

Improved Charcoal Baking Oven (ICBO)



Why to choose this solution?

The Improved Charcoal Baking Oven (ICBO) is an efficient charcoal-fueled oven designed for households, institutions, and SMEs for baking bread, cakes, other foodstuffs such as nuts (groundnuts, cashew-nuts, etc.), potatoes, and bananas. The oven has the advantage of less charcoal consumption due to its ability to conserve heat. This ICBO also serves other purposes like cooking, heating, roasting, and baking.

Savings per day or production:

The oven has a thermal efficiency of 30 %. For less than half an hour, it uses only 600 grams of charcoal to bake 12 loaves of bread of 400 grams each.

Cost in money and in own time to construct:

The ICBO is available in different sizes. According to the price list of 2020, the small oven, which accommodates 12 bread loaves, costs TSh 350,000 (USD 152). The medium size, which accommodates 24 bread loaves, costs TSh 500,000 (USD 220). Local artisans take about a week to manufacture one oven.

Lifetime:

The ICBO, used intensively, can last for 5 years and for more than 10 years if used minimally.

Maintenance needed:

After two years, repair of the firing chamber might be necessary for an oven which has been used intensively. Regular cleaning of the baking chamber after baking is always required.

Resources needed in use:

Charcoal or charcoal briquettes as fuel.

Problems and limits:

Compared to an electric oven, there is a need to get used to the charcoal oven in regulating temperature for perfect results.

Where and how can you get it or make it?

It is available at SEECO Company, Dar es Salaam in Tanzania. The stove can be ordered from the SEECO company.

Skills needed to produce, install, maintenance, use:

Fabrication and repair of the oven requires skilled artisans. Use of the oven requires short training.

How to use it:

<https://www.youtube.com/watch?v=YQBfRM81fzQ>

How to maintain it:**Climate effect (if any):**

ICBO uses less charcoal compared to traditional ways of baking. It contributes to forest conservation, as it reduces the amount of fuelwood which would have been required for baking where normal stoves are used.

Where it is used and how many users are there?

Used in Tanzania, especially in households, Small and Medium sized Enterprises (SMEs) and schools. The number of users estimated to be more than 4,600.

Why is it successful?

It succeeds, in part, because it is suitable for small scale-baking businesses. It can be used in areas where there is no- or unreliable electricity. The ICBO has a high potential for generating income for users while cutting energy budgets, saving time, reducing emissions, and conserving forests.

If you can make it, a short description, typical problems, materials needed:

Making it needs a skilled technician.

How to make it (if possible):**How is it delivered and by whom?**

The business model starts with production at the workshop and marketing by SEECO Company that ensures sales and maintains a continuous supply of quality ovens. SEECO either supplies the oven to end-users or distributes to end-users through sales agents. This is followed by training on how to use and maintain the oven. The main actors are the company, transporters, sales agents, and end-users including households, institutions and SMEs.

Successful financial model

Initial capital for infrastructure development, including the workshop buildings and equipment, partly was covered by grant funds. Operational costs are recovered from revenue generated through selling of ovens.

What policies and strategies helped the success?

The Tanzania Biomass Energy Strategy (BEST) and Sustainable Energy for All (SE4All) Action Agenda support development of the biomass-energy sector on demand- and supply sides. For many years, the sector also has been receiving great support from donor communities.

More info:

SEECO Company, E-mail: bioenergy@seeco.co.tz. <https://www.facebook.com/SEECOtz/> ,
<https://sescom.co.tz/seeco> . <http://www.tatedo.or.tz>

Sources:

TaTEDO, MbeziJuu, Mpakani Road Goba House No GOB/KZD/883, P. O. Box 32794, Dar es Salaam, Tanzania. Tel: +255 738-201498, E-mail: energy@tatedo.or.tz

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