

INTRODUCTION:

Biogas plant philosophy is based on the dictum that "Nothing Should Go Waste" and that all organic waste products should be put to such a good use, so as to give you good returns in terms of Biogas and Organic Manure.

The waste-to-energy plant will daily use municipal solid waste and produce biogas that will then be utilised to generate electricity for lighting up street lights at Bittan Market.

It utilises biodegradable waste, mostly from the nearby vegetable market and the adjacent colonies, to be converted into biogas. This is part of the Bhopal Smart City project and the scheme is also being linked to the Swachh Bharat initiative.

The biogas plant marks a forward leap in Bhopal Municipal Corporation (BMC) move for sustainable development and reduction of the city's carbon footprint.

The plant installed at Bittan Market Bhopal will be able to process five tons of segregated organic municipal solid waste daily and produce biogas. There are over 50 hotels and 500 vegetable vendors in the area, making the location an ideal base to collect organic waste.

BMC survey estimates that daily, about two tons of waste will be collected from residential colonies and three tons from vendors. A total of 800 MT of waste is generated in the city every day, with 60% being organic or disposable. This makes it an enriched resource for alternate energy generation.

SITE SCENARIO:

The Biomethanation Project is located in the most feasible location of Bittan market of Bhopal. A haat bazar (vegetable market) is held thrice a week accumulating organic waste of vegetable and fruits.

OBJECTIVE OF THE PROJECT:

To provide innovative, cost effective, one stop solution in waste management, pursue excellence, deliver quality and ensure a satisfied public demand for that area and to convert the waste to energy under Swachh Bharat mission.



PROJECT DESCRIPTION:

Bhopal Smart City Development Corporation Ltd. awarded the work of construction and operation to Mailhem Engineers Pvt. Ltd.

The main challenge of this project was to construct the Biogas Plant at a rapid speed and operate it efficiently with the waste collected from the vegetable market.

Plant Capacity	5 Ton per day of Segregated Organic MUNICIPAL SOLID WASTE (MSW)
Biogas Generation	280 - 300 cum/day @calorific value 4800 to 5200 kcal / cum
Power Generation	Approx. 420 Electrical units / day (100% Biogas Genset of 45 kVA)
Organic Manure Generated	15 tons/ annum (will be removed on periodical basis)
Liquid Organic Overflow	10 – 11 cum / day (will be recycled to save on fresh water)
Area Required For Waste Management Plant	Approx. 450 Sq.m.

PROJECT IMPACT:-

By using biogas, the living conditions and the environment have improved, forests are protected, and the labour force has more time for agricultural production. A large amount of straw, which was previously burned, is now put into biogas tanks to ferment. This reduces air pollution from smoke and helps produce high-quality organic fertilizer.

- Biomethanation plant, digesting the waste reduces land fill and provide clean environment and Green energy. This plant also reduces city level pollution in terms of solid waste, air and water.
- Biogas plant produces green and renewable energy. It reduces Green House effect.
- This Plant has its direct impact on cleanliness and simplifies housekeeping of the market and surrounding area. No more foul smell is observed in the area.
- Waste is now turned in to high quality Fertilizer which can be used in landscaping or farming.
- This is the most cheaper and liable technology. It also produces cheapest energy. This plant is simple and easy to operate.
- The energy produced is used to illuminate the streets through street lights and reduce the usage of fossil fuels.
- Biogas plant played an important role in elevating the rank of Bhopal city in Swachh Bharat mission

CONCLUSION:

In conclusion, biogas could be the most successful models of renewable energy in BHOPAL Biogas could uplift the socio-economic status of its users because of its multiple benefits to the households, community and the country. It has direct impact on health, environmental and agriculture. The prospects of biogas are very high as people of BHOPAL are well aware of various benefits of biogas and they have very positive views about biogas plant.