Attaining Health Outcomes through Synergies of Rural Water Supply, Sanitation, and Hygiene

Background

Water and sanitation crisis claims lives through diseases and associated illnesses. About 3.6 million people die each year from water-related diseases. The 2010 report of the World Health Organization of the United Nations and the United Nations Children’s Fund concerning the progress on sanitation and drinking water revealed that 884 million people in the world do not use improved source of drinking water; almost all of them are from developing regions. About 2.6 billion people do not use improved sanitation, and most of them live in South Asia and East Asia. The vast majority of population without access to water and sanitation lives in rural areas. Seven out of 10 people without basic sanitation, and more than eight out of 10 people without access to improved drinking water sources, are rural dwellers.

While the water policy of the Asian Development Bank (ADB) became effective in 2001, ADB’s operations have included water supply and sanitation (WSS) projects since 1992. Recognizing the need to provide people with access to adequate clean water, most of the ADB loan approvals for the water sector in 1992–2009 went to WSS projects for both rural and urban populations.

Common to most rural WSS projects is the goal of improving health and living conditions of rural communities, in part, by reducing the incidence of water-related and waterborne diseases. Clean water supply is a determinant of public health. How then do we ensure that projects are not only looking at sourcing, distribution, and expansion of water supply, but also at the quality of water? How do we ensure the synergy of results of the interventions on water supply, sanitation, hygiene, and wastewater management? This synthesis draws key lessons from evaluations and completion reports of ADB-financed rural WSS projects, particularly insights into ways for improving project contributions to the attainment of health outcomes.

Highlights of Lessons

Delivering meaningful health outcomes requires synergy between development and management of WSS, wastewater, and solid waste, together with the promotion of hygiene. Addressing sanitation concerns and improving the management, including disposal and treatment, of solid waste and wastewater can minimize hazards that often threaten the delivery of clean water to communities (i.e., from the water source to distribution points). For example, experiences in Pakistan and the Philippines have shown that sanitation and...
wastewater hazards have threatened the quality of water, causing situations that have rendered the supply of nonpotable water in some project areas. Contamination of water sources has been attributed to wastewater leakage from septic tanks and poor drainage systems (i.e., runoff water near wells and standpipes is susceptible to solid wastes, animal droppings, and wastewater from washing and laundry). Development synergy between water supply, sanitation, and waste management can be strengthened through strong commitment and focus, supported by sizable investment in sanitation aimed at improving drainage and street pavements, minimizing sanitation hazards in and around water supply systems, and managing solid waste and wastewater at both the household and community levels effectively. Appreciation of the critical links between water, sanitation, hygiene, and health is important in achieving health outcomes that last. For example, in Monaragala District in Sri Lanka, hygiene education and water conservation campaigns have effectively reinforced health benefits derived from the rural WSS pilot project.

Conceptual frameworks demonstrating clear logical links between planned development interventions, expected outcomes, and impacts (i.e., social, environmental, economic and institutional) tend to provide better results. For example, lessons from rural WSS development interventions in Pakistan indicated that the interventions did not result in significant reduction of waterborne diseases. Time savings in collection and delivery of water did not result in increased incomes as opportunities for income generation were limited. The poor achievements of desired outcomes indicate the lack of conceptual and logical links between inputs, outputs, outcomes, and impacts in the project design. It is important for a project to have a logic model to explain the best ways to achieve the expected outcomes and impacts.

Project designs should be realistic. Only directly relevant components should be included in a project design. Although reducing poverty, improving health conditions, and ensuring positive environmental impacts are legitimate objectives of development initiatives, they may be less relevant in a given project context. WSS projects directly aimed at achieving health outcomes should not be loaded and be mistaken with components that are aimed at reducing income poverty, especially if these components are not provided with adequate institutional support or resource provision. An overly complex and cluttered project design (i.e., having multiple expected outcomes with a range of diverse components) could create implementation difficulties and result in the non-attainment of results.

**Gender roles in the management of household health should be acknowledged at the onset.** In many situations, women have critical and recognized roles to play in taking care of their families’ health and general well-being. Participation and involvement of women in the design and management of sanitation facilities, as well as in promoting public awareness and education in personal hygiene, is important. For example, a WSS project in Sri Lanka recognized women as the principal water collectors and users. Their participation was considered a top priority in all aspects of the project development, implementation, and operations. Consequently, the beneficiaries were highly motivated and willing to make substantial financial contributions for the construction of water supply facilities and latrines. In contrast, poor social mobilization and lack of women’s participation in the WSS projects in Pakistan and Indonesia did not contribute to the sustainability of project benefits. Therefore, imbalanced and poorly recognized gender roles can seriously threaten the development effectiveness of projects.

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Nepali women fetch water for their families. Participation and involvement of women in the design and implementation of sanitation facilities, as well as in promoting public awareness and education in personal hygiene, is important.

**Health benefits of WSS projects should be inclusive and accessible to the poor.** Alternative water sources and supply schemes, as well as sanitation technology options, should be made available to the poorest and vulnerable segments of the population who are too cash constrained to participate in rural infrastructure development. Affordability is a key consideration for inclusiveness among the intended beneficiaries, although the poor have often demonstrated their willingness to pay for water. For instance, the cost of household water supply connection has limited the participation of poor households in
Punjab, Pakistan. Provision of community standpipes at selected but convenient locations may have been more appropriate to reach out to this segment of beneficiaries.

**Health outcomes should be realistically established.** Baseline data (i.e., at the individual, household, and community levels) should be utilized as benchmarks to set realistic improvement targets. Good baseline data and realistic targets can help steer project implementation toward achieving expected results. Without such benchmarks, the monitoring of project implementation may face difficulties, and the measurement of outcomes and impacts that can be attributed to a project can be elusive. For example, the cited rural water supply projects in the Philippines and Bangladesh had failed to provide appropriate baseline indicators for measuring improved public health. This has resulted in difficulties in measuring the impact of the projects on public health.

**The supply of safe water should be appropriately maintained to sustain health benefits.** Water shortages can undermine the sustainability of health benefits of WSS projects. Ideally, a water system should be able to meet the needs of a community for at least 10 years before requiring a large-scale expansion. In this regard, WSS project designs should include demand forecasts that take into account population growth projections to minimize risks of water shortages. Conducting groundwater investigations, over a period of time to determine variations in yield and recharge rates, could also prevent water shortages. An effective water demand management, coupled with public awareness campaigns, can also serve as a cost-effective alternative to water supply expansion, particularly in water-scarce areas. Much can be learned from the Philippine experience in the late 1990s. Due to water abstraction beyond the replenishment rate, communities suffered from water shortages during the dry season. In some cases, water supply facilities were abandoned as a result of over-abstraction of water.

**Good baseline data and realistic targets can help steer project implementation toward achieving expected results.**

A woman collects water sample for checking and testing in one of the water distribution points in the People's Republic of China.

**Improving the delivery of safe water entails capacity building of stakeholders and beneficiaries, and requires partnership with appropriate organizations.** Effective solutions to problems can often be delivered through acquisition of knowledge and practical skills. For example, cases of high-level bacteriological contamination, both at the water source and distribution points, can be prevented with proper training on simple chlorination and other basic water treatment methods. Further, increasing demand for sanitation—by establishing a functional partnership with community-based organizations, nongovernment organizations, and private sector entities—can help reduce or eliminate sanitary hazards at water sources. Implementation of appropriate operation and maintenance systems has been proven to contribute to the delivery of safe water. This entails enhancement of commitment and ownership among the beneficiaries through, among others, effective social mobilization, formation of community-level water users’ associations, cash and labor contributions, designation of operation and maintenance responsibility, and provision of appropriate training thereto. For example, the lack of recognition by public officials of the importance of community involvement led to the poor achievement of outcomes in the first rural WSS project in Indonesia. After almost 4 years after project completion, most of the water supply and sanitation facilities were abandoned or not functioning as originally intended. These problems were primarily due to poor maintenance and the inability of communities to pay for the operation and maintenance of the facilities.
In summary, while significant progress has been achieved in the implementation of rural WSS projects, in terms of coverage and achievements of health outcomes, experiences have led us to the following lessons, which can help in ensuring good project designs and sustaining project benefits. These include

- Ensuring synergies among WSS, wastewater, and solid waste management, together with hygiene and health promotion programs, to attain desired health outcomes and impact;
- Acknowledging, catalyzing, and enabling gender roles in health management;
- Ensuring inclusiveness in the design of a project, with appropriate schemes that would ensure that the poor are not excluded from the health benefits of WSS projects;
- Establishing baseline data and realistic targets for health outcomes;
- Addressing water resource capacity, demand forecast, and supply management, and taking population growth rates into account to prevent or minimize water shortages; and
- Building capacity of beneficiaries, and building partnership with appropriate organizations, to ensure sustained supply of safe water for lasting development effectiveness.

References


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