

# Inkawasi Stove Peru



## Type

Inbuilt fixed household rocket stove with two potholes, adobe base, ceramic combustion chamber, concrete top plates and chimney.

## Names

Inkawasi stove

## Fuel

Normal Version: Fuel wood  
Highland Version: lama dung, cow dung, tola (shrub), yareta, fuel wood

## Country of Origin / Dissemination Area

Peru, developed 2001 by Ing. Jose Humberto Bernilla and Klas Heising, GTZ, in the village of Ayamachay  
Between 2005 to 2007, 14 000 Inkawasi Stoves were installed by different institutions in the northern and southern Peruvian Andes

## Users

Rural, peri-urban households in the Andes

## General Description

Fixed, inbuilt massive stove with

- two sunken pots with a single burning chamber
- two concrete slabs with pot holes
- high chimney, half adobe, half metal
- handcrafted elbow shaped ceramic combustion chamber.

Rocket principle with shelf for firewood, high burning chamber, inserted pots and well defined airflow.

Pot holes customised for specific pot diameters.

Rectangular cross section, average overall sizes 100 cm x 55 cm, height 35-40 cm.

Chimney height ~ 2,5 m.

Expected average live span: more than 6 years

## Materials used

Stove body built of adobe bricks with clay as binder.

Handcrafted or prefabricated elbow shaped ceramic combustion chamber made of refractory clay. 2,5 – 3 cm wall thickness, 12cm inner diameter, 30cm leg length.

Ash as isolation material

For concrete Slabs: 0,5kg cement, ½ bucket of sand, ½ bucket of gravel, 2m galvanized wire.

Chimney made entirely of metal pipe or partly by adobe bricks and metal

## Efficiency

High potential to diminish the indoor air pollution through chimney

Saves up to 60 % of the firewood that would be consumed using the three stone fire - if the two potholes are used in a proper way.

The cost benefit ratio of stove dissemination programmes of 1 to 7, calculated by the World Bank for Peru, was based on this Inkawasi Stove

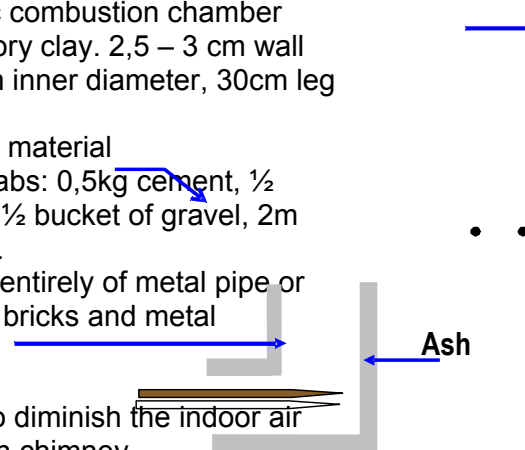
## Production / Supply

The stove is produced by local installers that are trained and supervised by local monitors.

Combustion chambers are produced locally by artisans (currently approx. 10 producers) or by industrial manufacturer in Lima

## Price (2006)

Total cost: aprox. 15-20 EUR depending on chimney. This price includes external material and installer's fee, not including mud bricks and ash provided by the beneficiary



### Strengths and weaknesses

- + Efficient stove with great potential to reduce the indoor air pollution due to chimney.
- + Prefabricated parts secure high quality.
- + Enhances local production
- + Extremely safe
- + User satisfaction
- + Design option for high altitudes (3800m – 5000m above sea level)
- + Very thoroughly tested and proven positive health impact
  
- Not very cheap
- Prefabricated parts need some knowledge or infrastructure for construction

### Available documents:

GTZ-PAHO/WHO regional project  
“Improvement of Environmental Conditions in Indigenous Communities”: Improved

Stoves as a Key Intervention to Enhance Environmental Health in the Andes. Lima, Eschborn 2007<sup>2</sup>.

Manual de Capacitación e Instalación de Cocinas Mejoradas - Inkawasi

World Bank Report No. 40190-PE:  
Republic of Peru Environmental Sustainability: A Key to Poverty Reduction in Peru. Country Environmental Analysis. 2007

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sources of pictures:

