P1: Biogas production from Cashew waste and cattle manure: influence of biomass composition on methane yield

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Objective
To optimize the production of methane from cashew waste and cattle manure within Kilifi County:
- As a waste management strategy
- As a livelihood creation strategy

Background
Kenya produces approx 11,000 tons of cashew nuts per year, according to the Kenya Cashew Nuts Processors and Exporters Association. The cashew nut husk represents 70% of the cashew nut total weight, the remaining 30% is the nut.

From 11,000 MTs x 0.7 = over 77,000 TONNES of Waste/year!!!

Similarly, other agricultural waste products with potential for biogas production such as kitchen waste and castor oil, continue to litter the streets and dumpsites all over the country. The potency of most waste products in Kenya as substrate for biogas production is by and large unknown.

Analyses
1. Retention time and methane production
2. Methane energy value model design and development
3. Comparison of Cashew waste and Cattle Manure in Biogas Production
4. Testing of Agricultural and Kitchen waste for Biogas production

Expected Outputs
Direct project effects
- Establishment of biogas plant at PUC
- Data generated will support Post-Graduate Research
- Methane Energy Value Model
- Potential of Cashew waste as biomass for biogas production

Indirect project effects (Expected Outcomes)
- Optimising the use of cashew tree
- Clean energy production and mitigation of global warming

The Pwani University Flexi-Biogas Demonstration Unit
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BIOGAS INTERNATIONAL
flexi Biogas

Continuous Flow

Batch

Combination System

Only 1 Cow

CLEAN, GREEN,

Cooking-Stove, Baking, Br-B-Q
Engine Fuel - Generators, Chaff cutters, Hammer-mills etc
Food processing - Fertiliser

Prices

<table>
<thead>
<tr>
<th>Model</th>
<th>Production/day - Lts.</th>
<th>Recommended usage</th>
<th>Kes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBG</td>
<td>1000-1500</td>
<td>Small domestic family</td>
<td>40,000.00</td>
</tr>
<tr>
<td>BG5</td>
<td>1500-2500</td>
<td>Average domestic use</td>
<td>55,000.00</td>
</tr>
<tr>
<td>BG6</td>
<td>4000-5000</td>
<td>Domestic energy, schools and Homes</td>
<td>70,000.00</td>
</tr>
</tbody>
</table>

Extras: Utilities, Starter dung or tatha, Trasportation & Accommodation

Our Only Home

Keep it Clean, Keep it Green

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