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OF WATER AND SANITATION FOR ALL

Application of the Circuit Rider Methodology in Latin America and Africa

B. Apambire (USA), V. M. Cuéllar & S. Davis

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Small water supply systems are often unable to provide a reliable, safe, and sustainable service over time, and this has direct impacts on overall wellbeing of people. Circuit Rider post-construction support addresses this through the provision of technical, financial, and operational assistance to these systems. The Circuit Rider methodology has been proven over time to help sustain services from small water systems in countries in North America and Canada, Central America, and the Caribbean. To date, the Circuit Rider program has not been adapted at scale in the African context. This paper aims to describe best practices learned from existing programs and discuss how the Circuit Rider methodology is being adapted to the Ghanaian context, and to encourage further research into the benefits and costs of post-construction support in Africa.

Introduction

Small water supply systems are often unable to provide reliable, safe, and sustained service over time. Although much progress has been done in terms of providing access to WASH services in the developing world, reports from 20 countries demonstrate that between 22 to 67% of the water pumps are breaking down after one to two years of completion, mostly in rural areas (RWSN, 2009). Failed systems have a direct impact on public health and waste of infrastructure investments – approximately $1.2 billion, cumulatively (Chilton, 2014). The majority of small rural water services in developing countries struggle due to weak governance, lack of qualified staff, and solvency problems, among others. The Circuit Rider post-construction support methodology addresses challenges with water services and promotes hygienic use of toilets and handwashing through the provision of technical, financial, and operational assistance to managers of these systems. Circuit Riders are a group of technicians where each visit a "circuit" of 30 to 40 communities regularly to provide support to water facilities through providing technical assistance and training on issues of sustainability, governance, treatment technologies, operations, and maintenance. Circuit Riders also can provide on-going water quantity and quality monitoring, training, and education to the communities. The Circuit Rider methodology has been proven over time to help sustain and improve services from small water systems in countries in North and Central America, and the Caribbean. This success in various settings has been due to the nature of the Circuit Rider methodology – it is preventative rather than reactive. The Circuit Riders visit communities on a regular basis and help water system managers to attend to issues before they become problems, unlike other post construction support methodologies that provide networks of technicians that answer to system breakdowns. Despite the success of the Circuit Rider methodology in the Americas, it has only been adapted in a limited way in Africa. The Ghana Community Water and Sanitation Agency (CWSA), the Desert Research Institute and IRC-Ghana aim to pilot an adapted Circuit Rider methodology through district governmental structure.

Ghana's vision is to provide universal water and sanitation services by 2025 and national guidelines suggest that water supply infrastructure should function 95% of the time. Nationwide continuous functionality monitoring has not taken place so far (Adank, 2011). The community-based management (COM) and to a lesser extent private enterprise have been the main long-term sustainability models used in Ghana and other countries. However, evidence from some districts shows that a significant number of

boreholes, wells and handpumps in rural villages are providing poor services or falling into disrepair, often only a few years after construction. The COM model has faced two main challenges - lack of professional capacity and funding. The incentives for keeping water systems flowing are very low, as communities rely on volunteers to carry out basic day-to-day operation and maintenance, and administrative tasks. Functionality rates vary from 90% of all boreholes in surveyed villages (Bakalian, 2009) to 42% in a survey in northern Ghana (Skinner, 2009). According to a study in East Gonja district, in addition to functionality issues, many water facilities also reported issues with poor water quality, accessibility to, and quantity of water (Atengdem 2013). Africa's water supply infrastructure is failing for a simple and avoidable reason: lack of maintenance. The three components for sustainable water systems identified by IIED are the use of the right technology, ownership by the communities involved, and the local capacity to repair and maintain water systems (Skinner, 2009). Rural communities are more likely to have challenges than urban water systems because of poorly qualified staff and inadequate financial resources due to their small customer base (Gasteyer, 2004). In light of the documented issues with long-term sustainability of WASH interventions, some level of post-construction support is critical for continued maintenance and operation of rural water systems.

Methodology

Little documentation exists on how well post-construction support programs and methodologies function, or what they cost. Many other groups and countries are providing this type of support, but have not published their results or lessons learned widely. We will present different post-construction support methodologies being implemented in developing countries, the results they have had, and how they differ from the Circuit Rider methodology. We will then use a case study approach to compare and contrast management structures, financing, activities, outcomes, and costs of existing Circuit Rider programs in Central African Republic, El Salvador, Ethiopia, Honduras, and the United States. Where data are available, we will present water service levels (quantity, quality, reliability and accessibility) before and after the programs have been implemented, or compare service levels in communities with Circuit Riders and comparable communities without Circuit Riders. We will discuss how lessons learned from these programs are being built into new Circuit Rider programs in Chile and Ghana.

Results

Examples of post-construction support programs to be reviewed include the following:

- The Integrated System for Rural Sanitation (SISAR) has been providing operation and maintenance support to small water systems in Brazil. Their scheme has helped these systems remain operational and charge a realistic and sustainable tariff (Smits, 2011).
- WASH Technical Units funded by WaterAid are civil servants of the local governments who provide support to community water committees as well as help with the planning and implementation of new infrastructure in the area (Smits, 2011).
- In Ecuador, the Support Center for the Rural Management of Public Water (CENAGRAP), provides a one-stop shop for water committees to get capacity building, technical advice, as well as access to CENAGRAP's supply and parts shop that sells at a reduced cost to those that are CENAGRAP members. CENAGRAP also has its own water laboratory and social and technical 'promoters' that visit communities (S. Guayas, Personal Communication January 26, 2016).
- The Community-based management approach that has been used by World Vision in the Greater Afram Plains of Ghana resulting in 80% of boreholes still functioning after 15 to 20 years of service.

Example results from studies and observations of Circuit Rider programs include the following:

- In the US, local rural water association circuit riders help communities negotiate engineering and construction contracts so that they match the realistic needs of the community (Gasteyer, 2011).
- Kayser et al (2014) found communities with Circuit Riders had significantly lower microbiological water contamination, better disinfection rates, higher water fee payment rates, greater transparency, greater rates of household metering, and higher spending for repairs and water treatment than comparable control communities.
- Through support in book keeping, chlorination, pump operations and tariff settings, ASSA and ANDAR Circuit Riders have supported better services and more sustainable water committees (Smits, 2012).

- While Circuit Riders are a low-cost (<$1 per household/year in El Salvador, [Kayser, 2014]) support method, some programs (e.g., in El Salvador [J.M. Orellana, personal communication September 3, 2015), depended heavily on external funds and capacity, and thus have been cut back.
- In Colombia, community water systems with structured post-construction support have significantly better performing service providers; impact on service levels is positive but not significant (Smits, 2011).
- Water For People's Jalabandhu program helped community water and sanitation services bounce back more quickly than communities without support after Cyclone Aila (Stevenson, 2009).
- A WHAVE pilot found that the full cost of assurance that a community water source hardly ever suffers down-time longer than a day was about $1.1 per family per month, to cover administration, technical monitoring, and technical maintenance tasks, including hardware and labour, and including renovations of major components. This represents less than 2% of average monthly household income in rural Uganda of $73.1 (Harvey, 2015).
- Water for Good's modified Circuit Rider model for a network of over 900 handpumps in Central African Republic has improved functionality to 93% but faces these challenges: establishing local revenue sources; consistent community repayment; establishing local supply chain for pump parts; coordinating with national government and other NGOs in WASH sector; coordinating with artisan repair model and rehabilitation plans; and operating in relief/post-conflict environment (Allen, 2015).

At the conference, we will share the process to date of the Circuit Rider methodology application in the Ghanaian context – why it was selected over other post-construction support methods, how it has been adapted, and how success of the pilot will be measured.

Conclusions

In East Gonja district in Ghana, there is an Area Mechanic (on-call repairmen) assigned to each zone ; however, many communities cannot afford the payment of parts and labor, thus leaving communities without water services or Area Mechanics doing work at a loss. Circuit Riders could prevent these issues by routinely visiting communities and catching issues when they are still manageable, both financially and in ease of repair. By making this service affordable and routine, the Circuit Rider can be employed full time and paid fairly for his/her work.

The Desert Research Institute's Center for International Water and Sanitation (CIWAS) has designed a training program to help government, private sector and implementing organizations in developing countries to improve their managerial, technical, and financial capabilities. They have also drafted performance indicators and measurements of success. CIWAS support is enabling governments and other organizations to develop their own follow-up and post-construction programs using the Circuit Rider methodology and other methods with the goal of improving services and long-term sustainability. Research on the processes, management structures, financing mechanisms, costs, and impacts of post-construction support is limited. We believe this and planned future contributions to strengthening the knowledge base will enable efficient and effective replication and scale of the methodology.

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Contact details

Dr. Braimah Apambire is the director of the Center for International Water and Sustainability (CIWAS) at the Desert Research Institute; Victoria M. Cuéllar is the Manager of the Circuit Rider Program at CIWAS and Susan Davis is the Executive Director at Improve International.

Braimah Apambire, PhD.
2215 Raggio Parkway
Reno, Nevada 89512 USA
Tel: +1-775 673 7446
Email: braimah.apambire@dri.edu
www.dri.edu/CIWAS

Susan Davis
1579 Monroe Dr, Ste 347
Atlanta, Georgia, 30324 USA
Tel: +1-678-984-4926
Email: sdavis@improveinternational.org
www:improveinternational.org