

One-pot shielded Fire Stove with Bypass Air Inlet

Uganda



Type

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

Names

“Shielded fire with bypass air inlet –fixed type”

“Shielded fire with bypass air inlet – movable type”

Fuel

Fuelwood

Country of origin / Dissemination area

Uganda

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

GTZ EAP adapted the stove to the local situation and launched it in 2003. The bypass air inlet was introduced in 2008 by GTZ PREEEP and so far 58,769 stoves have been disseminated.

Users

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

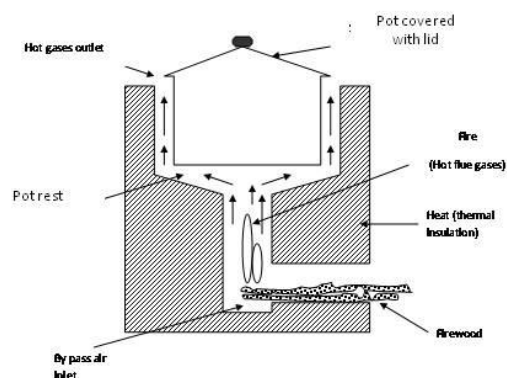
General Description

Movable mud stove with:

- Cavity (Pot-hole) for one pot.
- Single fuel feed and combustion chamber.
- Firewood magazine supports the burning firewood at a level above the bypass air inlet.
- Bypass introduces air below burning firewood tips to aid combustion. Also

the ash is removed from the bypass air inlet.

- Built according to rocket stove guidelines with a tall L-shaped combustion chamber; the pot sits within the stove body, supported by pot res at the bottom of the pot-hole.
- Combustion chamber usually of circular cross-section (depending on shape of mould used).
- Stove is used for cooking purposes (mainly boiling). Stove may be used for frying and roasting.
- Cooking capacity up to 50 litres (stove custom made according to pot size). Combustion chamber size varies according to cooking volume.



Stove dimensions

Stoves are custom made depending on the design pot. Specific measurements are stipulated in the stove construction manual: “Construction Manual for the Firewood Saving Household Stoves” GTZ-PREEEP, November 2008.

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.

Performance

Results from water boiling tests (WBT) and controlled cooking tests (CCT) indicate fuel saving 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
- + Screened fire (less likely to burn user)
- + Stove is easily replicable

Negative

- The fixed 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 generate an unintentional change in

the dimensions of the stove, which compromise its efficiency

- Not usable for pots which are bigger than the design pots



Available documents

- Stove construction manual: "How to Build the improved household stoves" GTZ-EAP, November 2008.
<http://www.energyandminerals.go.ug/pdf/gtz/HOUSEHOLD%20Stoves%20Construction%20Manual%20August%202008.pdf>
- Cost benefit analysis:
<http://www.gtz.de/de/dokumente/en-cost-benefit-analysis-uganda-2007.pdf>
- User guidelines: see stove construction manual pages 24-26

Source of pictures: REEEP, GIZ Uganda

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