

GREEN AUDIT REPORT

of

Shri Wagheshwar Gramvikas Pratishthan's,
Shri Vasantao Pharate Patil Arts, Commerce & Science College,
Mandavgan Pharata, Taluka: Shirur, District: Pune



Year: 2019-20

Prepared by

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Maharashtra Energy Development Agency

(A Government of Maharashtra undertaking)

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ECN/2018-19/CR-05/4174

19th September, 2018

**CERTIFICATE OF REGISTRATION
FOR CLASS 'A'**

We hereby certify that, the firm having following particulars is registered with **MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)** under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

Name and Address of the firm : **Enrich Consultants**
Yashashree, Plot No. 26, Nirmal Bag Society,
Near Mukhtangan English School,
Parvati, Pune - 411009.

Registration Category : Empanelled *Consultant for Energy Conservation Programme*

Registration Number : **MEDA/ECN/CR-05/2018-19/EA-03**

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit the firm at any time without giving any prior information and canceling the registration, if the information is found incorrect.
- This empanelment is valid till **31st March 2021** from the date of registration, to carry out energy audits under the Energy Conservation Programme
- The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.


(Smita Kudarikar)
General Manager (EC)

Enrich Consultants

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Ref: ES/ SVPPACSC/19-20/02

Date: 22/8/2020

CERTIFICATE

This is to certify that we have conducted Green Audit at Shri Wagheshwar Gramvikas Pratishtan's Shri Vasantao Pharate Patil Arts, Commerce & Science College, Mandavgan Pharate, Taluka: Shirur, District: Pune in the year 2019-20.

The College has adopted Green Practices:

- Usage of Energy Efficient LED Fittings
- Installation of Solar Thermal Water Heating System at Hostel
- Segregation of Waste at source
- Installation of Rain Water Management Project
- Maintenance of Good Internal Roads
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan

We appreciate the support of Management, involvement of faculty members and students in the process of Energy Conservation & making the campus Green.

For Enrich Consultants,

A Y Mehendale,
Certified Energy Auditor, EA-8192

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ACKNOWLEDGEMENT

We Enrich Consultants, Pune, express our sincere gratitude to the management of Shri Wagheshwar Gramvikas Pratishthan's Shri Vasantao Pharate Patil Arts, Commerce & Science College, Mandavgan Pharate, Taluka: Shirur, District: Pune, for awarding us the assignment of Green Audit of their Mandavgan campus for the Year: 19-20.

We are thankful to all staff members for helping us during the field study.

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EXECUTIVE SUMMARY

1. Shri Wagheshwar Gramvikas Pratishthan's Shri Vasanttrao Pharate Patil Arts, Commerce & Science College, Mandavgan Pharate, Taluka: Shirur, District: Pune consumes Energy in the form of **Electrical Energy**; used for various gadgets, Office & other facilities.

2. Energy Consumed and CO₂ Emission:

| No | Parameter | Energy Consumed, kWh | CO ₂ emissions, MT |
|----|-----------|----------------------|-------------------------------|
| 1 | Total | 12599 | 10.08 |
| 2 | Maximum | 1231 | 0.98 |
| 3 | Minimum | 785 | 0.63 |
| 4 | Average | 1049.92 | 0.84 |

3. Various Measures Adopted for Energy Conservation:

- Usage of Energy Efficient LED fittings
- Maximum Usage of Day Lighting
- Installation of Solar Thermal Water Heating System at Hostel.

4. Usage of Renewable Energy Source:

- The College has installed Solar Thermal Water Heating System at Hostel.

5. Waste Management:

5.1 Segregation of Waste at Source:

The Waste is segregated at source and the recyclable waste like Paper waste, Plastic Waste is handed over to authorized agency.

5.2 Sanitary Waste Management:

The College has installed Sanitary Waste Incinerator, for disposal of Sanitary Waste.

5.3 E-Waste Management:

It is recommended to dispose of the E-Waste through Authorized Agency.

6. Rain Water Management:

The College has installed Rainwater Management Project. The rain water falling on the terrace is collected through pipes and is used to increase the underground water table.

7. Green & Sustainable Practices:

- Good Internal Roads
- Internal Tree Plantation

- Provision of Ramp for Divyangajan

8. Assumption:

- 1 kWh (Unit) of Electrical Energy releases **0.9 Kg of CO₂** into atmosphere

9. Reference:

- For CO₂ calculations: www.tatapower.com

ABBREVIATIONS

SWGP : Shri Wagheshwar Gramvikas Pratishtan

LED : Light Emitting Diode

kWh : kilo-Watt Hour

MT : Metric Ton

CO₂ : Carbon Di Oxide

CHAPTER-I INTRODUCTION

1.1 Objectives:

1. To study present Energy Consumption
2. To Study the present CO₂ emissions
3. To study Usage of Renewable Energy
4. To study Waste Management practices
5. To study Green & Sustainable Practices

1.2 Table No-1: General Details of College:

| No | Head | Particulars |
|-----------|-------------|---|
| 1 | Name | Shri Wagheshwar Gramvikas Pratihthan's Shri Vasantrya Pharate Patil Arts, Commerce & Science College, |
| 2 | Address | Mandavgan Pharate, Taluka: Shirur, District: Pune 412 211 |
| 3 | Affiliation | Savitribai Phule Pune University |

CHAPTER-II

STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Energy Consumption
Table No 2: Electrical Energy Purchase Analysis- 19-20:

| No | Month | Energy Consumed, kWh |
|----|---------|----------------------|
| 1 | Apr-19 | 1179 |
| 2 | May-19 | 989 |
| 3 | Jun-19 | 785 |
| 4 | Jul-19 | 1150 |
| 5 | Aug-19 | 1231 |
| 6 | Sep-19 | 1169 |
| 7 | Oct-19 | 1098 |
| 8 | Nov-19 | 997 |
| 9 | Dec-19 | 1025 |
| 10 | Jan-20 | 1086 |
| 11 | Feb-20 | 992 |
| 12 | Mar-20 | 898 |
| 13 | Total | 12599 |
| 14 | Maximum | 1231 |
| 15 | Minimum | 785 |
| 16 | Average | 1049.92 |

Chart No 1: To study the variation of Month wise Energy Consumed, kWh:

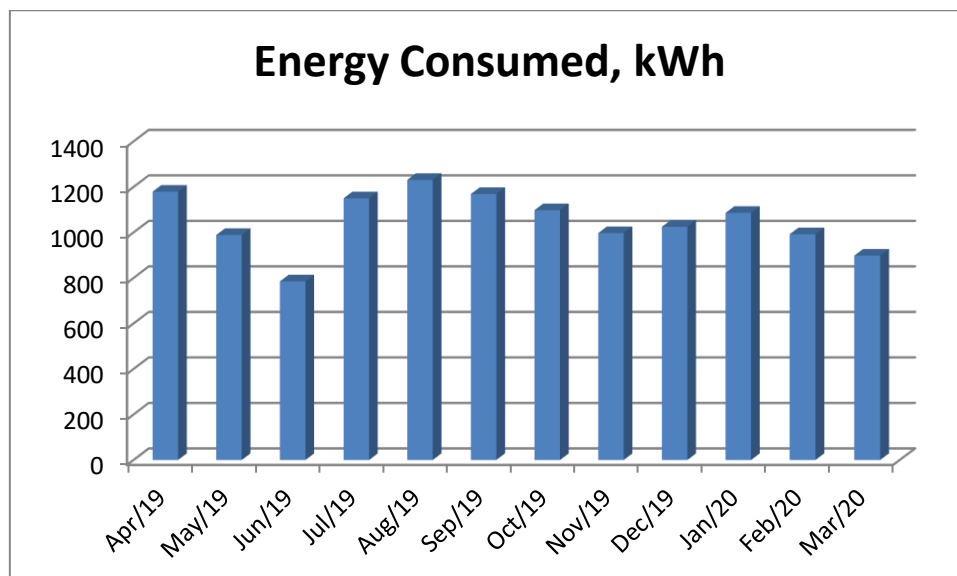


Table No 3: Important parameters:

| No | Parameter | Energy consumed, kWh |
|-----------|------------------|-----------------------------|
| 1 | Total | 12599 |
| 2 | Maximum | 1231 |
| 3 | Minimum | 785 |
| 4 | Average | 1049.92 |

CHAPTER-III

CARBON FOOT PRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities.

In this we compute the emissions of Carbon-Di-Oxide, by usage of the various forms of Energy used by the College for performing its day to day activities

The College uses Electrical Energy for various Electrical gadgets.

Basis for computation of CO₂ Emissions:

The basis of Calculation for CO₂ emissions due to Electrical Energy are: 1 Unit (kWh) of Electrical Energy releases **0.9 Kg of CO₂** into atmosphere.

Based on the above Data we compute the CO₂ emissions which are being released in to the atmosphere by the College due to its Day to Day operations

Table No 4: Month wise CO₂ Emissions:

| No | Month | Energy Consumed, kWh | CO ₂ Emissions, MT |
|----|---------|----------------------|-------------------------------|
| 1 | Apr-19 | 1179 | 0.94 |
| 2 | May-19 | 989 | 0.79 |
| 3 | Jun-19 | 785 | 0.63 |
| 4 | Jul-19 | 1150 | 0.92 |
| 5 | Aug-19 | 1231 | 0.98 |
| 6 | Sep-19 | 1169 | 0.94 |
| 7 | Oct-19 | 1098 | 0.88 |
| 8 | Nov-19 | 997 | 0.80 |
| 9 | Dec-19 | 1025 | 0.82 |
| 10 | Jan-20 | 1086 | 0.87 |
| 11 | Feb-20 | 992 | 0.79 |
| 12 | Mar-20 | 898 | 0.72 |
| 13 | Total | 12599 | 10.08 |
| 14 | Maximum | 1231 | 0.98 |
| 15 | Minimum | 785 | 0.63 |
| 16 | Average | 1049.92 | 0.84 |

Chart No 2: Representation of Month wise CO₂ emissions:

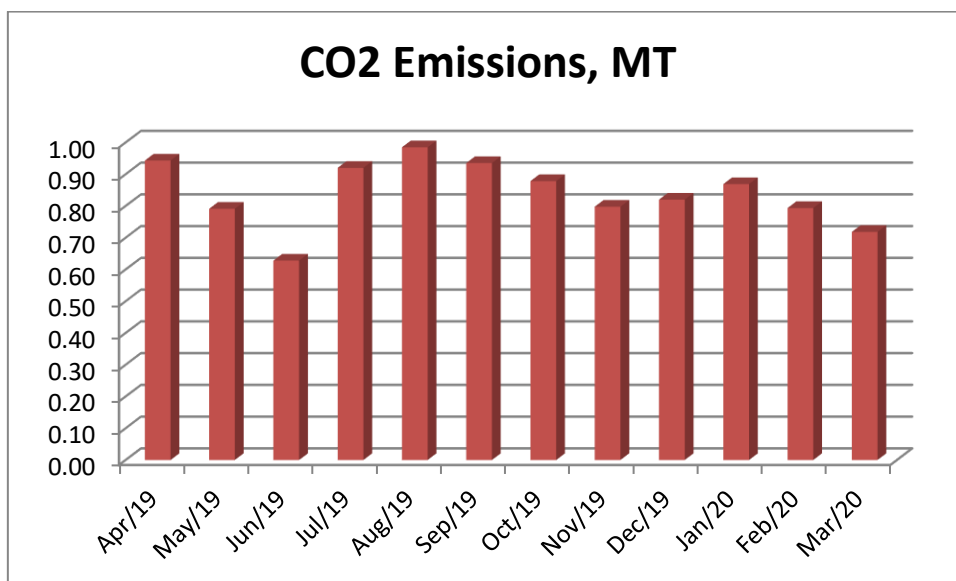


Table No 5: Key observations:

| No | Parameter | Energy Consumed, kWh | CO ₂ Emissions, MT |
|----|-----------|----------------------|-------------------------------|
| 1 | Total | 12599 | 10.08 |
| 2 | Maximum | 1231 | 0.98 |
| 3 | Minimum | 785 | 0.63 |
| 4 | Average | 1049.92 | 0.84 |

CHAPTER-IV

STUDY OF USAGE OF RENEWABLE ENERGY

The College has installed Solar Thermal Water Heating System at the Hostel Block

The College has yet to install Roof top Solar PV Plant.

Photograph of Roof Top Solar Thermal Water Heating System:



CHAPTER-V STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The Waste is segregated at source. Waste bins are located at various locations

Photograph of Separate Waste Collection Bin:



5.2 Sanitary Waste Management:

The College has installed Sanitary Waste Incinerator, for disposal of Sanitary Waste.

Photograph of Sanitary Waste Incinerator:



5.3 E-Waste Management:

It is recommended to dispose of the E-Waste through Authorized Agency.

CHAPTER-VI

STUDY OF RAIN WATER MANAGEMENT

The College has implemented the Rain Water Management Project. The College has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used to increase the underground water table.

Photograph of Rain Water Carrying Pipe:



CHAPTER-VII

STUDY OF GREEN & SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Road:

The College has well maintained pedestrian road as to facilitate the easy movement of the students within the campus.

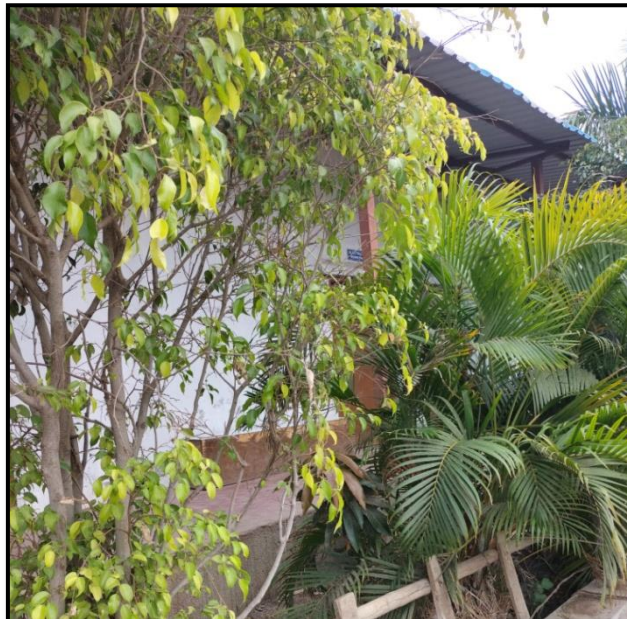
Photograph of Road within campus:



7.2 Internal Tree Plantation:

The College has well maintained Tree Plantation.

Photograph of Tree Plantation:



7.3 Provision of Ramp for Divyangajan:

The College has made provision of Ramp for the Divyangajan.

Photograph of Ramp for Divyangajan:

