

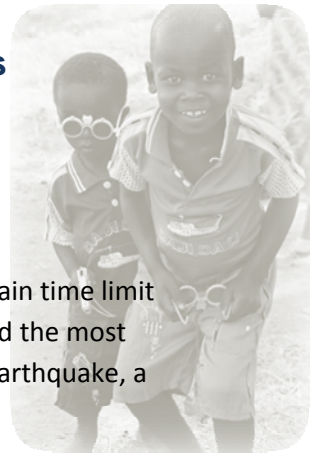
Sustainable Housing

Objective:

Participants will learn what it is like construct sustainable housing from limited supplies and the struggles of obtaining sustainable, solid housing in developing countries.

Set Up and Materials:

- Pieces of cardboard that are a variety in size. (Smaller ones should be at least 12" by 12")
- A large supply of toothpicks
- Quick drying craft glue (be careful not to get permanent glue)
- Small plastic containers (to pour small amounts of glue)
- Q-tips
- A variety of materials to cover the cardboard (wax paper, contact paper, aluminum foil, contact paper, sand, etc.)
- A bag of tokens for each group
- A large bucket with water (or access to sink), an electric fan, heavy books, bathroom scale
- Divide the group up into teams of two to four
- The teams will represent different communities around the world. Some communities are more wealthy than others. Participants decide their own lot by choosing blindly from a selection of cardboard pieces. Larger cardboard pieces represent larger plots of land, and a wealthier community.
- Distribute materials unevenly to represent disparity in resources. For example:
 - The wealthiest community receives: 100 toothpicks, three containers of glue, 100 tokens
 - The next community receives: 75 toothpicks, two containers of glue, 75 tokens
 - The next community receives: 50 toothpicks, 1 ½ containers of glue, 50 tokens
 - A very poor community receives: 75 toothpicks and no glue, 20 tokens
 - Continue in this way.
- Designate a person to run a “hardware store” and give this person all the extra materials
 - The hardware store should be placed where it is easily accessible to the wealthy groups and farther away from some of the other groups representing poorer communities.
 - The hardware store sells materials to communities. The hardware store should price materials so that communities can “buy” them with tokens. Prices should be adjusted depending on the number of groups and the number of materials.
 - Example prices are: 3 tokens for 5 Q-tips, 5 tokens for 25 toothpicks, 10 tokens for a small container of glue, 5 tokens for land covering (participants might want to experiment with different “foundations” for their house)



Activity Instructions:

Challenge the teams to create the most sturdy and sustainable house possible within a certain time limit (20-30 minutes). Their house will be competing with other houses to see which one can hold the most weight without collapsing. It should also be able to withstand natural disasters such as an earthquake, a tsunami, and a flood.

Let the houses dry for several hours after the construction time limit is finished. Later, come back to the houses to see how sustainable they are.

Take each house and put it through a series of tests.

- Place the house on the bathroom scale and see how much weight it can hold by piling heavy books on top of it.
- Simulate an earthquake by shaking the foundation or dropping the house from different heights
- Place it in a large bucket, sink, or bathtub and turn on the fan or sprayer (shower head or hose) to test it against a tsunami
- Simulate a flood in a bucket of water or sink

Discuss the activity by asking for reactions. Here are some suggested questions:

- “Which houses made it through which tests? Why do you think that is?”
- “How did you feel while you were building the houses?”
- “Is there something about the process you wished you could have changed?”

Talk with participants about the struggles to build sustainable housing in many impoverished countries.

These reasons might include:

- Materials are too expensive and are hard to come by
- People do not have transportation to get to a place that sells the right resources
- People do not have enough money to hire anyone with enough experience to build a house
- Natural disasters occur frequently and many homes are lost
- The location is too difficult for the transportation of heavy building materials
- People are not allowed to own land or do not have any money to buy land to build houses on



What kind of housing challenges are there in places where Outreach International works?



In Philippines, the majority of people living in rural areas does not own land, and are forced to construct makeshift houses near rice fields owned by large landowners they work for. These houses are built on small pieces of mud that are in danger of flooding every time it rains. The homes are especially unsafe during the rainy season when the rice fields flood, and during the torrential rains in the tropics.



In Central America, houses are constructed very poorly and do not hold up well in the elements. Walls of plastic, cardboard and tin do not provide much shelter for the family living inside. Also, many families often share one home, making it very crowded. Whole families may share one bedroom. These houses are very susceptible to wind and rain damage.



In Africa, housing issues often result from the dry and hot weather. Every member of a family is needed to help make sun-dried bricks. They have little room to build houses and often no access to running water or electricity.