

# CE NEWS



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Partnerships for Student Success • 2007

## Kenya offers lessons for MSU students



From MSU News Service

Leaking cisterns, inoperable solar panels and a local populace that didn't remember the organizations which built those things: they were sobering lessons to a group of Montana State University students who went to Kenya earlier this year to help an impoverished school district.

"A lot of aid work goes into projects in Kenya and then when something breaks it just sits there and rots," said Quinn Bloom, 28, a junior in industrial engineering. "We don't want to have our project become another development skeleton littering the landscape of Kenya."

Seven members of the MSU student chapter of Engineers Without Borders spent a month and a half in southwest Kenya in December and January installing the second of 57 drinking wells and their first composting latrine for schools in the impoverished rural region.

*Chris Allen, BREN student and Engineers Without Borders at MSU chapter president, teaches basic surveying techniques to the Head Master at one of 57 primary schools in the Khwisero District of Kenya.*

The student chapter has been working since 2003 to bring fresh drinking water and sanitary latrines to schools in the Khwisero District of Kenya.

Simple hand-pump drinking wells in school yards can profoundly improve life for students in the region. Most drinking water in the Khwisero District is collected from shallow surface springs or streams and consumed untreated. As a result, diarrhea is the third leading cause of death in Kenya, according to the World Health Organization.

Water collection falls disproportionately to girls who miss hours of class daily walking to and from water sources, either balancing water containers on their heads or lugging them in their arms. Because the girls go unattended for water there have been rapes, the MSU students recently learned through talking with school teachers in Khwisero.

"If we can bring fresh water to all of these school districts, we could potentially change the lives of tens of thousands of people," Bloom said. "If the water doesn't cause sickness and the girls don't have to miss class every day, that will cumulatively have an enormous effect."

But key to making the project work is getting the Kenyans invested in the work, said Chris Allen, a junior in bio-resources engineering, and the chapter president.

"If they don't want it, or they don't know how to fix it, or if they feel like it doesn't belong to them, it will fail," he said. "We are spending a lot of time thinking about how to make this work theirs."

To that end, the MSU students worked with the community to create a water-use committee in 2006 to oversee the continued operation of the first well they installed. The students held a hand-off ceremony, formally turning over control of the well to the community. They plan to create a water-use committee for every well they install.

"We've worked very hard to overcome their stereotypes of white Americans and Europeans who come to Africa to build aid projects," Allen said. "Their stereotype is that whites arrive in a car, tell them to build something, then leave -- never to return-- and the project falls apart."

To overcome that stereotype, Allen, Bloom, and architectural student Andrea Orr helped dig the pit for a composting latrine.

*Kenya (cont.) page 3*



## Dear Alumni and Friends,

We would like to think that as we get older, we also get smarter.

As I sit here typing this letter with one hand, I am proof positive that this is not true. Why? Well, while using a knife in an unsafe manner, that I would have quickly chastised one of my children or students for, I managed to stab myself and am now recovering from this lack of intelligence. So now I think that the best we can hope for as we grow older is to put more time between our “not the sharpest tool in the shed” decisions.

It is an excellent time to be a graduate of the MSU Civil Engineering department. At our “nearly spring” career fair last March,

80 employers were on campus looking to hire Civil Engineering (CE) and/or Construction Engineering Technology (CET) majors. Salaries are up with CE graduates averaging \$42,400 per year and CET graduates averaging \$48,000. We continue to make improvements to our facilities and programs.

This fall we will begin construction on our new sub-zero science and engineering laboratory. We will also begin to address curriculum changes related to the implementation of ASCE’s “Body of Knowledge” (BOK).

There is further cause for optimism on the funding front. After many years of eroding public support for higher education, both in Montana and nationally, the resulting tuition increases were adversely affecting the affordability of higher education for many. I am pleased to report that due to improved funding from Helena, tuition will not

increase for the next two years.

In this newsletter, you will learn more about us, through articles about our Engineers without Borders student chapter, our Gold Medal winner, our trip to Alaska, and our new faculty.

The department’s legacy of outstanding education is built on the success of the alumni of our program. Many of you are our best unsung ambassadors. For the many ways that alumni and friends of the department support our programs, we are very thankful. Please stop by and see us sometime.

As I struggle to poke out the last of this letter with one hand, the words of that infamous sage Red Green come to mind “remember I’m pulling for ya, we’re all in this together.” If only everything could be fixed using the handy man’s secret weapon.

~Brett Gunnink, Department Head

## ASCE Student Chapter attended Steel Bridge Competition



The American Society of Civil Engineers student chapter competed in the steel bridge competition held at the University of Alaska, Fairbanks, in April. Pictured are (front row, from left): Brittney Singh, treasurer; Alex Huffield, Brian Gilreath, Thomas Osen, Heather Brooks, vice- president; Missy Johnson, and Bridget Ward. Back: Kyle Applebury, president; and Kevin Olmsted. Although the team did not place in the competition, it was an excellent educational opportunity for all involved.

# CE NEWS

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Send comments or article ideas to:  
205 Cobleigh Hall,  
MSU-Bozeman 59717

(406) 994-2111

[cedept@ce.montana.edu](mailto:cedept@ce.montana.edu)

[www.coe.montana.edu/ce/](http://www.coe.montana.edu/ce/)

## Obert awarded Gold Medal



Keely Obert, a May 2007 Civil Engineering graduate, received the Montana Society of Engineers' Gold Medal Award. This award recognizes the outstanding graduating senior in the College of Engineering.

After an exceptional high school career in Helena, Keely began her college studies in the fall of 2003, having been the recipient of the Presidential Scholarship from Montana State University. During her four years of college she was a member of Tau Beta Phi and Chi Epsilon engineering honor societies. At MSU, Keely was on the President's list for three semesters and the Dean's list for four. She volunteered with Engineer-a-thon, MathCounts and Science Olympiad, introducing young students to engineering and practical use of math and science.

Following graduation, Keely plans to pursue a master's degree in Structural Engineering at the University of Calgary in Alberta, Canada. Her goals for the future include working as a structural engineer, designing bridges to improve transportation and create safer roads. She also intends to obtain her Professional Engineer's license.

"The men in Kenya got a kick out of me digging with them," Orr said. "They kept telling me that Kenyan women couldn't do this sort of work. I told them that they just need to be given a chance to prove they could. Only fifty years ago it was thought that American women couldn't do this sort of work and now they do. When we were done digging, they said they were proud to work with me."

The MSU students have raised – and spent - \$50,000 on the project so far. On their most recent trip, each member came up with more than \$1,000 of their own money for transportation. They hope to raise another \$50,000 in the next 18 months and build three more wells and three more composting latrines.

"We could not have done this without the generous support of hundreds of people in Bozeman," Allen said.

At the national EWB conference in Boston in May, Allen, Bloom, and chapter member Callie Blackwood along with chapter-MSU alums Kim Slack and Ryan Cargo, presented their project.

"Our goal is to knock everyone back a few steps," Bloom said. "Unlike many chapters, we have an unusually long-term project – one that could last more than a decade. That has forced us to really consider the long-term sustainability of our project and our relationship with the Khwisero community."

"Many chapters have projects that can be completed in one or two visits and then the chapter can move on to another community or country," Bloom said. "We have to think in the long term because we're in it for the long haul."

*Drinking water is hauled by hand, sometimes several miles in southwest Kenya.*



*(Photo by Callie Blackwood)*

## McGowen and Berry Join CE Department



**Patrick McGowen** accepted a joint appointment as an assistant professor for the Civil Engineering Department and the Western Transportation Institute.

McGowen has been a research engineer with WT1 for the past six years. With an expertise in transportation engineering, McGowen's research and teaching interests include transportation safety, highway-wildlife interactions, and predicting traffic patterns through travel modeling.

McGowen earned a doctorate in traffic systems engineering from the University of California, Irvine in 2006 and his master's and bachelor's in civil engineering from MSU.



**Michael Berry** has been appointed as a research assistant professor with the Civil Engineering Department.

Berry's research interests include modeling of reinforced concrete columns subjected to seismic loading; damage prediction in reinforced concrete members and use of recycled materials as cement and aggregate replacements in reinforced concrete.

Berry received a Ph. D. in structural mechanics at the University of Washington, Seattle in 2006. He earned his master's degree in structural mechanics at UW-Seattle and his bachelor's in mathematics with a concentration in engineering at Carroll College in Helena.