



GOLD STAKEHOLDER FEEDBACK ROUND CONSULTATION, NON TECHNICAL SUMMARY FOR SIMGAS **BIOGAS PROGRAMME OF ACTIVITIES**

In many developing countries the dependency on fire wood and charcoal as a source of energy is very high¹, with around 3 billion people combusting solid fuels on open fires to meet their cooking and heating needs². As a result, indoor air pollution is one of the ten major threats to health globally, causing almost 2 million deaths annually due to solid fuel use³. The burning of firewood that is illegally collected and the production of charcoal contributes to the emission of greenhouse gases and deforestation or forest degradation.

Biogas digesters allow the production of sustainable fuel from organic waste through anaerobic digestion. The biogas can be used as a clean source of cooking fuel while the slurry from the digester is a very good fertiliser.

The SimGas Biogas Programme will operate following the rules and regulations of the Gold Standard and the Clean Development Mechanism (CDM) and applying the innovative concept of a Programme of Activities (PoA). A PoA allows for the development of the SimGas programme over time through the dissemination of digesters.

Objective

The programme will be developed as a joint venture between Silafrica Ltd., based in Tanzania, and SimGas BV, based in the Netherlands. It aims to install biogas systems with stoves in households, small and medium enterprises (SMEs) and communities that are currently using non-renewable biomass and fossil fuels as their main source of cooking fuel. The first project to be implemented will be located in Kenya

Technology

The biogas systems will be fed with a combination of manure and/or organic waste, which will be anaerobically digested to produce biogas. The biogas produced will be used to replace the combustion of non-renewable biomass and fossil fuels, thereby reducing carbon dioxide (CO₂) emissions. The biogas systems that use manure as a feedstock can also reduce methane (CH₄) emissions by diverting manure that would otherwise decompose in open pits, emitting methane.

The diagrams below show schematic diagrams of manure fed bio digesters and organic waste fed bio digesters.

¹ Food and Agriculture Organization: Forests and Energy, Rome: FAO. (2008)

² World Health Organization: Indoor air pollution and health, Fact sheet No. 292: WHO (2011)

³ World Health Organization: Indoor air pollution and health, Fact sheet No. 292: WHO (2011)



Our Power

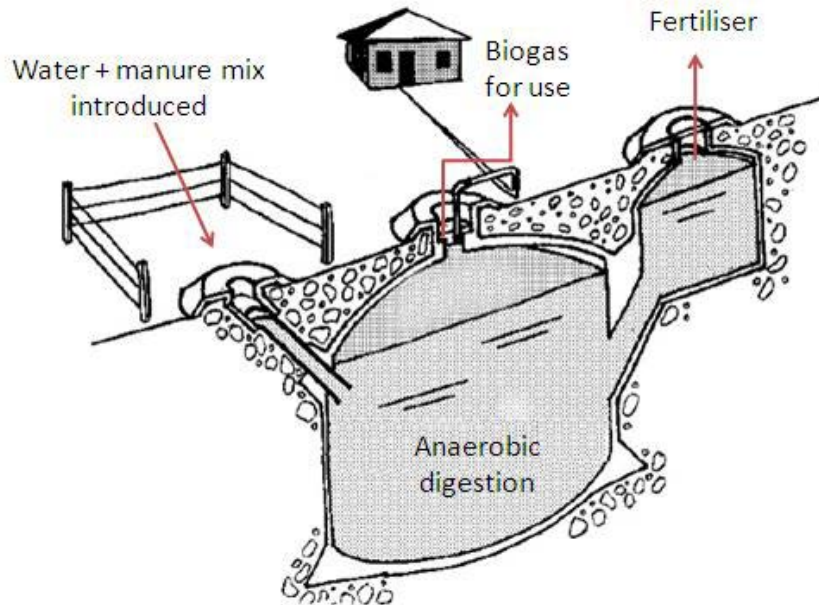


Figure 1: Manure fed bio digester system

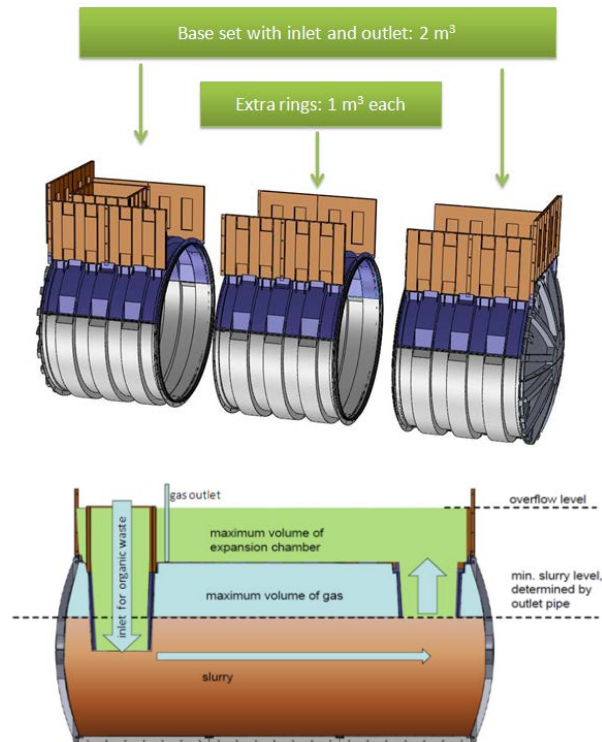


Figure 2: Schematic layout of an organic waste fed biogas digester: transportable, scalable and easy to install.

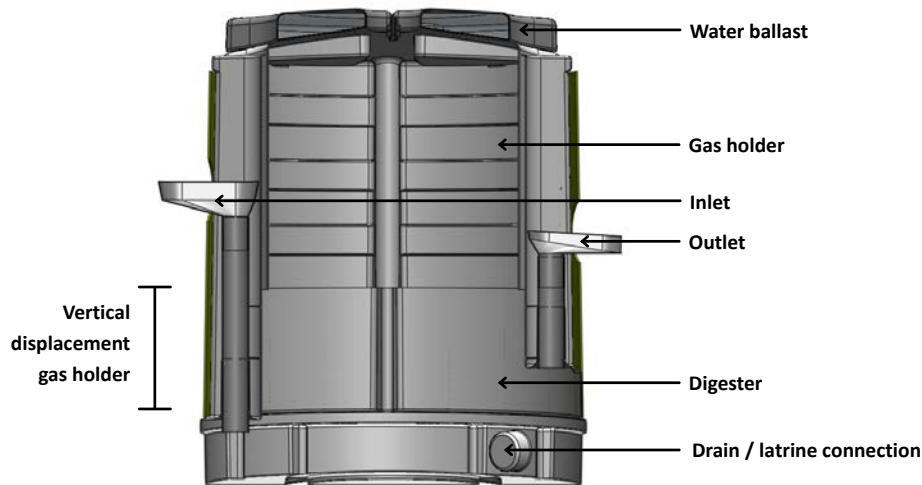


Figure 3: Schematic layout of a biodigester for organic waste

The SimGas bio digesters will be implemented throughout the republic of Kenya both in rural areas for the manure-fed systems and in urban areas for the organic waste fed systems. These biodigesters will be installed at households, communities and SMEs and will include biodigesters with capacities ranging from 0.5m³ to 16 m³. Biogas systems have been implemented since 2013. The entire programme consists of a number of projects referred to us component project activities (CPA) where each CPA is expected to be composed of approximately 10,000 biodigesters.

Carbon credits

The emissions reductions achieved through the PoA will generate carbon credits, the revenue from which will be used to subsidise the biodigesters and biogas stoves, making them more affordable for use in households, SMEs and communities. The programme of activities has undergone successful registration under the United Nations Clean Development Mechanism (CDM) and currently seeks Gold Standard certification by the Gold Standard Foundation.

Sustainable development

Apart from reducing green house emissions generated from the use of non-renewable biomass and fossil fuel, the programme will go a long way into helping achieve sustainable development in a number of ways:

- The programme will reduce deforestation and forest degradation in areas where non-renewable biomass is used as a source of fuel. This will contribute to the overall stability of forest ecosystems, which support biodiversity and watersheds.
- Soil condition will be improved where digester slurry is applied to agricultural land⁴⁵

⁴ Intelligent Energy Europe: The Future of Biogas in Europe III, University of Southern Denmark (2007)

⁵ Lukehurst, C.T.; Frost, P.; Al Seadi, T.: Utilisation of digestate from biogas plants as biofertiliser, IEA Bioenergy. (2010)



- Health – reduced combustion of firewood and fossil fuels in households/SMEs/communities will reduce indoor air pollution, thereby increasing respiratory health of users, particularly women and children who spend a large portion of their time near the domestic hearth^{6,7}.
- Reduction in end-user expenses - a family that operates a 6-8 m³ biogas system can save about EUR 60-70 on firewood, about EUR 70-80 on kerosene and EUR 20-25 on health expenses every year⁸.
- The value of the nutrients in the slurry (produced by the biogas system) is estimated at between EUR 100 and EUR 200 annually⁹. The use of x (or slurry) as an organic fertiliser on agricultural soils can significantly improve soil quality and offset costs that would otherwise be incurred in the purchase of chemical fertilizers. The nutrient value of the slurry produced has also been shown to be higher than raw manure^{10,11}.

⁶ World Health Organization, Indoor Air Pollution: National burden of Disease Estimates., Geneva: WHO (2007)

⁷ B4BL, Biogas for Better Life - Business Plan: 2006-2020. (2007), available at: <https://www.biogasafrica.org/Documents/Biogas-for-Better-Life-Business-Plan-2006-2020.pdf>: Biogas for Better Life.

⁸ Schmitz, T.D., et al., Feasibility Study for a National Domestic Biogas Programme in Tanzania., not published: GTZ (2007)

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¹⁰ Intelligent Energy Europe: The Future of Biogas in Europe III, University of Southern Denmark (2007)

¹¹ Lukehurst, C.T., Frost, P., Al Seadi, T.: Utilisation of digestate from biogas plants as biofertiliser, IEA Bioenergy. (2010)



Contacts

For more information on the project please contact

Elijah Isabu

Carbon Africa Limited

Nairobi, Kenya

P.O. Box 14938 - 00800 Westlands - Nairobi - Kenya | Tel: +254 706 374 150 or +254 731 851 754 |

Email: elijah@carbonafrica.co.ke

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