



Sustainable Water Services Delivery Project: Description of Findings

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Summary

Access to safe drinking water and sanitation are critical to human health and development. Yet, over 663 million people lack access to safe drinking water from an improved source and an estimated 1,000 children die every day from diseases related to unsafe drinking water and basic sanitation. In rural sub-Saharan Africa, millions of households depend on boreholes with handpumps for drinking water, yet 30-50% of these handpumps may not be functional at any given time. This study found that approximately **80% of the water points surveyed were functional** at the time of the study. **Systems with an identifiable management team and charging a fee for water usage were significantly more likely to be functional** than those with no identifiable management structure and no fee collection. For water sources installed by World Vision, functionality did not significantly decrease with age.

Study characteristics

- Cross-sectional study of 1470 water sources in 570 communities in the Greater Afram Plains (GAP) region of Ghana
- Study communities were communities in which World Vision had installed at least one water source between 1973 and 2010
- Data were collected by Water and Sanitation for Africa, a Pan-African humanitarian organization, as part of a project funded by the Conrad N. Hilton Foundation. Following the conclusion of this project, the data were anonymized and analyzed by researchers at the University of North Carolina.
- A Bayesian Network model was used to analyze multiple interacting determinants of functionality

Water source characteristics

- Nearly 80% of 1470 water sources studied in the Greater Afram Plains were functional
- 88% of sources were boreholes with handpumps, while 12% were other source types.
- 898 sources were constructed by World Vision; 672 constructed by other implementers
- The average reported number of users per water source was 115.

Results

- Water source functionality is highly dependent on management team presence and quality
- Management variables may interact synergistically to impact functionality
- The collection of a tariff (or user fee) for collecting water in the community increased the odds of a water source in that community being functional.
- Functionality decreased only slightly with age for all water sources studied.
- Functionality did not significantly decrease with age for the 898 water sources installed by World Vision
- Functionality can be understood as a dynamic equilibrium between breakdowns and repairs.