

## **FREQUENTLY ASKED QUESTIONS (FAQs)**

### 1. What is Biogas?

Biogas is gas produced from degradation/decay/decomposition of organic matter in the absence of oxygen (anaerobic digestion). It is typically composed of 60% methane and 40% CO<sub>2</sub>. It is similar to natural gas which is composed of 99% methane.

### 2. What is a bio-digester?

It is a sealed tank or container specifically built to provide anaerobic conditions for the breaking down of organic matter to produce biogas

### 3. How does it work?

Organic waste is put into a sealed tank called a digester (or bioreactor). In the absence of oxygen anaerobic bacteria consume the organic matter to multiply and produce biogas.

### 4. What does one require to own a digester?

Sufficient feedstock (waste) preferably, cow dung or any other animal waste. For those who own dairy cattle, a minimum of two cows in zero-grazing unit would provide sufficient feedstock to qualify for a biogas plant.

### 5. What is considered in designing and sizing a bio-digester?

- Energy demand/need which is determined from the family size (users) and behavior
- Availability of sufficient feedstock/waste (organic)

### 6. What are the uses or applications of biogas?

Biogas is a clean and renewable energy that may be used to cook, lighting, or to generate electricity. At room pressure and temperature biogas is in gaseous form.

### 7. How much energy is in biogas?

Each cubic meter (m<sup>3</sup>) of biogas contains the equivalent of 6 kWh of calorific energy. However, when we convert biogas to electricity, in a biogas powered electric generator, we get about 2 kWh of useable electricity while the rest turns into heat which can also be used for heating applications. 2 kWh is enough energy to power a 100 W light bulb for 20 hours or a 2000W hair dryer for 1 hour.

### 8. What happens to the waste after digestion?

Despite popular belief, the amount of waste going in the digester is almost equal to the amount coming out. However the quality of the waste is altered for the better (less odor, better fertilizer, organic load reduced, less polluting)

Waste coming out of the digester (also called bio-slurry) can be separated (solid/liquid): the solid part can be composted and the liquid part can be used as liquid fertilizer or can be treated further and disposed.

Bio-slurry has several other applications e.g. fish farming, and as feed supplement for pigs, fish, and poultry

### 9. So why make biogas?

It always costs money to get rid of waste. If it doesn't cost you anything, you are probably creating an environmental hazard. By putting a digester in your waste treatment chain you introduce a potential revenue center. A shortlist of benefits includes;

- meeting household energy and income generation needs;
- reducing greenhouse gas emissions;
- reduces reliance on fire wood therefore pressure on forest resources;
- reduces ground and surface water pollution;
- reduces reliance on non-renewable energy sources and raises the profile of renewable energy technology;
- providing a long term solution to pollution and energy needs;
- Reducing reliance on chemical fertiliser and improving soil condition and fertility through proper application of Bio-slurry.

### 10. What is the cost of construction of a biogas plant?

Cost of construction varies depending on plant type and size. Plant sizes range from about 4m<sup>3</sup> to over 100m<sup>3</sup>

**11. What types of biogas plants are there in the market?**

- Fixed dome-made out of brick and cement
- Tubular –made out of plastic
- Floating drum-Made out of plastic or steel

**12. How long does it take to construct/install a bio-digester?**

It depends on type of plant and size installed.

For domestic prefabricated plants (tubular etc), the installation process can take as short as two hours while for masonry/concrete plants, the construction will take anywhere from 1-2 weeks though it will require time to cure (approximately 21 days) before it is ready for initial feeding. For further details, contact KBP via Mobile +254 791 496 964

**13. Where can I get someone to construct a plant for me?**

Kenya Biogas Program is working with a team of well trained and qualified Biogas Technicians and companies that can meet your need. All plants constructed under the program undergo several quality checks and are under warranty for one year period. For further details, contact KBP via Mobile +254 791 496 964