

**University of Maine Chapter  
Engineers without Borders**

Dulce Vivir, Honduras  
Community Septic System

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**WHO ARE  
The ENGINEERS without BORDERS?**

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**EWB-USA**

- Founded in 2002; over 12,000 members today.
- 300+ chapters with 350+ projects in 45 developing countries



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**OUR**

**VISION:** is a world in which all communities have the capacity to meet their basic human needs.

**MISSION:** to support COMMUNITY-DRIVEN Projects worldwide, through the design and implementation of sustainable engineering projects, while fostering responsible leadership of the Community.

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**EWB GOAL PRIORITIES**

1. BE SAFE
2. STAY HEALTHY,
3. PROJECT IMPLEMENTATION

EWB Teams are well PREPARED & SUPPORTED with:

- Translator
- In-Country Contacts,
- Safety PLANS prepared for Emergencies

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**UMO PROJECT (5 YR. Commitment)**

- 2010 RECON and System Selection with the Community, Started Topo and Preliminary Site Plan
- 2011 Finished Surveying Site, did Soil Testing, Searched for Sources of Materials, Installed Curtain Drain, Started Sewer line Construction
- 2012 Finished Sewer Line , Constructed the Septic Field, Installed the Septic Tanks, Connected Houses to System
- 2013 Educating Community on Maintenance, Developing the O & M Manual, Built Storage Shed, Deliver Pump, Fabricated Sludge Wagon

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**UMO PROJECT**

- 2014 Monitoring project and additional follow-up work CANCELLED.

*US DEPARTMENT of STATE raised the travel warning status to 'critically high'*

*Engineers Without Borders USA (National Board of Directors) deemed Honduras to be a safety risk.*

*Fortunately Project was substantially completed and just lacked the monitoring.*

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**CORPORATE SPONSORS**

- Newman's Foundation**
- MAINE ASSOCIATION OF SITE EVALUATORS**
- Olver Associates
- Wright-Pierce
- Drumlin Environmental
- Woodard & Curran
- Bushmaster Firearms
- University of Maine
- Albert Frick Associates
- Cianbro
- Eljen in Drain (Maine) Construction Consultants

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**PROJECT LOCATION & CONDITIONS**

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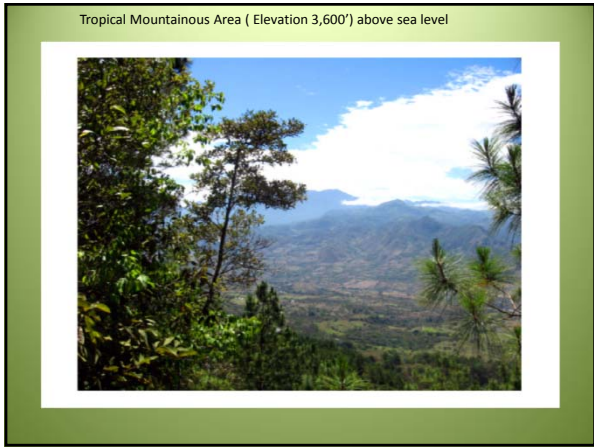
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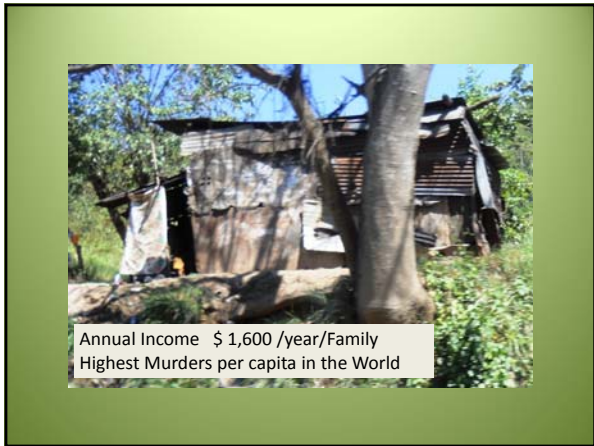
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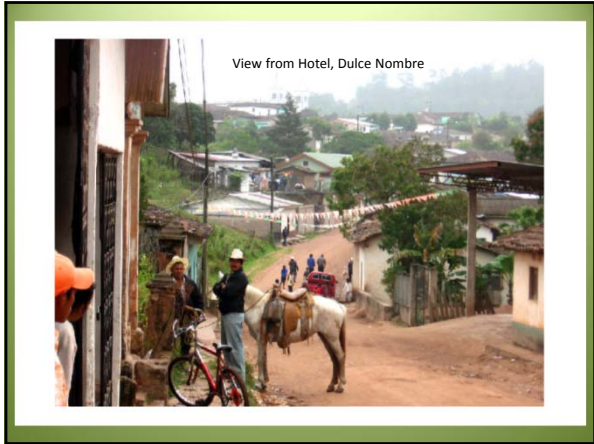
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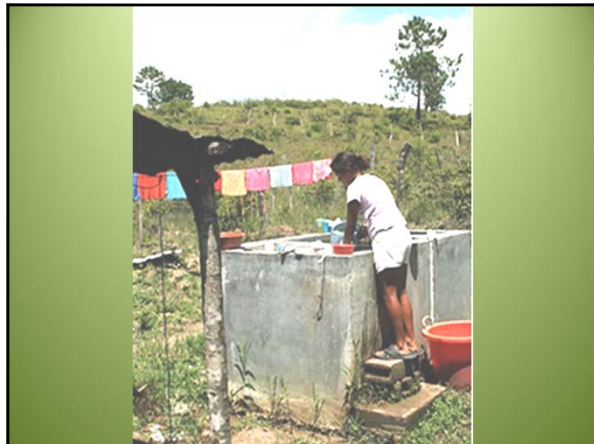
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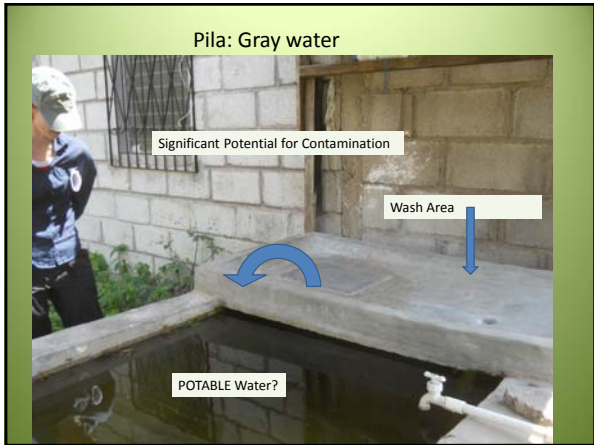
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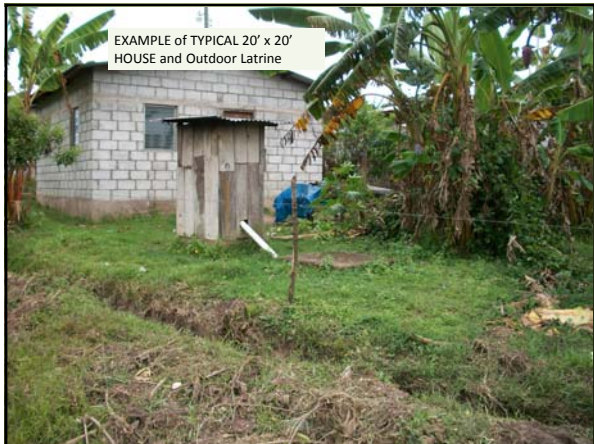
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SOURCES & QUALITY  
of  
SEPTIC MATERIALS in  
Honduras

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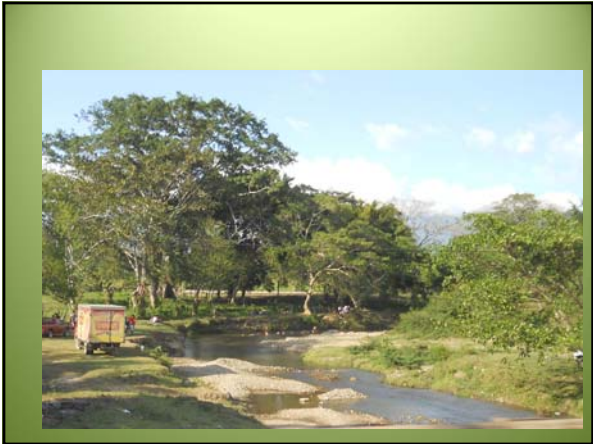
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WHAT THE STUDENTS LEARNED & EXPERIENCED

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- Providing University of Maine Students opportunity for:
- Learning Septic Design
  - Project Management/Logistics
  - Cost Estimating
  - Worked alongside and with the Honduran Community
  - **BUILT WHAT THEY DESIGNED**

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Learned Surveying



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LEARNED Septic System Design and Construction Techniques



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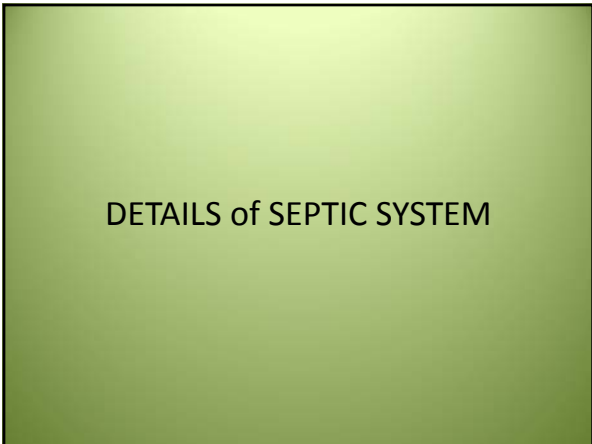
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**TOTAL PROJECT COST:**     \$   40,000  
**EWB SYSTEM Cost:**       \$   36,000  
**Community Cost:**         \$     4,000 \*\*

- Two STONE BEDS each 20' x 80'
- Five SEPTIC TANKS 1500 and 500 gals.  
SEWER Line (1100' +)
- CURTAIN DRAIN (200')
- STORAGE SHED for O & M equipment
- SLUDGE WAGON
- PUMP & Hoses

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**SEPTIC DESIGN ISSUES**

**PROBLEMS**

- No Dependable Electricity (needed gravity flow)
- Limited Area
- Poor Soil Conditions
- Adjacent to Drainage
- Sewer Line going thru heavily vegetated yards

**NO PERMITS/REGULATIONS!**

Meet with 'Honduran version of our EPA'

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**2013 TRIP  
MAINTENANCE & SUSTAINABILITY**

Fabricated Sludge Wagon

Pump and Hose Kits

Designing & Building a Shed for equipment

Finalizing the Land Application Site

Writing an O & M Manual-Sludge Judge

**EDUCATING COMMUNITY ON SUSTAINABILITY!**

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### Pump Tank (Sludge Wagon)



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SLUDGE PUMP TANK 350 GAL.



SLUDGE JUDGE KIT



PUMP (Gasoline)



Hose Kit

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### Storage Shed



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## UMO EWB Septic System 'Boot' Camp

### CHALLENGES:

- Language and Cultural barriers
- Travel and Time constraints
- Project Logistics (materials available)
- Primitive living conditions
- Long, hard, HOT Days in the Field

An enjoyable and **valuable** real world experience the Students will not forget!

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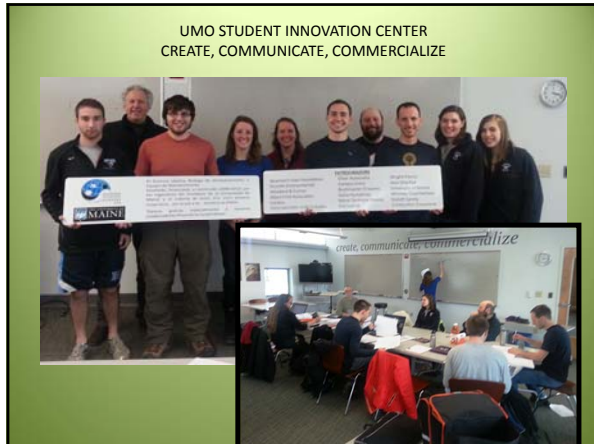
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**PROJECT ACCOMPLISHMENTS (2012)**

- Newman's Foundation Award for Outstanding Project for Improving Health and Safety of Children
- National EWB Award also for Outstanding Project

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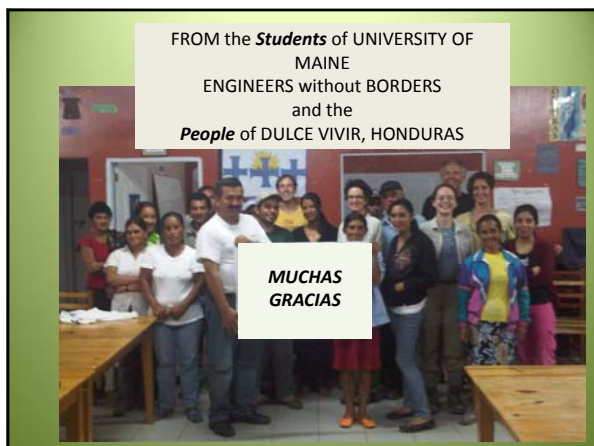
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