

# International Congress and Expo on **Biofuels & Bioenergy**

August 25-27, 2015 Valencia, Spain

## **Introduction of small-scale biogas digesters for households: Case study of the Maluti-a-Phofung municipality, South Africa**

**ME Moeletsi<sup>1</sup>, P Magama<sup>2</sup>, KM Nape<sup>1</sup>, MI Tongwane<sup>1</sup>, MI Motsepe<sup>3</sup> and S Madikiza<sup>3</sup>**

<sup>1</sup>Agricultural Research Council - Institute for Soil, Climate and Water

<sup>2</sup>Agricultural Research Council - Institute for Agricultural Engineering

<sup>3</sup>Department of Agriculture, Forestry and Fisheries, Directorate: Climate Change and Disaster Management

Renewable energy is increasingly gaining support as an alternative and sustainable way of providing rural energy and combating climate change. The study was approached in stages to ensure adoption of the technology by the farming community. The first step was to undertake a situational analysis, followed by awareness and training, then installation of the biodigester units and lastly, monitoring of their functionality. The results showed that all the farming households have enough animals to feed the biodigester. Only one out of the twelve households kept their farm animals in kraals, making it difficult to collect fresh manure. Water availability was not a constraint on any of the farms, which utilised windmill-powered boreholes with constant water supply. Ten out of the twelve households were found to be suitable for the study. Training of farmers and youth on the biodigester principles, feeding of the biodigester and maintenance of the unit was well attended. Pre-fabricated 6m<sup>3</sup> biodigester units were installed in all the households. Depending on the energy use, one to four digester units were connected in parallel. After continual feeding, production of biogas increased and six out of the ten households recorded that 60% of their cooking needs were achieved in summer while in winter biogas production was minimal. Challenges faced included non-adherence to feeding regime, resulting in biodigester blockage, and unavailability of labourers for constant feeding of the digesters. Overall there was high appreciation of the biodigester technology in the study area as echoed by beneficiaries of the project.

### **Biography**

Mokhele Moeletsi obtained his PhD in 2011 from the University of the Free State, Bloemfontein, South Africa. He is a senior researcher at the Agricultural Research Council - Institute for Soil, Climate and Water in Pretoria, South Africa, focussing on agrometeorology and agricultural climate change mitigation. He has published more than 10 papers in national and international journals.

[MoeletsiM@arc.agric.za](mailto:MoeletsiM@arc.agric.za)

### **Notes:**