CLEAN COOKING FORUM 2013

Resource Efficient Agricultural Production (REAP) - Canada

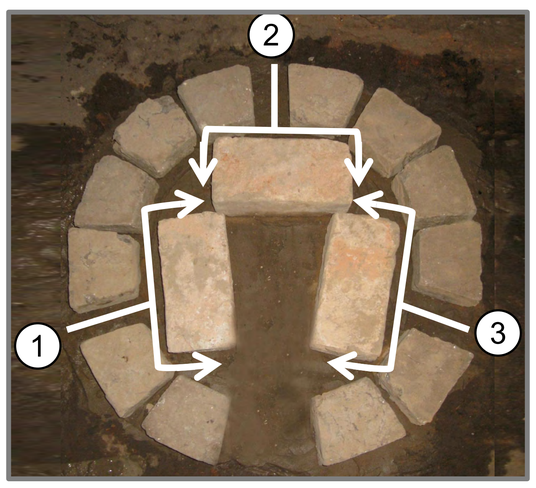
CANADA

Organizational Description

REAP-Canada was established in 1986 as an independent, not-for-profit organization specializing in biomass energy and agro-ecological farming systems research and development. For the past 15 years, REAP-Canada has been working internationally with community based organizations, research scientists and rural communities to develop innovative new approaches for agro-ecological farming and household cooking systems.

In response to deforestation for household energy needs in the Philippines, REAP-Canada developed a clean combustion conical rice hull stove called the Mayon Turbo in 2001 (please see Mayon Turbo Stove under Asian cookstoves). At the time, it was the first non-fan assisted biomass stove to produce a clean burning blue flame in the world. Over 10,000 Mayon Turbo Stoves have now been built and distributed in Southeast Asia and West Africa. In 2011, REAP-Canada designed the REAP Clay Brick Stove as a response to the West African community demands for a clean-burning, low-cost, wood-burning stove for rural areas. By the end of 2013, REAP-Canada will have built 2,000 of these new innovative stoves in communities in Senegal and the Gambia.

A rural Gambian woman cooking outdoors and breathing easy with the REAP Clay Brick Stove



Three primary air holes are used to preheat air for the combustion chamber and to create a counter flow of air against the front door's cold air.

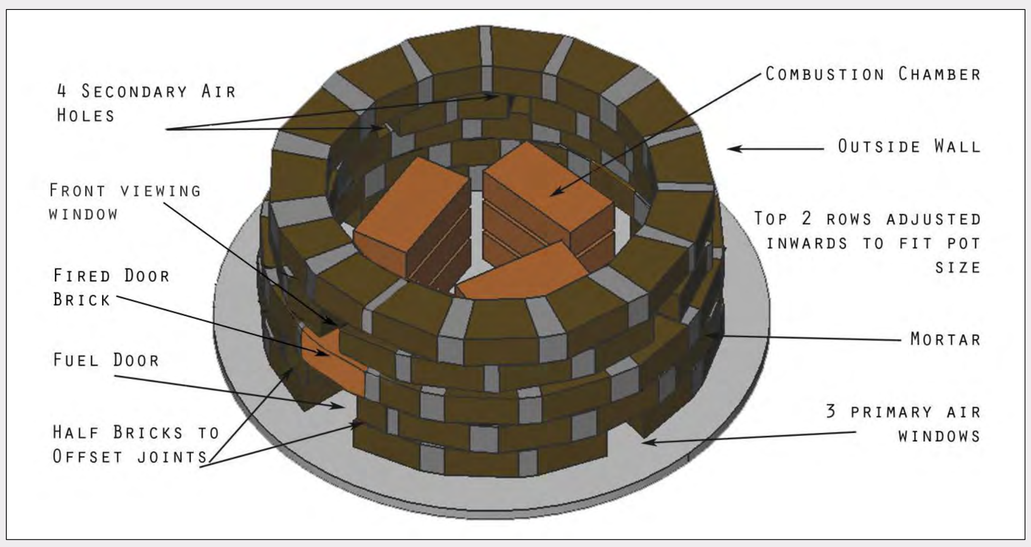
Project Overview: The REAP Clay Brick Stove

The REAP Clay Brick Stove, or Noflay—"no problem" stove, as it is referred to in West Africa—was invented in 2011 and first scaled up in the Gambia and Senegal in 2012. The overall objective behind the design of the REAP Clay Brick Stove was to create a culturally appropriate, low cost stove made from local materials that could reduce fuelwood consumption, indoor air pollution, and improve cooking convenience and safety.

The simple yet innovative design is made up of two components: a central combustion chamber and a round outer wall. The combustion chamber is made up of custom made fired bricks (3 stacks of 3 bricks each) that can withstand high temperatures and also serve as a pot support. The round outer wall is custom built to the size of the cooking pot to help optimize heat transfer to the pot and prevent excess air in order to achieve clean combustion. The air space created between the outer wall and the combustion chamber also enables air to preheat prior to entering the combustion chamber which causes higher temperature combustion.

Results

- The outer wall enables outdoor cooking even on windy days
- Reduces exposure to smoke through clean combustion and outdoor use
- Exceptional safety against fire and pot burns/injury
- Outstanding affordability (~$10/stove) for a large clean cooking stove
- Reduces fuelwood consumption by 1/3 – 1/2
- Enables use of smaller wood pieces such as shrub branches and bark
- Fast cooking: typically boils 5L of water in 17–20 minutes
- Keeps food warm for longer; reheating may not be necessary
- Even heat distribution prevents burning of rice
- Advanced design with preheated air
- Creates local livelihood opportunities through brick making and stove installations



REAP Clay Brick Stove Design

Future Plans

The REAP Clay Brick Stove has been exceptionally well received by Gambian and Senegalese rural women for indoor and outdoor use. The stove has shown a high level of cultural acceptability for being built outdoors due to the round outer wall that acts as an excellent windscreen, enabling outdoor cooking even on windy days and eliminating indoor air pollution. Rural women can build simple cooking shelters for their outdoor kitchen to protect themselves from the elements. The REAP Clay Brick Stove is helping impoverished women breathe easy by bringing cooking outdoors!

The REAP Clay Brick Stove has a strong potential for scale-up in much of the semi-arid and humid tropics as a means to eliminate the problem of indoor air pollution. REAP-Canada is currently looking to scale up the stove in other African countries and is looking for new partnerships to make this happen. At a production cost of approximately $9-$12, it is one of the least expensive clean cooking stoves in the world for fuelwood users. It is easy to build and even easier to use!

Local masons making custom bricks for the outer wall

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