Humanitarian Engineering
Colorado School of Mines

Engineers co-creating with communities

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Humanitarian Engineering is …

…. a curricular minor for engineering students to learn about co-creating just and sustainable solutions for communities
Humanitarian Engineering is ...

.... Cutting Edge! – as the 1st such program in the US (2003), HE is a

- Space for deep and serious constructive critical reflection on “what is engineering for?”
- Vehicle for praxis, where students can see the relevance of engineering to social problems
Humanitarian Engineering is...Complicated!

The World of the Humanitarian Engineer

Larger Context of Community Development includes:

- History, culture, geopolitics, ideology, internal conflict, and I

- Corporations (engineers and other actors)

- NGOs (engineers and other actors)

- Development banks (engineers and other)

- International organizations (engineers and other)

- Community (women, children, elderly, clan, labor unions, traditional families, kinship groups, etc)

- Relief organizations (engineers and other actors)

- Government agencies

- Universities (engineers and other actors)

- Labor unions

- Community groups

- Academia

- Corporations

- NGOs

- Corporate Social Responsibility

- Families

- Governments

Engineers and scientists
Humanitarian Engineering is …

...**Participatory!** – 1/2 of the required 18 credit hours are project based learning

HE students brainstorming at the Posner Center, a Denver-based NGO incubator
Humanitarian Engineering is … Engineering by Doing!


EbD II – Projects for People Combines HDC techniques with technical skills to address design challenges for communities.

EGGN491/2 – Senior Design Design/build of infrastructure, assistive technologies and solutions for community partners based on work previously completed in EbD I/II
Humanitarian Engineering is ... Interdisciplinary!

Employing a Human-Centered Design methodology, HE as a place where team-based problem definition and solution skills are developed in a real-world setting.
Humanitarian Engineering is …

*a Partnership with Community!*

Numerous HE students work with some of the 60+ Tenants at the Posner Center for International Development – the largest US NGO Incubator – located in Denver
Humanitarian Engineering is …
Making a difference!

• Water-powered pumps in Niger
• Mountain bikes for quadriplegics
• Solar-powered pumps and post-harvest storage solutions for African farmers
• Schools for girls in Nepal and Nicaragua
• Footbridges over formerly impassable rivers,
• Energy-efficient housing for Native American Sustainable Housing Initiative
Humanitarian Engineering is …

… a COOL IDEA!!

Questions?