

Two-Pot Rocket Lorena with Air Bypass

Uganda



Type

Fixed household rocket mud stove with two pot-holes and a chimney. Built inside kitchen or house.

Names

Rocket Lorena (Uganda)

Fuel

Fuelwood

Agricultural waste, such as Maize cobs are also widely used in Uganda.

Country of origin / Dissemination area

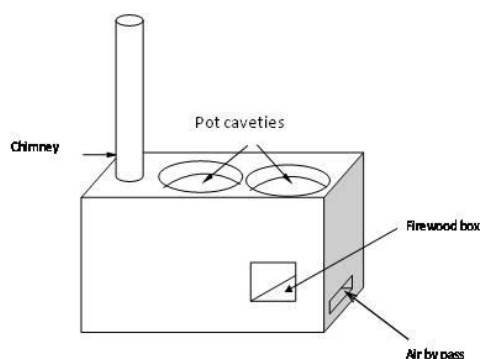
Uganda

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 136,900 stoves have been disseminated.

Users

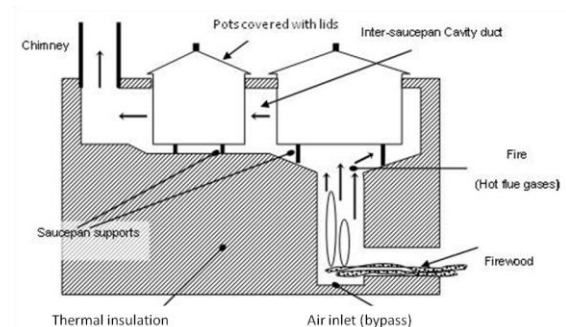
Rural and peri-urban households.



General Description

Fixed mud stove with:

- Double Cavity (Pot-holes) for 2 pots.
- Single fuel feed and combustion chamber.
- Built according to rocket stove guidelines with a tall L-shaped combustion chamber; the pots sit within the stove body, supported by saucepan supports at the bottom of the pot holes.
- Combustion chamber with circular or square cross-section (depending on mould used).
- Pot-holes are customised for specific pot diameters.
- The stove has got a bypass air inlet to allow for direct flow of primary air to aid combustion and for ash removal. This air slit is normally 1/3 cross-sectional area of the firewood inlet.
- The stove has a rectangular cross section and overall size depends on the pot diameter.
- The stove is primarily used for cooking a wide range of foods across the regions where it is disseminated.



Stove dimensions

Overall stove dimensions depend on the pot sizes.

Estimated lifespan: At least two years.

Materials used

Built of an insulated mixture consisting of organic material (chopped grass, sawdust or chopped dry banana leaves), bound together with mud. The stove is either built as a homogenous block, or built of stones and bricks plastered with this insulating soil mixture.

Moulds are required during construction to create the cavities for chimney and combustion chamber. Different regions design moulds depending on availability of materials. Banana stems are widely used in Uganda for moulds.

Firewood shelf: Ceramic tile or metallic piece.

Performance

Results from water boiling tests (WBT) and controlled cooking tests (CCT) indicate fuel saving between 50%–60% compared to a well-tended three-stone fire. There is high potential to alleviate indoor air pollution through improved combustion, if the chimney is properly maintained.

Production / Supply

Produced by local artisans that are trained and supervised by local, more experienced artisans.

The stove builders live in the villages and are directly contracted and paid by the users. Built on demand according to the size of the used cooking pot.

Stove payments by users are in cash, labour contribution or barter depending on negotiating ability with the builder.

Price

Average price in Uganda: €1.35 – 4.50 US\$ (UGX 5000–20,000) depending on region, size and negotiating ability.



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Strengths and weaknesses

Positive

- + Efficient, cheap stove with great potential to reduce indoor air pollution
- + Rapid level of adoption by large numbers of people
- + Income generation in the villages through use of locally available materials and the employment of local stove builders
- + Inclusion of the bypass air inlet improves burning

Negative

- Only applicable where appropriate sticky soil and organic material are available
- Considerable wear and tear, especially in the fire chamber, and around the pot-rests and pot-holes due to vigorous stirring required in making *ugali* (maize paste)
- Regular maintenance needed
- The dissemination through trained local stove builders needs a quality monitoring system maintained over several years
- Requires the second pot cavity to be covered if not in use for effective draft

Available documents:

- Stove construction manual for the Energy saving household stoves:” GTZ-PREEEP, November 2008: <http://www.energyandminerals.go.ug/pdf/gtz/HOUSEHOLD%20Stoves%20Construction%20Manual%20August%202008.pdf>
- Cost-benefit analysis: <http://www.gtz.de/dokumente/en-cost-benefit-analysis-uganda-2007.pdf>

Source of pictures: GIZ-PREEEP, Uganda

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