IPRO 325 Affordable Solutions for the World's Poor: cooling Subgroup

Process



- A process in which the heat is removed from an object by the evaporation of a liquid coolant

Needs:

- -High Temperature
- -Low Humidity
- -Wind



Precedents

Static Cooling Chamber in India

Travs of food Raised wate: Double brick wall Figure 3: A static cooling syst



Zeer Pot Sytem in Nigeria

Construction Process

First, we mixed adobe as it is traditionally made

Second, we formed bricks 2 days after and let them dry in the sun for 4 weeks

Third, we made pots from terra cotta clay pots at Professor Stanard's studio

Fourth, we constructed the adobe brick chamber

Tests





Tested for the largest temperature drop by varying the following...

- Shape of the pot
- Volume of the pot
- Surface Area of the pot

-Surface area of the sand exposed to the air

Results



Recommendations

- Instructional pamphlet
- On site implementation

	Less volume and more
• •	sand exposed is bette
	Temp outside 9" diam Temp inside 9" diam Temp outside 14" diam Temp inside 14" diam
0	
6 8 rs)	
'x9" vs 9" diam	
	Square pots are bette
	Temp outside 9"x9" Temp inside 9"x9" Temp outside 9" diam Temp inside 9" diam
6 8 ours)	
/"x17" vs 9"x9"	

Less volume and more sand exposed is better Temp outside 17"x17 Temp inside 17"x17" Temp outside 9"x9"

- Continue in depth testing with proper lab space and more sophisticated instruments

- Long term testing with regional food