Partnerships, perseverance, and progress: Overcoming the challenge of the COVID-19 pandemic to rehabilitate wells in Malawi

Abstract

Four million people in Malawi, a small country in southeastern Africa, lack access to clean drinking water. This is true primarily in rural regions like Sakata, where 37% of households spend 30 minutes per day or more collecting water. The majority of these households get their water from borehole wells, which are hand-pump operated wells which draw up groundwater. In the villages of Liti and Nkagula, lack of maintenance has led to many wells operating unreliably or becoming nonfunctional, exacerbating water access issues for many households when their closest water source malfunctions.

Our student-run, faculty-advised university organization has been involved with water access in Malawi since 2014, when we were invited by locally based NGO Villages in Partnership (VIP). In the summer of 2020, our team was planning to drill in Liti and Nkagula when the COVID-19 pandemic made international travel impossible. Given the communities' urgent need for improved water access, the students realized that our project implementation could not wait until we could travel internationally, and the team agreed to proceed with a remote implementation in the summer of 2021.

The new challenges of the COVID-19 pandemic required our team to build a strategy from the ground up to complete our first-ever fully remote implementation activity. After extensive discussion with professional hydrogeologists, VIP, community stakeholders, and local contractors, the team outlined a work plan: inspection and, if necessary, rehabilitation of 14 borehole wells in the villages of Liti and Nkagula, along with community trainings on well maintenance.

To perform this implementation, we hired a local contractor and enlisted VIP to serve as the communities' advocates. Following inspection of all wells, rehabilitation was carried out on 12 wells, including 2 serious repairs and other smaller maintenance of common parts such as o-rings and foot valves. These repairs removed blockages and debris that were slowing the flow rate, thereby increasing the longevity and capacity of the wells, and improving both the quality of water and ease of pumping the wells. Additionally, worked with VIP to develop a program to teach community members basic well maintenance and repairs.

In the summer of 2022, the COVID-19 situation improved enough for our team to travel to Malawi to assess the success of the remote implementation, which we did through community meetings, household surveys, and water quality testing. From household surveys, we learned that 100% of Liti residents and 94% of Nkagula residents were satisfied with the results of the rehabilitation. Additionally, water testing found that rehabilitated wells saw improvements in three important markers of water quality.

We hope that our work will offer a model for sustainable water resource management in the Sakata region, as rehabilitating existing wells is a lower-cost and lower-resource alternative to constructing new wells. As a testament to the impact of this idea, VIP presented our project to Malawian government officials in the Zomba District Water Department and WASH District Team, who recognized it as the first project of its kind in the region and one they hope to replicate.