

Fixed-Dome Biogas Plant by ECOSAFE Ltd



Why to choose this solution?

Clean energy, improved kitchen hygiene/ sanitation, and quality bio slurry (manure) that results in better yields (crops, fisheries, piggery) are co-benefits.

Savings per day or production:

Faster cooking saves time and money. For example, 1 kg of dry beans can be cooked in one hour with biogas (constant heat), which is not possible with firewood and charcoal. According to Mr Kasule, biogas user in Nakaseke, crop health and yields have improved since he started applying bio slurry to his banana crop, feeding it on his fish and pigs. Savings have occurred as a result of adopting this biogas energy option.

Cost in money and in own time to construct:

A 9 m³ biogas plant costs US\$ 1.8 million (approx. USD 493) and can be done in 7 days.

Lifetime:

25 years, according to ECOSAFE Ltd.

Maintenance needed:

0

Resources needed in use:

Small and medium farms for (zero-grazing) cows or pigs that can provide at least 75 kgs of cow dung per day.

Problems and limits:

Cost of setting up the biogas plant is expensive for many people. Managing biogas lamps, as moths and insects lead to tearing and breakages. High temperatures involved (650 to 700°C degree) mean generation of too much heat. Labour-intensive to sustain biogas production, as there must be daily stirring of feedstock dung in the mixing tank.

Where and how can you get it or make it?

ECOSAFE Ltd promotes the fixed dome biogas type biogas option.

Skills needed to produce, install, maintenance, use:

Persons must be trained and certified by Biogas Solutions Uganda Ltd in co-operation with Netherlands Development Organisation (SNV).

How to use it:

Video: <https://www.youtube.com/watch?v=LuoqbV6AIAY>

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

Smokeless homes with light from biogas as it reduces use of paraffin lanterns, one of the more frequent causes of fires in homes. Reduces use of firewood, which reduces cutting trees.

Where it is used and how many users are there?

Kasana parish, Kikyusa Parish, Semuto sub county in Nakaseke district.

Why is it successful?

Cumulative fuel and other savings (fertilisers, medical etc.) of Ugshs 2,881,200 after 22 months of operation (Ecosafe Ltd) compared to 1.8 million Ugshs investment; Lifetime of 25 years means cumulative savings over a long period of time. Bio slurry (fertiliser by product) can be applied to crops for increased yields of up to 30%; insect repellent on bananas, oranges, coffee (Biogas Uganda Ltd & Sam Kasule); bio slurry is also an excellent nutritious feed for pigs -results in savings made on animal feeds; chicken manure, with its nuisance smell for urban farmers, can be used in recommended proportions as a source of feedstock for the biogas plant.

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

Local materials needed: bricks, cement, gravel, metal fabrications, and skilled manpower.

How to make it (if possible):

Fine Biogas Solutions: <https://vimeo.com/317936298>

How is it delivered and by whom?

Involving micro-enterprises (like Ecosafe Ltd) for technical support to informal sectors and households in construction, operation, and maintenance of the fixed dome biogas plants; Ecosafe guarantee / customer care incentive for adoption, leading to other households getting interested in the biogas option.

Successful financial model

Renewable Energy Facility by Postbank provided opportunity for interested persons to acquire loans payable over a three-year period. ECOSAFE Ltd provided technical assistance and advice.

What policies and strategies helped the success?

ECOSAFE Ltd provides a one-year guarantee for the fixed dome biogas plant (with regular checks to secure proper use by the clients).

More info:

<http://ecosafeltd.com/?service=fixed-dome-biogas-system>

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

2020-08-18

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