

ANAEROBIC BIPHASED BAFFLED REACTOR



Developed by

**APSHISHT MANAGEMENT AND
ENVIRONMENTAL RESEARCH PVT. LTD.**

Guwahati-781039

ABOUT AMER

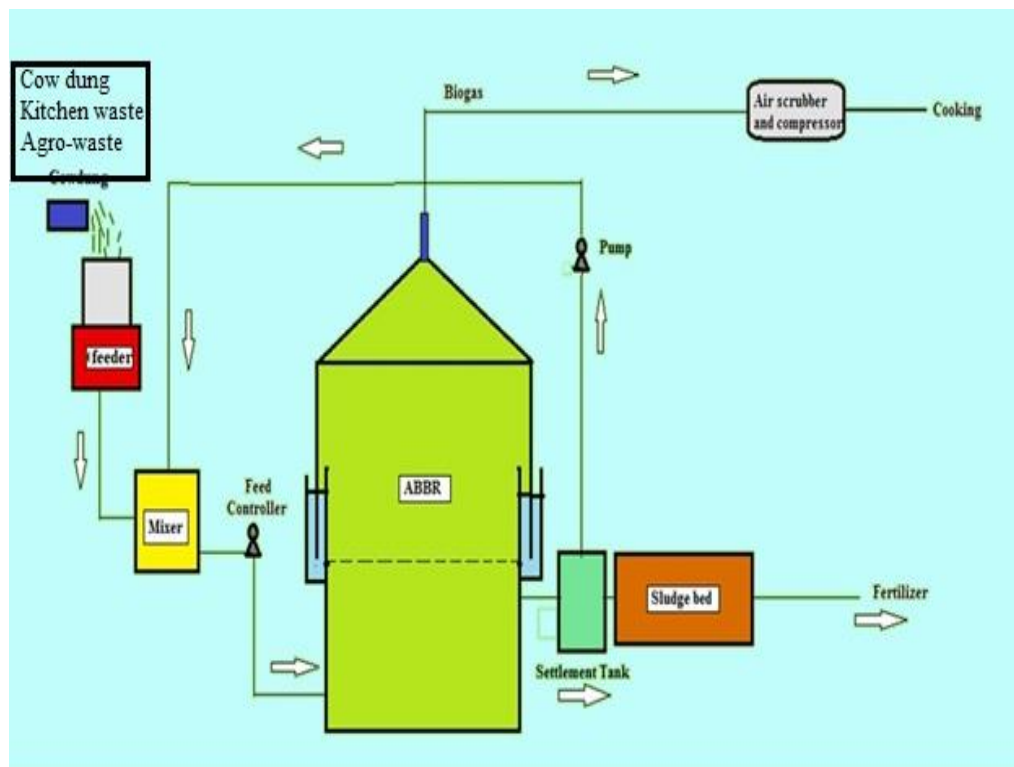
The Biggest challenge in India nowadays is Solid Waste Management. Excessive uses of Chemicals and Fertilizers on Agriculture, Tea Gardens, Farms etc. which causes serious soil degradation. Our Motive is to make the environment clean and green and to build a healthy product for healthy environments. The Apshisht Management and Environmental Research Pvt. Ltd. (AMER) has a multidisciplinary team of experienced professionals in the area of solid waste management, liquid waste management and Environmental engineering. The AMER has more than 15 years of experience/expertise in project engineering, consultation and technology development.

BIOMETHANATION:

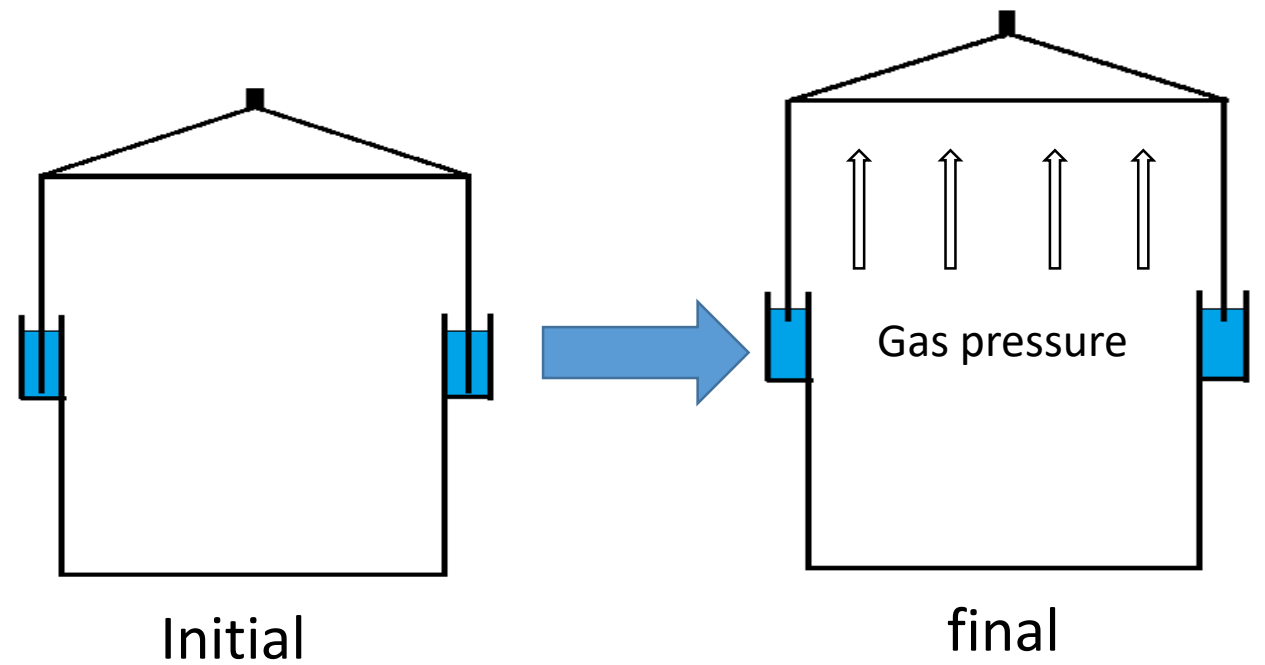
Biogas production through anaerobic digestion is now widely practiced for the volume reduction of organic waste and energy recovery. Biogas is a type of biofuel that is naturally produced from the decomposition of organic waste. When organic matter, such as food scraps and animal waste, break down in an anaerobic environment (an environment absent of oxygen) they release a blend of gases, primarily methane and carbon dioxide. Several advantages such as low energy requirement, low sludge production, low nutrient requirements are advantages of this method. Primarily the gas is used for lighting and cooking.

Significance of ABBR:

Anaerobic digestion is the best technology to utilize the Pig manure and convert into a valuable cooking fuel or power generation fuel. ABBR is the technology designed and developed in IIT Guwahati with more advantages compared to other available technologies in market. It is an efficient and promising technique with its decentralized processing of the material, as it provides agitation, well contact time and uniform mixing of the acidogens and methanogens to produce a stabilized end product i.e., high quality biogas, soil nutrients. The feed needs to be segregate from non-organics and grind well to achieve higher efficiency. Since the process time of the anaerobic digestion reduced drastically, when compared with other methods, this methodology can be used successfully. The biogas produced can either be used for cooking or for generating electricity.



Flow diagram of biogas plant operation



Lifting of ABBR roof due to development of gas pressure

Additional machineries provided with Biogas Reactor:

DC generator for production of electricity from Biogas



Compressor for condensing the Biogas to fill in the cylinders



Balloon for storage and transportation of Biogas



Uses and advantages of Biomethanation:

- ☐ Waste generated in kitchen can be used back in kitchen as a form of clean energy.
- ☐ One kg of food waste can generate biogas for half an hour of cooking.
- ☐ The gas can be used for generation of electricity with proper set up of machineries.
- ☐ The remaining sludge is rich in plant nutrients which is a good Bio-fertilizer.
- ☐ Biomethanation is a sustainable waste management technique which also helps in reduction in emission of GHG's as well as reduction of soil, water and air pollution.

Advantages of ABBR:

- ☐ Increase travel length
- ☐ Increased contact time between microbes and feed
- ☐ Less maintenance
- ☐ Stabilized fatty acid utilization
- ☐ More methane content in biogas
- ☐ Less hydraulic retention time
- ☐ Less sludge formation
- ☐ Auto pH maintenance



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