D-lab Peru 2010

Trip Leaders: Patricia Pina and Lisa Tacoronte
Team Members: Dorothy Brown, Cory Smith, and five anonymous MIT students
Two Regions: Amazonas and Amparaes

Amazonas:
- Nuevo Israel
- Comandancia
- Santo

Amparaes
Overview of Projects

Amparaes
- Hydropower
- Spinning Wheel
- Greenhouses

Amazonas
- Water Testing
- Energy Assessment
- Cook Stove
- Composting Toilet
Energy Assessment

Possible Energy Sources
- Rivers/Streams
- Wind

Possible Technologies
- Hydrolanter
- Micro-hydro/Pico-hydro
- Wind turbines

Possible Uses
- Lighting
- Schoolwork
- Weaving
- Herding Livestock
- Radio
Water Testing and Treatment

- Fecal, microbial contamination of water
- Test water to determine extent
- Water tests to show treatment efficacy
- Work with community to find most amenable treatment method
Project Hydropower (Amparaes)

• Energy Assessment
  • What scale is appropriate?
  • Flow Rates, Head, Velocity of Streams
  • User preferences

• Prototype
  • Hydropowered lantern
  • Portable, individual units
  • Trying different design
Greenhouses (Amparaes)

- Add crops with high nutritional value
- Built using locally available, affordable materials and skills
- Current concerns
  - Communal vs. Family-owned
  - Locally available fertilizer?
  - De-assemble
  - Government-provided plastic, or alternative source?
- Building over Thanksgiving break, come join if you like!
Spinning Wheel (Amparaes)

• Community Needs:
  • Faster Method
  • Same Wool Thread Results (Tight thread)

• Project Goals:
  • Purchase Spinning Wheel
  • Get Feedback on Design
  • Replicate Spinning Wheel
Composting Toilet (Amazonas)

• Goals:
  • Manage human waste
  • Create Fertilizer
  • Prevent Spread of Disease

• Issues to be addressed:
  • Safety of composted material
  • Inexpensive, nonintrusive design
  • Marketability and usefulness
Efficient Cookstoves (Amazonas)

• Current Situation: Use wooden platforms with clay lining (open flame)
• Design Considerations:
  • Humid climate in the Amazon
  • Families move every 5-6 years
  • Large amounts of clay available
• Possible Solutions
  • Portable clay stove design
  • Insulative Combustion Chamber
  • Alternatives: Concrete mixture or bricks

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