

Agricultural Project in Ethiopia



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Flexigester Treatment of Animal Waste in Elshadai, Ethiopia

Animal waste and manure is a good source of biogas. By treating the waste the biogas can be used to cook with and the digestate produced used on the land. Elshadai Children's Village in Ethiopia had a farm with a herd of Holstein cattle giving a ready supply of manure and a need for biogas in the kitchen to cook food for the workers and orphan children living in the village.



Elshadai is a Children's village located in Wukro, Tigray in Ethiopia. It was established in 1989 as an orphanage following the civil war and the HIV/AIDS pandemic in the early 1990's.

The children's village has a large amount of cattle manure produced every day. This manure makes an good feedstock for a Flexigester and in November 2016 a Flexigester V40 was delivered to Elshadai to process the manure and produce biogas to be used in the kitchen.

The trench was dug for the Flexigester using a mechanical digger as this was so much bigger than the V10s installed in other locations. The Flexigester was then inflated with air to make it easier to handle and put into the trench.

The next stage was to build a roof over it to protect it from the extremes of the weather. The roof did a good job of protecting the Flexigester when, shortly

after it was installed, devastating hail storms hit the area.

A concrete mixing tank was built to be able to mix the cattle manure with water so that it could flow into the Flexigester. Once that was built the Flexigester was fed with the cow manure and gas started to be produced.

The gas was collected in large gas bags and transported to the kitchens for use in biogas stoves. One of the main foods cooked is injera which is a sourdough bread that looks like a pancake or crepe but with a more spongy texture. The flour that it is made from is left to ferment with water for a few days and the resulting dough is baked on a large flat plate with a lid on it. The orphanage in Wukro, Ethiopia, uses electric ovens to bake the injera and the biogas is used in the stoves on which they cook the sauces to go with the injera.