Okoa V5 Efficient Household Firewood Stove



Why to choose this solution?
Okoa V5 is an efficient firewood stove designed for household cooking purposes. The Okoa V5 stove has thermal efficiency ranging from 50% to 60% as opposed to a three-stone fireplace with thermal efficiency ranging from 10% to 15%. Okoa V5 reduces firewood consumption by 50% and also has the ability to remove smoke from the kitchen.

Savings per day or production:
Okoa V5 reduces firewood consumption by 50% per day as compared with a three-stone fireplace. It also accommodates more than one pot at a time. Use of a V5 reduces the time required for cooking and lessens indoor air pollution.

Cost in money and in own time to construct:
Field experience shows that local masons charge between 25,000 TSh to 30,000 TSh (USD 10.75 to 13) per stove. Okoa V5 is constructed using burnt bricks, sand, and cement, costing about 200,000 TSh (USD 86). Construction of the Okoa V5 stove takes one to two days.

Lifetime:
When mud is the material used to make the stove, its life span is estimated to be one year, increasing to two years if burnt bricks are used.

Maintenance needed:
The chamber of the chimney needs to be cleaned regularly to avoid tar clogging. The stove requires repair in case cracks emerge.

Resources needed in use:
The stove uses firewood. Okoa V5 can be constructed in different sizes. Okoa V5 can be built using local materials including, e.g., clay, anthill soil, rice husks/ grasses/pieces of sacks, and sawdust/ashes. It can also be built using burnt brick, sand, and cement. Sometimes, depending on user needs, ceramic tiles are used for finishing. Materials used for the construction of the stove need to be prepared in advance.

Problems and limits:
Requires firewood that is dry and that has been chopped into small pieces. The stove may not light well if the firewood used is not well dried. Performance of the stove might be affected if dimensions are not observed and used in construction.

Where and how can you get it or make it?
The stove is available in Tanzania, promoted by TaTEDO.

Skills needed to produce, install. maintenance, use:
Construction of the Okoa V5 stove requires skilled masons. Major repair and maintenance may also require a skilled mason. Otherwise, the trained operator may clean the chimney and do minor maintenance of the stove.

How to use it:
https://www.youtube.com/watch?v=95oNeWyA7KI&feature=emb_rel_pause

How to maintain it:
The chamber of the chimney needs to be cleaned regularly to avoid tar clogging. The stove requires repair in case cracks emerge.

Climate effect (if any):
The Okoa V5 stove contributes to reducing GHGs emissions by reducing the amount of firewood required for cooking, leading to reduced harvesting of biomass.

Where it is used and how many users are there?
Used in Tanzania, especially in rural areas where more than 98% of households use firewood as the main source of energy for cooking. The Okoa V5 stove is used by more than 1,500 households.

Why is it successful?
The Okoa V5 stove achieves efficient firewood combustion by maximizing heat transfer to the food being cooked. Hence, firewood consumption is reduced. Reduced household energy budgets for cooking lead to reduced deforestation.

If you can make it, a short description, typical problems, materials needed:
Not relevant, needs a skilled technician.

How to make it (if possible):
Not relevant.

How is it delivered and by whom?
Capacity-building on technical, business, and managerial issues is offered to masons. Masons are identified at the village level, then trained to construct, repair, and maintain the stove. They are also provided with the stove manual and with tools such as moulds. Trained masons provide such services to the community at a cost which is normally agreed with villagers during the introduction of the stove to the village.

Successful financial model
A market-based approach is used to disseminate the technology. TaTEDO plays a part in monitoring, especially the quality of the stoves.

What policies and strategies helped the success?
The Tanzania National Energy Policy of 2015, Tanzania SE4ALL action agenda, Tanzania Nationally Determined Contribution (NDCs), Draft Biomass Energy Strategy (BEST) and the draft energy efficiency strategy of 2018 recognize the role of improved cookstoves as one of the primary interventions to enhance energy efficiency. In addition, there have been various supports in terms of finance and technical know-how

from development partners.

More info:
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: +255738-201498, E-mail: energy@tatedo.or.tz .

When was the case uploaded?
2020-09-26