Criterion: 7.1 Institution Values and Social Responsibilities.

7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures.

1. Solar Energy

In response to the escalating threat of climate change, Rajarajeswari College of Engineering has undertaken a significant initiative by transitioning to solar water heaters in its hostels. This strategic move not only aligns with the institution's commitment to environmental sustainability but also addresses the imperative need to reduce electricity consumption and associated costs. Moreover, this environmentally friendly initiative showcases the college's commitment to responsible and ethical practices and encouraging a broader societal shift towards sustainable and renewable energy solutions. In essence, the adoption of solar water heaters reflects the institution's dedication to mitigating the impact of climate change and promoting a greener, more sustainable future.

Photos 1&2: Solar water heating systems in college hostels

2. Biogas Plant

The institution has accomplished the construction and recent launch of a Biogas plant at Rajarajeswari Medical College and Hospital (RRMCH), designed in-house with the active participation of engineering students from RRCE who conducted surveys to estimate the daily solid waste generation. The in-house civil team also undertook the construction. This facility processes 500 kg/day of solid waste and serves as the destination for food waste collected at RajaRajeswari College of Engineering, contributing to the production of Biogas. The salient features of the Bio-gas systems are listed as below:

[A] The biogas plant receives the solid wastes from canteen (leftover cooked and foods), student mess, hostels, staff quarters and college buildings.

[B] The biogas plant comprises of a floating dome bio-digester, flame arresters, gas compressors, gas metering and gas stoves provided in the kitchen. The feeding line is also designed at two locations so as to simultaneously feed other waste for Research and enhancement of Bio-gas production.

[C] A settling cum filtration unit has also been commissioned to separate digested solids from the liquid. The dried solids are to be further used as compost/soil conditioner. It is estimated that almost 150 kg of dry solids may be recovered per day.

[D] The filtrate is recycled back to the feeding tray of the crushing unit to dilute the solid food waste prior to its entry into the Bio Digester.

[E] The biogas recovered is directly used in the kitchen nearby, through the underground GI pipe line fitted with the flame arresters as fire safety.

[F] The segregation of wet waste and dry waste is under implementation within the campus so as to divert all the wet wastes to the bio-digester.

[G] The area around the biogas plant is paved with the concrete paver blocks to maintain cleanliness and hygienic.

[H] The plant design is in such manner as to expand conveniently in future and/or convert the existing system into a two reactor system for better efficiencies.

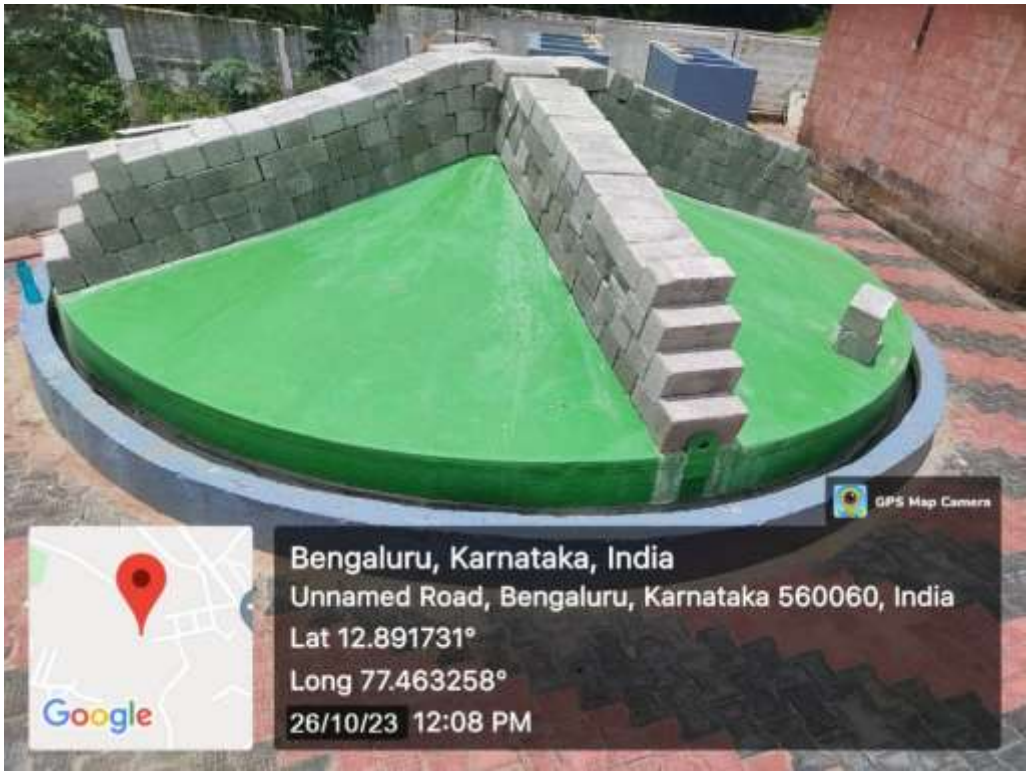

Photo.3: Centralized Biogas plant facility at RajaRajeswari Medical College and Hospital.

3. Wheeling to the Grid

Preparing for the near future

4. Sensor-based energy conservation

A sensor-based system has been implemented for all water pumps in the college, incorporating liquid level sensors that utilize a magnetic float. As the liquid level in the sump rises and falls, the magnetic float moves accordingly. Once the water level reaches the maximum, the magnet in the system triggers a reed magnetic switch, deactivating the pump to prevent water waste and conserve energy.

Additionally, a sensor-based Diesel Generator (DG Set) has been installed in the iON Dizital zone within the campus specifically for conducting online examinations, such as GATE. This installation ensures an uninterrupted power supply during online exams. The DG Set specifications include an Ashok Leyland model with a capacity of 82.5 KVA.

Photo.4: Sensor based water pump systems in Rajarajeswari College of Engineering

Photo.5: Sensor based 82.5 KVA Generator set systems in Rajarajeswari College of Engineering

5. Use of LED bulbs / power efficient equipment

a. Replacement of CFL Tube lights with LED Lights

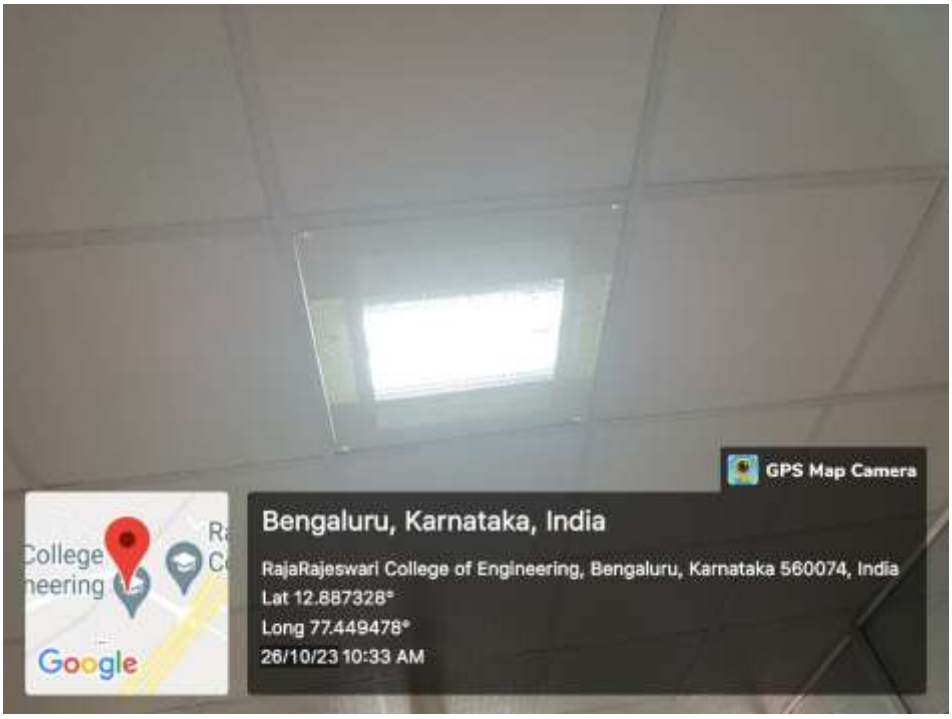

Photo.6: LED Tube lights in Labs at Rajarajeswari College of Engineering

Photo.7: LED Tube lights in Classrooms at Rajarajeswari College of Engineering

b. Replacement of old Air conditioner with Energy efficient Air conditioner.

In an effort to enhance energy efficiency and reduce the environmental impact, the institution has undertaken a comprehensive initiative to replace all old air conditioners with energy-efficient counterparts. As part of this transition, Blue Star Air Conditioners has been specifically installed in the seminar hall. The Blue Star Air Conditioner, being a modern and energy-efficient system, not only provides effective climate control in the seminar hall but also plays a crucial role in minimizing the overall energy consumption.

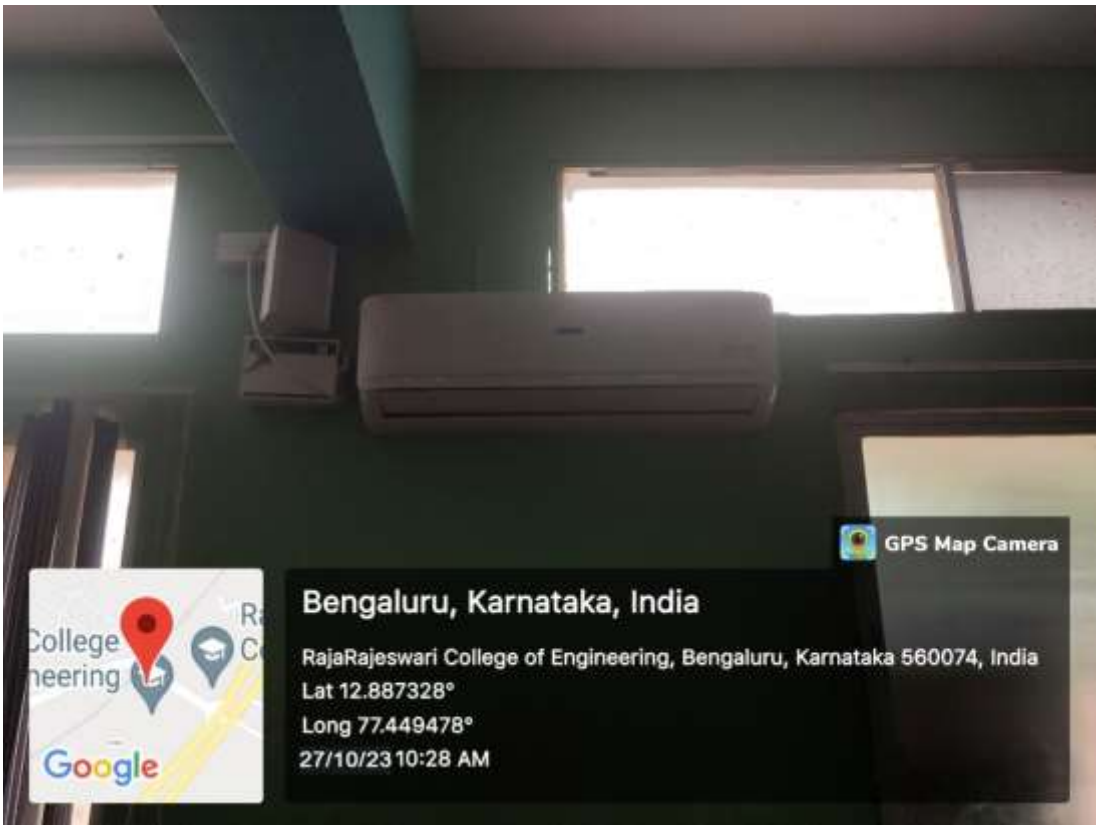

Photo.8: Air Conditioner in Seminar Hall at Rajarajeswari College of Engineering.

As part of the institution's commitment to fostering a culture of energy conservation and environmental responsibility, energy conservation boards have been strategically placed across the premises. These informative displays serve as educational tools, aiming to empower both students and employees with the knowledge and practices necessary for sustainable energy usage. The primary focus of these boards is to encourage responsible behavior among the institution's community. Specifically, they emphasize the importance of turning off lights after class hours. By doing so, individuals contribute directly to the reduction of energy costs, conserve electric energy, and play a vital role in diminishing the overall environmental impact associated with excessive energy consumption.

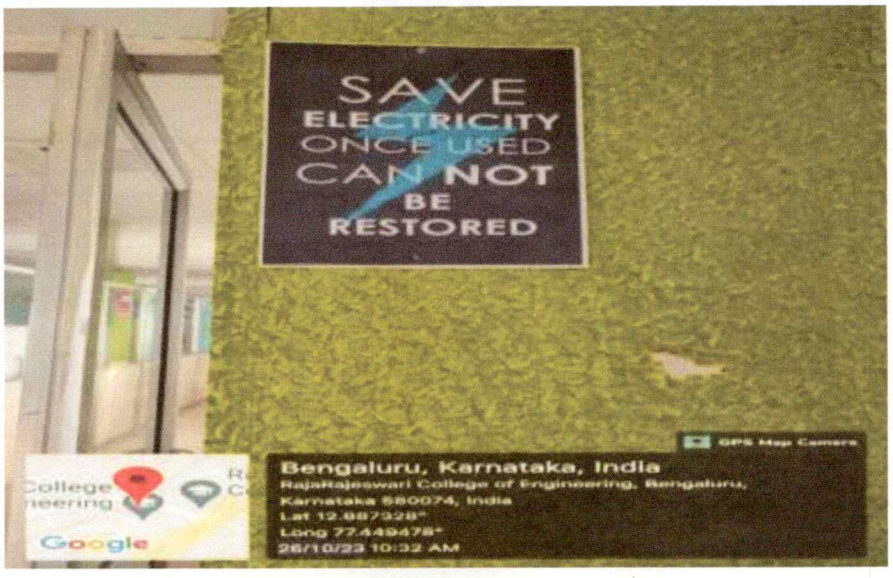

Photo 9: Energy Conservation boards displayed inside the laboratory

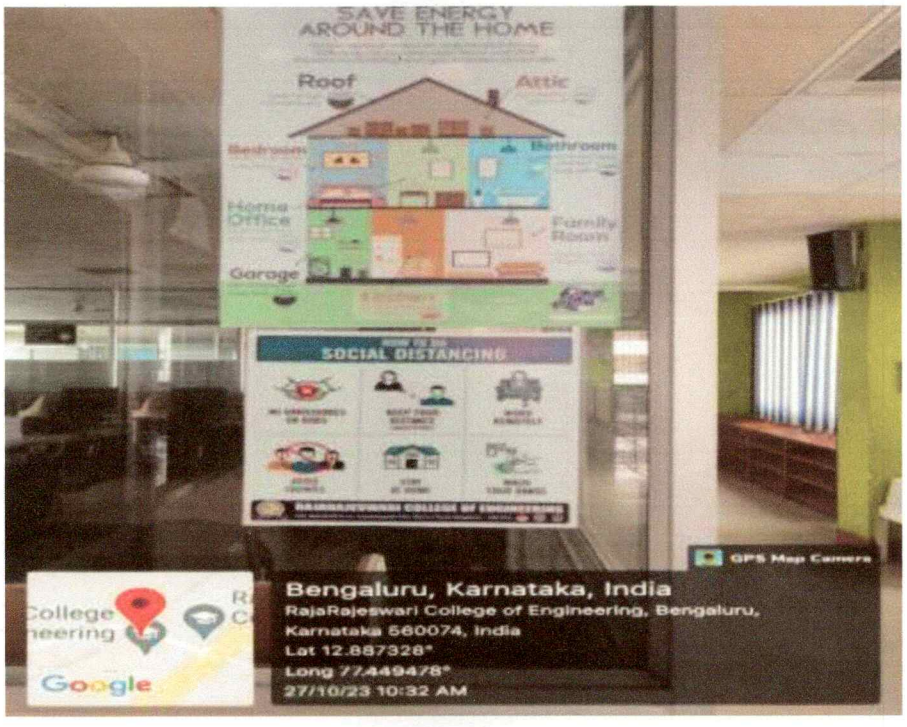

Photo 10: Energy Conservation sign boards are displayed inside the laboratory

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