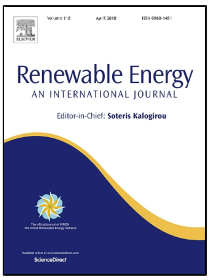
Accepted Manuscript



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PII:	S0960-1481(17)31315-0
DOI:	10.1016/j.renene.2017.12.103
Reference:	RENE 9600
To appear in:	*Renewable Energy*
Received Date:	02 November 2016
Revised Date:	25 December 2017
Accepted Date:	28 December 2017

Please cite this article as: Moris Kabyanga, Bedru B. Balana, Johnny Mugisha, Peter N. Walekhwa, Jo Smith, Klaus Glenk, Economic potential of flexible balloon biogas digester among smallholder farmers: a case study from Uganda, *Renewable Energy* (2017), doi: 10.1016/j.renene.2017.12.103

Economic potential of flexible balloon biogas digester among smallholder farmers: a case study from Uganda

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Abstract

Biogas technology, as a pro-poor renewable energy source, has been promoted in Uganda since the 1980s by the government and NGOs. However, many of the biogas designs promoted have proved to be too expensive for the average Ugandan to afford. A cheaper flexible balloon digester has been proposed, but there have been lack of evidence on the economic viability of this design. The purpose of this study was to analyze the economic potential of a flexible balloon digester among smallholder farmers in Uganda using the tool of cost-benefit analysis. Primary data were obtained from survey of experimental households and 144 non-biogas households in central Uganda. The results revealed that the net present value was negative and the payback period was greater than the economic life of the digester. However, sensitivity analysis revealed that with a 50% reduction in investment cost the technology is financially viable for 67% of the households and to all households as a group (NPV= UGX5,804,730). The initial investment cost is a critical factor to viability and potential adoption. We suggest that government and development partners interested in the sector should consider strategies that could reduce strategies that could reduce the technology cost e.g., manufacturing low cost balloon digester locally.

Keywords

Biogas, cost-benefit analysis, economic viability, flexible balloon digester, Uganda