Semi-industrial Solar Dryer



Why to choose this solution?
Solar dryers prevent destruction of agricultural produce from rain, wind, contamination, dust, insects, etc. and thereby ensure a better quality of produce. It allows small-scale farmers to improve storage conditions and reduces after-harvest losses. The higher quality increases the value of dried products, which may justify higher market prices.

Savings per day or production:
The dryer needs nothing more than solar radiation. The solar dryer can improve food security by allowing longer storage of food after drying compared to food that has not been dried.

Cost in money and in own time to construct:
The initial cost to acquire the semi-industrial solar dryer is high. The total cost of the materials amount to Tsh. 10 millions. A well-managed solar-drying business, however, can realize a payback period of 6-12 months.

Lifetime:
Depending on handling, the dryerâ€™s ultraviolet (UV) resistant plastic (Visqueen) could last for more than two years before changing it. The frame could last longer, especially if treated with anti-corrosion materials.

Maintenance needed:
After some time, it requires replacement of Visqueen papers, plus anti-corrosion material for treating frames.

Resources needed in use:
Solar radiation.

Problems and limits:
Not workable at night, efficiency decreases to a large extent on cloudy days, overheating may occur if regular attention is not paid.

Where and how can you get it or make it?
It is available in Tanzania. SESCOM is involved in construction and marketing. Skills needed to produce, install. maintenance, use.

Skills needed to produce, install. maintenance, use:
Training is needed on how to construct, maintain and use.

How to use it:

How to maintain it:

Climate effect (if any):
Drying food reduces its volume; thus, the amount of fuel which would have been required for transportation is reduced. CO2 emissions decrease as well: if solar drying replaces drying by electricity or fossil fuel, it reduces CO2 emissions.

Where it is used and how many users are there?
Semi-industrial solar dryers are used in Tanzania by more than 1000 users.

Why is it successful?
It succeeds due to its potential to increase the ambient air temperature to a considerably high value for faster drying of agricultural crops.

If you can make it, a short description, typical problems, materials needed:
Some of the material needed includes galvanized sheet 2 mm, Visqueen sheet, green plastic wire mesh, square pipe, angle section, etc.

How to make it (if possible):

How is it delivered and by whom?
The main actors include the suppliers of construction materials, constructors such as SESCOM, a Small Industry Development Organization (SIDO), NGOs involved in awareness- raising and capacity-building such as TaTEDO, development partners with interest in supporting the initiatives, such as USAID, research institutions such as Sokoine University of Agriculture that are involved in technology improvement and research, and the Ministry of Agriculture and Cooperatives.

Successful financial model
Local capacity-building is one of the aspects that contributed to successful dissemination of semi-industrial solar dryers.

What policies and strategies helped the success?
Tanzania Horticultural Development Strategy 2012- 2021, Agricultural Sector Development Strategy (ASDS), the Agricultural Sector Development Programme (ASDP).

More info:
SESCOM, Tanzania https://sescom.co.tz/. TaTEDO, Tanzania: https://www.tatedo.co.tz/

Sources:

When was the case uploaded?
2021-06-10