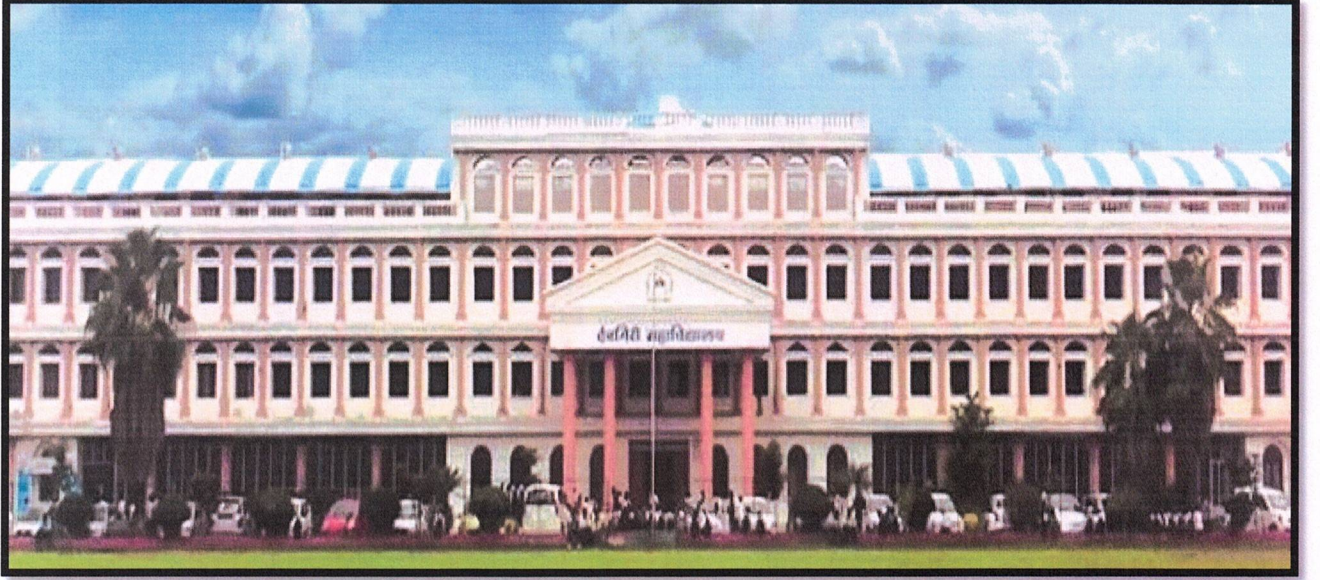


**Marathwada Shikshan Prasarak Mandal's
DEOGIRI COLLEGE, AURANGABAD**



REPORT ON BIOGAS PLANT

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REPORT ON BIOGAS PLANT, GIRL'S HOSTEL, DEOGIRI COLLEGE, AURANGABAD

Biogas is the gas produced by fermentation of organic matter (animal and vegetable) in the absence of oxygen and it is mainly composed of methane (CH₄).

Its production can take place from different ways:

Naturally :

- In moors and lakes, biogas is produced by the organic sediments accumulated at the bottom
- In landfills which contains organic wastes

Artificially in anaerobic digesters, where it is heated, with:

- Sewage sludge
- Municipal waste (like food waste)
- Manure or dung in farms
- Energy crops (like maize silage)

Like this, biogas can be called swamp, marsh, landfill or digester gas. The anaerobic digesters are usually called "biogas plant". In fact, the composition of biogas is different depending on its origin: landfill gas typically has methane concentrations around 50 % contrary to some advanced waste treatment that can produce biogas with 55 to 75 % of methane.

Uses:

Biogas is renewable fuel that can be used to produce heat and electricity. Indeed, the gases methane, hydrogen and carbon dioxide can be combusted or oxidized with oxygen and that release some useful energy. Like this, biogas can be used for space heating, cooking, water heating and process heating.

Advantages:

Methane is a very powerful greenhouse gas: its global warming potential is 23 times higher than that of CO₂. In this way, recovering of biogas is very interesting to limit the greenhouse effect.

Furthermore, biogas is a renewable energy form because biomass naturally releases biogas by decomposition. By using biogas as an energy source, we can reduce our dependency on fossil resources as coal, oil and natural gas.

Why this type of Biogas Plant?

The proper disposal of kitchen waste will be done in an eco-friendly and cost effective way. While calculating the cost effectiveness of waste disposal we have to think more than monetary prospects only. The dumping of food in places and making the places unhygienic can be taken good care of; it adds to the value of such Biogas plants. Natural components like micro-organisms, kitchen waste & biodegradable waste viz paper, pulp can be utilized. The bio-gas produced from food waste, decomposable organic material and kitchen waste, consisting of methane and a little amount of carbon di oxide is an alternative fuel for cooking gas (LPG). Also, the waste materials can be disposed off efficiently without any odor or flies and the digested slurry from the bio-gas unit can be used as organic manure in the garden.

Components of the Bio-gas Plant

The major components of the bio-gas plant are

- Digester tank,
- Inlet for feeding the kitchen waste,
- Gas holder tank,
- Outlet for the digested slurry
- Gas delivery system for taking out and utilizing the produced gas.

This project is also useful for students to have a hands-on learning experience in constructing a Mini Bio-Gas Plant, using the kitchen waste of our Girl's hostel mess.

Objective:

Designing of a portable biogas plant for utilizing kitchen waste of Deogiri College, Girl's hostel Mess to generate green fuel.

Compositions of Kitchen Wastages are:

- (A) Cooked food waste
- (B) Uncooked Vegetables and Fruits waste

Technical Details of the Biogas Plant

- Capacity: 4.5 cubic meter
- Food waste : 25-30 Kg/Day
- Gas Generation: 2-2.5 kg/day

Brief about the Activity

There are regular waste disposal problems in almost all Institutions like hostels, hospitals etc. where more peoples are staying together. In the same time the cooking fuel consumption of these Institutions is also very high.

Biogas production kills two birds with one stone: It reduces waste and produces energy. In addition, the residues from the digestion process can be used as high quality fertilizer. This closes the nutrient cycle. By understanding the today's need of saving of energy, Deogiri College, Aurangabad taken an initiative & sets up Bio-Gas plant to process Girl's hostel mess food waste.

Details

In an example worth emulating, the Marathwada Shikshan Prasarak Mandal's, Deogiri College, Aurangabad has installed a biogas plant, commissioned by GetGreen Bioenergy Ltd that has a capacity to generate energy around 2-2.5 Kg Methane per day by decomposing waste from the students' mess.

The Girl's hostel mess caters to more than 440 students daily and generates over 40 kg of solid and semi-solid waste, in the form of left-over food and remains of vegetables and fruits. It was a tedious task to pack the huge amount of waste in polythene bags and hand them over to the civic body almost daily. It is now easy to dump this waste & processed at the biogas plant after some segregation. From it, Deogiri College is getting nearly 2-2.5 kg of biogas and it is also clean and efficient. The biogas plant aims at addressing the issue of disposal of waste from the mess and other parts of the campus in an eco-friendly manner.

Photographs

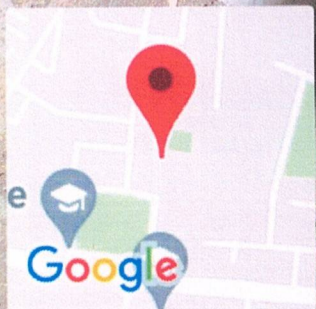




Biogas Plant installed at Girl's hostel, Deogiri College, Aurangabad.



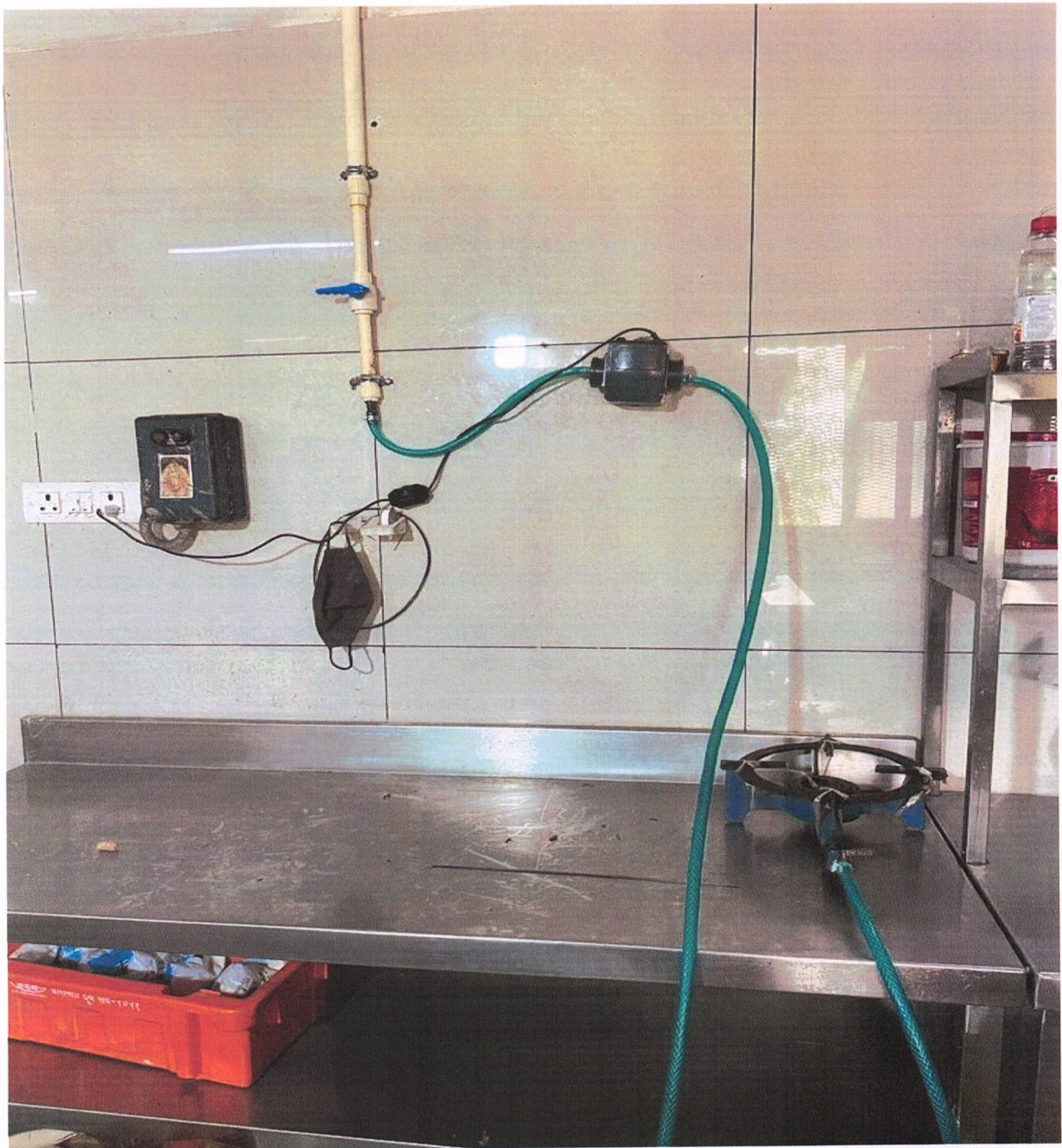
GPS Map Camera



Aurangabad, Maharashtra, India
202, Rachanakar Colony, Pimple Saudagar, Aurangabad,
Maharashtra 431005, India
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Biogas connected to girl's hostel mess kitchen



Dantel
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Aurangabad.**

Mahadev
**Mr. Mahadev Jadhav
Coordinator**