A review of two case studies provides insights on the potential to successfully manage water systems across multiple communities. Key success factors include sufficient local capacity, transparency between parties, and clarity of roles and responsibilities.

Lead Author: Joseph Armpadu-Boakye  Contributing Author: Ryan Hebert

PROGRAM SUMMARY

- **Objective**: Understand the factors that determine success or failure when deploying water systems in geographic clusters under centralized management.
- **Approach**: Two case studies in the communities of Atebubu and Oyibi.

KEY INSIGHTS

- The provision of water services to multiple communities can be successfully managed through effective partnerships between community-level and cluster-level stakeholders.
- It is essential to clarify responsibilities between partners and ensure sufficient management capacity exists at the local level.
- Proper alignment of incentives is also necessary: where everyone benefits from the financial success of a water system, success becomes more likely.

Overhead tank at the Oyibi Area Small Town Water Supply Scheme

Background: Preparing the Safe Water Station Model for Expansion

Safe Water Network launched its Ghana operations in 2009, and by the end of 2013 we had established 12 Safe Water Stations, providing reliable safe water access to over 65,000 people.

At the beginning of 2014, we initiated an expansion program in Ghana, supported by the Conrad N. Hilton Foundation and others. This expansion will include the launch of 30 new Safe Water Stations, as well as piped connections to a further ~45 communities. Managing systems at this larger scale presents new challenges in oversight, training, and technical support to ensure the availability of support structures that enable communities to sustainably operate their own Safe Water Stations as independently as possible.

To address this requirement, we have developed an approach that relies on grouping Safe Water Stations in geographically contiguous clusters with centralized oversight and support. Our expansion will establish four self-sufficient clusters of ~10-20 Stations each in the Ga West district of the Greater Accra Region, the Western Region,
The Promise and Pitfalls for Managing Water Services for Multiple Communities

Understanding the Successes and Failures in Multiple-Community Management & Governance

There are few if any direct precursors for clusters of water systems in Ghana; however, there are examples of single water treatment systems that serve several communities via a pipeline. The experience of these systems—both the successes and the failures—helps us to better understand the requirements for structuring effective local water management and governance for multiple communities.

We completed evaluations of two such systems—one broadly successful, the other defunct. Detailed case studies appear in our 2014 Annual Market Review for Ghana (forthcoming); here we provide a brief overview of each and draw preliminary conclusions regarding the factors likely to enable success.

In each community, Safe Water Network staff spent up to three days meeting with key stakeholders including the local District Assembly, Water and Sanitation Management Committee, and system operators, and reviewing records on governance, operations, and finances.

Different Results in Atebubu and Oyibi

Atebubu Water System

The Atebubu Water System, in the Brong Ahafo Region, served a group of eight urban communities with a total population of 32,000. The system was constructed by the Ghana Water and Sewerage Corporation and a local Water and Sanitation Development Board. In 2001 at a cost of $400,000. The system is operated by the Atebubu Water and Sanitation Agency in theory to cover repairs and maintenance; however, at the time of our visit, the system had been out of operations could only be resumed once further investment had been made to address the system’s energy and infrastructure problems. At the time of our visit, the system had been out of use since 2010.

Due to the above challenges, the water system recorded operational deficits in three of the four years for which data was available. The exception was in 2005, the year the Assembly allowed an increase in price. After years of losses and deteriorating infrastructure, the District Assembly chose not to renew ARMCO’s management contract in 2008. The system reportedly functioned only intermittently after that point, as the Assembly felt that regular operations could only be resumed once further investment had been made to address the system’s energy and infrastructure problems. At the time of our visit, the system had been out of use since 2010.

Oyibi Area Small Town Water Supply Scheme

The Oyibi Area Small Town Water Supply Scheme provides water to 11 peri-urban communities (with a total population of 6,000-7,000) in the Greater Accra Region. The system was established in 2001 at an initial capital cost of GHS 3.5m (US $1.4m) financed by the Danish International Development Agency (DANIDA) and constructed by the Community Water and Sanitation Agency (CWSA). The system operates under three levels of management oversight:

- At the most local level, each community has a Water and Sanitation (Watsan) Committee.
- Management for the broader water system is provided by a 19-member Water Board, consisting of a chairman, seven officers, and 12 vendors who sell the water at public standpipes. The Water Board sets tariffs, manages financial planning, employs and monitors staff, and contracts technicians for maintenance and repair tasks.
- Finally, the District Assembly audits the Water Board’s accounts, supports the Water Board in water supply issues, approves tariffs, and monitors water quality.

The Oyibi system relies on groundwater abstracted via two boreholes and pumps this water to 11 standpipes through ~30 total kilometers of pipeline. Chlorination provides a basic level of protection against contamination. The system is not connected to the electrical grid and therefore (as in Atebubu) uses two generators to run its pumps.

Interviewees were unwilling to share detailed finances, but they report that the system has more reliably covered its costs and generated surpluses. These have been deployed to further expand the production capacity and distribution system.

Lessons Learned

The two systems faced some similar challenges, primarily in the area of infrastructure. While both chose technologies with low treatment costs, both faced significant energy costs due to the use of generators. Both have also suffered repeated pipeline breakages.

One of the factors that would have been expected to place the Atebubu system at an advantage over Oyibi was population size. However, whereas Oyibi continues to thrive while serving a market of 6,000-7,000 people, Atebubu was unable to generate sufficient revenues to cover the system’s cost in a community of 32,000.

A clear difference between the two sites can be seen in management structures and local management capacity. The Oyibi system is characterized by collaboration between partners and
an alignment of incentives, whereby everyone benefits from the financial health of the system. The Atebubu system suffered from a lack of key capacities at the local and district levels to effectively manage the private operator. A review of the meeting minutes of the Atebubu Water Board affirmed their limited knowledge of the operations of the water system. The result was misunderstanding and mistrust between partners.

### Applying Lessons

As we expand, our objective is to establish a capable Cluster Water Management Committee (CWMC) in each of our four clusters. The approach builds on the existing Watsan Committee structure, which has been deployed successfully across Ghana.

We will build on the lessons of the cases above in the following ways:

- **Governance:** Each CWMC will include roughly seven representatives from the Water and Sanitation Management Committees of the communities in the cluster, as well as two to three representatives of the local District Assembly as ex officio members. This structure creates a mechanism for transparency between partners, helping to avoid the distrust that characterized the Atebubu system.

- **Incentives:** All partners must have a stake in the long-term success of the system. Our current plan is for up to 2% of revenues to be provided to the CWMC, and we are evaluating options for revenue sharing at the community level as well.

- **Pricing:** Pricing decisions must be made by carefully balancing the goals of financial viability and affordability. Broad representation from multiple local stakeholders should help to ensure pricing decisions avoid over-prioritization of one goal at the expense of the other.

- **Quality Construction:** As at all the Safe Water Stations we establish, the requirement of sustainability requires a full understanding of life-cycle costs for all equipment, so that upfront savings from low-cost materials are balanced against any increased cost of maintenance in the future.

CWMCs will be established in 2015 and assume primary responsibility for management, oversight, operator recruiting and training, and site expansion and improvement beginning in 2018.

To ensure effective technical servicing, they will also train and deploy local technicians to provide maintenance, repair, and water quality testing services. Safe Water Network will provide training to all existing Watsan Committees and to elected CWMC members, and will jointly manage systems with the CWMC for a year before transitioning to a consultative role only.

We believe this model has significant potential to enable local management of water systems that is efficient, effective, and sustainable. As we implement and refine the model, we will continue to report on our findings through future Field Insights.