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 2007².

Manual de Capacitación e Instalación de Cocinas Mejoradas - Inkawasi


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sources of pictures: