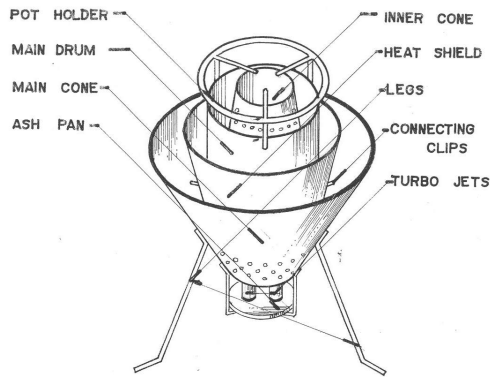


## STOVE DESIGN



With proper maintenance of the stove it is estimated to have a lifespan of 2-3 years.

## ALTERNATIVE FUELS

Supplementary fuels such as small pieces of wood, dried coconut husks or shells, peanut shells, coffee shells, and corn cobs can be placed in an upright position in the inner cone or mixed in the outer hopper with rice hull. These fuels should be added in small quantities as they can make the cooker smoky if too much fuel is added. To use peanut shells, or coffee shells, mix them with rice hulls in the outer fuel bin.

## RESEARCH FINDINGS

A study on the island of Negros in 2001, found the Mayon Turbo Stove slashed cooking costs to (US) \$5.18 dollars per year from (US)\$60-\$97 for families compared to purchasing firewood, charcoal, and LPG. The savings for these Negros families adopting the Mayon Turbo Stove was 91-94% compared to purchasing these aforementioned fuels or 3-5% of their total annual income!



## FOR MORE INFORMATION

*Where you can buy stoves:*

### *Sustainable Rural Enterprise*

Main Campus, Aklan State University  
Banga, Aklan Philippines

Tel.: (63-36) 267-6811; Fax: (63-36) 268-4765

E-mail: [aklansre@kalibo.ph.inter.net](mailto:aklansre@kalibo.ph.inter.net)

Website : [www.gosre.org](http://www.gosre.org)

*For Information on Stove Design and  
Manufacture:*

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

P.O. Box 125, Maison Glenaladale  
Ste. Anne de Bellevue, QC, Canada H9X 3V9

Tel.: (514) 398-7743; Fax: (514) 398-7972

E-mail: [info@reap-canada.com](mailto:info@reap-canada.com)

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

# The Mayon Turbo Stove



*The Mayon Turbo Stove (MTS) is a  
breakthrough in clean combustion  
technology that provides rural families  
with low cost and convenient cooking  
option using rice hull.*

**Developed in the Philippines by  
REAP-Canada  
([www.reap-Canada.com](http://www.reap-Canada.com))**

## HISTORY OF THE MAYON TURBO

The mountains of surplus rice hulls found in rice-producing nations can be used as a convenient and low cost, cooking alternative (Figure 1). Given that rice is produced in many developing nations where households rely on firewood, charcoal and expensive LPG, the Mayon Turbo Stove has the potential to reduce cooking costs, slow deforestation, improve air quality, and minimize Greenhouse Gas (GHGs) emissions in communities around the world.



Figure 1. There are more than 1.5 million tonnes of recoverable rice hulls in the Philippines, which could be used as cooking fuel by more than 1 million families.

Traditionally, biofuels are burned in simple clay stoves or open cooking surfaces where chimneys are often absent and most of the heat is lost to the atmosphere (Figure 2). The Mayon Turbo Stove is designed to turn rice hulls into hot swirling gases in its inner “volcano” and direct the heat to your cooking pot. Additionally, the unsustainable rate which wood fuel is harvested contributes to the deterioration of the local environment.



Figure 2. Traditional cooking methods using firewood consume approximately 2 tonnes of wood per household per year!

By utilizing agricultural residues the MTS reduces: the amount of firewood, charcoal and LPG burned; household expenditures; greenhouse gas emissions; the firewood-collecting burden on women; as well as household air pollution.

## FEATURES OF THE STOVE

By using rice hull, the MTS has achieved desirable operating characteristics including a relatively smoke free and stable blue flame.

- ❖ **High efficiency and clean combustion:** high quality, swirling flames are created from the twin primary air “injectors” and the extended inner cone with secondary air holes (Figure 3).
- ❖ **Economical:** In the rural Philippines, average annual cooking costs (including stove purchase) are approximately \$6 (US) with the MTS, compared to \$60-100 (US) cooking with purchased firewood, charcoal and LPG.

- ❖ **Fast boiling:** 1 litre of water can boil in 7-8 minutes.
- ❖ **Convenient to use:** tapping to introduce new fuel is required only every 5-10 minutes.
- ❖ **Low fuel consumption:** Approximately 2-2.5 sacks (20-25 kg) of rice hull /family/week
- ❖ **Portable and lightweight:** All steel construction, weighing approximately 4 kg; can be used both indoors and outdoors
- ❖ **Safety:** An improved holder with a ring structure provides excellent pot stability.
- ❖ **Holistic use of fuel source:** Ashes can be used as a soil conditioner, fertilizer, cleaning instrument for pots and pans, and ant repellent (eg. sprinkled around the base of eggplants).



Figure 3. The Mayon Turbo Stove offers the clean combustion of a low cost, locally available resource.