

Brick Rocket Stove

Kenya



Type

Inbuilt one or two pots stove for household and institutional use.

Names

Rocket stove (Kenya)

Fuel

Fuel wood

Dissemination area

The rocket stove design guidelines were developed by Aprovecho Research Center (ARC) in 1982.

The stove was adapted to local situation in Kenya by GIZ in 2007 with good clay or red soil as the main construction material. Fired clay bricks can also be used with sand and cement mortar.

Users

Rural and peri-urban households, social institutions and small restaurants

General Description

Fixed rocket stove with:

- One or two pots
- Single fuel feed and combustion chamber
- Construction based on rocket stove guidelines with pot sitting 1/3 inside the stove
- The stove size depends on the pot size
- Continuous feed with side air inlet to allow more air into the combustion chamber

Stove dimensions

For household the common size is 60 by 60 cm width and length

Estimated lifespan

5 years if built with good material such as fired bricks /insert for the fire chamber

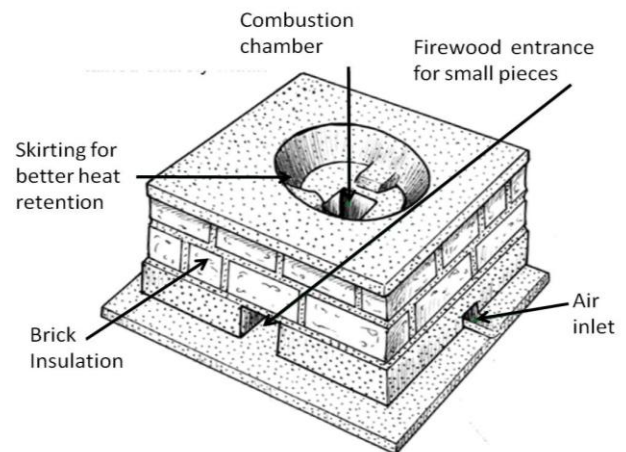


Image: Drawing of brick Rocket stove

Materials used

Stove body can be made of fired clay bricks with sand and cement mortar or good clay soil. The fire chamber is made of fired clay bricks or insert.

Reinforcement metal bars must be used to support the weight of the pot and food being cooked especially when building the same stove for big cooking such as schools.

Performance

The rocket stove saves 50%- 60% of firewood compared to 3 stone fireplace.

Production / Supply

The rocket stove construction requires a technically trained stove builder. The client acquires all the necessary construction materials and pays for the labour. The stove is built in the kitchen on a selected site according to the size of the mostly used cooking pot.

Price (2011)

Construction fee is between € 3.00 – 8.00 for household stoves. The fee will depend on the size of the stove.

Labour costs for rocket stove could go up to € 125.00 depending on the size of the stove to be constructed especially for big institutions.



Image: The final product of Rocket stove mould

Strengths and weaknesses

Positive

- + Efficient
- + Fast cooking
- + Due to improved combustion the stoves has the potential to reduce

- + significant reduced emissions (2007, IAP study, shows 70% emission reduction)
- + Local availability of materials and the employment of local stove builders

Negative

- High investment costs especially for bricks and cement in some areas.
- Special clay/bricks for fire chamber needed to avoid early repairs
- Not usable for pots that are bigger than the pot used for designing the stove
- Need regular maintenance if fire chamber is not built with heat resistant materials

Available documents

- Construction manual:
[https://energypedia.info/index.php/File:GIZ_ROCK_MOULD_ADJUSTMENT_TRAINING_REPORT\(2\)_2\).pdf](https://energypedia.info/index.php/File:GIZ_ROCK_MOULD_ADJUSTMENT_TRAINING_REPORT(2)_2).pdf)
- Cost benefit analysis:
https://energypedia.info/index.php?title=File:Kenya_-_ICS_2010_Stoves_Enterprise_Budgets_Main_Report_Edition_final_Ndungu_.pdf&page=1
- Manual for Rocket Stove Trainers:
https://energypedia.info/index.php/File:Kenya_Manual_for_Rocket_Stove_Trainers_final_Sept-11.pdf

Source of pictures: GIZ PSDA Kenya

Name of photographer: Anna Ingwe

