Functioning and types of Biodigester
Types of Biogas Plants

Based upon type of gas holder
1. Floating gas Holder
2. Fixed gas holder

Based upon type of Feeding
1. Continuous Feeding
2. Batch Feeding
3. Semi-batch / continuous Feeding
Types of Bio-digesters

Floating Gas Holder Type
Types of Bio-digesters

Plastic Tunnel-type
Types of Bio-digesters

Chinese Fixed Dome Type
Types of Bio-Digesters

Janata Model - India

Deen-bandhu Model - India
Types of Bio-Digesters

Vietnam Model
Types of Bio-Digesters

German Model
Types of Bio-Digesters

- Tanzanian Model
- VACVINA Model-Vietnam, Cambodia
Types of Bio-Digesters

Plug Flow Model
Types of Bio-Digesters

Bangladesh Model
Types of Bio-Digesters

KAMARTEC BIOGAS PLANT - RWANDA
Cambodia Model

Fibre glass Biogas Plants
Types of Bio-digesters

Nepal GGC Model
R&D of Different types of Biogas Plants
Selection of Biogas Plant Design

Climatic and geo-physical parameters (construction environment)
- Ambient temperature
- Geo-physical conditions of the soil
- Condition of ground water-table

Technological Parameters
- Structural strength against different load conditions (structural durability)
- Methods of construction
- Methods of operation and maintenance
- Applicability/adoptability of the design in different geographical context for mass dissemination
- Prospects for sharing of technical information and know-how
Selection of Biogas Plant Design

Affordability of potential farmers to install biodigester
- Availability of construction materials
- Availability of human resources (skilled and unskilled) at the local level
- Cost of installation, operation and maintenance
- Transportation facilities

Quality and quantity of available feeding materials
- Type of feeding materials (cattle dung, pig manure, human excreta etc.)
- Availability of water for mixing
- No. of cattle/pig per household
Selection of Biogas Plant Design

Purpose of the use of the biodigester products
- Use of gas for cooking, lighting and/or operating a dual-fuel engine
- Use of slurry as organic fertiliser

Performance of existing models, if any, in the local and/or regional conditions
- Existing physical status and functioning
- User's level of satisfaction
### Introduction to GGC Model Biogas Plant

<table>
<thead>
<tr>
<th>Size in Cum</th>
<th>Initial Feeding (cattle dung or pig manure)</th>
<th>Daily dung feeding (kg)</th>
<th>Water to be mix with dung (litre)</th>
<th>Use of Biogas Stove (hour)</th>
<th>Use of Biogas Lamp (hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1500</td>
<td>20-40</td>
<td>20-40</td>
<td>3.5 to 4</td>
<td>8-10</td>
</tr>
<tr>
<td>6</td>
<td>2300</td>
<td>40-60</td>
<td>40-60</td>
<td>5.5 to 6</td>
<td>12-15</td>
</tr>
<tr>
<td>8</td>
<td>3000</td>
<td>60-80</td>
<td>60-80</td>
<td>7.5 to 8</td>
<td>16-20</td>
</tr>
<tr>
<td>10</td>
<td>3800</td>
<td>80-100</td>
<td>80-100</td>
<td>9.5 to 10</td>
<td>21-25</td>
</tr>
</tbody>
</table>

- The gas storage capacity of the biodigester has been increased to 60% of the total daily production as contrary to 45% in the original design.
- This modification has been made based upon the cooking pattern of the people.
- This design ensures gas availability as per the requirement of the people.
Functioning of a Biodigester

Stage-1: No gas in Plant
Stage-2: Gas being produced
Stage-3: Plant full with Biogas
Stage-4: Gas being Used
THANKS