WISCONSIN/NICARAGUA
Partners of the Americas, Inc.

Stove and Chimney Project

Wood stove smoke is a problem for ladies and the rest of their families, especially children, in rural Nicaragua as well as in the large cities. For the past two years, W/NP has been supporting a volunteer group from North Carolina with logistics and organization of workshops for building a model of a wood stove that includes a chimney. Last year the first model of this stove was built in Estelí. In examining the results, this stove meets the need for cooking and improves the smoke situation for many ladies in Nicaragua. The stove model was put into practice based upon suggestions that came from those who do the cooking and desire improved health for their families.

During a workshop last September it was sad to hear from one of the ladies that she is not able to make tortillas anymore because the doctor advised her to stop using the wood fire because that is the cause of her lung problem. She expressed that even though she was not going to making tortillas again; she will cook again and will not breathe the smoke. But most important to her, "…. *is that other persons will not have my health problem situation and I am glad the new stove is safe for ladies and families.*"

The concept of this stove model was accepted by Lilly, a local leader from the Leonel Rugama neighborhood in Estelí. Lilly was glad to be part of first fire wood stove project and she used the stove that was built inside of her house. With use, small changes were noted that needed to be made so ladies will have an efficient cooking method that does not let their lungs turn into the soot color from breathing smoke while they cook.

This past year, Lilly has been cooking with her new stove and has made some of her own modifications to better meet her particular needs. After her cooking was done for the day, she put a steel plate in the first burner in order to make tortillas with the residual heat that had built up in the stove. Even more surprising, she figured out how to convert the stove into an oven to further utilize the heat that had already built up during the day. She would scoop out the coals and put them in an empty pot which was then placed in the first burner on top of the stove, as she had done with the tortilla plate. Then she closed the air draft, and put her pan in to bake. In effect, she had turned her stove into a Dutch oven. Both of these functions add greatly to the efficiency of the stove since they use the heat of the cool down phase which was going to be lost anyway. Lilly, and all the women are keenly aware of how expensive firewood is in their community, so it is not surprising to see these adaptive uses come into play.

The cost of the stove is US $80 which covers the cost of the materials that are purchased locally to the greatest extent possible. When the cost was discussed at the workshop conducted at Lilly's house last September, the women agreed that it was a good price for a stove like Lilly's with almost no discussion.

The new stove design has been well received with comments like "the stove cooks faster with the same amount of wood" or "the stove cooks in the same amount of time with less wood". The reason for this is the efficiency that has been built into the stove over the three year development period. Briefly, the keys to the efficient operation are the controlled air draft and an insulated fire box. The controlling and directing of the air to where it is needed (the burning wood) allows for higher combustion temperatures and longer heat transfer time to the cook pot before exiting to the chimney. This is in stark contrast to other stove designs that have no draft control but use a very small fire box and very small pieces of wood. These stoves, while efficient, are very labor intensive to operate, and generally take longer to cook a meal such as rice and beans. Not exactly selling points when women are already dealing with a host of third world issues.

We are anticipating new ideas and stove improvements as time goes by and our customers continue to give us their feedback. This is as it should be. Not even Steve Jobs started out with a 3.5 version of a product with no Beta testing.

A good example to share is Chepita from the Gracias a Dios Learning Center. In January, she had a new stove built in her house with the assistance of the UW-Stout student group. They helped to build the stove and she let us know she can cook a big pan of soup and is not problem for the stove to heat. The soup is ready in 2 hours; the stove can cook all day and in the evening can heat the food that was cooked during the day with the heat that still is produced from keeping the fire going during the day.

Details of the model stove

Three components, base cost is US$60

1. Stove (six concrete parts - two sides, one top, one middle, one end part and one door)
2. Aluminum Chimney
3. Base cement blocks and concrete

Note: *if the house does not have a foundation, one needs to be built at a cost of US$20*

The total cost is US$80