



Rainwater Harvesting:

A Sustainable Solution for School Water Needs in Rural Kenya?

Questions

Meeting the water needs of a school full of students requires innovative solutions. SWASH+ partners hoped to enable 10 schools to meet their water needs through the provision of two tanks to collect rainwater. In addition, schools received training and materials for a Safe Water System—soap, hand washing instruction, drinking water containers, and chlorine to treat their water. Researchers had four primary questions about school rainwater harvesting systems (RWHS):

- What were the challenges schools faced in maintaining RWHS?
- How effective were schools' water treatment, hand washing and latrine maintenance as a result of their RWHS?
- How could potential systems for maintaining RWHS be created and tested?
- What was the cost and effectiveness of RWHS?

Research

In October 2007, SWASH+ conducted a pilot study in the ten schools in Rachuonyo District of Nyanza Province that had received rainwater tanks and training and supplies for the Safe Water System. Additionally, two rounds of the SWASH+ Rainwater Harvesting Survey were conducted in July and November 2008.

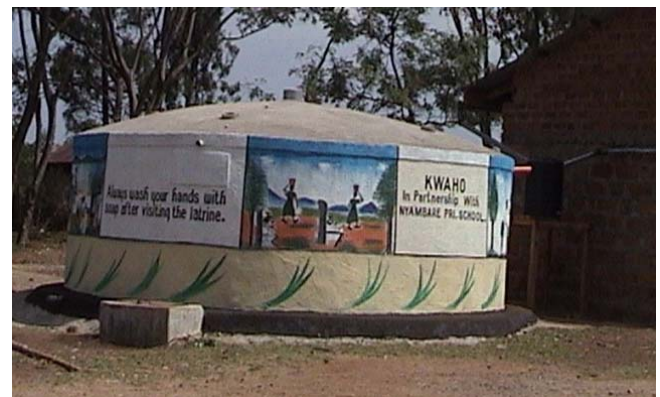
Findings

Schools' first challenge to safe water provision lies in the **construction of the water tanks**. Nine schools were evaluated in November 2008. Twenty-two percent were clean (no noticeable objects in the tanks), 44% had plant debris, 56% had mold or fungus, and 78% had insects present inside. Water.org identified and addressed construction issues such as the use of screens and first flush devices to decrease the odds of debris, insects and animals entering the tanks.

In addition, 3 out of 10 schools reported **gutter problems**, and 4 out of 10 reported **issues with rainwater meters**. Perhaps most critically, the majority of schools reported no active involvement in maintaining their RWHS. School meter logs and observer reports show **students used only 0.82 liters of water per day**. In the rainy season this rose to 1.09 /day, but fell to only 0.61 /day during weeks of lower stored water volume. It is unclear whether this RWHS water was supplemented with water from other sources, or how much water was used by students versus community members.

Conclusions

SWASH+ learned critical lessons about water collection, best practices for tank construction, and identified other areas to address in future rainwater harvesting projects. These include financial capacity, accountability, supply chain, community support, school leadership, and student engagement. The latest round of data collection has just been completed as of November 2009 to study the sustainability of RWHS after one year, and results are pending.



Based on the SWASH+ School-based Rainwater Harvesting Pilot Study, November 2008 Follow-up by the Center for Global Safe Water at Emory University (2009).

SWASH+ is a five-year applied research project to identify, develop, and test innovative approaches to school-based water, sanitation and hygiene in Nyanza Province, Kenya. The current and previous partners of the SWASH+ consortium are CARE, Emory University, the Great Lakes University of Kisumu, the Government of Kenya, the Kenya Water for Health Organisation (KWAHO), and Water.org (formerly Water Partners International). Visit us online at www.swashplus.org.