

Student-faculty collaboration makes dreams sustainable in Rwanda

Standing on a spectacular African shoreline, wedged between a eucalyptus forest and the virgin blue waters of Rwanda's Lake Kivu, Denver engineer **Mark Reiner**, MS civil engineering '99, PhD civil engineering '07, listened intently as an idealistic orphanage director named Victor Monroy described his dream.

On this remote shore, Monroy explained, there could be an eco-lodge, where visitors would come to paddle dugout canoes and swim in the "delicious" waters. It would be off-the-grid and sustainably built. And most important, all proceeds would go to help educate the 105 African children at the orphanage up the road.

"I thought it was a really intriguing idea," recalls Reiner, who was in Rwanda working with Engineers

Without Borders when he met Monroy in September 2006. "It really tripped a trigger for me."

Fast forward 18 months and Reiner has taken Monroy's vision and run with it, collaborating with a group of UC Denver graduate students to help make the lodge a reality and provide a model for sustainable development in a nation ravaged by genocide 14 years ago.

Just months after meeting Monroy, Reiner taught Urbanization in Developing Countries at UC Denver. When he mentioned the eco-lodge in class, several students volunteered to explore its feasibility. "I gave them a good grade and that's the last I thought we would deal with it," Reiner says. But they didn't give up.

Since then, Reiner has worked with students and community volunteers to form the nonprofit Birambye International. (Birambye means sustain-



self-sufficient through income from the eco-lodge and the sale of produce growing on the lush 18-acre property.

The plans feature six cabanas and a lodge, all with economical thin-shelled concrete roofs, renewable bamboo flooring and traditional thatched exteriors. Bio-gas digesters will turn methane from human waste into fuel for cooking, and each cabin will feature solar and wind power and rainwater collection systems.

Reiner hopes the building will be the first in Africa to achieve U.S. Green Building Council LEED certification, and UC Denver architectural graduate students have submitted all the paperwork as part of another class project.

Birambye has also secured a 50-acre property from the government, partnered with the Rwandan Genocide Survivor Student Association, to run the lodge and launched a fundraising campaign for the \$100,000 needed to build it.

Ultimately, the lodge could grow to 15 cabins (at \$50 per night) and generate \$150,000 annually, providing the orphans with better living conditions, education—and hopefully a better future.

"If we depend only on foreign aid, we will not make it," says Monroy. "We want to show people that things can be done in a different way."

able in the Kinyarwanda language.) The eco-lodge, set to begin construction by year's end and open for business in 2009, is its first project.

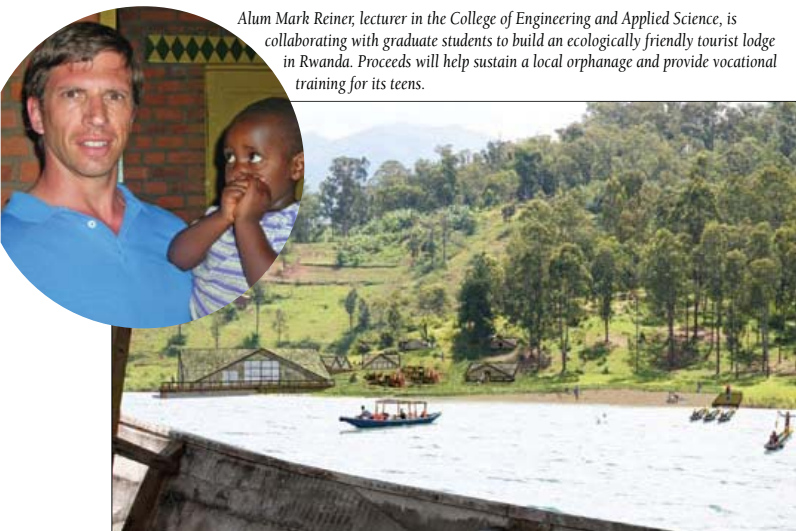
"Just going there and seeing where the money will actually go was a big thing for me," says **Kat Pecoraro**, MArch '07, who visited the orphanage with Reiner in January to begin the architectural design. "These children have so many needs."

In April 1994, machete-wielding Hutu Power militias swept through Rwanda, carrying out a campaign to exterminate its minority Tutsi ethnic group. Nearly 1 million were slaughtered in 100 days, and the infrastructure was leveled. Since then, Rwanda has undergone a remarkable recovery, with a stable government, a growing economy and a flowering tourist industry. But the genocide left a challenging reality: tens of thousands of orphans with no education and no money to get one.

Children's Village Kigarama was founded by German-based L'Esperence in November 1994. Today, more than 30 of the orphans are over the age of 18 and no longer eligible for aid, but they have nowhere to go.

"One of our biggest challenges is what to do with the grown-up kids," says Monroy, a Guatemalan who left a comfortable life teaching agriculture at a European college four years ago to run the orphanage. His goal is to provide vocational training for the older kids and make the orphanage economically

Alum Mark Reiner, lecturer in the College of Engineering and Applied Science, is collaborating with graduate students to build an ecologically friendly tourist lodge in Rwanda. Proceeds will help sustain a local orphanage and provide vocational training for its teens.



Editor's Note: For information about Birambye International or the eco-lodge in Rwanda, visit www.birambye.org.