

# Sanitation Project in Malawi



**SOWTech**  
Sustainable OneWorld Technologies

## Flexigester Faecal Treatment in Namisu, Malawi

*In February 2014 a Flexigester Integrated Faecal Treatment system was installed at the Namisu Children's Village, Malawi which is run by Aquaid Lifeline. The System at Namisu is designed for use by 200 people per day and has a footprint of approximately 20 m x 6 m. The facility allows the children to use pour-flush toilets instead of pit latrines improving hygiene and health.*



The facility was designed by Sustainable OneWorld Technologies C.I.C. (SOWTech) and built and assembled by Butyl Products Ltd with additional components from Effast and Polypipe Civils (Polypipe Ltd), RipCo Ltd and Dawbarn & Sons Ltd. Aquaid Lifeline provided the site for the trial, built a new latrine block to connect to the Flexigester and provided the manpower for the installation and subsequent monitoring and operation of the facility. The project was financed by International Federation of Red Cross and Red Crescent (IFRC) as part of their "Faecal Sludge Treatment and Disposal in Emergency Situations Programme".

The Flexigester Integrated Faecal Treatment System is composed of three processes, anaerobic digestion with gas storage, pasteurisation and digestate disposal or reuse.

The waste from the pour-flush toilets flows into the Flexigester where it is broken down by anaerobic digestion to give biogas and a liquid output. Animal waste and kitchen waste are also added to the digester.

The biogas generated is a sustainable fuel which can be used as a fuel for cooking in the kitchen to replace wood and charcoal which are an ever decreasing unsustainable supply.

The liquid from the Flexigester is then pasteurised to deactivate any harmful pathogens in it. The Pasteu Panel is

a continuous small diameter Butyl rubber tube. The waste liquid or digestate from the Flexigester flows into the Pasteu Panel which absorbs the heat from the sun. This then heats up the material in the tube. Pasteurisation is achieved by a combination of elevated temperature and time. The most appropriate combination is dependent on the expected pathogens. In many developing countries the most important pathogens that require deactivation are helminthes and those causing diarrhoeal diseases.

To use this liquid beneficially after pasteurisation it is pumped into the wrap over composting system. Maize leaves are put in breathable bags wrapped in a breathable sheet. Digestate from the Flexigester is added to the bags via a Dribble Tube. This liquid percolates through the vegetation. Moisture is evaporated by the sun, condenses on the sheet and is returned to the vegetation. In the rainy season the wrap-over sheet protects the contents from the rain and prevents it becoming waterlogged.

Once the vegetation has broken down it is removed and used on land and any run off water is collected for use as a liquid fertiliser. Heat is given off by the composting reaction and this can further aid pathogen kill. The compost is then used as a fertiliser on the crops grown to feed the children in the village.