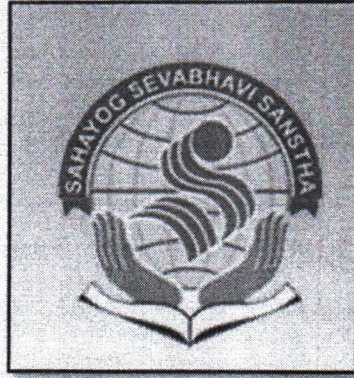


GREEN AUDIT REPORT
of
SAHAYOG SEVABHAVI SANSTHA COLLEGE OF EDUCATION,
Sahayog Educational Campus, Vishnupuri, Nanded




Year: 2021-22

Prepared by:

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,
Near Muktangani English School, Parvati, Pune 411009
Phone: 09890444795, Email: engress123@gmail.com




Principal
Sahayog Sevabhavi Sanstha
College of Education
Vishnupuri, Nanded.

MAHARASHTRA ENERGY DEVELOPMENT AGENCY



Maharashtra Energy Development Agency

(Government of Maharashtra Institution)

Aundh Road, Opposite Spicer College Road, Near Commissionerate of Animal Husbandary,

Aundh, Pune, Maharashtra 411067

Ph No: 020-35000450

Email: eee@mahaurja.com, Web: www.mahaurja.com

ECN/2022-23/CR-43/1709

10th May, 2022

**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 : M/s Engress Services
Yashshree, 26, Nirmal Bag Society,
Near Mukhtangan English School,
Parvati, Pune - 411 009.


Registration Category : Empanelled Consultant for Energy Conservation
Programme for Class 'A'

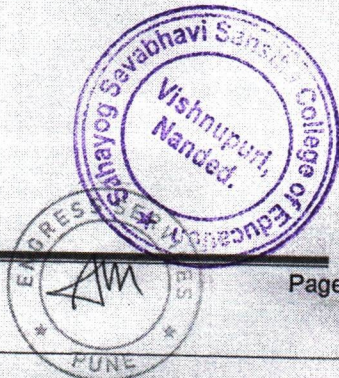
Registration Number : MEDA/ECN/2022-23/Class A/EA-32.

- 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 at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till 09th May, 2024 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.


General Manager (EC)

Engress Services, Pune


Principal
Sahayog Sevabhavi Sanstha
College of Education
Vishnupuri, Nanded.



ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,
Near Mukhtangan English School, Parvati, Pune 411 009
Tel: 09890444795 Email: engress123@gmail.com

Ref: ES/ SSSCOE /21-22/02

Date: 12/3/2022

CERTIFICATE

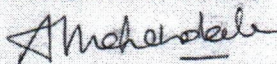
This is to certify that we have conducted Green Audit at Sahayog Sevabhavi Sanstha College of Education, Sahayog Educational Campus, Vishnupuri, Nanded in the Year 21-22.

The College has adopted following Energy Efficient and Green Practices:

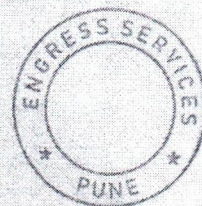
- Usage of Energy Efficient LED Fittings
- Installation of 10 kWp Capacity Roof Top Solar PV Plant
- Segregation of Waste at Source
- In process installation of Bio gas Plant for conversion of Bio degradable Waste
- Usage of Liquid Waste for Gardening purpose
- Good Internal Road
- Internal Tree Plantation

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


For Engress Services,



A Y Mehendale,
Certified Energy Auditor,
EA-8192



Engress Services, Pune



Principal
Sahayog Sevabhavi Sanstha
College of Education
Vishnupuri, Nanded.

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ACKNOWLEDGEMENT

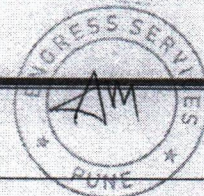
We at Engress Services, Pune, express our sincere gratitude to the management of Sahayog Sevabhavi Sanstha College of Education, Sahayog Educational Campus, Vishnupuri, Nanded for awarding us the assignment of Green Audit of their Nanded Campus for the Academic Year: 2021-22.

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



Engr 2021-22


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College of Education
Vishnupuri, Nanded.



Page 5

EXECUTIVE SUMMARY

1. Sahayog Sevabhavi Sanstha College of Education, Sahayog Educational Campus, Vishnupuri, Nanded, consumes Energy in the form of Electrical Energy; used for various gadgets, office & other facilities

2. Present Energy Consumption & CO₂ Emission:

No	Parameter/ Value	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Total	3473	3.13
2	Maximum	410	0.37
3	Minimum	118	0.11
4	Average	289.45	0.26

3. Energy Conservation projects already installed:

- Usage of Energy Efficient LED fittings
- Usage of BEE STAR Rated Equipment
- Installation of 10 kWp Solar PV Plant

4. Usage of Renewable Energy:

- The College has installed a Roof Top Solar PV Plant of Capacity 10 kWp.
- The Energy Generated by Roof Top Solar PV Plant in 21-22 is 12000 kWh.
- The reduction in Annual CO₂ Emission in 21-22 is 10.8 MT.

5. Waste Management:

5.1 Segregation of Waste at Source:

The solid waste is segregated at source by provision of Waste Collection Bins.

5.2 Organic Waste Management:

The College is in process of installation of Bio Gas Plant for conversion of Bio degradable Waste.

5.3 Liquid Waste Management:

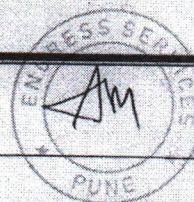
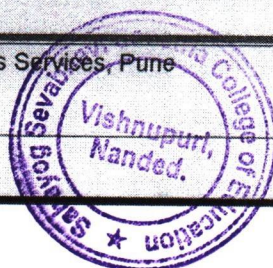
Liquid waste from the canteen & the wash rooms is collected and is recycled using four bed filtration method and is used for watering the garden.

5.4 E Waste Management:

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

6. Rain Water Management:

The Rain Water falling on the terrace as well as free flowing water is collected in an underground water tank and is further used for gardening purpose.



7. Green & Sustainable Practices:

- Good Internal Road
- Medicinal Plant Garden

8. Assumptions:

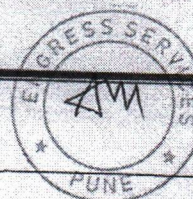
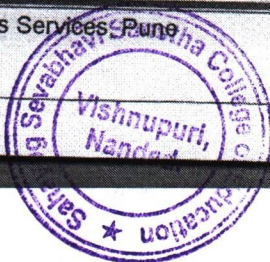
- 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere
- Average Energy generated by 1 kWp Solar PV Plant : 4 kWh/Day
- Annual Solar Energy Generation Days: 300 Nos

9. References:

- For CO₂ Emissions: www.tatapower.com
- For Roof Top Solar Energy Generation: www.solarrooftop.gov.in

ABBREVIATIONS

BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
kWp	Kilo Watt Peak
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
LPD	Liters per Day
SSS	Sahayog Sevabhavi Sanstha



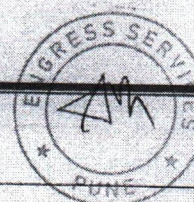
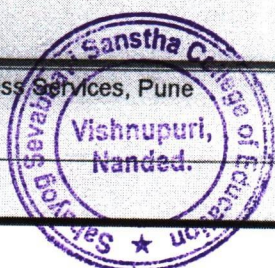
CHAPTER-I INTRODUCTION

1.1 Objectives:

1. To study present Energy Consumption
2. To Study CO₂ emissions
3. To study usage of Renewable Energy
4. Study of Waste Management
5. Study of Rain Water Management
6. Study of Green & Sustainable Practices

1.2 Table No 1: General Details of the College:

No	Head	Particulars
1	Name of the Institution	Sahayog Sevabhavi Sanstha's College of Education Sahayog Educational Campus, Vishnupuri, Nanded
2	Address	Vishnupuri, Nanded 431 606
3	Year of Establishment	2004
4	Affiliation	Swami Ramanand Teerth Marathwada University, Nanded



CHAPTER-II

STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of Energy Consumption.

Table No 2: Study of Electrical Energy Consumption: 21-22:

No	Month	Energy purchased, kWh
1	Dec-21	257
2	Jan-22	118
3	Feb-22	125
4	Mar-22	325
5	Apr-22	285
6	May-22	399
7	Jun-22	410
8	Jul-22	251
9	Aug-22	302
10	Sep-22	298
11	Oct-22	305
12	Nov-22	399
13	Total	3473
14	Maximum	410
15	Minimum	118
16	Average	289.45

Chart No 1: To study the variation of Monthly Electrical Energy Consumption:

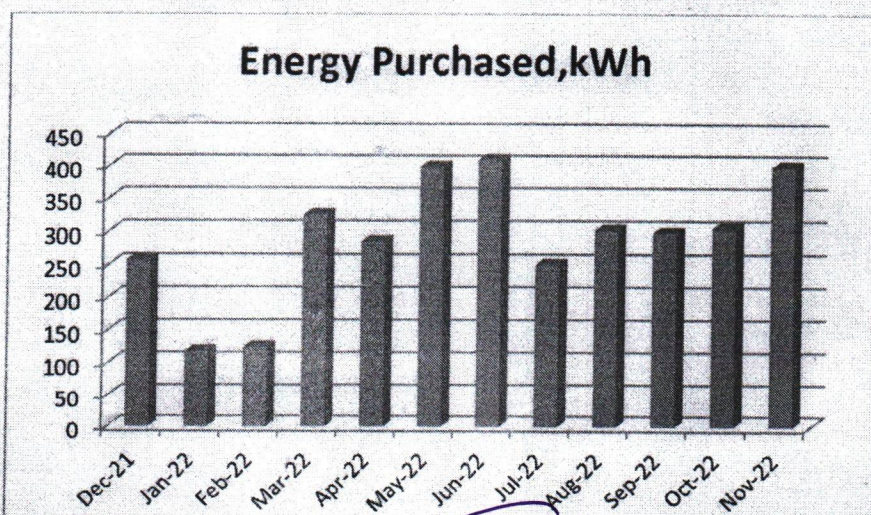
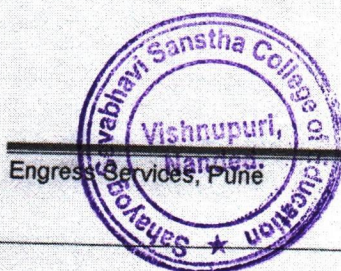



Table No 3: Important Parameters:

No	Parameter/ Variation	Energy Purchased, kWh
1	Total	3473
2	Maximum	410
3	Minimum	118
4	Average	289.45




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CHAPTER-III STUDY OF CO₂ EMISSION

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:

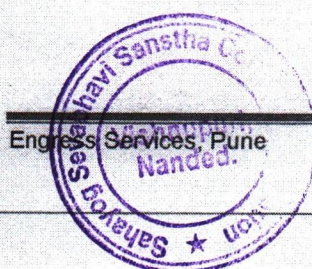
The basis of Calculation for CO₂ emissions due to Electrical Energy is as under


- 1 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 purchased, kWh	CO ₂ Emissions, MT
1	Dec-21	257	0.23
2	Jan-22	118	0.11
3	Feb-22	125	0.11
4	Mar-22	325	0.29
5	Apr-22	285	0.26
6	May-22	399	0.36
7	Jun-22	410	0.37
8	Jul-22	251	0.23
9	Aug-22	302	0.27
10	Sep-22	298	0.27
11	Oct-22	305	0.27
12	Nov-22	399	0.36
13	Total	3473	3.13
14	Maximum	410	0.37
15	Minimum	118	0.11
16	Average	289.45	0.26




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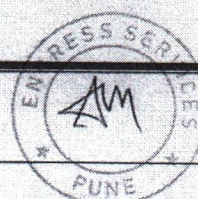


Chart No 2: Representation of Month wise CO₂ Emissions:

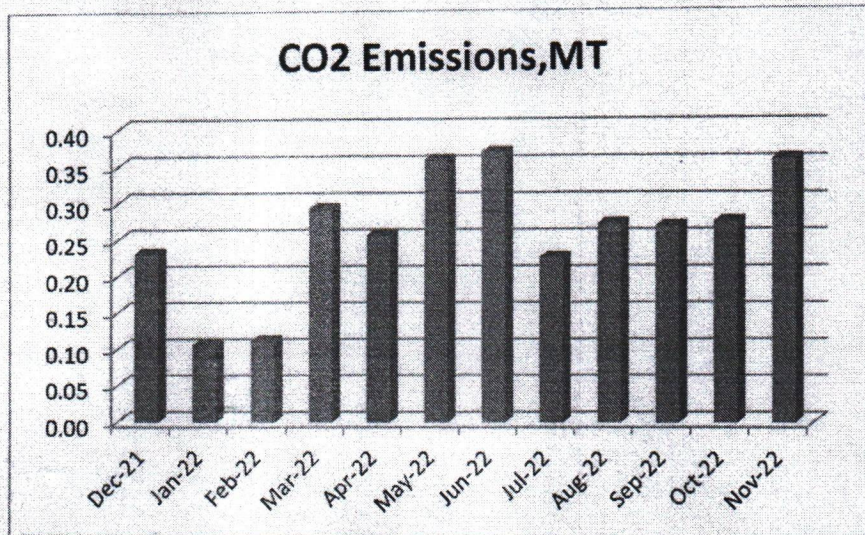


Table No 5: Important Parameters:

No	Parameter/ Value	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Total	3473	3.13
2	Maximum	410	0.37
3	Minimum	118	0.11
4	Average	289.45	0.26

CHAPTER-IV

STUDY OF USAGE OF RENEWABLE ENERGY

The College has installed a 10 kWp capacity Roof top Solar PV Plant. We compute the Reduction in Annual CO₂ Emission.

Table No 6: Computation of Reduction in Annual CO₂ Emission:

No	Particulars	Value	Unit
1	Roof Plant Solar PV Plant Capacity	10	kWp
2	Average Daily Energy Generated by Plant	4	kWh
3	Annual Generation Days	300	Nos
4	Annual Energy Generated = 1*2*3	12000	kWh
5	1 kWh of Electrical Energy emits	0.9	Kg of CO ₂
6	Reduction in CO ₂ emission by Solar PV Plant = (4) * (5)	10.8	MT/Annum

Photograph of Roof Top Solar PV Plant:



CHAPTER V

STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The solid waste is segregated at source. Waste collection bins are provided.

5.2 Organic Waste Management:

The College is in process of installation of Bio Gas Plant for conversion of Bio degradable Waste.

5.3 Liquid Waste Management:

Liquid waste from the canteen & the wash rooms is collected and is recycled using four bed filtration method and is used for watering the garden.

Photograph of Underground Water Storage Tank:



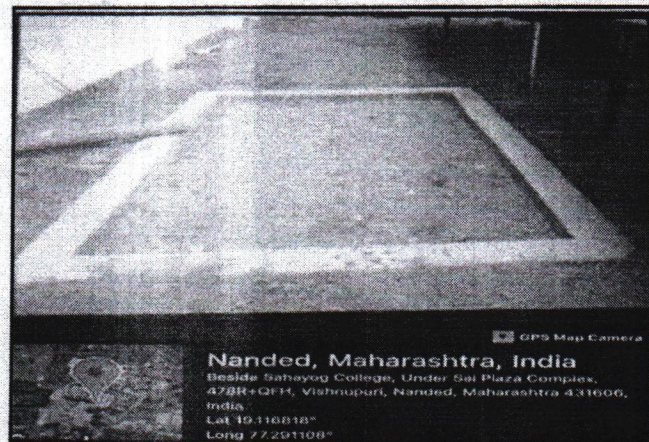
5.4 E Waste Management:

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

CHAPTER-VI STUDY OF RAIN WATER MANAGEMENT

The Rain Water falling on the terrace as well as free flowing water is collected in an underground water tank and is further used for gardening purpose.

Photograph of Rain Water Storage Tank:



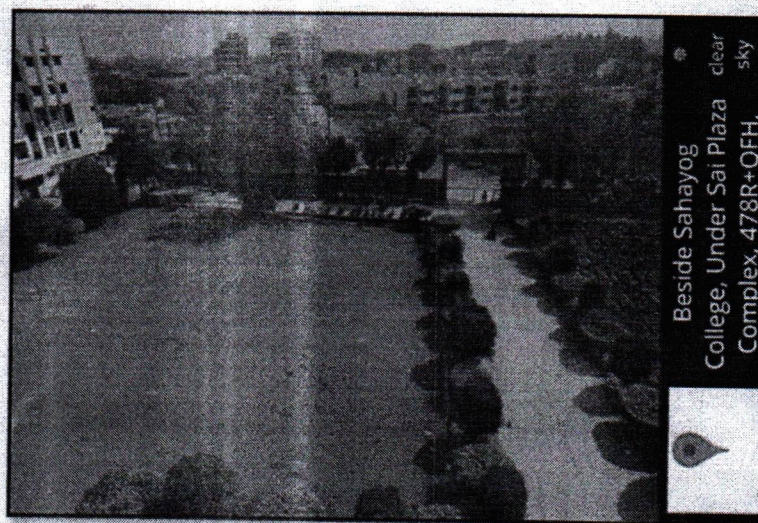
CHAPTER-VII

STUDY OF GREEN AND SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Road & Internal Tree Plantation:

The College has well maintained internal road to facilitate the easy movement of the students within the campus and also Medicinal Plant Garden.

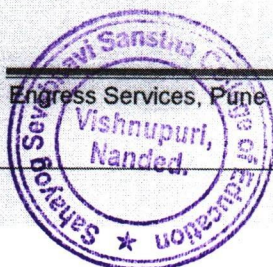
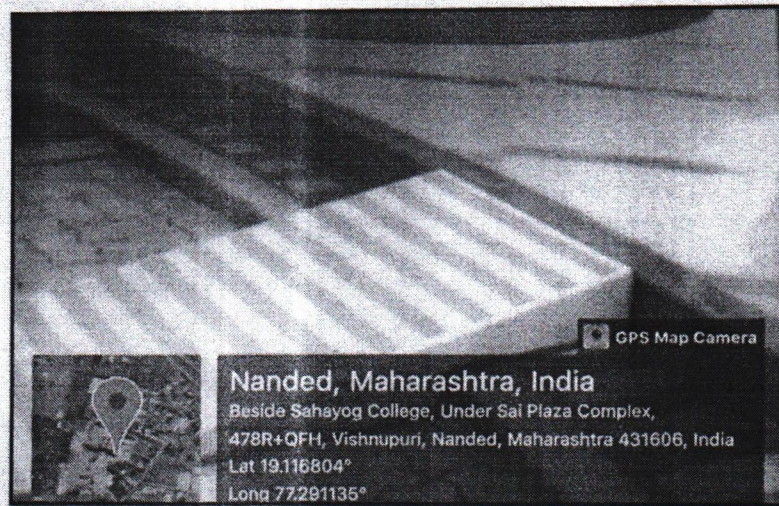
Photograph of internal road & Tree Plantation in the campus:




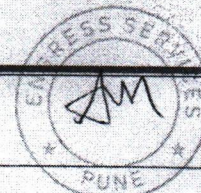
7.2 Provision of Ramp for Divyangajan:

The College has made provision for Ramp for easy movement of Divyangajan. Also dedicated wash room and wheel chair are made available.

Photograph of Ramp:




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ANNEXURE-I

LIST OF TREES & PLANTS IN THE CAMPUS

No	Common Name of Plant
1	Neem
2	Gokarna
3	Mango
4	Patharchathi
5	Papaya
6	Amla
7	Rose
8	Zendu
9	Jasmine
10	Peepal
11	Curry Leaves
12	Ajwain
13	Vinca
14	Hibiscus
15	Aloevera
16	Jambhul
17	Tamrind
18	Mogra
19	Ashwagandha
20	Nishigandha
21	Mint
22	Marva
23	Corriender

