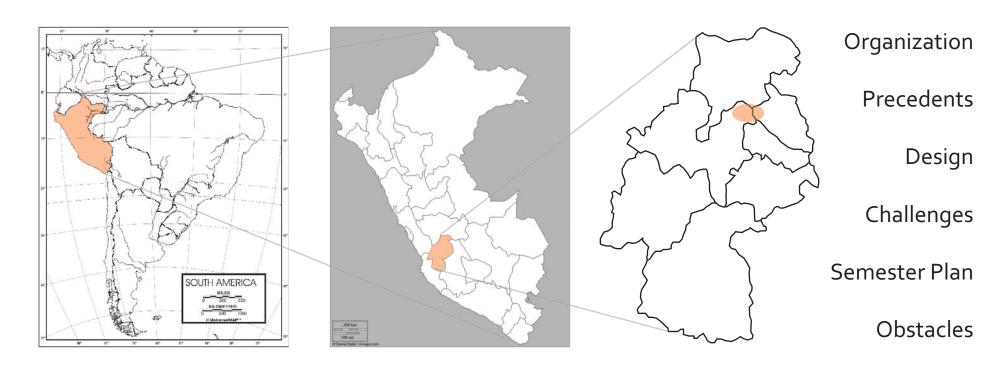
IPRO 325

Huancavelica, Peru

Problem

Goals





Locale Concerns

Problem

Goals

Climate

Oceanic currents create very unstable conditions.

Organization

Health

Poisoning from the wood burning stoves is common.

Precedents

Design

Poverty

Over 80% of Huancavelica is considered in poverty.

Challenges

Economy

Due to El nino as well as the global struggle Peru has suffered greatly.

Semester Plan

Obstacles

Lack of Infrastructure

Rural areas of Peru have little or no electricity, access to clean water, or food.



Team Mission

Problem

Heating

Provide heat to promote general health.

Goals

Knowledge

Teach native Peruvians why this is important (manual).

Precedents

Organization

Design

Cost

Due to extreme poverty low cost and local materials are a must.

Challenges

Semester Plan

Obstacles

Low Emmisions

Decreasing mortality rate from poisoning.

Heating Efficiency

Decrease need for fuel to slow deforestation.



Team Organization

Problem

Goals

Group Leader

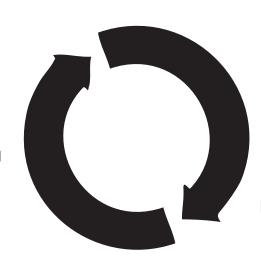
William Lange

Organization

Precedents

Design Team

William Lange
Architecture
Dorothy Collins
Materials Science and Engineering
Jeffrey Hallenbeck
Architecture
Young Jung
Architecture
Nikki Parks
Chemical Engineering



Research Team

Lindsay Drabek
Biology
Mark Kimball
Mechanical/Civil Engineering
Al Maranon
Mechanical/Aerospace Engineering
Yongjae Park
Architecture

Challenges

Design

Semester Plan



Case Study Research

Ondol

Korean wood burning stove used to heat house.

Wood Burning Stoves

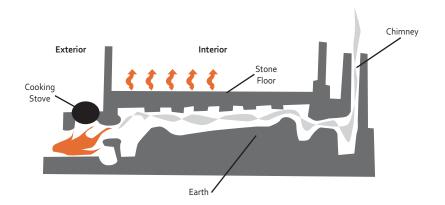
German, Russian, and Chinese designs

Radiant Heating

Concept of heating an element through water to heat a space.

Previous IPRO 325 Groups

Structural development, roof design, and some research into heating.





Problem

Goals

Organization

Precedents

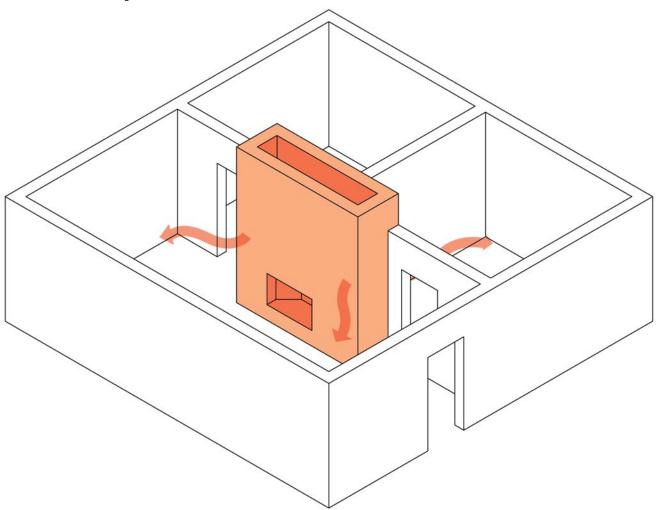
Design

Challenges

Semester Plan



Design Concept



Problem

Goals

Organization

Precedents

Design

Challenges

Semester Plan



Challenges so far...

Problem

Team Re-structuring

Goals

Two weeks into semester combined subteams into one team.

Organization

Information

Precedents

Lack of availabilty of information about region.

Design

Language

Crossing barriers proves difficult due to dialect or Quechua.

Challenges

Contacts

Semester Plan

Organizations are not willing to put us in contact with their volunteers.

Obstacles

Ethical

Bringing new ideas into a foriegn country and what that implies.



Semester Plan

Duration Phase 1: Research + Design Feb. 16 Mar. 1 Mar. 1 Mar. 1 Apr. 30 Apr. 30 Feb. 23 Mar. 1 Mar. 2 Mar. 4 Mar. 7 Mar. 14 Phase 2: Build + Analyze Mar. 16 Mar. 18 Mar. 16 Mar. 30 Mar. 18 12 Mar. 30 **Project Deadlines** Proiect Plan Feb. 5 TIDEE Self + Peer Assessment Midterm Review Presentation Mar. 1

Task	Start Date	Duration	End Date	Mar. 21 - Mar. 27	Mar. 28 - Apr. 3		Apr. 4 - Apr. 10	Apr. 11 - Apr. 17		Apr. 18 - Apr. 24	Apr. 25 - May 1	May 2 - May 8
Tusk	Start Date	(Days)	Liid Date								Su M T W Th F S	
	1	(Days)		30 W 1 W 111 1 3	Ju i	W 1 W 111 1 3	50 W 1 W 111 1 5	Su IVI I	W III I 3	30 W 1 W 111 1 3	30 W 1 W 111 1 3	30 101 1 00 111 1 3
Phase 2: Build + Analyze (Cont'd)												
Establish contacts in Peru (Cont'd)	Feb. 16	73	Apr. 30									
Secure travel plans/funding (Cont'd)	Feb. 16	73	Apr. 30									
Prepare information for manual (Cont'd)	Mar. 16	14	Mar. 30									
Build prototype model (Cont'd)	Mar. 18	12	Mar. 30									
Test prototype	Mar. 30	7	Apr. 6									
Prepare final report (first draft)	Mar. 30	10	Apr. 9									
Assemble and illustrate manual	Mar. 30	23	Apr. 22		<u> </u>							
Analysis	Apr. 6	7	Apr. 13		<u> </u>							
Prepare final presentation materials	Apr. 13	11	Apr. 23		<u> </u>							
Project Deadlines												
TIDEE Assessment #2			Mar. 28									
Final Project Report (First Draft)			Apr. 9									
Abstract/Brochure			Apr. 19									
Poster			Apr. 19									
Final Presentation			Apr. 22									
TIDEE Assessment #3			Apr. 25									
Final Reflection			Apr. 27									
Final Project Report (Final Version)	1		Apr. 30		1			1				
					- Design/Build Sub-Te		eam	- Collaborative work		•		
						- Research Sub-Tean	n	- Deliverable due-date		te		

Problem

Goals

Organization

Precedents

Design

Challenges

Semester Plan



Obstacles to overcome

Problem

Goals

Model

Determining exact sizes for members and building a scaled model for testing

Organization

Materials

Acquiring materials that resemble properties to those in Peru

Precedents

Contacts

Finding organizations or volunteers with experience.

Challenges

Design

Testing

Securing testing facilities as well as equipment.

Semester Plan



