

<b>Title:</b>	Co-digestion of slaughterhouse waste (SHW) and cow dung (CD) to enhance biogas production and ascertain optimum mixing ratios.
<b>Abstract:</b>	The current study is part of a broader project initiated by Agricultural Research Council and Department of Agriculture, Forestry and Fisheries with the goal of introducing biodigester systems in the rural farming communities of South Africa. The main aim of this study is to enhance the biogas production during anaerobic digestion looking at improving and optimising the process parameters to adhere to South African conditions. Slaughterhouse waste and cow dung are the main substrate that are being investigated to improve biogas production through anaerobic co-digestion. There are more than 490 Slaughterhouses in South Africa, producing approximately 10 000 kg of waste per month. While there were 800 million beef cattle produced in South Africa year 2011/2012. Anaerobic digestion (AD) of waste from the beef farming in South Africa can assist in solving the energy crisis and agricultural challenges with biogas and resulting nutrient rich fertiliser. The current study aims at investigating the biomethane potential from co-digestion of slaughterhouse waste and cow dung and determines suitable mixing ratios for maximal biomethane production. Investigate correlation between the organic loading of slaughterhouse waste and the production VFA and ammonia during AD in continuous stir tank reactor and also study methanogenic communities that are tolerant to high ammonium and VFA concentration for maximal biomethane production. The above is envisaged as worthy to improve digestion of slaughterhouse waste and cow dung and possible implement in cattle farming of South Africa.
<b>Lead institution:</b>	North West University
<b>Partner institutions:</b>	Agricultural Research Council- Institute of Soil, Climate and Water
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<b>Degree:</b>	PhD
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<b>Start date:</b>	01/09/2015
<b>End date:</b>	01/12/2018
<b>Feedstock:</b>	Cow manure and slaughterhouse waste
<b>Value chain products:</b>	Biogas, volatile fatty acids, ammonia and organic fertiliser
<b>Geographic source of the feedstock:</b>	Gauteng and Free State