

SeTa Improved Institutional Firewood Cookstoves (SeTA-IIFC)



Why to choose this solution?

SeTa-IIFC is an efficient firewood stove designed for institutions as well as for small and medium enterprises (SMEs) such as schools, colleges, prisons, hotels, restaurants, and any other mass-cooking places. The cookstove has a thermal efficiency of 54.82 %, which means it has the ability to reduce fuel consumption by more than 70% compared to three-stone fireplaces (TIRDO, 2020). The reduction of fuel consumption also implies that the stove contributes to a reduction of the institution's cooking-energy budgets, allowing less time to be spent in cooking and contributing to environment conservation.

Savings per day or production:

According to evidence from stove users, the SETA-IIFC has the ability to save more than 70 % of fuel. For example, Mnolela Secondary school in Lindi Region, before it started using SETA-IIFC, required about 430 pieces of firewood each day for preparation of students' meals. Switching to the SETA-IIFC dropped that amount to 57 pieces per day. It means that if trees of 16 inches diameter at breast height (DBH) are harvested for firewood, this one institution reduces forest-harvesting from 2 trees to 0.25 trees per day.

Cost in money and in own time to construct:

The SeTA-IIFC is available in different sizes. According to the price list of 2020, the stove of 25 liters costs TSh 1,200,000 (USD 550), the 50 liters stove is TSh 1,600,000 (USD 730), a stove of 100 litres costs TSh 2,300,000 (USD 1045), and a stove of 200 liters costs TSh 3,500,000 (USD 1,600). The prices also include a stainless-steel pot. The fabrication of SeTA-IIFC stove and of its pot take about 5 days.

Lifetime:

The durability of SeTA-IIFC is more than 10 years.

Maintenance needed:

The chimney chamber needs regular cleaning to avoid accumulation of soot.

Resources needed in use:

Firewood or wood briquettes are used as fuel.

Problems and limits:

It requires a special pot, which means the pot has to be fabricated together with the stove. Bottom of the stainless steel pot has to be 3 mm thick to ensure its longevity.

Where and how can you get it or make it?

It is available at SEECO Company, Tanzania.

Skills needed to produce, install, maintenance, use:

The fabrication and assembling of the stove require skilled technicians. Major repair and maintenance may also require skilled technicians.

How to use it:

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

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

The SeTA Improved Institutional Stove contributes to forest conservation. It reduces greenhouse-gas emissions, since the amount of firewood used for cooking is reduced.

Where it is used and how many users are there?

Used in Tanzania especially in schools, number of users is more than 3,780.

Why is it successful?

It succeeds because the stoves have 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 emissions, and reduction of heat-energy loss by application of ceramic fibre blanket to areas where heat exchange take place.

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

It needs a skilled technician to make it.

How to make it (if possible):

Not relevant.

How is it delivered and by whom?

SETa-IIFC is manufactured and delivered to end users by SEECO company.

Successful financial model

Support from development partners facilitated on-site placement of infrastructure, purchasing of some machines, marketing, awareness-raising, and training of the technicians. Income generated from sales of stoves covers the operational costs.

What policies and strategies helped the success?

The Tanzania Biomass Energy Strategy (BEST) and SE4All Action Agenda support production, business and utilization of efficient biomass stoves.

More info:

SEECO Company. Email: bioenergy@seeco.co.tz

<https://sescom.co.tz/about-us/19-improved-and-modern-institutional-firewood-stoves-seta-is>

Sources:

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