

Engineers Without Borders at Arizona State University



Building a better world, one community at a time

Introduction to:

EWB-USA



Challenge:

Current world population: 6.6 billion

- 3 billion people live on less than \$2 per day
- 800 million people are chronically undernourished
- 1.3 billion people have no access to clean water
- 2.6 billion people lack access to adequate sanitation
- 1.3 billion people do not have adequate housing
- 6 million children die yearly from preventable diseases

World population in 20 years: 8 billion

- 99% of growth will occur in developing countries

Introduction to:
EWB-USA



Vision:

A world where all people have access to the **knowledge** and **resources** with which to meet their **basic human needs** in **sustainable** ways

- Water and sanitation
- Food production and processing
- Housing and construction
- Energy
- Transportation and communication
- Income generation and employment creation



Introduction to:

EWB-USA



Mission:

To link university engineering schools with communities in the developing world, with:

- Project opportunities
- Project coordination
- Project supervision
- Project documentation

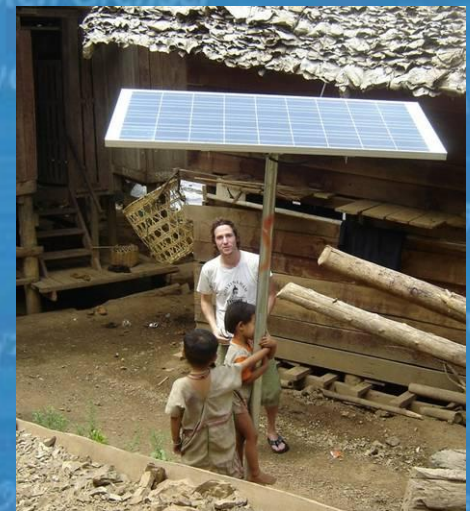
To create a more equitable, sustainable world by training internationally-responsible students and engineers.

Introduction to EWB

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Approach

EWB chapters partner with **developing communities** worldwide to improve quality of life through the implementation of environmentally, economically and culturally **sustainable engineering projects**, while training internationally responsible students and engineers.



Project Process

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Exploration

Establish contact, visit communities in need, identify opportunities, photograph and document situation, decide on specific community, etc.



Assessment

Revisit community, conduct thorough interviews, take measurements, photographs, identify material suppliers, etc.



Implementation

Build/construct project with community members, educate members about construction techniques, proper operation and maintenance, etc.



Evaluation

Revisit project site: is it still working? did it help? what are its effects? Identify future project opportunities in same community, etc.

Current Projects

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Tsurakú Water and Sanitation Project

Visualizing the Campus Metabolism



Tsurakú, Ecuador

- Project Objectives:
 - Improve Water Quality
 - Improve Water Supply
 - Implement Waste Management and Sanitation solutions
 - Aid the Overall Enhancement of Quality of Life for this Rural Village



Project Timeline

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- Project Approval (July, 2007)
- Assessment Trip (August, 2007)
- First Implementation Trip (January, 2008)
- Second Implementation Trip (Summer, 2008)
- Tentative Follow-Up Trip (December, 2008)



Ingenieurs zonder Grenzen

Assessment Trip

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August 5th-19th, 2008

Travelers:

Mark Rohan Elsy Escobar Cori Oversby

Uven Chong Andres Montes

Erick Bevington



Trip Goals

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- Network
- Establish a Relationship with the Community
- Gather Data
- Assess Project Feasibility and Available Resources



Networking

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- Escuela Politécnica Nacional de Quito (EPN-DQ)
- Tufts University Engineers Without Borders
- Peace Corps Volunteer- Katie Wallace
- UC Berkeley Group – Shuar Health Project
- Quito Rotary International



Establishing a Relationship With Community

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- Community Meeting
- Community Questionnaires and Interviews
- Regular Meetings with Community Leaders
- Indigenous Celebration



Gathering Data

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- **Surveying**



- **Mapping of Community and Water Distribution System**



- **Water Quality Testing**



- **Soil Percolation and Classification**

Gathering Data (Cont.)

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- Investigation into Available Water Sources
- Water Flow Determination
- Pilot Test of Soft Sand Filtration System
- Depth to Groundwater



Assessing Project Feasibility

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- Investigation into Nearby Hardware Stores
- Pricing and Availability of Materials
- Quality Analysis of Currently Used Materials
- Evaluation of Current Systems (water, sanitation, etc.)



Community Needs

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- 20 Kids are Diagnosed with Diarrhea per Week
- Other Common Symptoms: Vomiting, Skin Infections, Worms, Respiratory Problems
- Known Reasons for Problems: Parasites Present in Water, Unsanitary Living Conditions
- Lack of Readily Accessible Medications and Health Care
- Inconsistent Water Supply



Get Involved and Join the Team!

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- Join The Google Group
 - See ewb.asu.edu for instructions
- Attend General and Project Specific Meetings
- Contribute your Knowledge and Experiences
- Apply Classroom Work to Real World

