

# Mortenson Center in Engineering for Developing Communities

## WHAT IS the Mortenson Center in Engineering For Developing Communities?

*The Mortenson Center's focus on engineering from a humanist perspective is an educational centerpiece at CU-Boulder, providing a unique, comprehensive program in engineering from the undergraduate through doctoral levels.*



### A Strong Foundation

In 1997, CU engineering professor Bernard Amadei needed landscaping at his new house in Lafayette, CO. The company he chose sent workers who originally came from a small village in Belize called San Pablo. A few years later, during an invited visit to San Pablo, Professor Amadei was struck by the sight of young children spending their days carrying water to the village, unable to go to school. As a civil engineer, Professor Amadei knew there had to be something he could do.

He returned to the village with several CU engineering students, and together with the villagers, they set out to solve the problem of bringing clean water uphill from the river to the village. With no electricity available, they were forced to abandon the modern ideas that their university training had given them. Instead, they adapted a centuries-old technology to provide a solution tailored to the location and the people of San Pablo.

Working directly with people in need and using creative problem solving was both energizing and fulfilling for Professor Amadei and for the students. Upon his return, Professor Amadei founded two new organizations: Engineers Without Borders-USA (EWB-USA) and the Engineering for Developing Communities (EDC) program at CU-Boulder, which became the Mortenson Center in Engineering for Developing Communities in 2009 after a generous gift from CU civil engineering alumnus Mauritz "Mort" Mortenson, his family, and their construction firm, M. A. Mortenson Company.

## **Towards a More Sustainable, Equitable World**

Professor Amadei's experiences in Belize highlight the true challenge of engineering in the future, and by far the most important work of the Mortenson Center: to educate engineers who will meet the needs of a rapidly growing human population while preserving Earth's biodiversity, its delicate ecosystems, and its rich cultural heritages.

This new breed of engineers longs for a new kind of education: one that is broader and deeper, richer and fuller. The Mortenson Center answers this need by providing a place where engineers can expand their knowledge beyond numbers and formulae, beyond books and computers, and into the realm of human relationships and experience, into history, sociology, economics, and political theory. The Mortenson Center was, and continues to be, at the forefront of this new type of engineering education at the undergraduate, graduate, and post-graduate levels.

## **The Humanist Engineer**

What drives this new breed of engineer, and what is a *humanist* engineer? A humanist engineer is a well-rounded, broadly educated person with a global perspective, who understands that every action causes potential ripple effects around the world, intended or not. A humanist engineer understands that a successful solution must be a collaboration that takes into account local geography, technology, materials, and personnel. Finally, a humanist engineer is committed to helping people in developing areas help themselves.

Members of this new generation of humanist engineers are already emerging from the Mortenson Center with a broad education and the inspiration to make a positive impact on the world.

## **Building Relationships and Communities**

Whether focusing on a far-away corner of the world or right here in an impoverished area of the United States, Mortenson Center students learn to develop relationships and conduct a thorough assessment alongside community members before attempting to tackle any particular "problem" or implement a "solution." Students are reminded of the importance of long-term commitments to a community in order to create and encourage incremental growth towards improvement. An integral part of the Mortenson Center graduate student's experience is the practicum, which involves four- to six-weeks spent assisting a well-established organization in a consulting role. Students provide capacity-building support so that the organizations are stronger and more self-sufficient once the student leaves.

The Mortenson Center's methodology centers on transferring knowledge in both directions: from the community and on-site organizations to the engineers, and vice versa, so that together they can develop the best long-term solution based on local conditions. This empowers the community to move forward with completing and maintaining the project, rather than the project being driven from the outside.

## **WHAT IS the Mortenson Center in Engineering for Developing Communities?**

*It is an innovative educational program dedicated to transforming the understanding, application, and evaluation of engineering in the global environment and implementing that change across the entire engineering curriculum.*