

# One-Pot Shielded Fire Stove with Shelf

## Uganda



### Type

Movable rocket mud stove with one pot-hole for households and commercial use.

### Names

“Shielded fire – movable type”

### Fuel

Fuel wood

Also agricultural waste e.g. dry maize cobs may be used.

### Country of origin / dissemination area

Uganda

Rocket stove design guidelines were developed by Aprovecho Research Centre (ARC) in 1982.

Uganda adapted the stove to the local situation and launched it 2003 through GTZ-EAP<sup>1</sup>. Scale up dissemination followed in 2005 and until 2008, 247,630 stoves were disseminated before introduction of another model without shelf.

### Users

Mainly used by rural households and rural food services e.g. restaurants, rural road side kiosks, etc.

### General Description

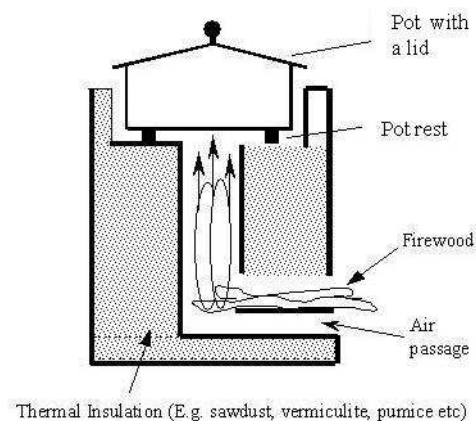
Movable stove with:

- Cavity (Pot-hole) for one pot.
- Single fuel feed and combustion chamber.
- Built according to rocket stove guidelines with a tall L-shaped combustion chamber; the pot sits within the stove body, supported by pot rests at the bottom of the pot-hole.

- Combustion chamber with circular or square cross-section (depending on shape of mould used).
- Ceramic or metallic firewood shelf supports the burning firewood and creates gap below it for the air inlet to aid combustion. Also the ash is removed from the gap below the firewood shelf.
- Stove is used for cooking, boiling, frying and roasting.
- Cooking capacity is up to 50 litres and below.

### Stove dimensions

Stoves are custom made depending on the design of the pot, hence the size of the combustion chamber varies. Specific measurements are mentioned in the stove construction manual: “How to build the improved household stoves” GTZ-EAP, November 2004.



**Estimated Lifespan:** At least two years.

### Materials used

Built of an insulating clay mixture comprising mud and organic material, such as chopped grass, saw dust or chopped dry banana leaves (ratio 2:1).

<sup>1</sup> Energy Advisory Project (EAP)

## Performance

Results from water boiling tests (WBT) and controlled cooking tests (CCT) indicate fuel saving of 50% compared to a well-tended three-stone fire.

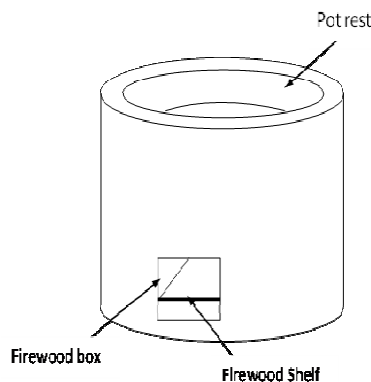
## Production / Supply

The stove is produced by trained local artisans. The stove builders live in local villages and are directly paid by the users.

Users are generally allowed to bring raw materials in order to reduce the price of the stove. In case of smaller damages, users themselves can repair the stove.

## Price 2011

Average price is € 1.36 - 4.00 (5,000 - 15,000 Uganda Shillings).



## Strengths and weaknesses

### Positive

- + Efficient and cheap stove
- + Decentralised & centralised production possible
- + Use of local materials
- + Custom made for specific pot size accommodates smaller pots
- + Income generation in the villages
- + Shielded fire (less likely to burn user)
- + Stove is easily replicable

## Negative

- The mud stove model needs a place that is sheltered from the rain
- Regular maintenance needed
- Local production needs a quality monitoring system that is maintained for quite a long time
- Quality control difficult to effect during the production process. This can result into unintentional change in the dimensions of the stove, which compromise its efficiency.
- Not usable for pots which are bigger than the design pot. Materials of the firewood shelf are expensive for rural communities.
- Stove users often do not use the firewood shelf, hence reducing stove efficiency.

## Available documents

- Stove construction manual: "How to Build the improved household stoves" GTZ-EAP, 2008:  
[https://energypedia.info/images/9/93/GTZ-HOUSEHOLD\\_Stoves\\_Construction\\_Manual\\_June\\_2008.pdf](https://energypedia.info/images/9/93/GTZ-HOUSEHOLD_Stoves_Construction_Manual_June_2008.pdf)
- Cost benefit analysis:  
<http://www.gtz.de/de/dokumente/en-cost-benefit-analysis-uganda-2007.pdf>



Source of pictures: GTZ-EAP

