

Alternate Sources of Energy and Energy Conservation

- Orientation on Energy Conservation Measures



Training Session on LED Bulb and Star Making



Energy Awareness Campaign

- Energy Audit




Nature's Green Guardians Foundation
 Trivandrum 695 043 India
Energy Audit Certificate
Carmel College, Mala, Thrissur, Kerala
 For the AY 2019-20

Energy Audit for the period July 2019 to June 2020 has been conducted for Carmel College, Mala, Thrissur, Kerala, in accordance with the International Standards for ISO 14000 family of standards set by ISO TC 207 and its Sub-committees, Bureau of Energy Efficiency standards, and stipulations under the Energy Conservation Act 2003 of Government of India, and other relevant mandates for maintenance of sustainable and healthy environment for education in the campus.

In our opinion, the Institution has presented true and up-to-date data on the various aspects of working of this education institution before the audit team, and appropriate audit procedures have been completed by the audit team for issuing this Audit Certificate and the Compliance Statement. The recommendations are based on verified data presented before the team as they existed at the time of audit.

In order to meet the objectives of the audit, the methodology did combine physical inspection of the campus on several work days and holidays, with analytical reviews of relevant documents and activities, as well as interviews with the Principal, IQAC team, and selected other members of Staff, as well as Students of the College.

Audit findings indicate that, of the 169.1 T CO₂ of carbon footprint of the institution for the year, the contribution from direct use of energy was limited to 71.1 T CO₂. Transportation including public transport use (outside the campus) is at 51.6 T CO₂ – with only 27% of it coming from use of personal vehicles by staff and students. Introduction of renewable energy returned 32.7 T CO₂ (remedial measures). The per capita electricity consumption (35 kWh) is at the lowest possible level for a college with nearly 1500 students. Only very few students stay in the hostel. Awareness and training programs were conducted during the year. Stakeholders are aware of the need for individual efforts.

<p>Prof. V K Damodaran <i>FIE (India), LSM IEEE, Chairman, NGGFN</i> <i>Ex-UNIDO Expert; For NGGFN Audit Team</i> 30 July 2020</p>	
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I agree with the recommendations of this report and further express my readiness to implement the recommendations of this audit report after internal review, even if any of them is in excess of the minimum compliance level.

<p>Sr. Prof. (Dr.) Licy, AD <i>Principal</i> <i>Carmel College, Mala, Thrissur</i> Date:</p>	  Signature & Seal
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- **Solar Energy**



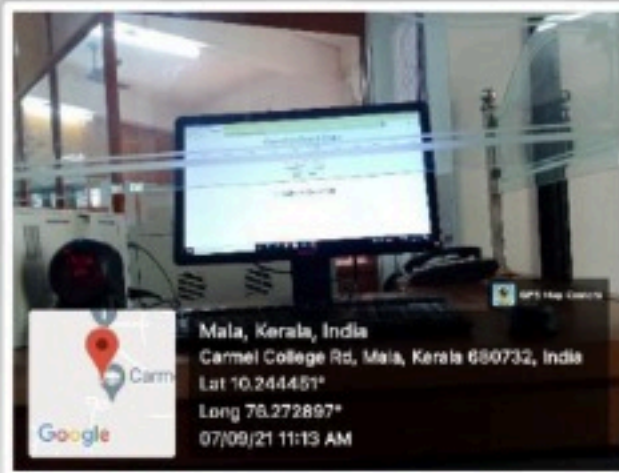
Solar Panel



Solar Water Heater

- **Biogas Plant**



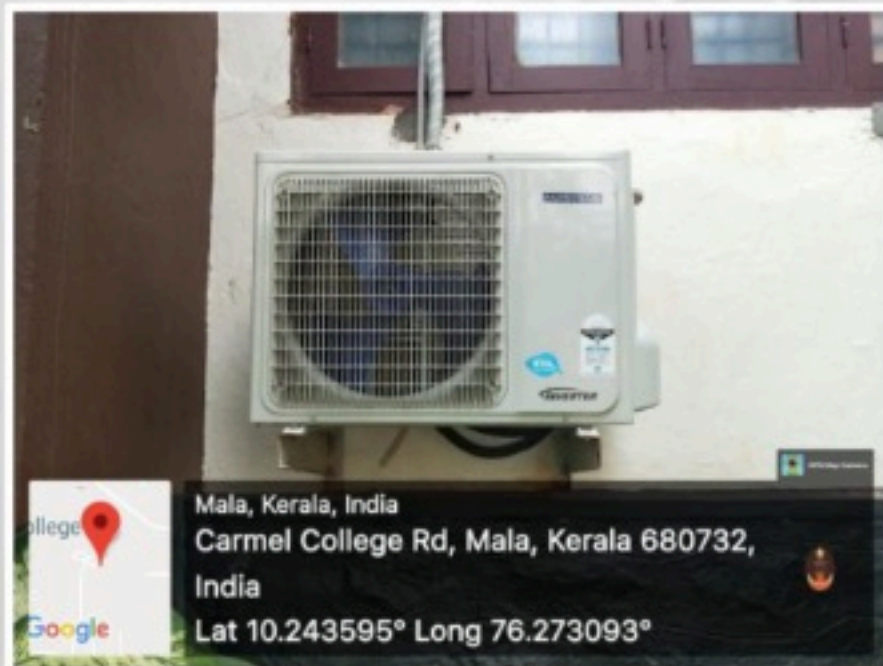
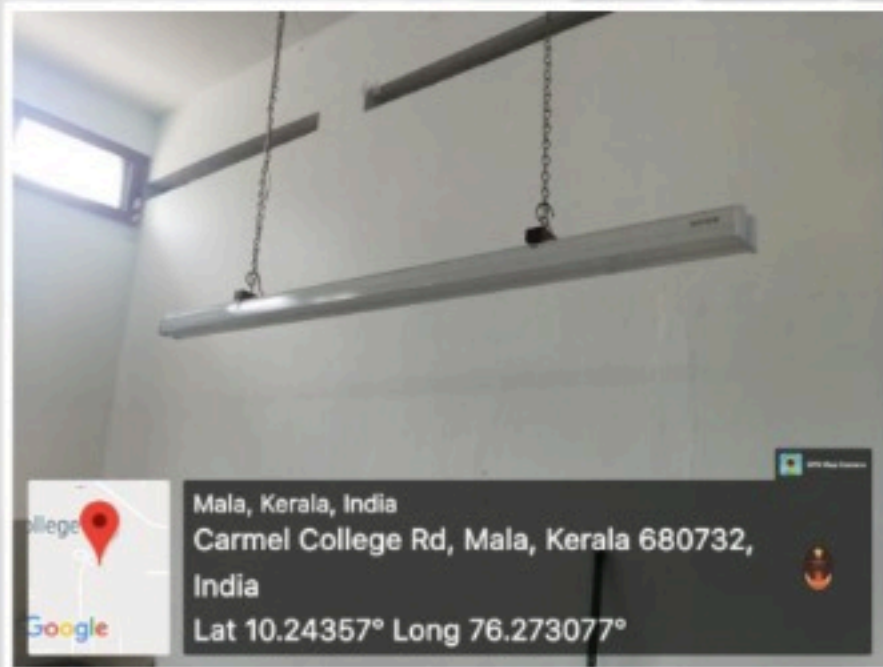


SENSOR BASED ENERGY CONSERVATION SYSTEM



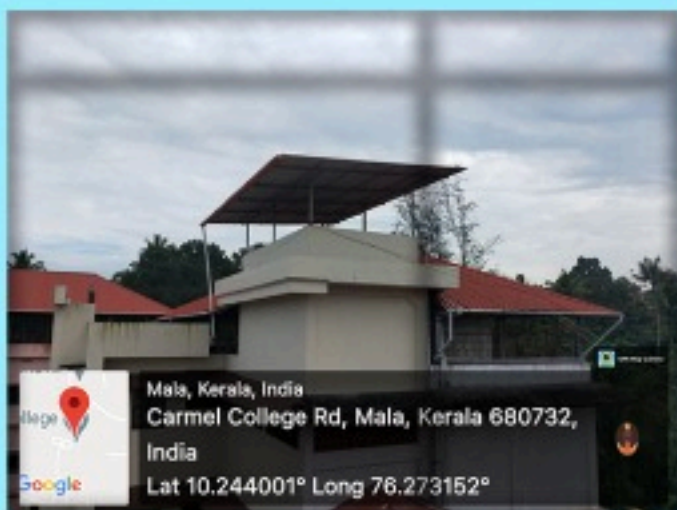
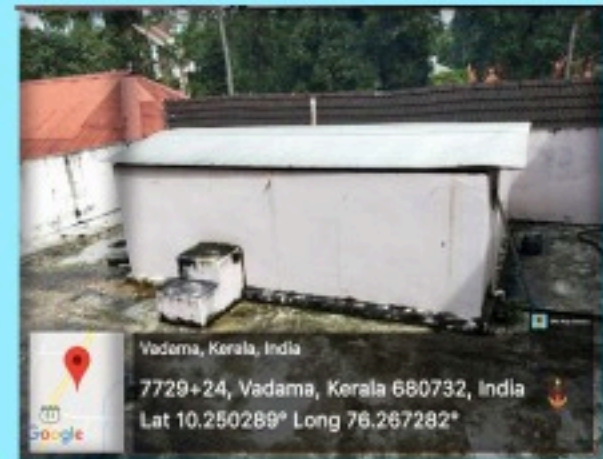
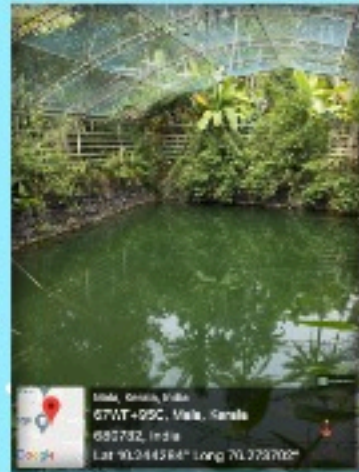
BIOGAS PLANT

SOLAR ENERGY



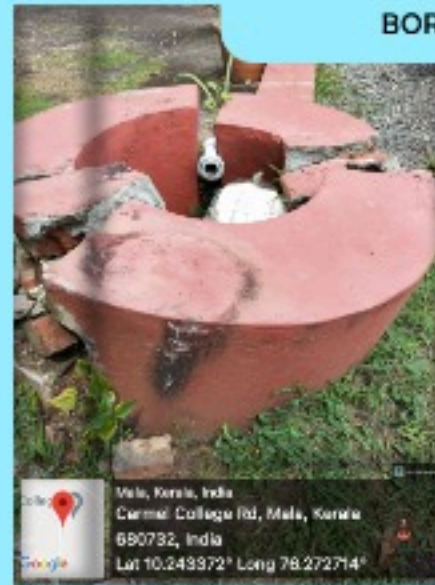
USE OF LED BULBS/ POWER EFFICIENT EQUIPMENT

RAIN WATER HARVESTING



BORE WELLS/ OPEN WELLS / TANKS

BORE WELL



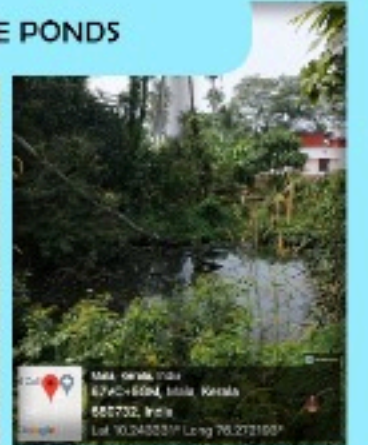
WELL



SUMP



LARGE PONDS



WASTE WATER RECYCLING



- **Rain Water Harvesting**



Rain Water Collected in Tank and Used in Chemistry Lab



Rain Water Collected and Directed to Pond

- **Bore Wells/ Open wells / Tanks**

- Properly maintained wells (4), bore well (2) water tanks (11), large ponds (2), sump (1) to store water



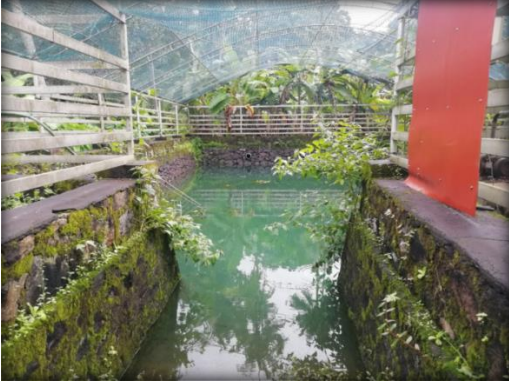
Bore Well



Properly Maintained Wells



Sump



Large Ponds





Water Tanks

- **Waste Water Recycling**



Waste Management

- **Solid Waste Management**



Proper Waste Collection



Storage Bins for Plastic (2), Paper (1) and Food (1) Collection



Dust bin in classroom



Bio Compost



Incinerators & Waste Burning Plant



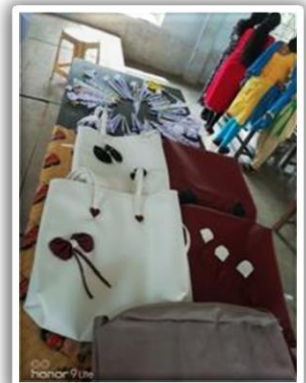
Biogas Plant



Use of Cloth Banners



Organic gifts and fresh flowers to honour guests, organic decorations for official gatherings



Creation and use of eco-friendly products including paper pens, paper/cloth bags

- **Liquid Water Management**



Drainage Facility



Water Recycling Unit

- **Chemical Waste Management**



Fume Cupboards

- **Crafts from Waste**



- **Seminars/Webinars, Workshops, Extension Activities, Cleanliness Drives**

