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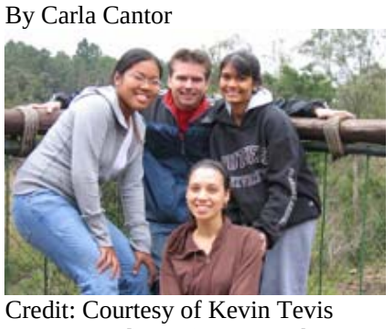
Teaching

Engineering Students Help Bring Clean Water to Eastern Kenya

By Carla Cantor



Credit: Courtesy of Kevin Tevis
Rutgers students Diane Manibo, Kevin Tevis, Reema Shah, left to right, and Jenna Pacheco, bottom, spent three weeks in Kenya this summer volunteering with Rutgers' chapter of Engineers Without Borders. "We got more back than we gave," said Tevis, who helped start the chapter last year.

Four undergraduate students from the Rutgers chapter of Engineers Without Borders spent three weeks this summer in arid Eastern Kenya alongside local engineers building a rain water harvesting system. The project will supply healthy water to 200 families that survive as subsistence farmers.

“It’s tremendous to think that our efforts will help provide clean drinking water to a village in Kenya, a country experiencing its worst drought in 20 years,” said chemical-biochemical engineering junior Reema Shah, whose personal and professional ambition is “to spread the wealth that we Americans take for granted.”

Rutgers’ Engineers Without Borders (EWB) was founded last year by engineering students Kevin Tevis (SOE ’07) and Dorothy Morallos (SOE ’06). The chapter is part of a national network that partners with developing communities worldwide to improve the quality of life, while training a new kind of internationally responsible engineering student.

“There is a growing interest among today’s students to make an impact on people’s lives and to do something active and useful with their degrees,” said Donald M. Brown, associate dean of the School of Engineering, who helped launch the Rutgers EWB chapter. The group’s first project: Six members traveled to New Orleans last year to clean up and help rehabilitate several buildings devastated by Hurricane Katrina.

The Kenya project came via a connection between an EWB student member and Olubayi Olubayi, an instructor in the Department of Africana Studies in New Brunswick. Olubayi’s brother, Barnabas Inyeaa, an engineer in the village of Isungulini, arranged for EWB students to get involved with the water harvesting project. The students spent two weeks laying a concrete foundation to support the rain water catchment system: two cement storage tanks – each with a holding capacity of 25,000 liters – that connect to a series of gutters that allow rain water to be harvested from the roof.

While in Kenya, the EWB students also ran workshops to introduce Kenyan high school students to engineering, and designed and built a solar-powered oven, which consists of a foil-covered box, transparent glass, and a mirror that reflects sunlight into the box. The oven works on the same principles as a greenhouse, reaching high temperatures quickly. “It allows the villagers to cook with the sun, rather than exhausting what little resources they have,” Tevis said. The demonstration was especially interesting for the Kenyan school children, who study physics, but seldom get to see real-life applications. “Now that they’ve been introduced to the concept, EWB challenged the students to improve on our design and build a more efficient solar oven,” Tevis said.

EWB students also lent their expertise to a project in Western Kenya, supported by the Global Literacy Project, Inc., which they learned of through Denniston Bonadie, another Rutgers Africana studies instructor. There, the students collected data necessary for designing and building a bridge to connect two villages so that agricultural goods can be transported across a small river that is often impassable during the long rainy season. The students hope to return to collaborate with Kenyan engineering student-volunteers in building the bridge.

Brown said that the School of Engineering is seeking funds from professional societies and other organizations to send the students back to Kenya next summer. This year, the students paid the cost of their airfare, although the host country covered the in-country ground costs, including food and lodging.

Tevis, who plans to enter the engineering workforce after graduating, would like to see Rutgers’ EWB grow – there are now 50-plus members – and attract more students from other disciplines. “EWB is open to all majors,” Tevis said. “It’s important for the chapter to have more than one perspective. Psychology majors look at problems very differently than engineers.”