Cocina Portátil Metal Stove

Peru

Type

Transportable metal rocket stove for two sunken pots with single combustion chamber and chimney

Name

“Inkawasi Portátil” or “Cocina portátil metal”= Transportable metal stove

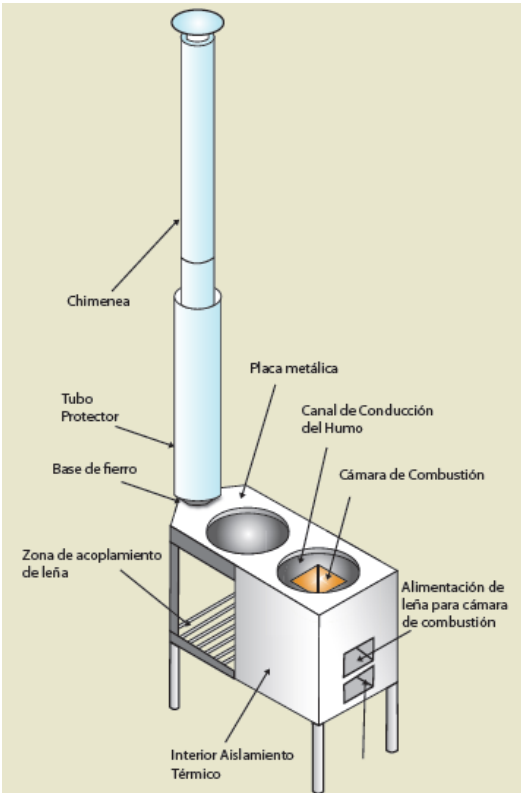
Fuel

Fuelwood

Country of origin / Dissemination area

Peru

Developed in 2010 by Ing. Miguel Tinajeros (GIZ) and Wilber Pulcha on demand of customers. The main material is metal, featuring a combustion chamber lined with seven custom made refractory tiles. With only fourteen units in use in Lima and southern Peru, the model is currently in a pilot stage.



Users

Peri-urban, urban households

General description

Transportable metal stove:

- Single rocket combustion chamber out of seven custom made tiles from refractory ceramics
- Loose metal shelf for fuel support
- Separate inlet for air and fuel
- Metal chimney with removable cap

The stove-design is based on the ‘rocket principles’ with a grate for primary air below the fuel and a tall insulated combustion chamber. The chimney creates horizontal airflow around the sunken pots for optimal heat-transfer and guides the flue gases out of the kitchen. The stove has two pot-holes for 30 cm-pots.

Stove dimensions

Dimensions for an average stove:

- Length: 100 cm
- Width: 46 cm
- Height: 83 cm
- Chimney height: 240 cm

Estimated lifespan

Not yet known

Materials used

Combustion chamber: Seven pieces of custom-made refractory clay tiles (like the model ‘UK’)

Stove structure: Metal

Plancha*:* Metal sheet for two pots with a diameter of 30 cm

Pot rests: 12 mm reinforcement bar

Chimney

Metal tube (diameter: 12 cm) from galvanised sheet with protecting cap, which can be detached for cleaning. The bottom (75 cm) is protected by a wide tube with a diameter of 22.5 cm.

Performance

High potential to reduce indoor air pollution through the chimney if properly maintained: CO by 98.6%, PM by 98%. It boils 5 litres of water in 17 minutes. In the laboratory it saved 66% of the firewood to boil 5 litres of water compared to an open fire. Reports from the field are not yet available.

Production / Supply

The stove is built by a metal workshop in Lima. The tiles are manufactured by a local provider in Lima.

Price (2011)

Total costs are around 150.00 € but do not include the shipment costs to the final destination.

Strengths and weaknesses

Positive

+ Efficient transportable stove with great potential to reduce indoor air pollution if the chimney is maintained properly
+ Direct sales from manufacturer to customer, fully commercial product
+ Entirely prefabricated for fast installation
+ Has the potential to compete with gas or electricity fuelled stoves in areas where the supply of those fuels is not regularly available
+ Extremely safe (37 of 40 points)
+ Allows people to cook upright
+ Bigger pot-holes also allow use by restaurants

Negative

- Rather expensive
- Life-span of metal ducts is not known yet, but the metal is expected to wear out faster where not protected by ceramic tiles

Available documents

- How to use and maintain my improved stove (Como uso y mantengo mi Cocina Mejorada)

  http://www.cocinasmejoradasperu.org.pe/infografia/cocinamejorada.pdf

View from the top into the fire chamber:

Source of pictures: GIZ Peru/SENCICO/C.Roth
Last update: March 2011

HERA –Poverty-oriented basic energy services

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Postfach 5180
65726 Eschborn

hera@giz.de
www.gtz.de/hera

giz HERA Poverty-oriented basic energy services

On behalf of Federal Ministry for Economic Cooperation and Development