

Flexi Biogas / FlexiTech



Why to choose this solution?

This technology minimizes reliance on firewood, makes cooking easier and produces less smoke (clean cooking) compared to ordinary cookstoves. It is helpful in solid waste management since it accepts a range of feedstocks, including biodegradable materials such as any animal dung (cow, pigs, sheep, goats, and rabbits), vegetable/kitchen waste, food waste, garden weeds, and market waste). The biodigester can help to control some economically harmful invasive plant species currently threatening crop security and public health. The systems that are designed to lower energy demands for daily household use are called "flexi domestic". They are installed in as few as three hours, produce gas in as few as three to five days, and run on any biodegradable material with no need for a cow. The larger-scale systems are built to meet bigger energy needs and are best suited to schools, hotels, churches, children group homes, and any other institutions with high energy demand; such larger systems are called T-rex.

Savings per day or production:

According to the Environmental Frame Conditions of Biogas Technology, this technology emits about 62% less carbon dioxide into the atmosphere. Flexi biogas domestic systems eliminate the task of firewood collection, so women gain three or four more hours a day for other activities. It saves the users about KSh 500 (5 USD). Normally, the beneficiaries of this technology were spending over KSh 1000 (10 USD) per day on firewood to fry their fish, but now they spend only KSh 500 (5 USD).

Cost in money and in own time to construct:

The cost varies, as the domestic version (with capacity of 6 m³) costs KSh 75,000 (750 USD) and the large model costs (9 m³) is priced at KSh 90,000 (900 USD). It takes two to three hours for the Flexi domestic biogas digester to be prefabricated and installed, and about 6 days for the large commercial model.

Lifetime:

10 years.

Maintenance needed:

It is easy to maintain. It only requires feeding the system regularly with water and with feedstock materials (biodegradable materials such as any animal dung (cow, pigs, sheep, goats, and rabbits), vegetable/kitchen waste, food waste, garden weeds, and market waste), depending on gas usage. It also needs regular checking for any leakages and to be sure that the water pumps are in good working order.

Resources needed in use:

The system runs on all biodegradable materials such as any animal dung, vegetable/kitchen waste, food waste, garden weeds, market waste.

Problems and limits:

Potential customers often cannot afford them. There also is a lack of community familiarity with the benefits of biogas as a cooking option.

Where and how can you get it or make it?

The source, an eco-resource center, is situated at Ngong road, Mwit Close (no 33), Karen, Nairobi, Kenya. In Kenya, Biogas International has installed the technology in Kakuma, Samburu, and Dunga in Kisumu as well as in Moi and Pwani Universities. Reference: Domnic Kahumbu Wanjihia, biogas international chief executive officer.

Skills needed to produce, install, maintenance, use:

Engineering skills and biological skills are required to install, along with a short course of training. An operation guideline is available at <http://biogas.co.ke/wp-content/uploads/2018/06/Operation-Guide-Book.pdf> for the users.

How to use it:

Video <https://vimeo.com/366478108>

How to maintain it:

<https://vimeo.com/366479658>

Climate effect (if any):

Saves about 62% of carbon dioxide emissions.

Where it is used and how many users are there?

Used in 22 African countries. In Dunga (Kisumu county), 50 domestic systems have already been installed and 12 women are benefiting from the T-rex System.

Why is it successful?

It succeeds because it is clean, environment-friendly, often affordable, sustainable, and simple to operate/maintain a biogas system. It also can be made to be portable, and the feedstocks are readily available.

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

Assembling materials and ground-leveling are required, but trained personnel also are needed.

How to make it (if possible):

<https://vimeo.com/366503023>

How is it delivered and by whom?

The Flexi biogas is installed by skilled team employed by Biogas International Limited (BIL). The field officers are contacted by clients who need the technology installed. They then refabricate and install the system according to the client energy needs. Their customer support is always available to answer the clients questions and queries.

Successful financial model

Support for development, training courses, public relations; successful partnerships with various organizations and institutions like Kenya Association of Manufacturers (KAM), UNICEF, Moi, and Pwani Universities, among others.

What policies and strategies helped the success?

Kenya Biogas Programme (KBP), put in place to guide the operation.

More info:

<http://www.biogas.co.ke>

Sources:

Visit Flexi Biogas Solutions Eco-resource Center at Ngong road, Mwit Close (No. 33), Karen, Nairobi, Kenya. Email: info@biogas.co.ke or biogasinternational@yahoo.com. Phone: +254-722 700 530

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in East Africa. Read more and see partners at
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