

APPENDIX 5

Story: A Tale of Two Districts in Peru

La Joya District, Arequipa

La Joya District in the desert region of southern Peru has faced severe water shortages. The Chile River, which is the main freshwater source, is contaminated by sewage from the upstream city of Arequipa. Canals from the Chile River irrigate the local farms that grow onions, potatoes, maize and cacti and graze dairy cows. The citizens of this region, from towns such as La Joya, La Cano, El Truinfo, San Isidro and Cerrito Bueno Vista rank lower than the national average in literacy and average income (US \$200-300 per family per month). The mayor of La Joya is promising a water treatment plant, but lack of funds has halted its implementation.

Government-Funded Water Treatment Facilities

La Joya District's existing municipal water systems were planned and built by the central government with minimum involvement of the local people. The town of La Joya has a 1950's water treatment plant (partially updated in the 1990's) that produces about 1,000 m³/day treated water, below the level of need. The cost per household is 10 soles (about \$3) per month. Cerrito Bueno Vista has a smaller, less effective plant that requires renovation. La Cano has no water treatment plant: only a community water settling tank serves the local people.

Community-Based Water Treatment Facilities

Recently, local communities have become involved in both planning and financing of new water treatment plant construction. One example is the plant in El Truinfo that cost 800,000 soles (\$200,000) and was 20% financed by the townspeople who committed 20 construction workers 6 days a week for 2 years. El Truinfo residents pay 2 soles (60c) per month for the water service. The maintenance cost is lower than the national average because volunteers from the town help to maintain the plant. El Truinfo can be considered a successful example of community involvement. Challenges remain, however, because of the on-going volunteer basis of operations and maintenance. There is need for regular professional supervision of volunteer water testing and professional supervision of volunteer plant maintenance.

HWTS Systems

In addition to community-based systems, HWTS systems have been distributed by the Pan American Health Organization/CEPIS and the Ministry of Health through personnel at local health posts. Families could elect either the safe water system (SWS - locally referred to simply as "chloro") or ceramic/sand filters. These HWTS systems have not been managed adequately. First, chlorine was produced in the health posts of La Joya, Cerrito Bueno Vista, and La Cano, and then distributed to surrounding villages. Supervision of correct dosing and application of chlorine was absent, and the overall result was that the program was not successful. Consequently, the use of chlorine was

discontinued by the villagers - taste is cited as the number one reason, unavailability of regular chlorine supplies is another frequently cited problem. Second, most of the ceramic candle filters and spigots broke after a few months, and without a system of maintenance and replacement, the filtration systems fell into disuse. Moreover, an educational component, person-to-person, social networks and good management was lacking, and as a consequence, the HWTS systems were disliked by users and they stopped using them.

Tacna

Tacna, Peru's southern-most District on the border with Chile, has a social, economic and water scarcity situation very similar to that of La Joya, except that there is no canal irrigation system. Water quality in the Tacna villages of Vila-Vila, Sama Incan, Ciudad Nueva, and Sama Las Yaras is better than La Joya insofar as there is no massive, upstream urban sewage discharge, but the people do rely mainly on local rivers and streams for their drinking water which is also microbially contaminated, albeit to a lesser degree.

Community Water Treatment Plants

Tacna District has water treatment plants, but their age and unreliability has led people to buy water from vendor trucks, such as in Vila-Vila, a resort on the Pacific coast. The town has water storage tanks supplied by companies that deliver municipal water from the city of Tacna for US \$0.10 /50 liters.

HWTS Systems

In 2002-3, 113 chlorine generator systems were distributed throughout the state of Tacna by the Tacna Health Ministry in conjunction with local health posts to produce enough chlorine solution (about 30 20-ml bottles) every 45 days for outlying villages. Dedicated and well-trained local champions of this program, employees of the Tacna Ministry of Health, took their job seriously and took this program village to village. They inspect household chlorine residual levels to assure their satisfactory use and brought in new supplies when chlorine bottles ran out.

This person-to-person communication and social network model clearly differs from the laissez faire "top-down model of La Joya, and the results testify to its effectiveness: despite the fact that the safe storage buckets that are considered part of the SWS program broke and were not replaced in Tacna, people there continue to use chlorine to disinfect their household water in their own designated vessels. Today, 5 years after implementation, chlorine demand is still stable.

Comparison

The two regions in Peru are very similar socio-economically, and both implemented the same HWTS technologies through the same government structures, but differ in education and expectation as regards HWTS implementation. In La Joya, "expectation

management” was one of the downfalls of the HWTS systems. A very pro-active regional mayor convinced the people that they could hope to obtain 80% federal financing to build a community drinking water treatment plant – but funds still hadn’t eventuated. Once the expectation of a piped municipal system sets in, it is difficult for people to “downgrade” to HWTS systems that require a lot more manual maintenance. In Tacna, local education, person-to-person communication, social networks and leadership made the difference between a failed program and continued use (adapted from Cerilles et al, 2004)

The lesson drawn from this story is clear: local leadership can tip the scale –the dedicated and well-trained health personnel in Tacna were the difference between success and failure. Each successful program has a champion (or many dedicated champions) to take the initiative to help organize, educate and motivate the community. The effects of a one-time water intervention wane as people forget, become lax, or face more immediate problems. Constant vigilance is necessary,

The difference in result of similar programs in La Joya and Tacna is a clear demonstration of this principle of the importance of local champions and community education. The young activists in Tacna took on the responsibility of implementing and supervising the projects. They organized short training courses for medical post personnel and educational workshops for families and children. Tests of chlorine residual were performed on a regular basis, assuring quality control of the whole process. Overall the work of the personnel of Health Ministry in Tacna can be taken as a very successful example of leadership and education.

A second story illustrates the challenges inherent in agency-driven program that have had, as a foundation, community involvement, local management and control.