Efficient Household Charcoal Stove / SeTa-mkaa (2nd generation)



Why to choose this solution?
SeTa-mkaa is an efficient charcoal-burning stove designed for household cooking purposes. The cookstoves have a thermal efficiency of 50.8 % (TIRDO, 2021), which means they can consume less fuel than traditional metal stoves. Reduction of fuel consumption contributes to a reduction of household cooking-energy budgets.

Savings per day or production:
The material used in SETA-mkaa to conserve heat is a fiber blanket. The efficiency of SETA-mkaa stove is almost twice that of an improved charcoal stove made with clay liner. It can save more than 50% of fuel which would have been required to prepare meals per day.

Cost in money and in own time to construct:
According to the SEECO company 2020 price list, the stove is sold TSh 150,000 (USD 66). Fabrication of one piece of SeTA-mkaa stove is estimated to take half a day.

Lifetime:
The durability of SeTA-mkaa ranges from five to seven years.

Maintenance needed:
May need to repair the firing chamber in case it is overheated and damaged.

Resources needed in use:
Seta mkaa can use either wood charcoal or briquettes.

Problems and limits:
Pot bottoms of less than 2.5mm may melt with time due to high heat produced by the SeTa-mkaa stove.

Where and how can you get it or make it?
It is available in Dar es Salam, Tanzania through SEECO Company.

Skills needed to produce, install. maintenance, use:
Production of SeTA-mkaa, major repairs and maintenance requires skilled technicians.

How to use it:
https://www.facebook.com/watch/?v=521607365242679

How to maintain it:

Climate effect (if any):
SeTA mkaa stove uses less charcoal, therefore contributing to forest conservation by virtue of using fewer trees over time.

Where it is used and how many users are there?
Mostly used in urban areas of Tanzania, especially in Dar es Salaam where the number of users is about 1000.

Why is it successful?
The design succeeds because of the stovesâ€™ high efficiency due to good design for heat transfer, increased surface area for heat exchange, high efficiency of the combustion chamber for reduction of harmful emission, and reduction of heat energy loss by application of ceramic-fibre blanket to areas where heat exchange takes place.

If you can make it, a short description, typical problems, materials needed:
Some of the materials needed include thick sheet iron and ceramic-fibre blanket. Several types of machines are required for cutting, moulding and joining different parts of the stove.

How to make it (if possible):
Not relevant, needs a skilled technician.

How is it delivered and by whom?
The business model involves production that starts at the workshop as well as marketing which is undertaken by SEECO social enterprise to ensure sales and continuous supply of quality stoves. Distribution goes through company sales points, and stove sales agents located in various locations within the country.

Successful financial model
Support from a development partner has been utilized as capital for purchasing some machines, for market promotion, for awareness-raising and for training of the three technicians.

What policies and strategies helped the success?
The production and marketing of improved cookstoves is supported by sectoral policies of business, environment, forest, and SMEs. Biomass Energy Strategy and SE4All Action Agenda (Tanzania) support the use of improved cookstoves.

More info:
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