

# The EZ- Digester

## WHAT IS BIOGAS?

**BIOGAS** is produced when organic waste decomposes in the absence of oxygen, the so-called anaerobic digestion (AD) process. Biogas consists primarily of methane (60%) and CO<sub>2</sub> (40%) and some trace gasses. Methane is a combustible gas and can be utilized in the same way as LPG as fuel for cooking, water heating, lighting, space heating and also to generate electricity. The AD process also removes most of the harmful pathogens from the waste, but not the nutrients (NPK), thus producing a high quality organic fertilizer as effluent. This effluent or digestate can be used as fertilizer to grow vegetables or other crops.

## THE EZ-DIGESTER

The **EZ-DIGESTER** is a portable, above ground floating dome type digester that is quick and simple to install. The EZ-Digester has specifically been designed to be used by individual households for both rural, as well as urban community applications. The digester has a capacity of 1.5m<sup>3</sup> and can potentially digest up to 25kg of organic waste per day. This will provide enough biogas for a household to cook on for approximately 2 hours a day. Once the digester has been inoculated, it will keep producing biogas as long as suitable organic waste is added on a daily basis.

All beneficiary households will receive basic training on how to operate and maintain their digesters and receive a comprehensive operating manual with clear guidance on how to ensure their digesters remains healthy and keep producing biogas.

The effluent or digestate produced as organic fertilizer can effectively be used to grow vegetables in containers right next to the dwelling, thus contributing towards food security at household level.

The EZ-Digester is manufactured here in South Africa from heavy duty rotor molded plastic and has a life expectancy of over 10 years.

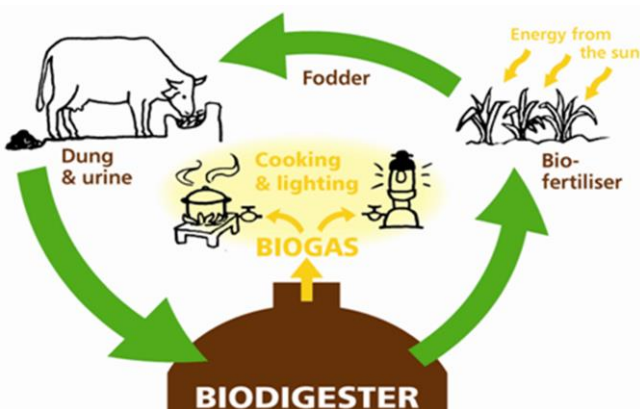


### Biogas Benefits:

- Sustainable and environmentally friendly way to produce renewable energy on a household level
- Decrease dependence on firewood, LPG and electricity for cooking and lighting
- Reduce health risks associated with smoke inhalation by eliminating wood fires inside houses
- Reduces fire risks associated with the use of paraffin and candles for cooking and lighting
- Environmentally efficient way to deal with organic waste by converting it into fertilizer
- Digestate as organic fertilizer can be used to grow vegetables and other crops to enhance food security on household level
- Contributes to carbon mitigation by preventing methane from entering the atmosphere

### EZ-Gas provides:

- The unique EZ-Digester
- Biogas appliances – stoves and lights
- Supply of EZ-Digesters directly to households, municipalities, local government departments or as CSI/SED/ED projects to corporates
- Turnkey EZ-Digester community projects, including installation, vegetable growing, training, ongoing support and monitoring



# Organic waste, Digestate & Appliances

## ORGANIC FEEDSTOCK



The EZ-Digester can potentially digest most types of organic waste typically produced by domestic households such as kitchen waste, fruit and vegetable waste, as well as animal manure. It is also possible to feed the digester a combination of different waste types, provided it is available on a continuous daily basis. The more waste available, the higher the amount of biogas that can be produced, up to the daily digestible limit of around 25kg. It is important to note that the anaerobic process happening inside the digester is dependent on live microbes, so biogas will only be produced if the microbes are kept alive and healthy! Keeping the microbes alive will require feeding the digester continuously with the correct amount and type of organic waste, keeping temperature as high and as constant as possible and not feeding any non-organic waste (plastic, bones, chemicals, etc). Non-organic waste cannot be digested by the microbes and could potentially kill them, resulting in the collapse of the anaerobic digestion process.

## DIGESTATE

The anaerobic process destroys a significant percentage of the harmful pathogens present in most organic types of waste, but leaves the nutrients such as nitrate, phosphate and potassium (NPK) intact. This allows the digestate to be used as a high quality organic fertilizer to grow vegetables and other crops.

Households participating in EZ-Gas projects, will each receive a number of vegetables growing containers in the form of stacks of old car tires, as well as sections of plastic gutters. These containers will then be used to plant the seeds and seedlings in and the liquid digestate used as fertilizer to water the plants on a daily basis.

## BIOGAS APPLIANCES



Biogas stove



Biogas light

