involvement, it is necessary to adapt Bank projects to local practices and traditions rather than to standard models of how villages *should* behave. Time and effort must

be spent helping local groups until they can manage water systems on their own. A village with limited capacity for social organization may need additional support—often through nongovernmental organizations (NGOs)—for training, social mobilization, and other advisory services.

A Development Breakthrough

Focused Bank lending for rural water systems has been in place for just over 20 years. In 1973, the provision of adequate water was brought forward as one of the six essential elements of the Bank's rural strategy, which called attention to the importance of rapid progress in small-holder agriculture to the achievement of both long-term growth and poverty reduction in developing countries. During the same period, the development community came to a conceptual breakthrough. Despite massive expenditures on curative health and hygiene education, it was becoming clear that the most effective way to improve villagers' health was to ensure that there was adequate clean water in each village. The importance of this message



was emphasized by the declaration of the U.N. International Drinking Water Supply and Sanitation Decade (IDWSSD; 1980–89), which symbolically directed development agencies' attention (and development investments) to the significance of clean water. During the decade, one billion people gained access to safe drinking water through public and private efforts, and more than 750 million gained access to improved sanitation facilities.

In 1978 the United Nations Development Programme (UNDP) and the World Bank launched the first global project to address water and sanitation issues. Originally conceived of as an applied research project aimed at supporting the IDWSSD, it has now been active for more than 20 years, and has proven to be an influential experiment in development partnership, with ties to government, donor agencies, the private sector, and NGOs. The program initially focused on projects such as field testing of handpumps and promoting ventilated, improved pit (VIP) latrines, but has shifted during the past few years toward more facilitative approaches capable of responding to changing client demands.

How Have Bank Projects Rated?

After the Bank's first free-standing rural water project, in Paraguay, was approved in fiscal 1978, lending volume for the subsector increased dramatically. In the 1980s it reached about \$334.5 million. From 1990 through the end of 1998, lending for free-standing rural water projects totaled \$1,090 million—more than \$120 million a year.

Sixty-seven percent of the Bank's rural water projects were rated satisfactory in performance, and the majority were found to be relevant, efficacious, and efficient. But only 43 percent were seen to have substantially improved institutional development and, not surprisingly, the same percentage was rated likely to achieve sustainable benefits.

Institutional development in rural water supply (RWS) projects has been difficult. Implementers generally encounter an excessively complex institutional framework, low village organizational capacity, and weaknesses in the NGO sector. Rural communities invariably have the potential to manage at least some aspects of service delivery, but running a water system is a new activity for most villages, and they almost always need support until they achieve proficiency in system administration and O&M, the main determinants of sustainability (see box 1).

Impact on the Rural Poor

The 15 stand-alone projects studied for this review—in Brazil, Burundi, China, India, Mali, Paraguay, the Philippines, Sri Lanka, Tunisia, and Zambia—have provided a safe water source for roughly 20 million people, at an average cost of \$49.74 per capita, and \$248.70 per household.

Beneficiaries of some projects—mainly women and children—reported shaving an average of 2 kilometers a day off distance walked to collect water, with time spent collecting water sometimes reduced as much as 80 percent.

Improvements in health were reported, including lessened incidence of diarrheal diseases, typhoid, and hepatitis. Organizational capacity was often increased, which made the communities more self-reliant. Poor households reaped economic benefits through the time saved, which could now be put to more productive use; less family income spent to buy water; and better health, which led to greater labor productivity and reduced medical expenditures. In some cases, personal wealth was increased by new income-generating activities, the development of small enterprises near the new water source, and increased land values. Villagers also reaped the benefits of training in health and hygiene.

No Shortcuts

The Bank is currently promoting a community-based, demand-responsive approach to providing rural water supplies that focuses on what users want and are able to sustain. Community members are expected to participate in the design process—particularly in the selection of the type and level of service they are willing to support. In addition, the communities are required to contribute cash or labor to construction, which links their contribution to the level of service selected, and to take care of O&M.

There are no shortcuts to making community-based projects work. Sustainability takes time and effort—as well as training, tools, a reliable source for spare parts, and someone to call on when local water committees need help solving a problem. Many practitioners see the intractable deficit in rural water supplies as sufficient reason to keep interventions low-cost and rapid, but speed and low cost mean nothing if the stream of benefits is lost.

Lessons and Recommendations

The Bank is engaged in effective learning and is refining its approaches to rural water projects to overcome past mistakes. The Community Water Supply and Sanitation Conference held at the Bank in May 1998 supported the new demand-responsive approach (box 2). The results of these efforts, although promising, are not yet conclusive. But a study of roughly half of all completed projects clarifies the challenge new projects will face as they encourage local involvement in project design and management.

Lesson 1: Projects should provide for a longer-term presence than in the past, to leave behind a local organization capable of maintaining water points or piped systems, administering the water scheme in a financially responsible way, and handling routine O&M.

- As part of project preparation, analyze how villages supply themselves with services. Avoid promoting internationally generalized prototypes and begin organizing and financing projects that imitate successful local village behavior (for example, how they organize to share irrigation water).
- Provide training to develop local capacity, which takes time. Don't limit training to the pre-operation phase.

Box 1: VLOM Pumps—A Development Success Story

Early Bank projects that focused on wells were highly unsuccessful. The capital and recurrent costs were too high and the handpumps used were too complex for villagers to maintain. The handpumps were also rarely sturdy enough for use by groups larger than a family; spare parts were not available or available only in areas too remote to be accessible, and technical support and competent repair were unavailable. The solution to these technological problems is the concept of VLOM (village-level operation and management of maintenance). Now recognized as one of the fundamental principles of handpump design, VLOM seeks to avoid high cost, long response time, unreliable service, and operational difficulties through central maintenance systems. Guidelines for VLOM pumps include ease of maintenance: they should be designed to allow village caretakers with a minimum of training and only a few basic tools to replace parts. Nonwearing parts should be able to resist abuse, vandalism, climatic conditions, and the attentions of animals. Under this successful approach, maintenance of the pump is a village responsibility, and pumps are selected with villagers' relatively low level of technical skills in mind.

Projects that depend on community management should provide training in administrative tasks, which are a challenge everywhere.

- Provide project assistance until local village groups can independently handle (1) preconstruction activity (developing rules, for example), (2) construction monitoring and supervision, and (3) management and O&M. Arrangements must be made to support the local group until it can perform all its functions without assistance.
- Systematically encourage visits between villages, so that members of organizations just learning how to function can learn from well-run groups. Borrowing successful administrative techniques allows laggards to leapfrog over developmental hurdles.
- Encourage local ownership of infrastructure. The most stable local organizations were legally recognized water committees that owned significant visible property.
- Encourage village committees to maintain regular office hours, so that users find someone to listen to their problems after a long walk to the office.

Lesson 2: When too little attention is paid to institutional development, governments must return to beneficiary communities to rehabilitate what they have provided. Rural water projects made great strides in covering more of their systems' operating costs, but nowhere did the study find most communities ready to cover the costs of a major overhaul or the complete replacement of their systems' most expensive components. Only in China was there full cost recovery. In most of the countries studied, if communities wait too long to raise tariffs to cover the cost of replacing

equipment, the tariff increase is so high it drives people back to traditional sources. To deal with the cost of replacing equipment, some countries have developed the "water fund" concept; others have based policies on the designed life span of the equipment.

- Users must learn that it is in their interest to replace expensive infrastructure (such as pumps) before the end of its useful life. Committees that cover the full cost of the water supply ultimately provide better service to their members.
- Follow-on projects should include subcomponents to give local organizations follow-up support, possibly supplemented with short-term credits to replace equipment.

Lesson 3: Rarely will one level of service meet all village needs. Rural water projects should treat villages and small towns differently, as they often aspire to different standards of service. Improved point sources may be appropriate for rural villages' aspirations and willingness to pay; motorized, piped systems may be more appropriate in small towns, where people have little incentive to participate if the level of service does not meet their aspirations. Aspirations have risen steadily in recent years, even in very poor countries. When the community wants to aim high, there is financial justification for respecting local willingness to pay. When maximizing the number of house connections and yard taps meets the community's felt needs and real demand, the prospect of cost recovery (through fees and tariffs) may attract private operators. If private operations are not feasible, higher service levels still permit sustainable community ownership or make a continuing water committee worthwhile. Realizing the full benefits of rural water service requires matching services to local demand and capabilities.

- When system design and local topography warrant, it is advisable to design for full coverage and to levy a significant surcharge on latecomers for each system expansion.
- To increase health benefits, make potable water available from standpipes (shared faucets) rather than handpumps, especially in the presence of surface water sources or unsafe shallow wells.

Box 2: The Demand-Responsive Approach

- The focus is on what users want, are willing to pay, and can sustain.
- The local community initiates, plans, implements, maintains, and owns the system (increasing its sense of responsibility).
- Water is treated as an economic good.
- The private sector provides goods and services.
- Local water committees, in which women play a key role, are strong (but need training).
- Full cost recovery is expected on O&M and replacement. The more users pay, the more likely a project is to be demand-driven.

Lesson 4: To improve project outcomes, carefully adapt interventions to the social characteristics of each village served. No single approach to developing local institutional capacity will work everywhere; there is a big gap between the weakest and strongest village organizations. When village water institutions succeed—when tariffs exceed costs—chances are good they started with better social capital, even before there was a water organization. The goal of making rural water services financially sustainable is laudable, but should be approached *incrementally*. Even the minimal costs of community-based, demand-responsive projects are too high for some of the target population. And raising water prices to improve cost recovery would probably cause more families to drop out, which could leave revenue levels the same as they were before the price increase.

Water supply systems are more likely to be sustainable, and subsidies to yield better results, where villages are well-organized. A village with limited social capital may need additional support. Practitioners generally agree: villages using a rural water system should be responsible for the

system's O&M costs. In the sample studied, greater villager participation in system operations tended to reduce (but not eliminate) subsidies. Governments must differentiate between villages with differing levels of social capital and carefully tailor how they begin work with a village, making sure they know how to participate effectively (keeping books, running meetings and elections, handling correspondence and other contacts with public officials, and so on) in a service-providing organization before insisting on entrepreneurial management.

- Pay close attention to a community's level of social capital and adjust the approach to service delivery accordingly.
- In raising water prices to improve cost recovery, do so sensitively and in frequent, small increments, so price increases do not cause many families to drop out. Tariffs need to be set at sustainable levels. Village committees are in the business of providing affordable services to their members, but too many committees do not estimate the full cost of the services they provide.

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