

Engineers Without Borders

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Our Organization

- Mission: Design and implement projects in developing countries
- EWB-USC is a student led chapter
- Pipeline project in La Victoria, Ecuador
- Supported by grants and donations
- Engineering, Public Health, Earth Science, & International Business Majors
- Non profit, 501(c)3, & tax deductible

The Community

- La Victoria, Las Lajas, El Oro
- Coffee is the primary export
- Severe dry seasons limit productivity
- Water is currently trucked in
- Economically stagnant
- Low access to technology and tools
- Lack of topographical information



The Project



Mountain
Stream



Two
Reservoirs



Coffee
Nurseries



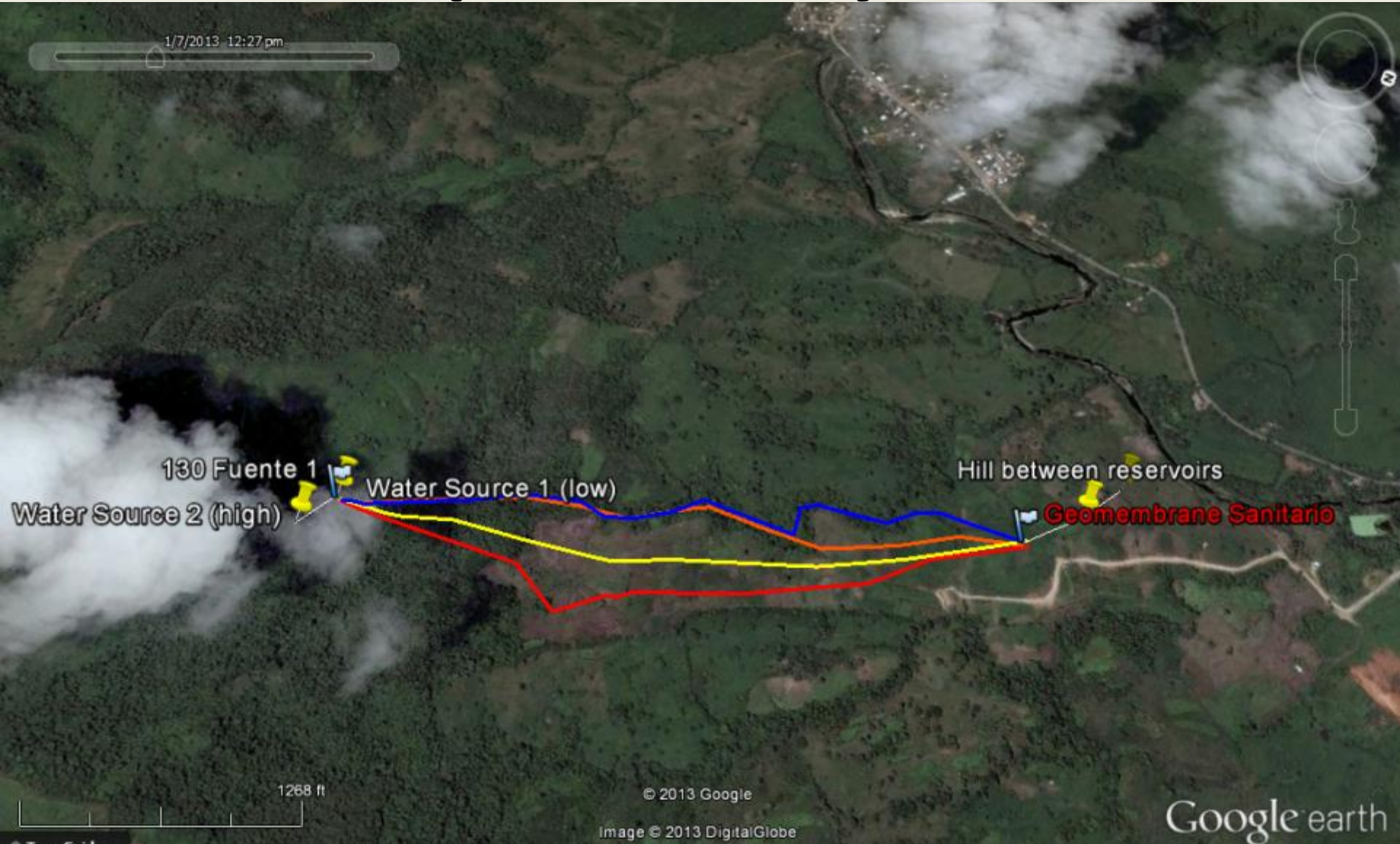


Elevation: 1600 ft

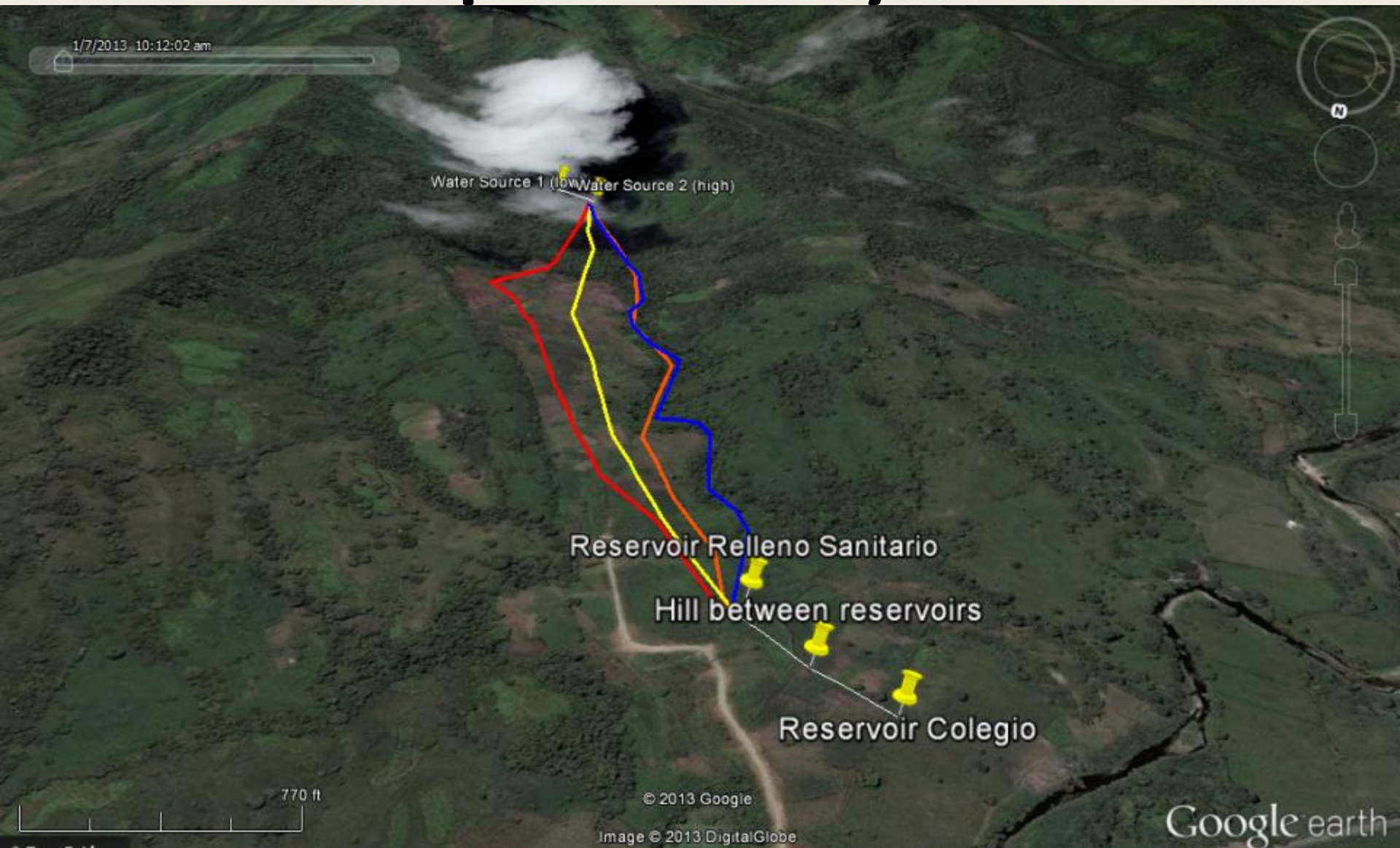




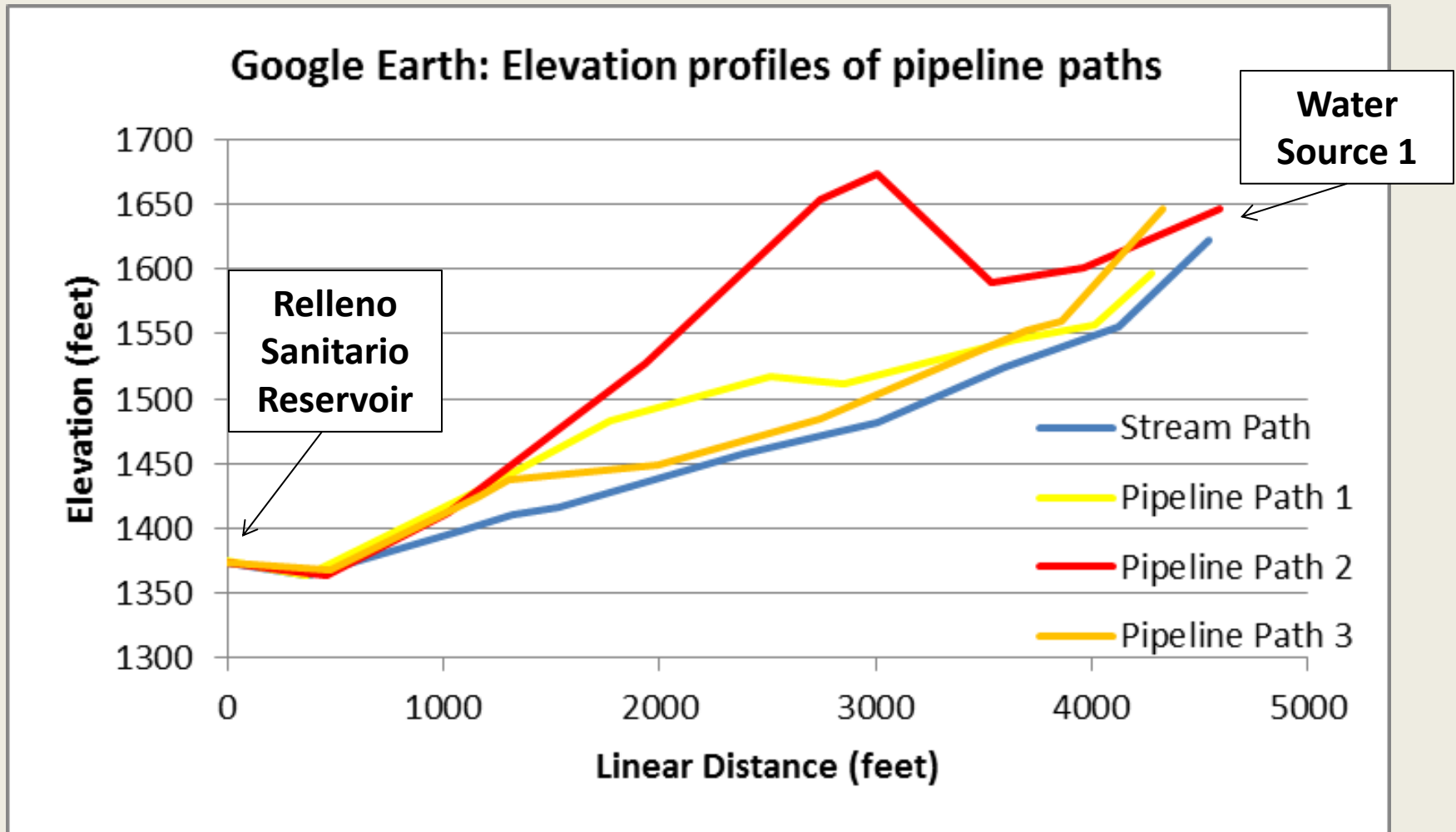
Pipeline Analyses



Pipeline Analyses



Elevation Profiles



Elevation: 1375 ft



Elevation: 1350 ft

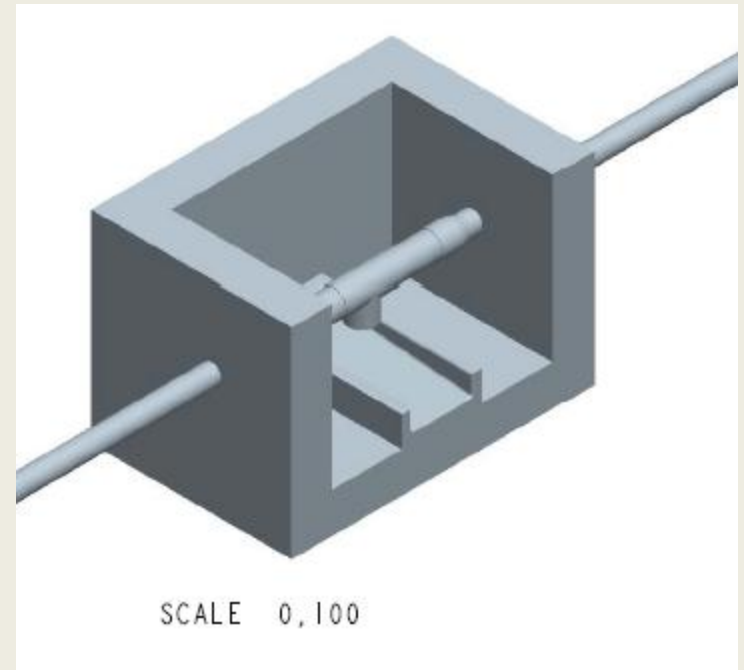
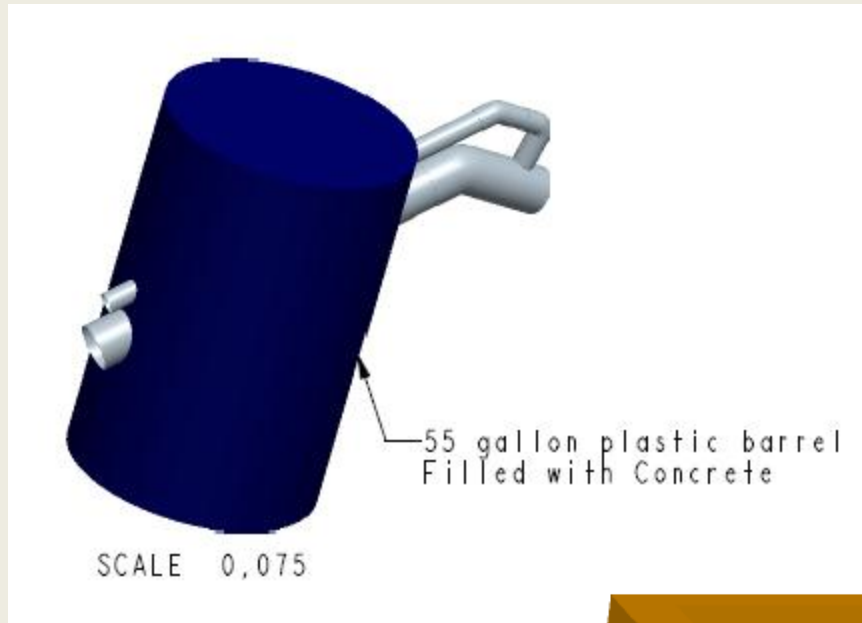


Pipeline Design

- 50mm Diameter Pipe buried underground
- Flow Velocity of 1.29 m/s when open
- Siphon Spillway Intake
- Pipeline Fork
- Cleanout Structure
- Simple Outflow Structure

Pipeline Structures

Siphon Spillway Intake



Cleanout Area



Sawhorse Outlet



Coffee Nursery

Water Conservation

- Lack of water conservation education
- Place coffee nurseries on a gradient
- Create a cistern at bottom of nursery
- Reuses runoff water and also provides a stormwater collection system
- Potential future project: implementation of a drip irrigation system

Timeline & Travel Costs

- Assessment Trip (January 2013)
 - 8 travelers
 - \$12,000
- Pre-Construction Trip (May 2013)
 - 4 travelers
 - \$6,000
- Implementation Trip (December 2013)
 - 7 travelers
 - \$10,000 + Materials

Professional Sponsors

- American Society of Civil Engineers
- American Society of Plumbing Engineers
- Boeing Corporation
- Engineers Without Borders USA
- Knovel Corporation
- Level Growth LLC
- Schnabel Engineering
- Society of American Military Engineers

USC & Academia Sponsors

- Dobson International Service Grant
- Eastover, SC Public Library
- Honors Residence Rainbarrel Project (USC)
- LEGO Robotics Mentoring
- Magellan Research Grant (USC)
- Mini Magellan Research Grant (USC)
- Student Government Funding (USC)

5 Reasons to Support Our Chapter

- Support sustainable farming development in La Victoria, Ecuador
- Encourage international service and professional development at USC
- Maintain project momentum between assessment and implementation
- One of USC's most driven student organizations
- Tax deductible

We would be honored to have you support our project!

