THE GIFT OF CLEAN WATER

RUTGERS STUDENT ENGINEERS HELP BRING SAFE DRINKING WATER TO A KENYAN VILLAGE

Located along the equator in southwestern Kenya, the remote village of Kolunje is a colorful jumble of red and green. “It’s a mixture of clay and vegetation, where chickens, cattle, goats, and pigs walk everywhere, and where bananas, avocados, and maize grow,” says Evan Lutz, who graduated in May from the School of Engineering.
Kolunje is also a community of 7,200 residents that had long lacked a safe, sustainable source of drinking water. This daunting reality changed when Lutz and a team of students from the school’s chapter of Engineers Without Borders USA (EWB), along with two hydrogeologists, succeeded in drilling a borehole to create a well for the community.

Water is a basic human need, often taken for granted. Kolunje’s women and children struggled up to three hours a day to find and retrieve it—time that could have been spent at work or in school. Moreover, drinking water from unprotected hand-dug wells and intermittent streams exposed the community to water-borne diseases such as typhoid and cholera.

“Over the past 10 years, a Rutgers’ EWB team drilled a well that had no water. Then they were robbed at gunpoint, and the project was almost completely given up on,” says Lutz, the co-leader of the Kenya Project who recently joined Mott MacDonald as an environmental engineer.

The first effort to find groundwater, conducted in 2009 by partners EWB and Endevelu Community Development Services, produced mixed results. Four years later, the attempt to drill a borehole to provide the community with a reliable source of safe water failed as well. In 2014, however, the development of a rainwater catchment system provided a short-term, if unsustainable, solution.

Collaborating for Good

SURVEYS AND MEETINGS

With the new well located at the school with a distribution line to the street, the Kenya team worked closely with the village elders and WATSAN (water and sanitation) committee—those who were tasked with maintaining the well and water distribution. The students also spanned out across the village to survey people about their water usage, knowledge on sanitation, and opinions of the new well. These surveys also helped the community establish water prices for the new well.

“We really didn’t expect water to come out of the ground . . . . When water was struck during this summer’s trip, many members of our team, including myself, cried.”

—Evan Lutz

The EWB project stalled for several years. Rutgers had banned travel to the region because of political unrest. Last year, after conditions had improved, Lutz and fellow engineering students Suprana Kumar, Shivanee Hendre, Anthony Rodrigues, and Alicia Villafuerte, along with hydrogeologists Anne Murray and Philippe Martin, were finally able to spend 12 days in Kolunje.

The team again tried to drill a borehole and create a well. When they first began drilling on the grounds of a village school, the team feared failure. But after three days of drilling, they hit water.

“The most rewarding part of this experience was seeing water come out of the borehole,” recalls Lutz. “We really didn’t expect water to come out of the ground, given the history of this project. When water was struck many members of our team, including myself, cried.”

Kenya Project co-leader Suprana Kumar joined EWB during her freshman year. Although she expects to work in research and teaching in renewable energy and sustainable design now that she has graduated, she also plans to continue her association with EWB.

“The most meaningful aspect of my experience was seeing the impact of the borehole on the lives of the residents of Kolunje,” Kumar says. “Community members expressed their deep gratitude for the water and how it would help them significantly during the dry season. Being able to open this community’s access to something that many of us take for granted meant a lot to me.

Now that it has been stabilized, the borehole is supplying nearly three times more water than necessary to meet Kolunje’s water needs. Plans include the possibility of installing an electric pump and piping water to residents.

As Kumar sees it, the Kenya Project is the kind of small-scale initiative that can lead to greater change. “Although our project may have targeted one small village, the scope of this work will begin to create a culture in the country and region that emphasizes the importance of access to clean water, strong infrastructure, and community engagement,” Kumar says. “As volunteers, it also makes us, as engineers and leaders, better equipped to find solutions to problems.”