

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



Year: 2021-22

Prepared by

Engress Services

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MAHARASHTRA ENERGY DEVELOPMENT AGENCY



Maharashtra Energy Development Agency

(Government of Maharashtra Institution)
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Aundh, Pune, Maharashtra 411067
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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.

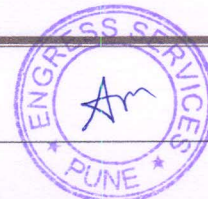
Name and Address of the firm : M/s Engress Services
Yashshree, 26, Nirmal Bag Society,
Near Muktangan English School,
Parvati, Pune – 411 009.

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

Yashashree, 26, Nirmal Bag Society,
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Tel: 09890444795 Email: engress123@gmail.com

Ref: ES/SSPMAASCCC/21-22/02

Date: 13/5/2022

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 year 2021-22.

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
- Provision of Ramp for Divyangajan
- Development of Ethno botanical Garden with important medicinal plants
- Arranging various Environmental awareness Programs for students
- Wasteland restoration by Green, Medicinal Plants, Bee flora
- Creation of Awareness by Display of Poster on Swatcchh & Swastha Bharat

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



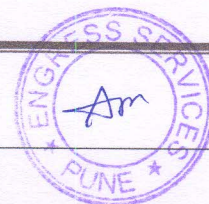
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ACKNOWLEDGEMENT

We Engress Services, 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: 2021-22.

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	4412	3.97
2	Maximum	759	0.68
3	Minimum	180	0.16
4	Average	401	0.36

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 reduction in CO₂ emissions due to usage of Renewable Energy is 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 disposal.

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:

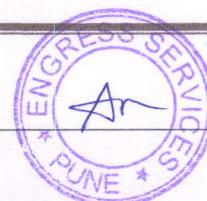
For treatment of laboratory chemicals, the College has a soak tank wherein the laboratory liquid waste is first mixed with water and then drained to the soak Tank which contains layers of sand and activated carbon.

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 Swatcchh & Swastha Bharat
- Development of Ethno botanical Garden with important medicinal plants
- Arranging various Environmental awareness Programs for students
- Wasteland restoration by Green, Medicinal Plants, Bee flora

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:



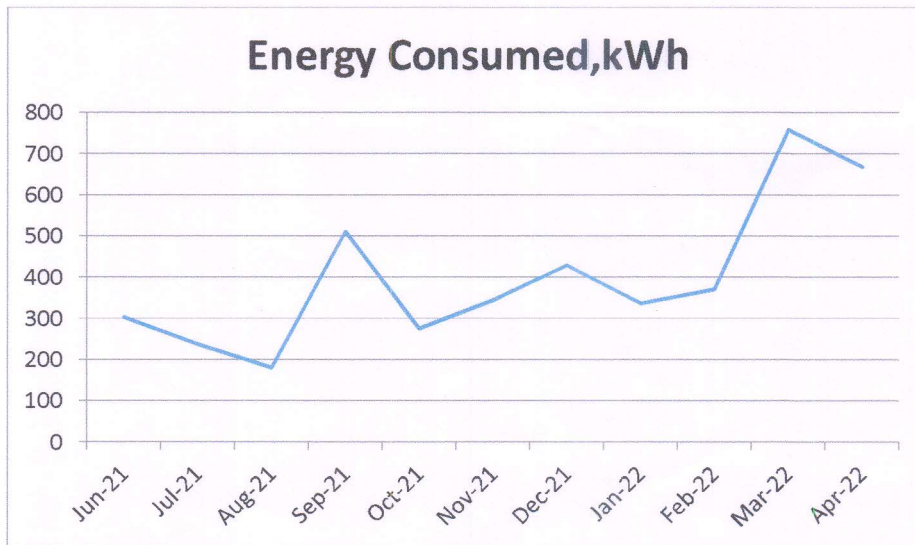
CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

In this chapter, we present the analysis of last year Electricity Bills. As the Hostel facility is closed, we consider the consumption of only College premises.

Table No 2: Electrical Bill Analysis- 2021-22:

No	Month	Energy Consumed, kWh
1	Jun-21	303
2	Jul-21	237
3	Aug-21	180
4	Sep-21	511
5	Oct-21	275
6	Nov-21	344
7	Dec-21	429
8	Jan-22	336
9	Feb-22	370
10	Mar-22	759
11	Apr-22	668
12	Total	4412
13	Maximum	759
14	Minimum	180
15	Average	401

Chart No 1: Variation in Monthly Energy Consumption:



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	4412
2	Maximum	759
3	Minimum	180
4	Average	401



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 Consumed, kWh	CO ₂ Emissions, MT
1	Jun-21	303	0.27
2	Jul-21	237	0.21
3	Aug-21	180	0.16
4	Sep-21	511	0.46
5	Oct-21	275	0.25
6	Nov-21	344	0.31
7	Dec-21	429	0.39
8	Jan-22	336	0.30
9	Feb-22	370	0.33
10	Mar-22	759	0.68
11	Apr-22	668	0.60
12	Total	4412	3.97
13	Maximum	759	0.68
14	Minimum	180	0.16
15	Average	401	0.36

Chart No 2: Month wise CO₂ Emissions:

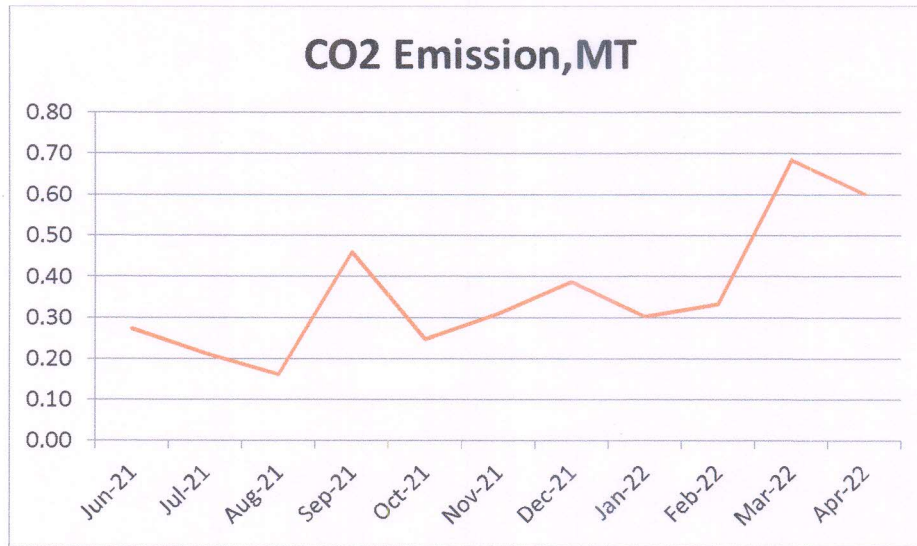


Table No 5: Key observations:

No	Parameter	Energy consumed, kWh	CO2 Emissions, MT
1	Total	4412	3.97
2	Maximum	759	0.68
3	Minimum	180	0.16
4	Average	401	0.36



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 reduction in CO₂ emissions due to usage of Renewable 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.

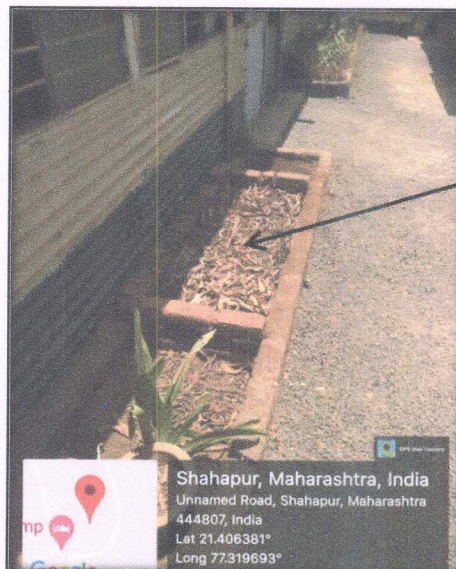
Photograph of Waste Collection Bin:



5.2 Organic Waste Management:

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

Photograph of Bio Composting Pit:



Bio
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.

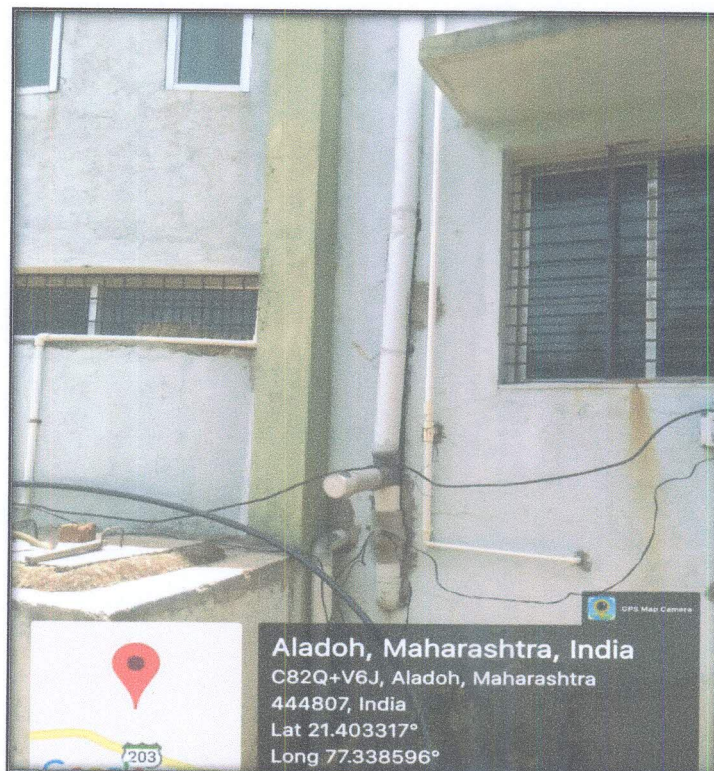
CHAPTER-VI STUDY OF RAIN WATER HARVESTING

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.

Water Storage Tank Details:

- Area of Tank: 1939 sq.ft.
- Tank Height: 2 meters
- Water Storage Capacity: 360400 Liters

Photograph of Rain Water Storage Tank Facility:



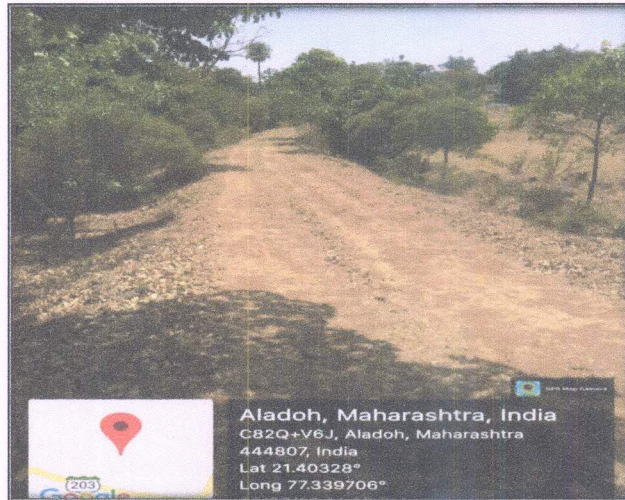
The Water is used for Girls Hostel & for Gardening purpose.

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.

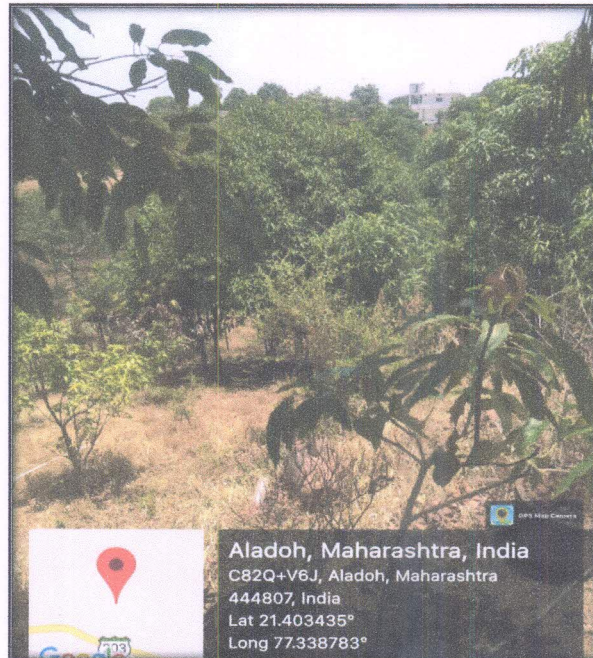
Photograph of Internal Road:



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.

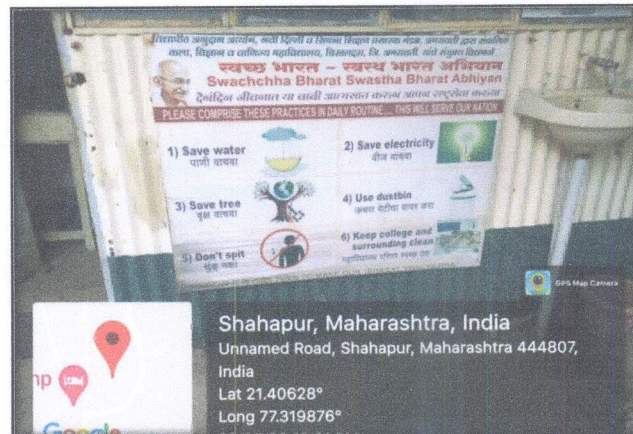
Photograph of Ramp:



7.4 Creation of Awareness on Swatcchh & Swastha Bharat Abhiyan:

The College is creating awareness on importance of Cleanliness, Hygiene and Good Health under the Swatcchh & Swastha Bharat Abhiyan.

Photograph of Poster on Swatcchh & Swastha Bharat Abhiyan:



7.5 Other Environment Friendly Initiatives:

- Development of Ethno botanical Garden with important medicinal plants
- Arranging various Environmental awareness Programs for students
- Wasteland restoration by Green, Medicinal Plants, Bee flora

**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