Engineers Without Borders at Oregon State University
Presentation Outline

- EWB-USA
- Development
- EWB-OSU
- Intervention
- Questions
Engineers Without Borders USA

Mission Statement:

➢ EWB-OSU Builds a better world through engineering projects

➢ Empower communities to meet their basic human needs

➢ Equip leaders to solve the world’s most pressing challenges
EWB-USA:
➢ 686 projects
➢ 42 countries involving
➢ 16,800 engineers impacting
➢ 2.5 million lives
Community Driven Development

“Projects are designed directly with the community to ensure system success & project longevity”

User-driven designs are...

- Project requested by the community
- In-country partner
- Locally sourced materials
Why community-driven development?

How?

➡ Financial (capital+O&M)
  ◆ 5% of capital cost
  ◆ Fee-collection structure in-place

➡ Social
  ◆ Water board
  ◆ Community Investment

➡ Technology
  ◆ Appropriate technology
  ◆ Material source
EWB-OSU

➢ Student chapter
➢ Founded in 2006
➢ Four international projects to date involving 17 trips
➢ Hundreds of students
➢ Dozens of mentors
Nicaragua Water supply/distribution project 2014-present

Cambodia Water supply project 2016-present

Kenya Water supply project 2009-2015

El Salvador Water distribution project 2006-2010

Where in the world is EWB-OSU?
Las Mercedes and El Naranjito, El Salvador: 2006-2012
Lela, Kenya:
2009 - 2015
Los Potrerillos, Nicaragua: 2014 - Present
Nicaragua by the Numbers

Los Potrerillos
- Population: ~1,800
- Language: Spanish
- Profession: Farming/Agriculture/Masonry

OSU Nicaragua Program
- Population: ~80 total (20 current)
- Language: Spanish/English
- Profession: Engineering
Los Potrerillos, Nicaragua: Lessons Learned

**Triumphs**
- 10 students sent
- 1 well drilled
- km of pipe laid
- Nearly eliminated waterborne illness
- Collected survey data
- Community commitment
- Communication

**Tribulations**
- Lack of design guidance
- Last minute design changes
- Illness
- Community dynamics/tensions
- Political Tensions
O’rana,
Cambodia:
2016 -
Present
Cambodia by the Numbers

- Population: 250 families
- Language: Bunong, Khmer
- Project Metrics:
  - Water quality
    - Currently: iron, pH
  - Wells:
    - Expected: ~15
    - Actual: 77
O’rana, Cambodia: Lessons Learned

Triumphs

➤ 5 students sent on an assessment trip
➤ Pipeline survey data
➤ Established collaboration with NGO & community
➤ Understanding of basic geology gathered

Tribulations

➤ Politics!
➤ Lack of knowledge about engineering
➤ No community structure
➤ Distrust of humanitarian aid
Assessment and implementation

What factors influence our decision:

- Development Intervention
- Infrastructure Intervention
- Attestation
- Assimilation

Predictive Tool
Technology

Appropriate Technology:
- Minimal outside manipulation of daily life
- Cater to community skills & comfort level
  Example: Changing the river crossing to stone in Nicaragua

Intermediate Technology:
- Advancing technology but not beyond a community’s means
- “Price and time!” → improve, don’t overwhelm
  Example: Going from boiled water to filtration system
Moral Responsibility

How?

➤ Education & awareness of water system and sanitation
➤ Implementation of community water board
➤ Operations and maintenance manual **required**
➤ Two year involvement after completed implementation

Why? . . .
EWB’s Global Justice

What?

➔ Engineer projects that empower communities to meet their basic human needs
➔ Work with communities to find appropriate solutions for their infrastructure needs

How?

➔ Engineering is optimized to innact global justice!
➔ Sustainable, appropriate solutions for those who need it most!
Interested in being involved with...

➢ Water distribution and sanitation in Nicaragua?
  - Weekly meetings **Monday** 6-8 pm in OWEN 241

➢ Water distribution and sanitation in Cambodia?
  - Weekly meetings **Tuesday** 6-8 pm in OWEN 241

Come help us empower communities around the world!
Questions?

Visit us at: ewb-osu.org

Like us at: Engineers Without Borders-Oregon State University (facebook page)

Email: ewb-osu-board@engr.orst.edu