

GREEN AUDIT REPORT
of
SIPNA SHIKSHAN PRASARAK MANDAL AMRAVATI'S
Arts Science & Commerce College,
Chikhaldara



Year: 2020-21

Prepared by

Enrich Consultants

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



MAHARASHTRA ENERGY DEVELOPMENT AGENCY

An ISO 9001 : 2000 Reg. no. : RQ 91 / 2462



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/2021-22/CR-14/1577

22nd April, 2021

**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.

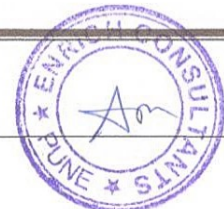
Name and Address of the firm : **M/s Enrich Consultants**
Yashashree, Plot No. 26, Nirmal Bag Society,
Near Muktangan English School, Parvati,
Pune - 411009.

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

Registration Number : *MEDA/ECN/2021-22/Class A/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 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 **21st April, 2023** 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)



Enrich Consultants

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

Ref: EC/SSPMAASCCC/20-21/02

Date: 12/8/2021

CERTIFICATE

This is to certify that we have conducted Green Audit at Sipna Shikshan Prasarak Mandal Amravati's Arts, Science & Commerce College, Upper Plateau Chikhaldara 444807, in the Academic year 2020-21.

The College has adopted following Green Initiatives:

- Usage of Energy Efficient LED Light Fitting
- Maximum Usage of Day Lighting
- Segregation of Waste at source
- Provision of Bio Composting Pit
- Implementation of Rain Water Harvesting Project
- Maintenance of Good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Display of Poster on Plastic Ban
- Tree Plantation Drive in the campus
- Cleanliness Drive in the campus

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



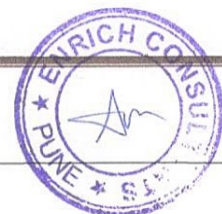
INDEX

Sr. No	Particulars	Page No
I	Acknowledgement	5
II	Executive Summary	6
III	Abbreviations	8
1	Introduction	9
2	Study of Present Energy Consumption	10
3	Study of Carbon Foot printing	12
4	Study of Usage of Renewable Energy	14
5	Study of Waste Management	15
6	Study of Rain water Harvesting	17
7	Study of Green & Sustainable Practices	18
	Annexure	
I	List of Trees & Plants	21

ACKNOWLEDGEMENT

We Enrich Consultants, Pune, express our sincere gratitude to the management of Sipna Shikshan Prasarak Mandal Amravati's Arts, Science & Commerce College, Upper Plateau Chikhaldara 444807, for awarding us the assignment of Green Audit of their Chikhaldara campus for the Year: 2020-21.

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



EXECUTIVE SUMMARY

1. Sipna Shikshan Prasarak Mandal Amravati's Arts Science & Commerce College, Chikhaldara 444 807 consumes Energy in the form of **Electrical Energy** used for various gadgets, Office & other facilities.

2. Present Level of Energy Consumption & CO₂ Emissions:

No	Parameter	Energy consumed, kWh	CO ₂ Emissions, MT
1	Total	43758	39.38
2	Maximum	28299	25.47
3	Minimum	309	0.28
4	Average	3646.5	3.28

3. Various initiatives taken for Energy Conservation:

- Usage of Energy Efficient LED Lighting
- Maximum Usage of Day Lighting

4. Usage of Renewable Energy:

The College has yet to install Roof Top Solar PV Plant. Therefore as on the Date, the usage of Alternate Energy to Annul Energy requirement works out to be nil.

5. Waste Management:

5.1 Segregation Waste at Source:

The recyclable waste, like paper, plastic waste is segregated at source and is handed over to Authorized waste collecting agent for further recycling.

5.2 Organic Waste Management:

The College has installed a Bio Composting Pit and the organic Waste is composted in the Pit, which is further used in the own garden.

5.3 Liquid Waste Management:

For treatment of laboratory chemicals, the College has a soak tank wherein the laboratory liquid waste is first mixed with water and then drained to the soak Tank which contains layers of sand and activated carbon.

5.4 E-Waste Management:

It is recommended to handover the E Waste through Authorized E-Waste collecting agency.

6. Rain Water Harvesting:

The College has installed Rain Water Harvesting Project, wherein the Rain Water falling on the terrace is collected and is stored in a separate Water Storage Tank. The Water is further used for domestic purpose.

7. Green & Sustainable Initiatives:

- Maintenance of good Internal Road
- Maintenance of Internal Garden
- Provision of Ramp for Divyangajan
- Display of Poster on Plastic Ban
- Tree Plantation Drive in the campus
- Cleanliness Drive in the campus

8. Notes & Assumptions:

- 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere

9. Reference:

- For CO₂ Emissions: www.tatapower.com

ABBREVIATIONS

SSPM	Sipna Shikshan Prasarak Mandal
kWh	Kilo Watt Hour
LED	Light Emitting Diode
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
Qty	Quantity



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. Study of Waste Management
5. Study of Rain Water Harvesting
6. Study of Green & Sustainable Practices

1.2 General Details of College: Table No 1:

No	Head	Particulars
1	Name of Institution	Sipna Shikshan Prasarak Mandal Amravati's Arts Science & Commerce College
2	Address	Upper Plateau, Chikhaldara 444807
3	Affiliation	Sant Gadgebaba Amravati University

1.3 Aerial View of College:



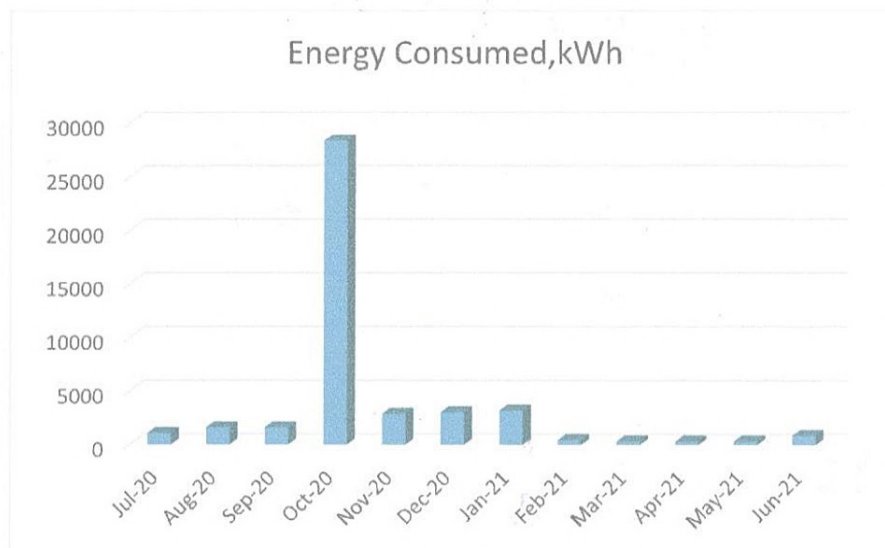
CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Bills

Table No 2: Electrical Bill Analysis- 2020-21:

No	Month	Energy Purchased-Meter-1, kWh	Energy Purchased-Meter-2, kWh	Total Energy Consumed, kWh
1	Jul-20	1000	58	1058
2	Aug-20	1000	576	1576
3	Sep-20	1000	576	1576
4	Oct-20	22824	5475	28299
5	Nov-20	2636	223	2859
6	Dec-20	2636	378	3014
7	Jan-21	2636	535	3171
8	Feb-21	79	349	428
9	Mar-21	19	294	313
10	Apr-21	0	309	309
11	May-21	3	308	311
12	Jun-21	511	333	844
13	Total	34344	9414	43758
14	Maximum	22824	5475	28299
15	Minimum	0	58	309
16	Average	2862	784.5	3646.5

Chart No 1: Variation in Monthly Energy Consumption:



3.4 Key Inference drawn:

From the above analysis, we present following important parameters:

Table No 3: Variation in Important Parameters:

No	Parameter/ Variation	Energy Consumed, kWh
1	Total	43758
2	Maximum	28299
3	Minimum	309
4	Average	3646.5

CHAPTER III STUDY OF CARBON FOOTPRINTING

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 LPG & Electrical Energy are 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-Meter-1, kWh	Energy Purchased-Meter-2, kWh	Total Energy Consumed, kWh	CO ₂ Emissions, MT
1	Jul-20	1000	58	1058	0.95
2	Aug-20	1000	576	1576	1.42
3	Sep-20	1000	576	1576	1.42
4	Oct-20	22824	5475	28299	25.47
5	Nov-20	2636	223	2859	2.57
6	Dec-20	2636	378	3014	2.71
7	Jan-21	2636	535	3171	2.85
8	Feb-21	79	349	428	0.39
9	Mar-21	19	294	313	0.28
10	Apr-21	0	309	309	0.28
11	May-21	3	308	311	0.28
12	Jun-21	511	333	844	0.76
13	Total	34344	9414	43758	39.38
14	Maximum	22824	5475	28299	25.47
15	Minimum	0	58	309	0.28
16	Average	2862	784.5	3646.5	3.28



Chart No 2: Month wise CO₂ Emissions:

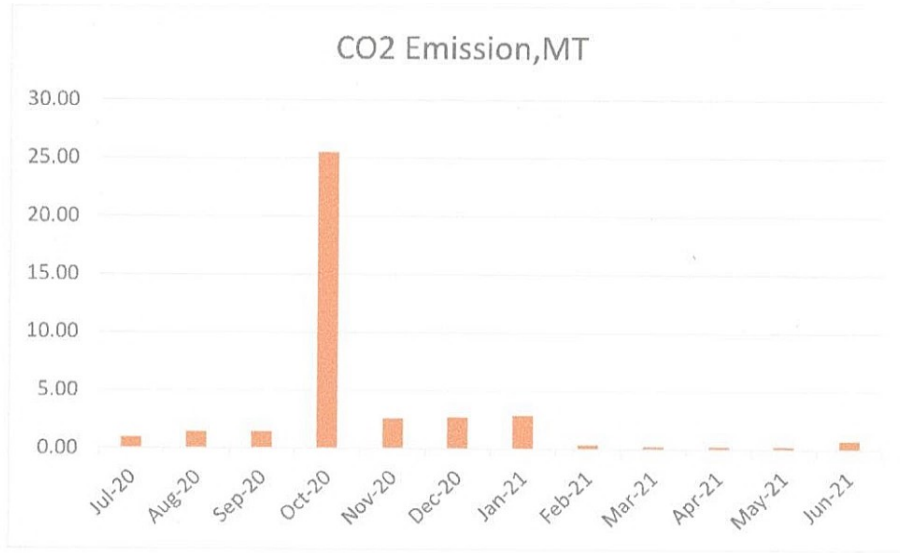
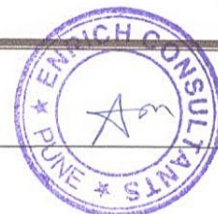


Table No 5: Key observations:

No	Parameter	Energy consumed, kWh	CO2 Emissions, MT
1	Total	43758	39.38
2	Maximum	28299	25.47
3	Minimum	309	0.28
4	Average	3646.5	3.28



CHAPTER IV STUDY OF USAGE OF RENEWABLE ENERGY

The College has yet to install Roof Top Solar PV Plant. Therefore as on the Date, the usage of Alternate Energy is nil.



CHAPTER V STUDY OF WASTE MANAGEMENT

5.1 Segregation Waste at Source:

The recyclable waste, like paper, plastic waste is segregated at source and is handed over to Authorized waste collecting agent for further recycling.

Photograph of Waste Collection Bin:



5.2 Organic Waste Management:

The Bio degradable waste like leafy waste is composted in a Bio Composting Pit.

Photograph of Vermi Composting Pit:



5.3 Liquid Waste Management:

For treatment of laboratory chemicals, the College has a soak tank wherein the laboratory liquid waste is first mixed with water and then drained to a soak Tank which contains layers of sand and activated carbon.

Photograph of Liquid Waste Soak Tank arrangement:



5.4 E-Waste Management:

It is recommended to handover the E Waste through Authorized E-Waste collecting agency.

CHAPTER-VI STUDY OF RAIN WATER HARVESTING

The College has installed Rain Water Harvesting Project, wherein the Rain Water falling on the terrace is collected and is stored in a separate Water Storage Tank. The Water is further used for domestic purpose.

Photograph of Rain Water Storage Tank Facility:

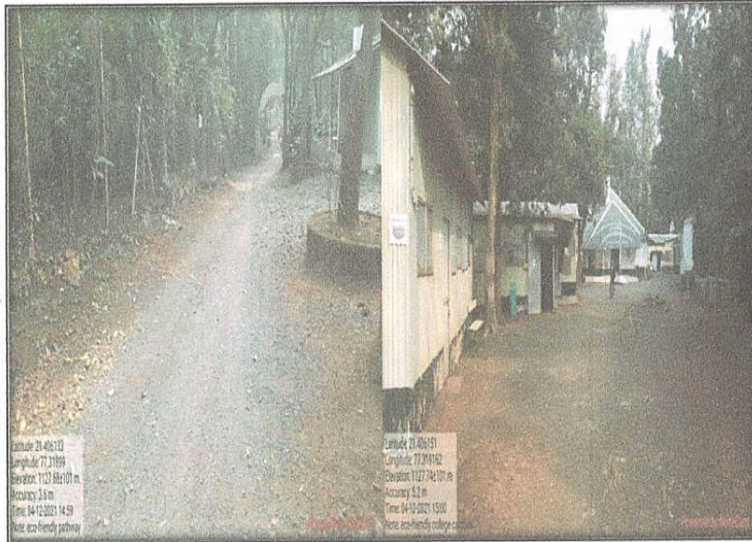


CHAPTER-VII STUDY OF GREEN & SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Roads:

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

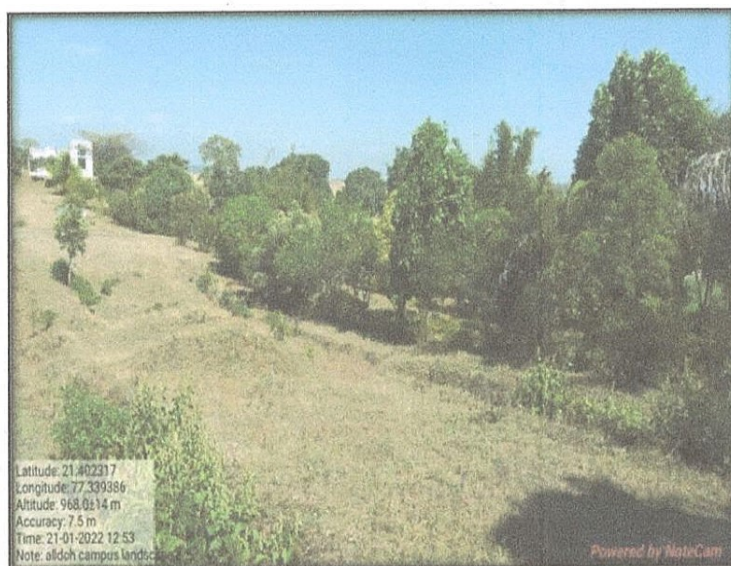
Photograph of Internal Road:



7.2 Internal Tree Plantation:

The College has well maintained landscaped garden in the campus.

Photograph of Tree plantation:



7.3 Provision of Ramp:

For easy movement of Divyangajan, the College has made provision of Ramp.

Photograph of Ramp:



7.4 Creation of Awareness on Plastic Free Campus:

The College is creating awareness on Plastic Ban by Display of Posters.

Photograph of Poster on Plastic Ban:



7.5 Cleanliness Drive:

The College arranged Cleanliness Drive in the Campus under National Service Scheme.

Photograph of Cleanliness Drive:



7.6 Tree Plantation Drive:

The College arranged Tree Plantation Drive in the Campus under National Service Scheme.

Photograph of Cleanliness Drive:



**ANNEXURE-1:
LIST OF TREES:**

The total Area under Tree Plantation is about 1.5 Acres.

List of Trees:

No	Name of Tree
1	Corkball
2	Wild arecanut
3	Jackfruit
4	Boat
5	Habit
6	Kapok
7	Gulmohor
8	Banyan
9	Fig
10	SilverOak
11	Yellow Flameboyant
12	Frangipani
13	Date Palm
14	Ashoka
15	Beech
16	Guava
17	Sandalwood
18	Mahagony
19	Jambolin
20	Silver Trumpet
21	Carribbean Trumpet
22	Teak
23	Tulip

