

Charcoal Jambar Stove

Benin, Kenya, Senegal



Type

Portable metal household stove with ceramic liner, suitable for various pot sizes

Names

“Foyer Jambar” in Senegal

“Foyer Nansu” in Benin

“Kenyan Ceramic Jiko” in Kenya

The stove is known by many different names in different countries.

Fuel

Charcoal

Country of origin / Dissemination area

Launched in Kenya in 1981, the design is based on the Thai bucket Stove and was further developed during the research and development stages of the GTZ Special Energy Programme, which started in Kenya in 1983.

The dissemination in Senegal and in Benin started in 2006 within various GIZ Household Energy Projects, respectively FASEN (PERACOD)¹ and FABEN (ProCGRN)².

By December 2010, over 112,000 stoves had been produced and sold in the intervention areas (105,300 in Senegal and 7,200 in Benin).

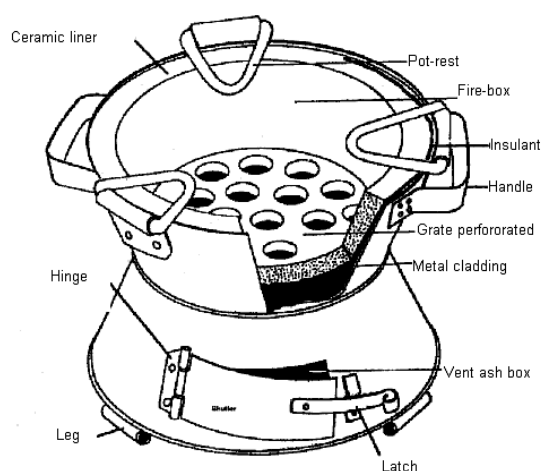
Users

Urban and peri-urban households

General description

Portable metal stove with ceramic liner:

- Metal cladding
- Combustion chamber with ceramic liner
- Perforated grate for air inlet



underneath the charcoal

- A door in the front for air regulation
- Three pot rests
- Handles

Stove dimensions

In Senegal, four different stove sizes are sold on the market.

Dimensions for a stove with pot size no. 3 (used with pots 7 to 10 kg)

- Height: 32 cm
- Diameter: 37 cm

Estimated lifespan

At least two years

Materials used

Cladding: At least 0.6 mm thick scrap or new metal sheet

Ceramic liner: Fired clay

Binder: Cement and ashes

¹ Foyers Améliorés au Sénégal (Programme pour la Promotion de l'Électrification Rurale et de l'Approvisionnement durable en Combustibles Domestiques)

² Foyers Améliorés au Bénin (Programme de Conservation et de Gestion des Ressources Naturelles)

Performance

The stove saves about 30% of the charcoal that would be consumed using traditional charcoal stoves.

Production / Supply

The production is semi-mechanized. Female potters make the ceramic liner.

Clay is prepared and moulded; holes are pierced into the clay to form a grate.



After drying, the liner is fired in a pottery kiln and delivered to the local tinsmiths who then assemble the final product:

Standardized templates are used to outline the different stove parts on a metal sheet; then they are cut out along the indicated lines.

The use of templates allows the producers to maintain standard sizes, fulfil quality standards and to increase the number of produced stoves per day. The cut pieces are assembled without electricity.



The liner is fitted in the metal cladding with a mortar made from cement and ash.

In Senegal, production of the cladding was improved thanks to upgraded tools such as rolling devices, which allow tin smiths to triple their daily production. For instance, some workshops can produce up to 800 stoves per month by using the improved devices.

An intense quality control system supported by the project, the trained artisans and the research center ensures the quality of the stove and the customers' satisfaction.

Price (2011)

In Senegal, the price for an average stove (size no. 3) is about 12.00 € (8,000 FCFA).

Strengths and weaknesses

Positive

- + Reasonable efficiency
- + Portable
- + Decentralised production
- + Moulds and standardized templates allow high quality production
- + Enhances local income generation especially on the part of women producing the ceramic liners
- + Very well known stove
- + High degree of users' satisfaction

Negative

- The pot sits on top of the stove and is not sheltered by a skirt. This leads to heat losses from the sides and poor heat transfer into the pot
- Expensive for rural regions
- Depends on the cooperation of two professions: potters and tinsmiths.
- Depends on the availability of suitable clay for the ceramic liners.

Available documents

- Guide de fabrication du foyer Jambar (PERACOD, 2008): https://energypedia.info/index.php/File:GUIDE_DE_FABRICATION_DU_FOYER_AMELIORE_JAMBAR.pdf
- Guide de spécifications sur les foyers améliorés Jambar (Agence Sénégalaise de Normalisation, 2009): https://energypedia.info/index.php/File:GUIDE_DE_FABRICATION_DU_FOYER_AMELIORE_JAMBAR.pdf

Source of pictures: GIZ Senegal
Last update: April 2011

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