



# KALASALINGAM

## ACADEMY OF RESEARCH AND EDUCATION

### (DEEMED TO BE UNIVERSITY)

Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A" Grade



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## Biogas Production Facility at KARE

As part of our Green Campus initiative and also for maintaining a sustainable environment, we have implemented several initiatives that include:

1. Sewage / Waste water Treatment Plant
2. Solid Waste management which includes vermicomposting
3. Water Conservation and recycling of treated waste water and
4. Biogas plant

### Biogas Plant

There are totally 7 hostels in the campus and approximately 6000 students are residing in the campus at any point of time. The food is prepared in a common kitchen and distributed to the various hostels. The fresh vegetable peels are collected from the cooking area and part of it was utilized for biogas production. The collected waste is chopped into small pieces using a mixer and fed into the digester.

For the production of biogas, a fixed dome digester was constructed to utilize part of the kitchen waste. The radius of the digester is 1.25 m and its height 2.5 m. The total volume of the digester is 12 m<sup>3</sup>. Out of which, 75% was proposed to be slurry level and 25 % of it as gas holdup. The slurry volume is 9m<sup>3</sup>. The gas hold up is 3 m<sup>3</sup>. The initial seedling is done by using cow dung as the source. An average of 1200 kg/day of kitchen waste is generated. Nearly, 10% of the waste is given as organic loading rate in the digester. Water requirement is in the ratio of 3:1. On an average, 8 - 10 m<sup>3</sup>/day of gas is generated from the facility is used for source of gas for cooking in the kitchen. Factors such as composition of the food waste and temperature could affect the variation in gas content. During the vacation, cow dung is used as feed for continual running of biogas plant.

The geotagged photo of biogas plant is attached below:



LATITUDE	9° 34' 21.23" N
LONGITUDE	77° 40' 39.66" E