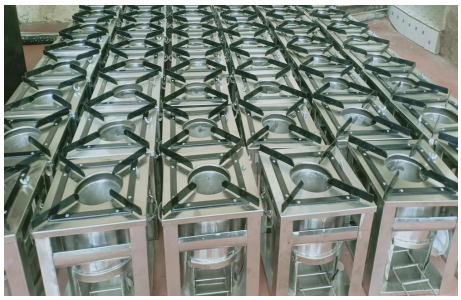
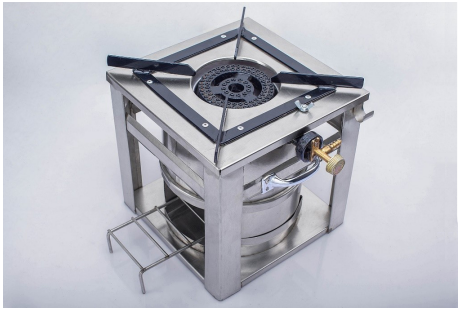
Jiko Tosha

Why to choose this solution?
The multi-purpose fuel cooking stove (Jiko Tosha) is an improvement on the currently available rocket stoves that use a single type of fuel, either firewood or charcoal. Jiko Tosha stove accommodates the use of several fuel forms, animal wastes, firewood, charcoal/briquettes, sawdust, biogas, and LPG. Any of these will work in the same stove unit. The Jiko Tosha stove was born out of shortcomings identified in the stoves existing in the market. Its advantages are that it reduces indoor emissions, provides a safe and healthy environment to the consumer, accommodates more than one fuel source according to availability, and ensures that the users have access to economical and affordable cooking technology.

Savings per day or production:
Savings of about 70% of charcoal consumption per day for a normal family.

Cost in money and in own time to construct:
Costs KSh 5000 (About USD 50).

Lifetime:
About 5+ years.

Maintenance needed:
F&M Industries does not have local technicians throughout Kenya. If a part of the stove breaks or gets damaged, it can be shipped to the F & M manufacturing plant in Nairobi for repairs. To move the product from one place to the other, manufacturers use an existing local transport system. Replacements for all the components of the stove are available.

Resources needed in use:
Manufacturers specify that this four-in-one clean-energy stove was designed to use gas, charcoal briquettes, sawdust, or firewood as cooking fuels.

Problems and limits:
Safety concerns when using the product with biomass or charcoal as fuel are primarily related to harmful emissions of carbon dioxide, carbon monoxide, and sulfur dioxide, along with gas leakage during use with gas fuel. Another significant safety concern is domestic accidents such as accidental burning or spill-overs.

Where and how can you get it or make it?
The product is available at F & M industries along Lunga Lunga Rd, Industrial Area, Nairobi, Kenya. The users can purchase the product directly from the manufacturer and also buy online through the F & M industries website.

Skills needed to produce, install. maintenance, use:
The Jiko Tosha is manufactured in Kenya by a locally trained workforce. The manufacturing site consists of an assembly line and works on a batch production basis. Most of the parts are manufactured with power hand tools, welding machines, and a semi-manual pressing machine, except for the outer casing and combustion chamber, which are manufactured using a sheet-metal-rolling machine. The use of the finished product requires a short introduction.

How to use it:
Jiko Tosha when using gas- https://youtu.be/2TAnT8oeBDw and Jiko Tosha when using firewood-https://youtu.be/w_bziRiCx3o and Jiko Tosha when using charcoal briquettes-https://youtu.be/U8h42ZeHLgk .

How to maintain it:
To be added.

Climate effect (if any):
Testing carried out by the Kenya Industrial Research and Development Institute (KIRDI) on the stove CO2 and particulate emissions (g/MJ delivered to pot) determined that, while using LPG as fuel, the CO2 emissions were very low (0.38). When tested using charcoal, the stove emissions were average and fairly good (9.09) respectively. Source: https://www.engineeringforchange.org/solutions/product/jiko-tosha/

Where it is used and how many users are there?
Used by households and institutions in rural and urban areas in Kenya. As of 2019, 1,100 units were distributed in Kenya.

Why is it successful?
Its success lies in functioning as a four-in-one stove that can run on gas, charcoal briquettes, sawdust, or firewood, hence not limited to one particular fuel type. This product is known for bringing immense savings and higher efficiency.

If you can make it, a short description, typical problems, materials needed:
The Jiko Tosha is a multi-fuel cookstove that integrates traditional components of a rocket stove with single-burner gas-stove components. Rocket-stove design contributes an insulated combustion chamber, elevated steel grate, ash collector, and cast-iron pot support; gas stoves inspire the single-burner stove components such as an LP burner and LP regulator. The design also includes a stainless-steel adaptable fuel bed for briquettes and charcoal. Specifications; Height: 30 cm Outside diameter: 26 cm, Weight: 5.807 kg.

How to make it (if possible):
https://youtu.be/FKLnsrWguvI

How is it delivered and by whom?
The product can be obtained directly from the manufacturer (F&M Industries) and it can be delivered to

customers through courier service provided by F&M Industries Ltd. Users can also obtain the product from local Cooperative societies (SACCOS), through which they can pay for the product in installments.

Successful financial model
Testing by organizations like Kenya Industrial Research and Development Institute (KIRDI), Training and monetary support by Kenya Climate Innovation Center.

What policies and strategies helped the success?
Complies with the following cookstove rating for the International Workshop Agreements as a streamlined process of the International Organization for Standardization (ISO):O. Emissions: LPG (Tier 5), Charcoal (Tier 2) PM Emissions: LPG (Tier 4), Charcoal (Tier 3) Thermal Efficiency: LPG (Tier 5), Charcoal (Tier 3).

More info:
Read more: https://www.fmindustries.co.ke/index.php/homeup . F&M Industries Ltd is developing a bigger version of the Jiko Tosha named Biko Tosha Max, the aim of the design is to be better suited for institutional use.

Sources:
F&M Industries Ltd. Lunga Lunga Rd, Godown No. 105, Narobi. http://jikotosha.co.ke/, Tel: + 254 720 338108.

When was the case uploaded?
2020-09-08