ENCOURAGING SWITCH TO BIOGAS THROUGH PRAYER

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Uganda has a huge potential to exploit the large quantities of crop residues and animal wastes generated by farmers. It is on this basis that some households and institutions have embraced biogas as a renewable energy option to meet their energy needs. However, since its introduction in Uganda in the 1950's, biogas technology is still not universally accepted and penetration has remained relatively low (Uganda Domestic Biogas Programme, 2010).

Biogas plants are vital to convert bio-wastes into cooking gas (mainly methane), providing a viable alternative for firewood or charcoal. Biogas generation can be done at any scale and can be owned by individual households, institutions and even villages. These plants are an environmentally friendly way of disposing of organic waste materials which would otherwise be dumped anywhere including in wetlands and landfills.

But there are challenges to its promotion. An MSc. Thesis Report (Royal institute of Technology - Stockholm, Sweden) titled: 'Quality and usage of biogas digesters in Uganda' by Lutaaya Fred (2013), concluded that poor system maintenance, poor workmanship during construction works, poor operational practices, availability of other cheap fuel alternatives, laziness and lack of interest amongst the users, lack of alternative sources of feedstock and system blockages are some of the hindrances to biogas promotion in Uganda. It was carried out at 144 biogas plant sites in Luwero, Kampala, Wakiso, Mbale, Jinja and Mukono districts. 55% of the surveyed biogas plants were not operational or working to the user's expectations. Most were operating in the temperature range of 18°C-25°C with the gas quality ranging between 50-60% methane. Most digesters showed high organic loading rates indicated by traces of biogas at the expansion chamber.

Despite the above challenges, they are efforts to promote biogas use in Uganda.

Pastor Sam Kabuye Kasule of Kasana-Kikyuusa (semuto sub county) in Nakaseke district is a prime advocate. He regularly preaches biogas use to his flock and neighbours. Since adopting biogas use in his home, he cheerfully preaches the changes to his life. He also regularly preaches to village mates to visit his home and learn.

Pastor Kasule adopted biogas using the fixed dome type after being trained by ECOSAFE Ltd a company that constructs biogas plants, in 2016. 'I used to spend at least 100,000 Uganda Shillings per month on firewood equivalent to 1.2 million per year which has now been offset by biogas which provides me with other benefits as well', he says. Pastor Kasule points to his lush coffee and banana plantations. He owns four cows that provide cow dung which forms the feedstock for his biogas digester. He observes that bio-slurry (residue from the biogas plant) is an important benefit that is often overlooked.

‘My nine-year banana plantation has continuously provided me with bunches that now sell between 6,000 to 10,000 Uganda shillings depending on size. In effect my initial installation costs have been met long time and I am now appreciating the profits from the biogas and the farm produce’. He also mixes the slurry with maize bran to feed his pigs.

Pastor Kasule continually preaches the advantages to his neighbours in Kasana. Many have adopted biogas as an alternative to the more costly firewood in the area.

Pastor Kasule concludes that the 1.8 million shilling investment for the nine cubic metre biogas digester set up in 2016 has already been paid back. Besides the cumulative fuel and other savings, the digester producers bio slurry as organic ready-to-use fertiliser.

Pastor Kasule got the 1.8m shilling - loan to start through PostBank Uganda’s Renewable Energy Facility. It is payable over a three-year period. ECOSAFE Ltd provided the expertise and advice for the successful and sustained operation of his 9 cubic metre biogas digester. ECOSAFE Ltd also gives a one-year guarantee for the fixed dome biogas plant (with regular checks to ensure proper use by the clients. The digester has a lifetime of 25 years if maintained well. ‘The cumulative fuel and other savings estimated at 2.8 million Uganda shillings after only 22 months of operation compared to the 1.8 million Uganda shillings investment cost, is an adequate reason for more households and institutions to adopt biogas use’, says Mr. Banadda Nswa of ECOSAFE ltd.

A nine cubic metre biogas digester like that of Pastor Kasule can be operated by any small to medium farm with zero-grazing cows that provide at least 75 kgs of cow dung per day as feedstock for the biogas digester.