

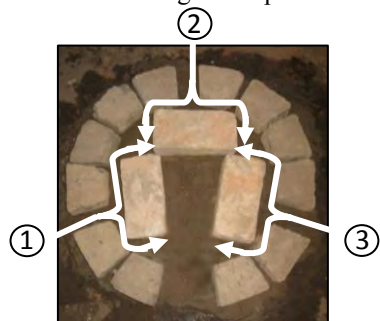
## LET'S MOVE COOKING OUTDOORS!

REAP is leading the charge to bring household cooking fires outdoors, eliminating indoor air pollution. Under a simple cooking shelter, the REAP Clay Brick Stove can be built and used outdoors without compromising combustion efficiency or stove longevity. The round outer wall protects the combustion chamber from high winds, maintains high heat transfer and protects the pot from cooling.

### **REAP – leading the way in outdoor stove design!**

#### BENEFITS OF THE STOVE

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



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.

## FOR MORE INFORMATION



### *Resource Efficient Agricultural Production (REAP) - Canada*

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REAP-Canada is an independent, not-for-profit research and development organization with over 25 years experience working with farmers, scientists and the private sector to develop and commercialize sustainable agricultural solutions for food, fibre and fuel needs.

For donations to REAP-Canada, please visit

[www.reap-canada.com](http://www.reap-canada.com)

Registered Charity No: 10787-7839

#### **LOCAL PARTNERS PRESENTLY INVOLVED IN STOVE DISSEMINATION:**



Cadre Local de Concertation des Organisations de Producteurs (CLCOP) – Wack Ngouna, Senegal



Agency for Village Support (AVISU) – The Gambia

If you would like to become a distribution partner, please contact REAP-Canada.

#### **THE DEVELOPMENT OF THE REAP CLAY BRICK STOVE WAS FUNDED BY:**



Canadian International Development Agency (CIDA)

Department of Foreign Affairs and International Trade (DFAIT)

# THE REAP CLAY BRICK STOVE

*“A PROFOUNDLY SIMPLE SOLUTION TO INDOOR AIR POLLUTION”*



*The REAP Clay Brick Stove is a new, low-cost stove that reduces fuelwood consumption and can eliminate indoor air pollution. It is made locally using inexpensive natural materials. Its innovative design allows it to be used outdoors.*

Developed by REAP-Canada

[www.reap-canada.com](http://www.reap-canada.com)

## INTRODUCTION

Over 2.7 billion people in the world use traditional biomass fires every day, despite their low efficiency and the significant amount of smoke produced. The dependence on fuelwood required for cooking is exacerbating ecological decline in the form of deforestation and soil erosion. The REAP Clay Brick Stove, or Noflay—“no problem” stove, as it is referred to in West Africa—was piloted in The Gambia and Senegal in 2012.



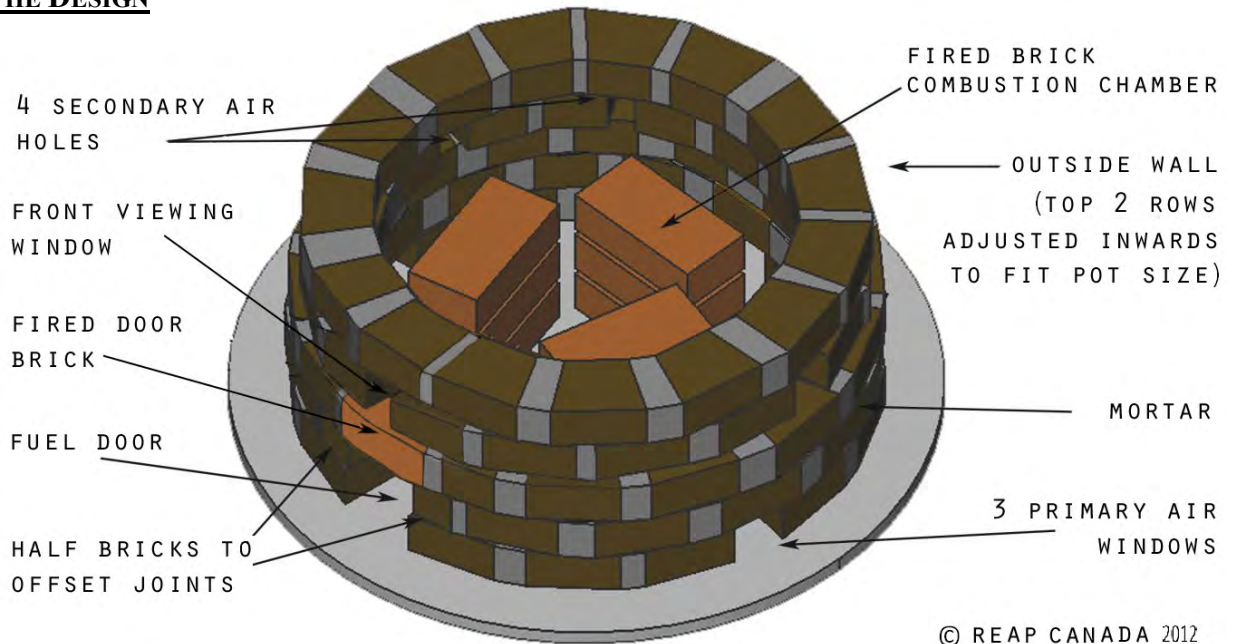
The overall objective behind the design of the REAP Clay Brick Stove was to create a low cost stove made from local materials that would reduce fuelwood consumption, indoor air pollution, and improve cooking convenience and safety. The stove needed to be highly culturally appropriate and able to cook for 10-20 person households using 30-36 cm diameter pots.

The REAP Clay Brick Stove is built *in-situ* either indoors or outdoors by community masons. Both the fired and unfired bricks can be produced at the village-level by local artisans which provides an important income generating activity and skill building opportunity.



*Local masons making custom bricks for the outer wall*

## THE DESIGN



*The stove has two main features: a central combustion chamber & an outer wall custom-built to the size of the pot.*

### FEATURES OF TWO MAIN COMPONENTS:

#### COMBUSTION CHAMBER

- Open triangular shape encloses fire and helps support flame formation
- 3 stacks of 3 fired bricks each
- Uses fired bricks to resist high temperatures
- Improves heat transfer between fire and cooking vessel
- Enables good residence time to combust gases and reduce smoke
- Functions as a stable support base for the cooking vessel



#### OUTER WALL

- Is an outstanding windscreen
- Helps minimize excess air
- Built with a 1.5cm gap to the pot to retain heat close to the cooking vessel
- Air preheating for the combustion chamber is assisted through the use of non-aligned primary air holes
- Secondary air holes enable more complete combustion
- Viewing window allows users to monitor fire
- Provides excellent safety

