Tulip Clay Stove

Benin, Burkina Faso

Type

Portable single-pot household clay stove (designed for use with firewood)

Name

“Foyer céramique” in Burkina Faso

“Foyer tulipe” in Benin

Fuel

Fuelwood

It has been reported that some people use it with charcoal by fitting the grate on top of the fire chamber.

Country of origin / Dissemination area

Burkina Faso and Benin

Developed in the 1980s by the « Institut Voltaïque d’Energie », currently called « Institut de Recherche en Sciences Appliquées et Technologies » (IRSAT).

Dissemination of the kiln-fired version through the project FAFASO[1] started in 2009. The improved stoves project FABEN[2] introduced this stove in Benin within ProCGRN[3] in 2006.

By December 2010, over 16,000 ceramic stoves had been produced: 12,000 ‘tulipe’ stoves in Benin and 4,000 ceramic stoves in Burkina Faso.

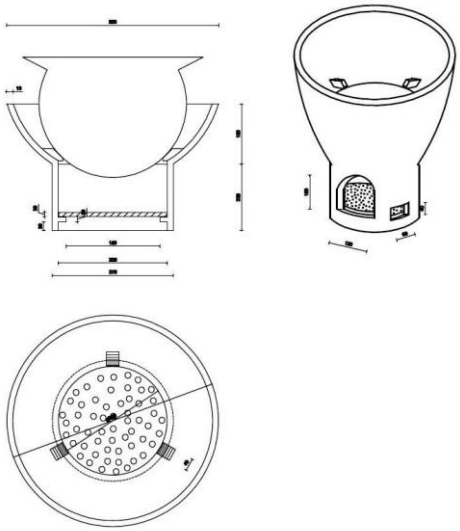
Users

Rural households

General description

Portable ceramic stove for one pot:

- Designed for round-bottom pots
- Firewood inlet on the front
- Firewood lies on a ceramic grate, that allows undercurrent of primary air for better combustion (holes with a diameter <1 cm, max. 30% of grate surface)
- Three pot rests (0.5 cm - 1 cm thick) to narrow flow-path of flue gas for better heat transfer
- Sunken pot: $^{2}/_{3}$ of the pot’s round-bottom sheltered by ceramic ‘bowl’
- No handles



[1] Foyers Améliorés au Burkina Faso
[2] Foyers Améliorés au Bénin
[3] Programme of Conservation and Management of Natural Resources

Stove dimensions

Dimensions for an average sized pot in Benin (pot size no. 3 equivalent to 6 litres):

- Diameter: 26 cm
- Height: 24 cm

Estimated lifespan

At least one year (if treated with care)

Materials used

Clay

Performance

The Tulip clay stove saves at least 40% fuelwood compared to a three-stone fire.

Production / Supply

The stove is produced by local potters, mainly women, who are trained by technical experts.

Moulds and clay are used to ensure standardized production of the stove. The stove is then fired in a kiln at minimum 950°.

An artisan can produce about ten to fifteen improved stoves per day.

Price (2011)

Average price in both countries is 1.00 – 1.50 € (600 – 1000 FCFA) depending on stove size and region.

Strengths and weaknesses

Positive

+ Efficient and affordable stove
+ Portable
+ Decentralised production
+ Availability of local raw materials
+ Moulds allows standardized production
+ Enhances local production and income generation

Negative

- Easily breakable

Available documents

- Tests des foyers Roumdé (IRSAT, 2009) : https://energypedia.info/index.php/File:Tests_des_performance_des_foyersROUMDE_IRSAT.pdf
- Fiches techniques FAFASO (GIZ, 2009): https://energypedia.info/index.php/File:Fiches_techniques_Burkina_des_foyers_ameliores_Roumde_FAFASO2009_Burkina.pdf
- Fiche technique FA céramique Bénin (GIZ): https://energypedia.info/index.php/File:Fiche_technique_FA_C%C3%A9ramique.pdf

Source of pictures: GIZ Burkina Faso and Benin
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