



MARIAN COLLEGE KUTTIKANAM
(AUTONOMOUS)

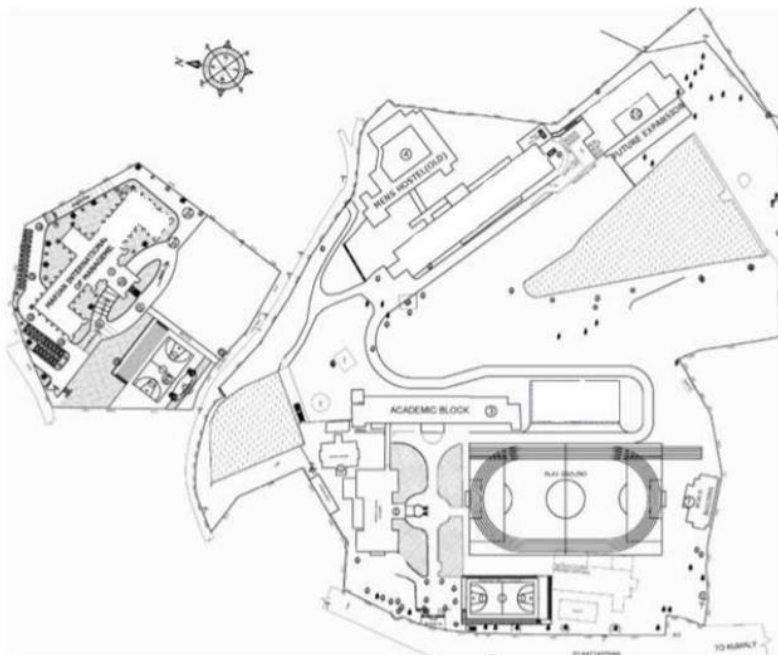
Best Practice 17-18 Green Campus Initiatives

Submitted to
THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)
FOURTH CYCLE OF ASSESSMENT

GREEN CAMPUS INITIATIVES

Marian College Kuttikkanam (Autonomous) has a lush green campus with a salubrious ambience. We have planted plenty of trees like pine, jack fruit, mango tree, bamboo, avocado, guava and other fruit bearing plants all over the campus and on the banks of the reservoirs. The surroundings of the buildings are covered with grass lawns which also reduce water loss due to evaporation. The campus also has a variety of flowering plants, a herbal garden and vegetable garden. All of them are developed with the participation of students and staff of the College. We have employed three garden staff for watering and upkeep of the plants.

Marian College Autonomous, Kuttikkanam
Layout of Buildings



Marian manages meticulously all types of waste by efficient sorting and treatment mechanisms installed on campus and with strict adherence to the green protocol. A green audit was conducted in the College in 2017 (An environment and Green audit is in progress) and based on its report a green protocol had been formulated for Marian campus. Marian policy is to produce less waste and reduce waste generation through

recycling and reuse. Reduced usage of paper using digital platforms for communication and e- filing system is encouraged in the office. Printouts are discouraged except in unavoidable circumstances. A public address system is installed for general communications. Paper wastes are collected and stacked in designated places from where it is disposed through vendors. The college has pedestrian friendly pathways. The pathways are interconnected with buildings in the college. Marian has given restricted entry of automobiles inside the campus. Incinerator has been used for the proper disposal of waste generated from the campus. Use of plastic is strictly prohibited on Marian campus. Adequate number of support staff is employed for the collection, segregation and disposal of waste on campus and the same is done without compromising the sanitation and hygiene protocols. Marian is committed to best practices in reducing and managing wastes effectively and systematically.

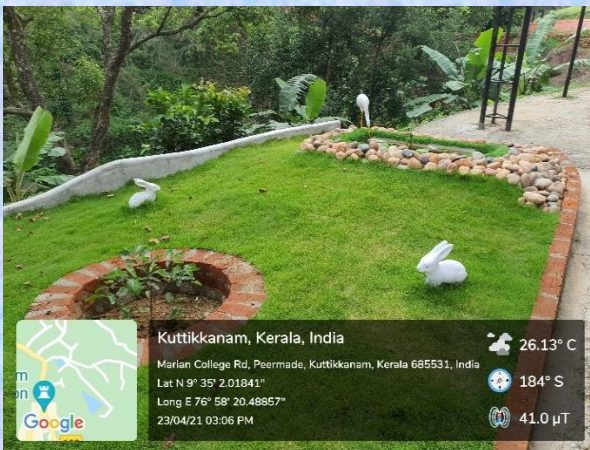
Solid waste is segregated at source and for that a large number of wastebins are provided on campus. Plastic waste and paper waste are sold out to vendors or incinerated. Girls' toilets are provided with napkin vending machines and waste bins are cleared on a daily basis by hygiene staff. Liquid waste on campus comprises mainly of the waste water from the canteens, cafeteria, toilets, laboratories etc. For treatment of waste water, a sewage treatment plant (STP) with a capacity of treating 50000 litres/ day is established on campus. It works in an eco- friendly and energy efficient manner. The treated water is used for gardening, toilet flushing, construction purposes etc. Waste water from the laboratories are disposed properly by flowing it to safely built pits for percolating. Exhaust fans are fixed in the labs to expel hazardous vapours if any, produced there. In the context of the pandemic Covid- 19, a great number of masks are deposited in bins as bio- medical waste and they are removed and are incinerated immediately. Electronic devices that are beyond repair are collected systematically and sold out to vendors on annual basis. These include monitors, CPU, printers and other peripherals. We also adopt the policy of buy back with the suppliers through which a lot of old electronic equipment are exchanged. Computers with obsolete configuration are donated to the schoolchildren of the surrounding community. Bio- degradable waste is also used for vermi- composting and the organic manure produced from it is used for farming and horticulture. No radio- active waste is produced on Marian campus.



Green Campus



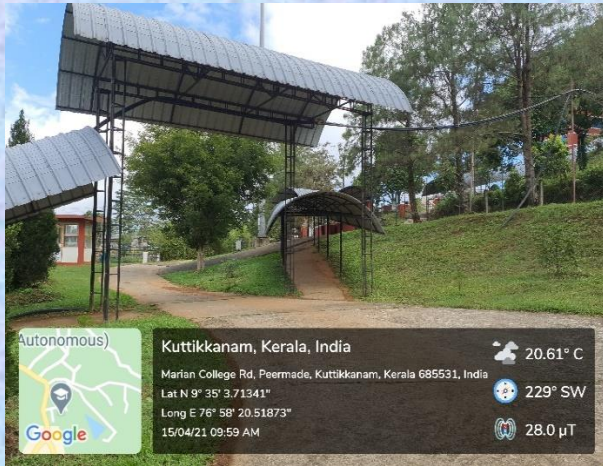
Garden



Garden II



Way to ladies hostel



Pedestrian friendly pathways



Pedestrian friendly pathways



Incinerator



Green House



Vermicomposting

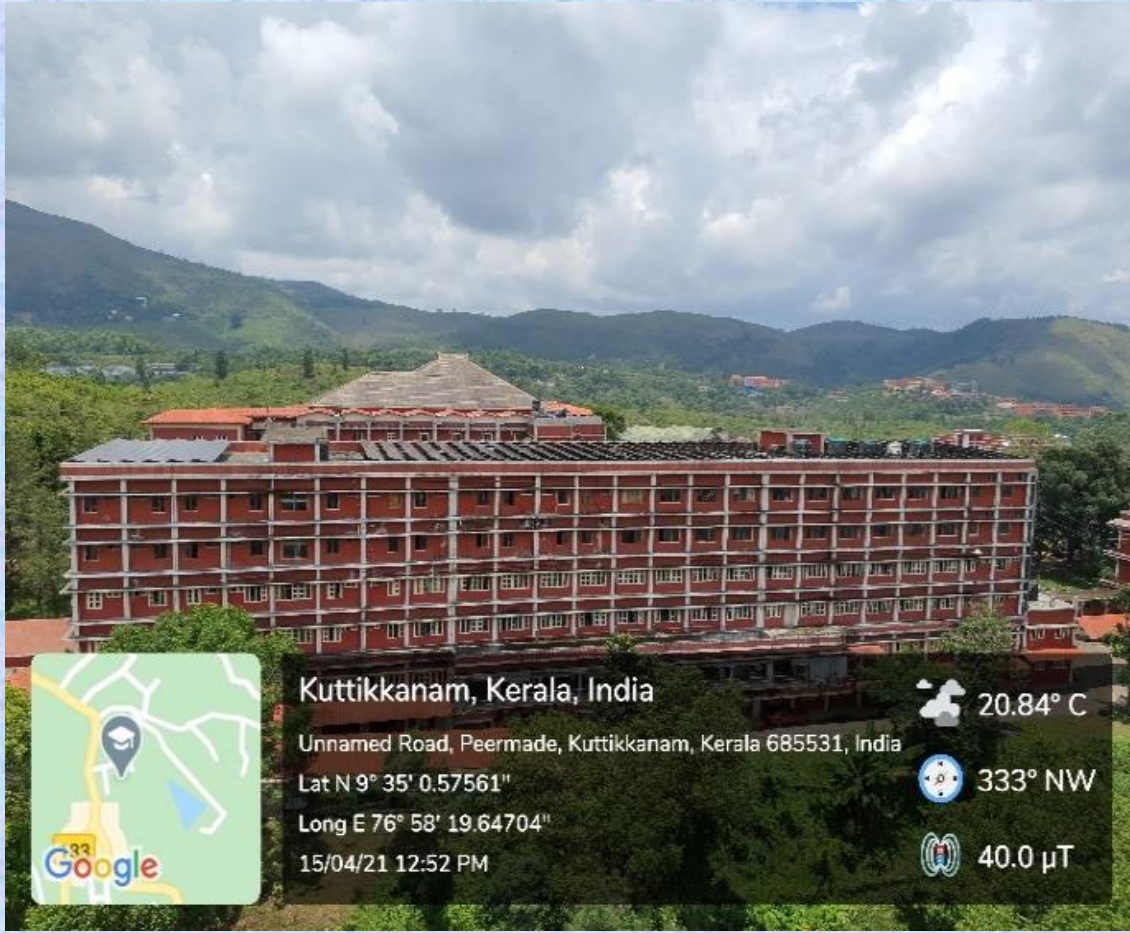
SUSTAINABLE ENERGY INITIATIVES

Marian College Kuttikkanam (Autonomous) is always keen in bringing sustainability in all the activities in the campus. The use of energy is also not an exemption. The college promotes sustainable energy in all aspects of its energy requirements.

The hostel buildings of the college are set up with solar panel, the energy from which is utilised for functioning the water filter and purification mechanisms, thus saving much electric energy during day time.

A biogas unit is established for generating reserve fuel for cooking in the canteens. The sensory based energy conservation is used in the campus. The heaters in the hostels are well connected with automated timer machines. It saves considerable electricity from the hostels. A high mask light is used in the campus and its working with the support of an automated timer machine. Marian has completed shifted to the use of LED bulbs as part of energy efficiency.

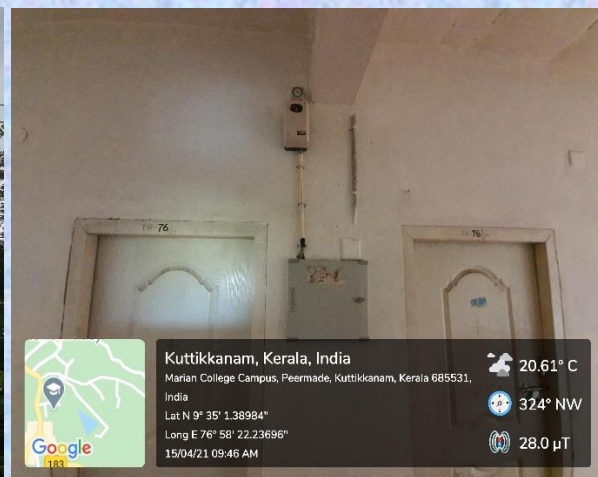
Inefficient electronic devices in terms energy consumption are systematically and sold out to vendors on annual basis. These include monitors, CPU, printers and other peripherals. We adopt the policy of buy back also with the suppliers through which a lot of old electronic equipment are exchanged. Based on the recommendations of the energy audit in 2018, All the working old UPS systems were replaced with energy efficient dynamic modular UPS systems. Working Computers with outdated configuration are donated to the schoolchildren of the surrounding community for their learning purpose. Marian is popular as a College with Difference and there is a clear policy on the protection, preservation and sustainability of the environment. The motto of the policy is, 'live for Nature and live with Nature'. Marian is committed to the protection and enhancement of the local, regional and global environment through its teaching, administrative and support operations.



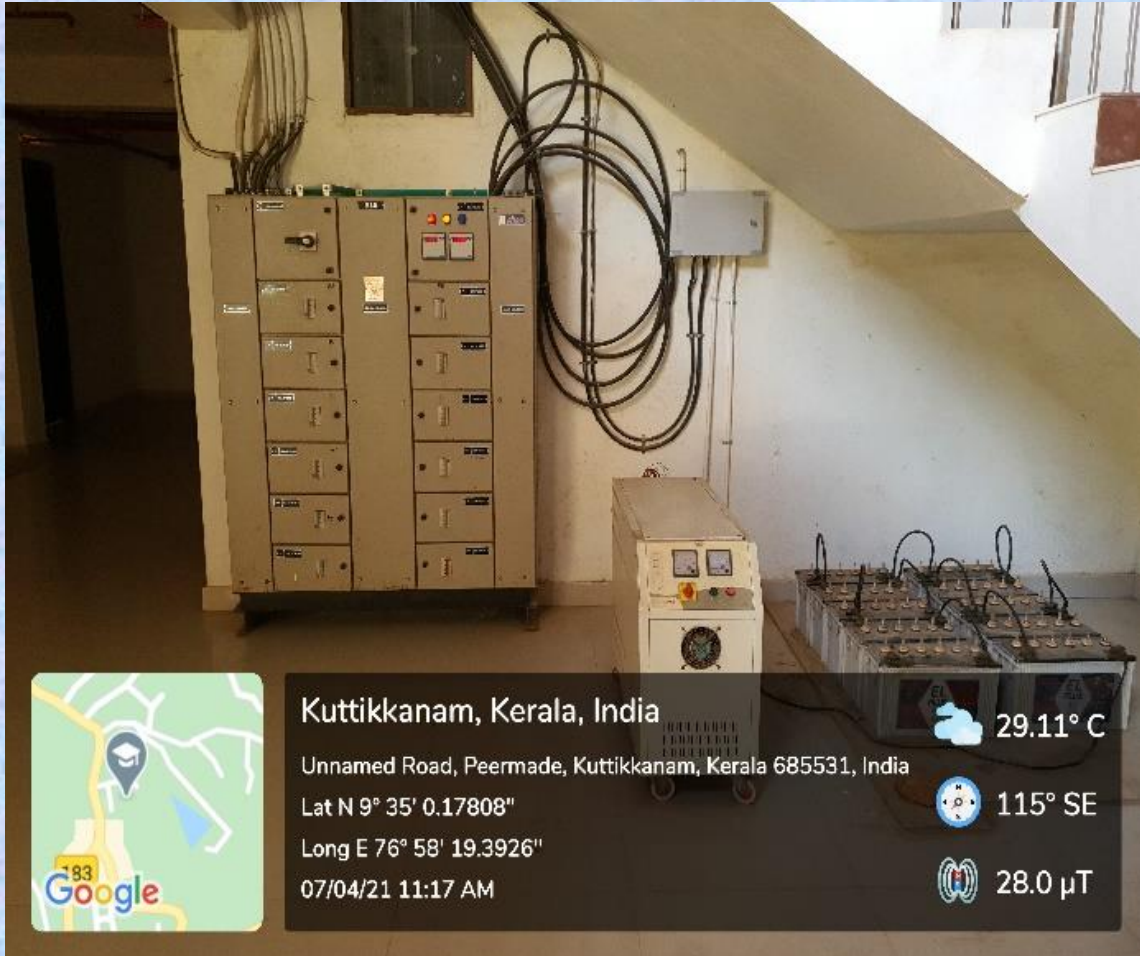
80 KW Solar Panels on the roof top



High Mast Light with timer



Heater with Timer



Kuttikkanam, Kerala, India

Unnamed Road, Peermade, Kuttikkanam, Kerala 685531, India

Lat N 9° 35' 0.17808"

Long E 76° 58' 19.3926"

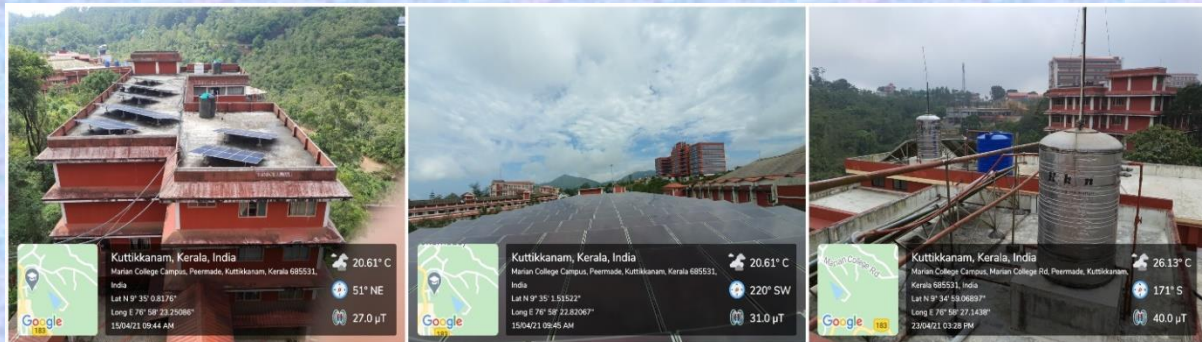
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Wheeling to Electric Grid



Solar Panels and Bio Gas Plants at Marian

Future Green Initiatives in Plan

Pico Hydro Power with Pumped Storage Technology

During 2018, the Pico Hydro (less than 10 kW) proposal site got inspected by the Head of Small Hydro Power Division at Energy Management Centre (EMC), Kerala and College raised a request for subsidy for the Pico unit of 5 kW. There are already two reservoirs in the campus at sufficient height difference and so the Pumped Storage activity can be done

during day-time, using a separate dedicated Solar PV system. The pumped water will be stored in the upper reservoir during day time, to be used for power generation during evening and night hours - to power the high mast lighting system in the campus – that is what is proposed. The power required is 5 kW. The system will be a demo project that will educate students, parents and the general public on the potential for using hydro sources in multi-utility mode and enhance the benefits to society.

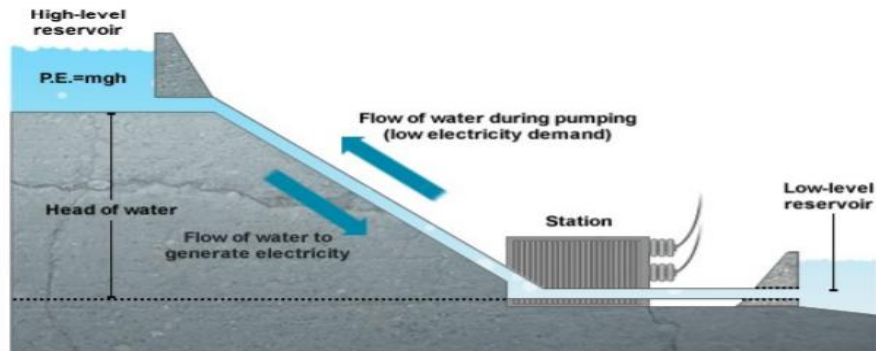
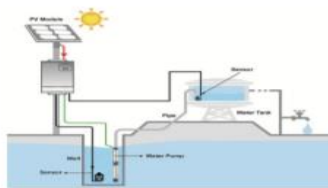
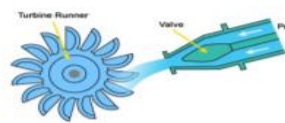


Fig. 9: Micro Hydro Power Unit Concept Diagram



Solar Pumping System
Fig. 10 a,b,c



Pump As Turbine
(Two way PAT)



High Mast Lamps
(Area lighting)

Proposed Hydro Electric Project in the Marian Campus