

Tikikil Stove

Ethiopia



Type

Portable household cook stove.

Name

“Tikikil”, meaning “Correct” in Amharic.

Fuel

Firewood.

Country of origin / dissemination area

Ethiopia.

Tikikil stove production guideline was developed by GIZ Energy Coordination Office (ECO) in 2008 based on the rocket stove principle.

Ethiopia launched the stove in January 2010.

As of January 2012, over 42,000 Tikikil stoves had been sold in ECO intervention areas of Ethiopia (Addis Ababa, Amhara, Dire Dawa, Harari, Oromia, SNNPR and Tigray regions).

Users

Mainly used by urban, peri-urban and rural households.

General Description

Tikikil stove is used for cooking. It uses firewood as fuel which is continuously fed into the combustion chamber.

The stove has a cylindrical inner clay liner as combustion chamber, covered with galvanized sheet metal on the outside. The 4cm thick liner has internal diameter of 11cm and is 23.5cm high. At its bottom is an 11cmX11cm opening as fuel and air inlet.

A fuel shelf which is made of 6mm steel round bar also is part of the stove.

Tikikil is available in two types: single-skirt and double-skirt. The single-skirt tikikil is

designed to accommodate a 25cm diameter pot (hence fixed size) which is a typical size used in most of Ethiopian households. The double-skirt tikikil can accommodate 27cm and 31cm diameters of pots. Smaller sized pots can also be accommodated but with efficiency losses.

Stove dimensions

Skirt diameter: 27cm (single-skirt)

29cm and 33cm (double-skirt)

Overall height: 36cm

Cylindrical clay liner external diameter: 19cm

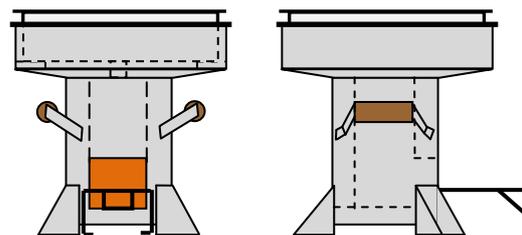
Cylindrical clay liner internal diameter: 11cm

Disc liner diameter: 19cm

Combustion chamber opening: 11cmx11cm

Lifespan

Conservative estimates suggest a life of 2 years for some of the stove parts such as the skirt and top plate which are exposed to high temperature and flame. These parts can easily be replaced whenever they wear.



Picture: single skirt tikikil household stove with pot inside (drawing with hidden lines, front view and left side view)

Materials used

Scrap galvanized sheet metal is made into the cladding while the ceramic liner is made of clay mixture.

Because of the unavailability of scrap metal, stoves are now being made of new galvanized sheet metal and hence with the

tendency to push its price upwards. Clay material and local clay makers are not available everywhere and this limits the production to a few specific locations.

Efficiency

Thermal efficiency of 28% has been obtained in laboratory tests. This efficiency translates to a fuel saving potential of up to 50% compared with a three-stone stove.

Production / Supply

The clay liner is produced by local potters while the metal cladding is done by metal artisans, who do the final assembling and finishing.

The metal artisans normally produce stoves of other types such as charcoal stoves and have the required experience for the production and supply in terms of skill and management. They get training with the aim of introducing them to Tikikil stove design. Their production facility is normally expected to have basic hand tools for processing galvanized sheet metal such as measuring tape, chisel, tin snip, hammer, etc. but also for fuel shelf production, electric arc welding facility.

Because of the unavailability of raw materials, the production is limited to specific locations within the ECO intervention areas.

Price

In the Addis Ababa market, the stove is now selling for ETB 110.00 (ca. 5.00 Euro). In other parts of the country the price may go up to ETB 140.00 (ca. 6.00 Euro).



Strengths and weaknesses

Positive

- + Portable stove
- + Affordable especially to urban dwellers
- + Replaceable parts
- + Fast Cooking
- + Low emissions
- + Another marketable product for stove and parts makers (metal and clay parts)

Negative

- Fixed pot size
- Could be unaffordable for rural dwellers because of lack of raw materials at their localities (scrap metal)
- Limited number of producers forces centralized production and distribution

Available documents:

- Construction manual
https://energypedia.info/index.php/File:GIZ_Manual_for_Production_of_Tikikil_Final_English.pdf (Englisch)
https://energypedia.info/index.php/File:GIZ_Manual_for_Production_of_Tikiki_Amharic.pdf (Amharic)
- User guide
https://energypedia.info/index.php/File:GIZ_Tikikil_stove_user_guide_en.pdf (Englisch)
https://energypedia.info/index.php/File:GIZ_Tikikil_stove_user_guide-Amharic.pdf (Amharic)

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