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news

Humanitarian Group Brings Technology To Developing Countries

By Mark Fitzgerald

Over the past three years, Engineers for a Sustainable World (ESW), a nonprofit organization focused on finding long-term “solutions for reducing poverty;” has grown to more than 1,500 members, with 19 student chapters at college campuses around the country. Founded in 2001 by Regina R.L. Clewlow, then a graduate engineering student at Cornell University, and Krishna S. Athreya, who directed Cornell’s programs for women and members of minorities studying engineering, ESW has established a network of committed students and professionals concerned with harnessing innovative technology to reduce global poverty and advance sustainable development.

With the chapters that have evolved at such schools as Cornell University, Pennsylvania State University, Johns Hopkins University, Northwestern University, the University of Iowa, and Stanford University, ESW is encouraging universities to incorporate ESW-based courses and internships into their engineering programs. In conjunction with ESW, Rachel A. Davidson, an assistant professor of civil and environmental engineering at Cornell, recently implemented an upper-level undergraduate course (Engineers for a Sustainable World) that offers students the opportunity to, according to the course catalog, “examine the politics of technology, the relationship between engineering and international development, and ethics in engineering practice.”

In cooperation with community organizations in other countries, students undertake engineering projects that support development goals and consider engineering design in various cultural, political, social, and economic contexts. “The project in

Honduras was a wonderful success,” says Davidson. “The students really seemed to learn a lot and they had substantive interactions with the engineers.” Working with an organization called Agua para el Pueblo (Water for the Town) in rural communities in western Honduras, Cornell students investigated problems in existing water systems, documented and protected watersheds, implemented software to facilitate the design process for water supply systems, constructed water tanks and lines, and taught community members how to construct concrete boxes for protecting valves.

“I never thought I would have the opportunity to apply what I learned in the classroom,” says Dale Meek, an engineering student who participated in the program. “Then suddenly I was trying to design water infrastructure systems in Honduras. We worked on over thirty different systems. Since they tend to be communally owned, we had to train community members. We had to tell them how to run the systems, how to manage them, and how to set tariffs that cover costs.” ESW’s other projects include conducting an irrigation study in sub-Saharan Africa, developing products and markets in Nigeria for energy generated from biomass waste, and introducing Java programming to those interested in information technology in Bosnia and Herzegovina.

“My internship worked out really well,” says Caroline E. Gerwe, a graduate engineering student from the University of Texas at Austin who worked for three months on an ESW project in Hyderabad, India. “It gave me the international experience I needed and allowed me to do something I really wanted to do.” Working with a team from the International Water Management Institute, Gerwe studied the effect on groundwater of irrigating crop-land with untreated wastewater and investigated whether the accumulation of heavy metals in a stretch of the Musi River where wastewater is used for irrigation posed a long-term environmental and health risk.

Last October, Patricia D. Galloway, P.E., then ASCE’s president, was a keynote speaker at ESW’s national conference, which was held at Stanford University. Entitled “Solutions for a Shrinking Planet,” the three-day conference featured workshops that explored needs, technologies, design, sustainability, lessons from the field, and partnerships. “The conference was great because it let people know that there is a community throughout the country interested in improving infrastructure abroad,” says Davidson. “I think it’s also an ideal environment for sharing ideas. I could tell other people about how I was able to start the course [at Cornell] and how I run it and give them ideas and encourage them to do something similar.”