



CREATE!

Center for Renewable Energy and
Appropriate Technology for the Environment



Clay-Sand Improved Cookstoves




Step by Step

Step 1: Gather Materials



First, participants gather materials needed to construct an improved cookstove: sand, clay, dry grass/millet husks, water, and three stones or bricks of approximately equal size. Participants also need a machete and the pot that they use most frequently to cook.

Step 2: Proportions

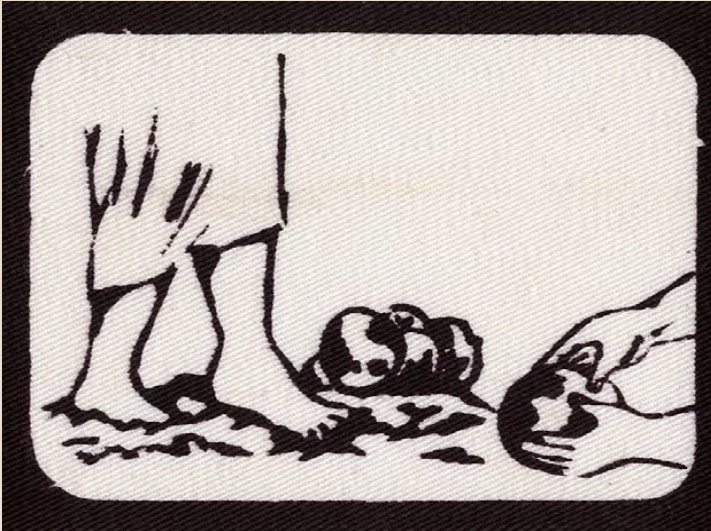
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Participants need sand, clay, dry grass/millet husks, and water in the following proportions: one part sand, three parts clay, one part dry grass/millet husks, and one part water.

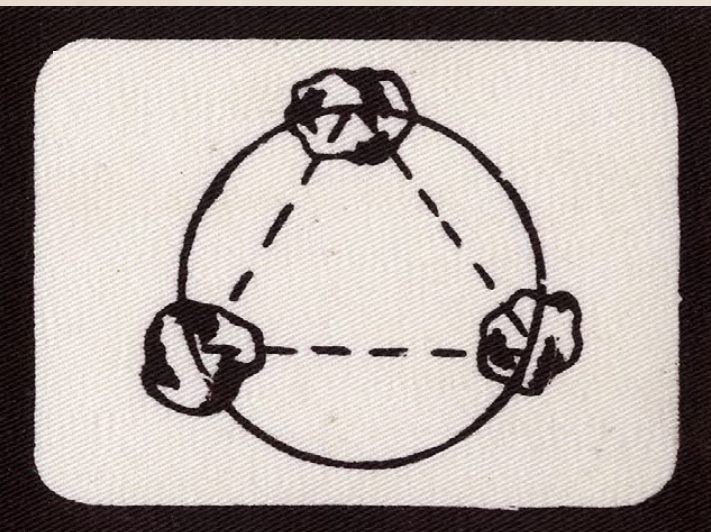
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Step 3: Mix Materials



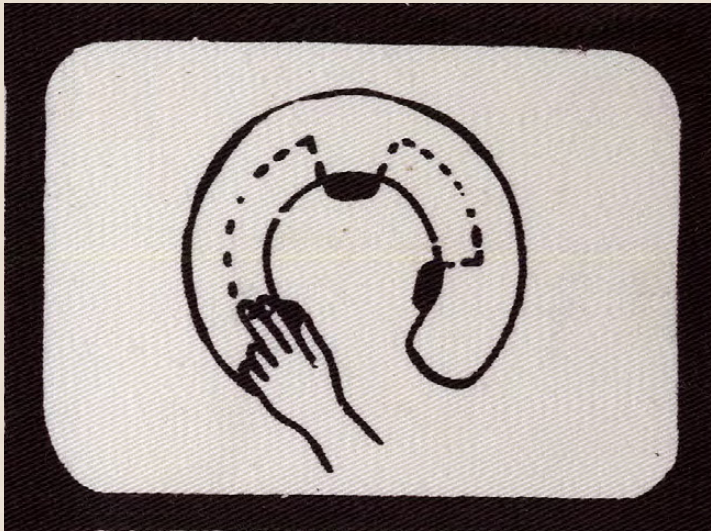
Next, the participants mix the ingredients together using their hands and feet until the materials are well combined. Then, participants should form the material into fist-sized balls. To confirm that the mixture is the correct consistency, drop a ball from shoulder height. The dropped ball should maintain its round shape, but be flattened on one side.

Step 4: Arrange Bricks



Participants should arrange the stones or bricks in an equilateral triangle so that they evenly support the pot.

Step 5: Draw a Cookstove Pattern



Then, participants should draw a pattern where they are going to build the stove. The pattern should be about one hands-width wide.

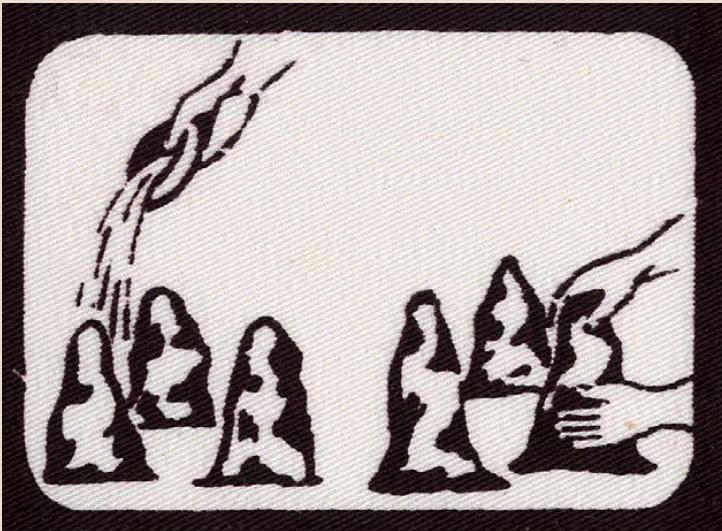
Step 6: Measure Height



While resting on the stones or bricks, small pots should be approximately a fist and a thumb above the ground. Medium pots should be approximately two fists above the ground. Large pots should be approximately two fists and one thumb above the ground.

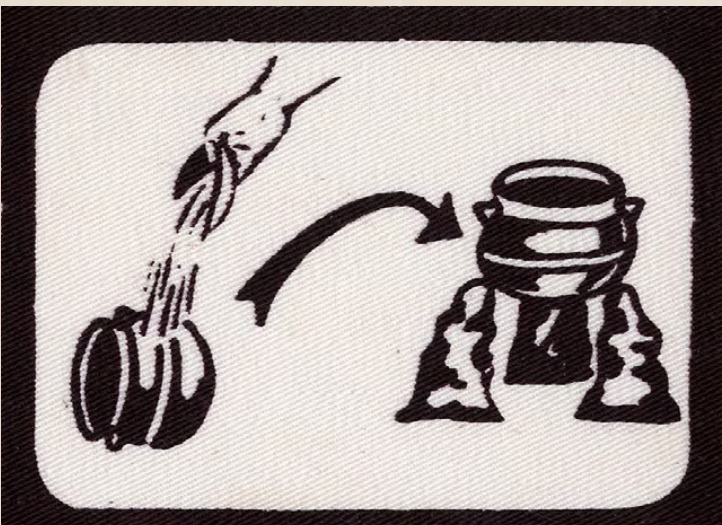
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Step 7: Wet the Bricks



Participants should wet the bricks or stones with water. The bricks or stones should be of equal height so that the pot rests evenly on top of them. Participants can cut the bricks with a machete into equal sizes, if needed. Alternately, participants can dig a small hole for one or more of the stones to ensure that they are of equal height.

Step 8: Wet the Cooking Pot



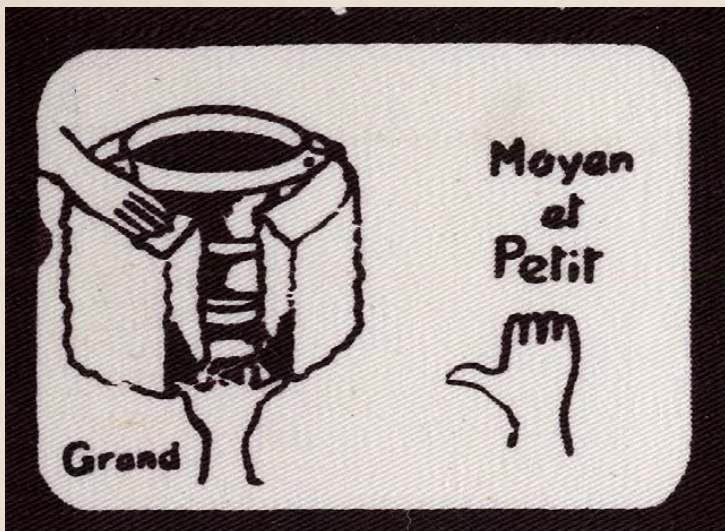
Next, participants wet the sides of the pot with water and then set the pot onto the even bricks or stones.

Step 9: Cookstove Walls



Participants then begin to build the cookstove. The walls should stay within the cookstove pattern. Walls should be a hand-width thick around the cookstove and walls should be straight from top to bottom.

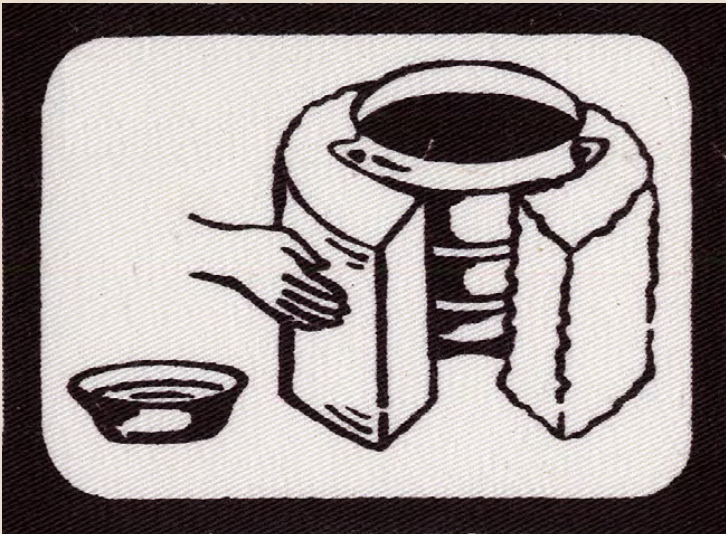
Step 10: Leave Opening for Wood



When building the cookstove walls, participants should construct an entrance to insert firewood. For small and medium cookstoves, this entrance should be the width of a fist with the thumb outstretched. For large cookstoves, this entrance should be the width of a fist with the thumb and pinky finger outstretched.

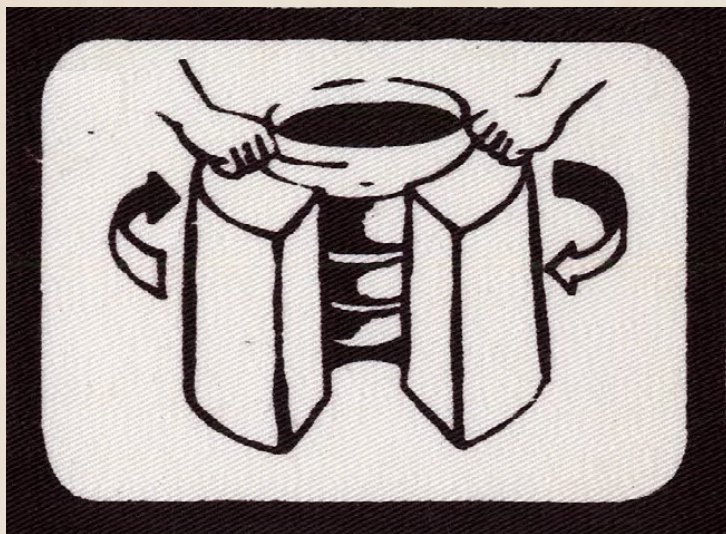
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Step 11: Smooth Outside Walls



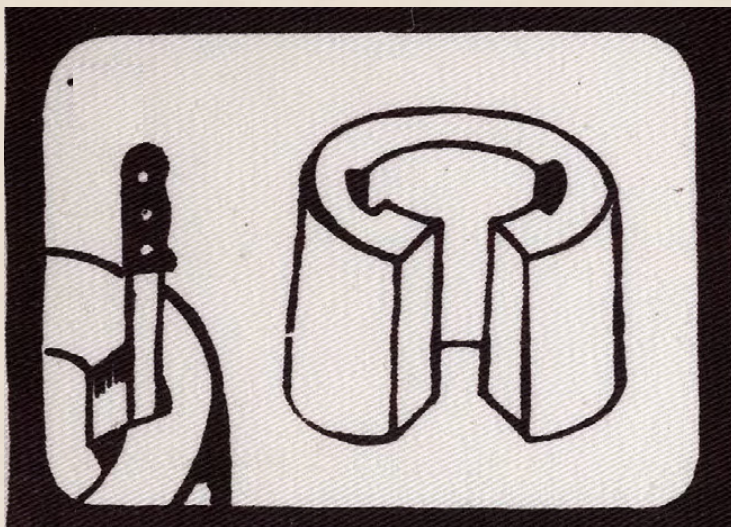
Once the walls are built up to just below the lip of the pot, participants can use water to smooth the sides of the walls. They should also ensure that the walls are straight and maintain a consistent width.

Step 12: Remove Cooking Pot



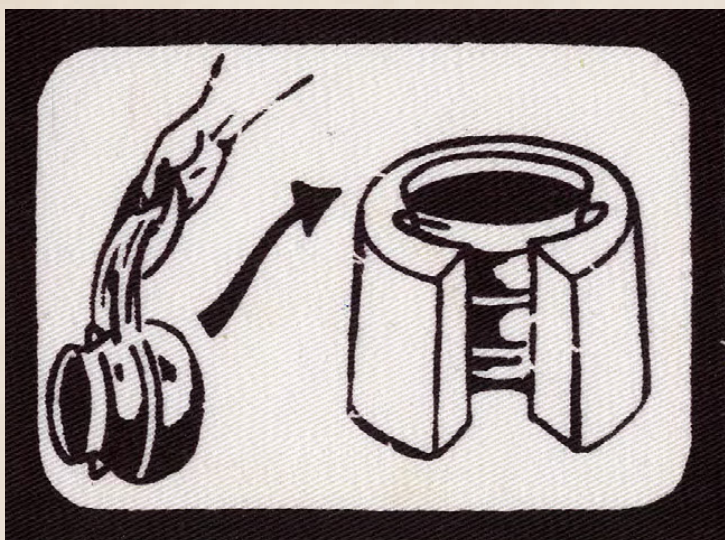
Participants should then carefully remove the cooking pot prior to constructing the cookstove chimneys.

Step 13: Cut Two Chimneys



Next, participants cut two chimneys into the inside of the stove. These chimneys should be cut between the stones and should be two fingers deep. After cutting out the chimneys, participants can also use water to smooth the stove's inside walls.

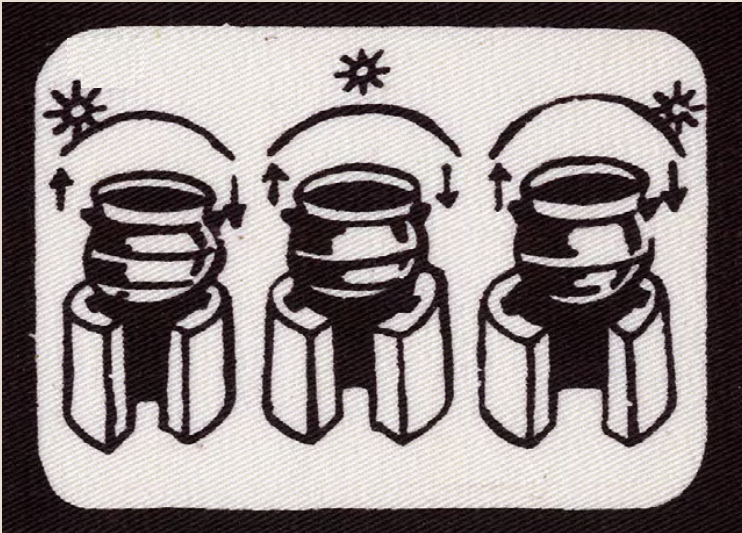
Step 14: Wet and Replace Cooking Pot



Participants should once again wet the sides of the pot with water before carefully placing the pot back into the stove. The cookstove will now dry around the form of the pot.

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Step 15: Dry Stove

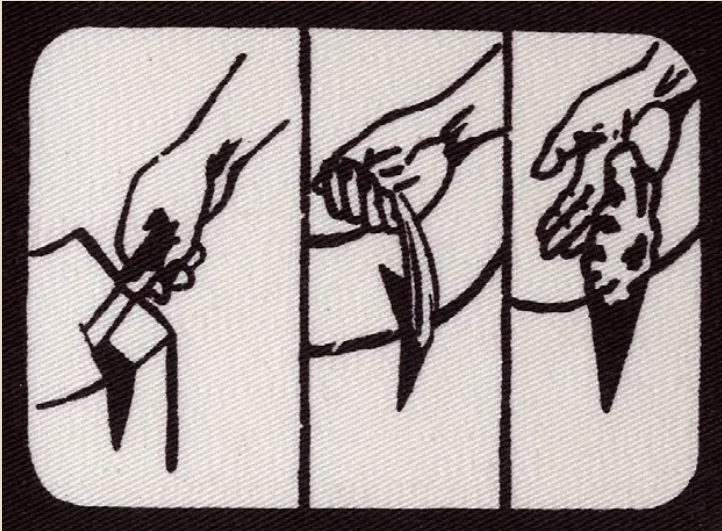


Next, participants should let the stove dry for three days. Three times a day, they should remove and twist the pot to ensure that the cookstove does not stick to the pot.



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Repairing a Cracked Cookstove



In the future, participants can repair a cracked cookstove. First, they make additional cookstove building material. Then, an individual uses their machete to smooth out the sides of the crack and moistens it with water, before using the cookstove building material to fill in the crack. Finally, participants should let the stove dry completely before use.

