**Anaerobic Gas lift Reactor (AGR): A High rate biomethanation technology to treat organic solid waste for the generation of biogas and bio manure**

<table>
<thead>
<tr>
<th>Title of the Technology: Anaerobic Gas lift Reactor (AGR): A High rate biomethanation technology to treat organic solid waste for the generation of biogas and bio manure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type (Green/ Import Substitution/ etc.)</strong></td>
</tr>
</tbody>
</table>
| **IP Status (IP Protected/ Non-infringing/ Freedom to Practice)** | - Technology is patented in India and Abroad  
- Status of patent:  
  - India: Granted, 0019DEL2013; 03/01/2013  
  - Abroad: filed, under scrutiny. PT-609/0207NF2012 |
| **TRL Status** | - Technology is currently at commercial scale - (TRL 9) |
| **Plant/equipment/ Space requirement for manufacturing** | - Major equipment: Anaerobic digester with accessories, biogas generator with accessories.  
- Minor equipment: Waste crusher/shredder, conveyor arrangement for loading waste into crusher, process pumps, biogas scrubber, biogas balloon, biogas compressor, biogas pressure tank, biogas flare unit/gas blower, accessories etc.  
- Space Requirement for manufacturing: 10,000 to 20,000 square feet |
| **CapEx** | Food Waste  
1000 kg/day: INR 38,50,000/-  
750 kg/day: INR 32,00,000/-  
500 kg/day: INR 26,75,000/-  
300 kg/day: INR 22,25,000/- |
| **OpEx** | Food Waste  
1000 kg/day: INR 2,33,150/- per annum  
750 kg/day: INR 2,07,600/- per annum  
500 kg/day: INR 58,400/- per annum  
300 kg/day: INR 41,610/- per annum |
| **Market size and Return on Investment time (Please indicate in numbers)** | Huge. All the hotels and restaurants, gated communities, ULB’s  
ROI: 2 to 5 years depending on the type of organic waste, quantity, application of biogas (power or LPG replacement)  
Food Waste to Biogas for replacing LPG  
250 kg/day: 3-4 Years  
500 kg/day: 3-4 years  
1000 kg/day: 2-3 years  
5000 kg/day and above: <2 years |
| **Availability of raw material** | Organic Waste: 50,000 to 60,000 tons per day |
| **Product/ Equipment certification status (Regulatory body/ user agency)** | None |
| **Unique Selling Point** | High methane yield, low foot print area, compact, Low maintenance |
| **Transfer of Technology charges of the Lab for** | CSIR-IICT can decide based on case to case basis  
a. Micro  
b. Small  
c. Medium  
Scale company |
| **Date for demonstration of technology (any date from 15th November to 6th December 2019)** | 18th November 2019  
Or  
2nd December 2019 |
<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Lab Address</th>
<th>Phone No. (Landline/Mobile)</th>
<th>Email address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. A. Gangagni Rao</td>
<td>Chief Scientist</td>
<td>CSIR-IICT, Tarnaka, Hyderabad-500007</td>
<td>9949010736</td>
<td><a href="mailto:agrao@iict.res.in">agrao@iict.res.in</a> or <a href="mailto:gangagnirao@gmail.com">gangagnirao@gmail.com</a></td>
</tr>
</tbody>
</table>