

Coconut Husks and Charcoal Dust Briquettes



Why to choose this solution?

In Tanzania, after the edible portions of the coconut fruit are consumed, the husks often are thrown away or burnt. Improper disposal and burning of husks creates environmental problems such as air pollution and choked (gutter) mosquito-breeding sites that support transmission of mosquito-borne cholera, malaria, and fever.

Savings per day or production:

The wholesale price of a bag of charcoal weighing between 50- 75 kg runs to TSh 45,000 - 70,000 (USD 19.50 - 30). Thus, one kilogram of charcoal costs about 900Tsh (USD 0.4), whereas one kilogram of briquettes is sold at TSh 600-700 (USD 0.25-0.30). Briquettes are more affordable than wood charcoal. Their greater efficiency stems from their higher calorific value, longer burning time, and more even heating.

Cost in money and in own time to construct:

To produce one ton of briquettes, SEECO incurs a total cost of TSh 305,104 (USD 130). These costs include materials, labour, transportation of materials, and overhead costs. To produce 1-1.5 ton, 6-8 hours are required.

Lifetime:

N/A

Maintenance needed:

Regular maintenance of the briquette-making machines is required, including replacement of bearings, etc.

Resources needed in use:

An improved cookstove is required to use the briquettes for cooking. There is no need for a specific model of stove, since the briquettes burn well in normal charcoal-burning improved stoves.

Problems and limits:

Low community awareness of the potential benefits of briquettes limits its use, especially in households. Another challenge might be limited availability or increased costs of feedstock at a future peak of briquette markets.

Where and how can you get it or make it?

It is available in Tanzania markets and is produced by SEECO social enterprise. Some training, investment in

machines, and construction of carbonization kilns is required to be able to produce briquettes.

Skills needed to produce, install, maintenance, use:

Simple training is required to be able to produce briquettes. Proper ratios must be used to mix materials required for briquette production. Some training is required on how to use the briquette- production machines.

How to use it:

How to maintain it:

Climate effect (if any):

Methane is a greenhouse gas which is mostly emitted from decomposing waste. It has more than twenty times the potency of carbon dioxide and is ranked as a dangerous contributor to climate change. Using coconut husks and charcoal dust to produce briquettes avoids the production of some methane while producing clean fuels which are useful for cooking. Carbonization of coconut husks is undertaken in simple retort kilns through pyrolysis-process gas, thus less biomass is used to initiate carbonization before the process becomes self-sustaining.

Where it is used and how many users are there?

Mostly used in Dar es Salaam city (Tanzania), especially in institutions such as schools. Most of the private-owned schools in Dar es Salaam use briquettes for cooking meals for their students. The University of Dar es Salaam with about 24,000 students uses briquettes for cooking in their cafeterias. Some of the poultry keepers are good customers of briquettes. In urban areas, particularly in Dar es Salaam, there are some households and food vendors who use briquettes for cooking.

Why is it successful?

Briquettes are more affordable than most existing fuels. They are more efficient, since they have a higher calorific value, and long burning time. They are user-friendly, clean, and smokeless.

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

Required materials include coconut husks, charcoal dust, and a binder of cassava flour. After binding into shape, it requires sun and ground space to dry.

How to make it (if possible):

(video coming)

How is it delivered and by whom?

Main actors include wood-charcoal wholesalers and retailers, coconut-oil producers, cassava-flour dealers, SEECO social enterprise, transporters, and end-users. SEECO always works to maintain the high quality of its briquettes. The enterprise uses a business approach to deliver briquettes to targeted end-users. SEECO uses marketing personnel to identify and to sell to potential customers, who are provided with product samples to test. The majority of people who have tested SEECO briquettes come back to buy more. In an average week, SEECO sells about one ton of briquettes to existing customers.

Successful financial model

Initial investment capital was covered by a grant from a development programme. SEECO covers operational and maintenance costs through business returns.

What policies and strategies helped the success?

The National Energy Policy of 2015 promotes fuel alternatives to replace wood charcoal; the Draft Biomass Energy Strategy (BEST) identified briquettes from waste as one promising alternative cooking fuel. Support come as well from the former Minister of Environment of Tanzania, Mr. January Makamba, who organized awards for competitions of the briquette producers.

More info:

SEECO, Tanzania. <https://sescom.co.tz/seeco> , <https://www.facebook.com/SEECOtz/>

Sources:**When was the case uploaded?**

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*Case from Catalogue of Local Sustainable Solutions
in East Africa. Read more and see partners at
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