ENVIRONMENTAL AUDIT REPORT

of

Shri Saibaba Lok Prabodhan Kala Mahavidyalaya

Wadner Tah.Hinganghat Dist.Wardha- 442 307

Year: 2022-23

Prepared by:

ENGRESS SERVICES

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

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society, Near Muktangan English School,
Parvati, Pune 411 009Tel: 09890444795 Email: engress123@gmail.com
MEDA Registration No: ECN/2022-23/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)

ENVIRONMENTAL AUDIT CERTIFICATE

Certificate No: ES/SSLPKM/22-23/03 **Date: 28/09/2023**

This is to certify that we have conducted Environmental Audit at Shri Saibaba Lok Prabodhan Kala Mahavidyalaya, Wadner, in the Year 2022-23.

The Institute has adopted following Energy Eco Friendly Practices:

- Usage of Energy Efficient LED Light Fitting
- Segregation of Waste at Source
- Installation of Bio Composting Pit
- College has installed septic tanks and it is cleaned periodically
- Installation of Rain Water Harvesting Project
- Maintenance of good Internal Road
- Tree Plantation in the Campus
- Creation of awareness by display of Posters on Resource Conservation

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

For Engress Services,

A Y Mehendale,
B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192
ASSOCHAM GEM Certified Professional: GEM: 22/788

REGISTRATION CERTIFICATES

Maharashtra Energy Development Agency

CERTIFICATE OF REGISTRATION
FOR CLASS 'A'

MEDA Registration Certificate

GEM Certificate

ASSOCHAM

ASSOCHAM hereby certifies that

Mr. A Y Mehendale

has successfully passed the
Green and Eco-friendly Movement Certified Professional Test (GEM CP)
with
"Excellent Performance"
on
06 June 2022

Pankaj R. Dharkar — Deepak Sood

GEM Certified Professional Certificate

Certificate of Registration

This is to Certify that
Quality Management System of

ENGRESS SERVICES

has been audited and found to conform to the requirements of
ISO 9001:2015
for the following scope :

IAF

Director

Magnitude Management Services Pvt. Ltd.

ISO: 9001-2015 Certificate

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ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Shri Saibaba Lok Prabodhan Kala Mahavidyalaya, Wadner for awarding us the assignment of Environmental Audit of their Campus for the Year: 2022-23.

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

EXECUTIVE SUMMARY

1. **Shri Saibaba Lok Prabodhan Kala Mahavidyalaya Wadner** consumes Energy in the form of **Electrical Energy** used for various Electrical Equipment, office & other facilities.

2. **Pollution due to Institute Activities:**

   - **Air pollution:** Mainly CO_2 on account of Electricity Consumption
   - **Solid Waste:** Bio degradable Garden Waste
   - **Liquid Waste:** Human liquid waste

3. **Present Energy Consumption& CO_2 Emission:**

No	Particulars	Value	Unit
1	Annual Energy Consumption	4223	kWh
2	Annual CO_2 Emissions	3.80	MT

4. **Various initiatives taken for Environmental Conservation:**

   - Usage of Energy Efficient LED fittings
   - Bio Composting Pit Installation

5. **Indoor Air Quality Parameters:**

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	50	31	42
2	Minimum	35	21	32

6. **Indoor Comfort Conditions:**

No	Parameter/Value	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Maximum	31	46	310	41
2	Minimum	29	42	210	37

7. **Waste Management:**

7.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

7.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

7.3 Liquid Waste Management:

The Institute has installed Septic Tank and it cleans periodically.

7.4 Sanitary Waste Management:

It is recommended to install Sanitary Waste Incinerator, for disposal of the Sanitary Waste.

7.5 E Waste Management:

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

8. Rain Water Management:

The Institute has installed the Rainwater Management project; the rain water falling on the terrace is collected through pipes and is used for recharging the land water table and gardening purpose.

9. Environment Friendly Initiatives:

- Display of Posters on Resource Conservation
- Tree Plantation drive NSS Cell.

10. Assumption:

1. 1 kWh of Electrical Energy releases 0.9 Kg of CO_2 into atmosphere

11. References:

- For CO_2 Emissions: www.tatapower.com
- For Various Indoor Air Parameters: www.ishrae.com
- For AQI &Water Quality Standards: www.cpcb.com

ABBREVIATIONS

Kg	:	Kilo Gram
MSEDCL	:	Maharashtra State Distribution Company Limited
MT	:	Metric Ton
kWh	:	kilo-Watt Hour
LPD	:	Liters per Day
LED	:	Light Emitting Diode
AQI	:	Air Quality Index
PM-2.5	:	Particulate Matter of Size 2.5 Micron
PM-10	:	Particulate Matter of Size 10 Micron
CPCB	:	Central Pollution Control Board
ISHRAE	:	The Indian Society of Heating & Refrigerating & Air Conditioning Engineers

CHAPTER-I
INTRODUCTION

1. Important Definitions:

1.1. Environment: Definition as per environment Protection Act: 1986

Environment includes water, air and land and the inter-relationship which exists among and between Water, Air, Land and Human beings, other living creatures, plants microorganism and property

1.2. Environmental Audit: Definition:

An audit which aims at verification and validation to ensure that various environmental laws are compiled with and adequate care has been taken towards environmental protection and preservation

According to UNEP, 1990, "Environmental audit can be defined as a management tool comprising systematic, documented and periodic evaluation of how well environmental organization management and equipment are performing with an aim of helping to regularize the environment

1.3. Environmental Pollutant: means any solid, liquid and gaseous substance present in the concentration as may be, or tend to be, injurious to Environment.

1.4 Audit Procedural Steps:

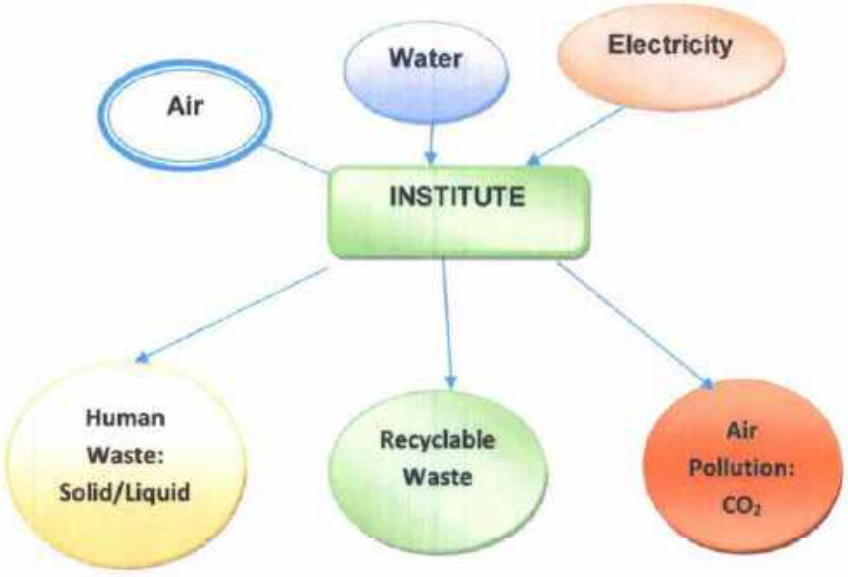
1.5 Institute Location Image:

CHAPTER-II
STUDY OF RESOURCE CONSUMPTION& CO_2 EMISSION

The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy

We try to draw a schematic diagram for the Institute System & Environment as under.
Chart No 1: Representation of Institute as System & Study of Resources & Waste



Now we compute the Generation of CO_2 on account of consumption of Electrical Energy. The basis of Calculation for CO_2 emissions due to Electrical Energy is as under.

- **1 kWh** of Electrical Energy releases **0.9 Kg of CO_2** into atmosphere

Table No 5: Study of Consumption of Electrical Energy & CO_2 Emissions: 22-23:

No	Month	Energy Consumed, kWh	CO_2 Emissions, MT
1	Apr-22	536	0.482
2	May-22	358	0.322
3	Jun-22	263	0.236
4	Jul-22	244	0.219
5	Aug-22	287	0.258
6	Sep-22	339	0.305
7	Oct-22	318	0.286
8	Nov-22	328	0.295

9	Dec-22	344	0.309
10	Jan-23	391	0.351
11	Feb-23	440	0.396
12	Mar-23	375	0.337
13	Total	4223	3.800
14	Maximum	536	0.482
15	Minimum	244	0.219
16	Average	351.91	0.316

Chart No 2: Month wise CO_2Emissions:

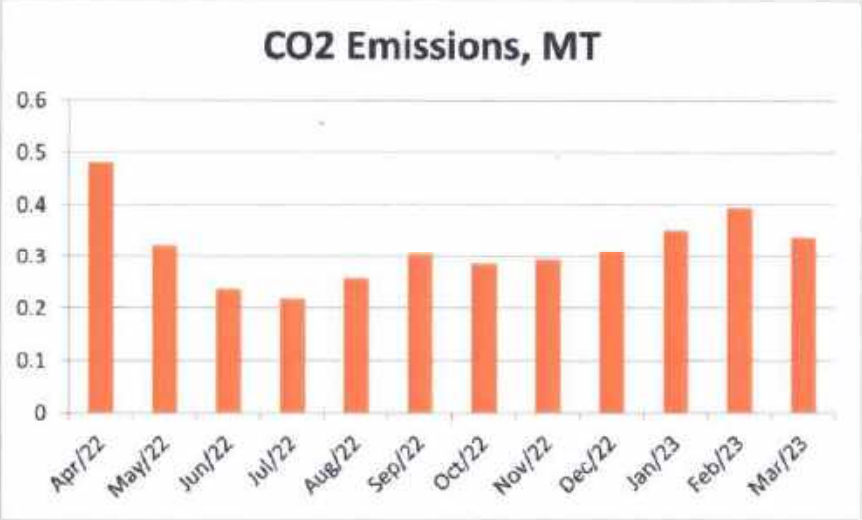


Table No 6: Important Parameters:

No	Parameter/ Value	Net Energy Consumption (kWh)	CO2 Emissions MT
1	Total	4223	3.800
2	Maximum	536	0.482
3	Minimum	244	0.219
4	Average	351.91	0.316

CHAPTER III
STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has not installed Roof Top Solar PV Plant. It is recommended to install Roof Top Solar PV Plant.

CHAPTER IV
STUDY OF INDOOR AIR QUALITY

4.1 Importance of Air Quality:

Air: The common name given to the atmospheric gases used in breathing and photosynthesis.

By volume, Dry Air contains 78.09% Nitrogen, 20.95% Oxygen, 0.93% Argon, 0.039% carbon dioxide, and small amounts of other gases.

On average, a person inhales about **14,000 liters** of air every day. Therefore, poor air quality may affect the quality of life now and for future generations by affecting the health, the environment, the economy and the city's livability.

Air quality is a measure of the suitability of air for breathing by people, plants and animals.

4.2 Air Quality Index:

An **Air Quality Index (AQI)** is a number used by government agencies to measure the **air pollution** levels and communicate it to the population. As the AQI increases, it means that a large percentage of the population will experience severe adverse health effects. The measurement of the **AQI** requires an **air monitor** and an **air pollutant** concentration over a specified **averaging period**.

We present herewith following important Parameters.

1. AQI- Air Quality Index
2. PM-2.5- Particulate Matter of Size 2.5 micron
3. PM-10- Particulate Matter of Size 10micron

Table No7: Indoor Air Quality Parameters:

No	Location	AQI	PM-2.5	PM-10
1	Office	46	30	32
2	Principal Cabin	46	27	42
3	Library	50	30	42
4	Seminar Hall	46	28	42
5	Staff Room	35	21	26
6	Home Economics Dept.	45	23	37
7	Class Room 1	45	23	37
8	Class Room 2	46	30	32
9	Class Room 3	50	31	42
10	Class Room 4	35	21	27
11	**Maximum**	**50**	**31**	**42**
12	**Minimum**	**35**	**21**	**32**

CHAPTER V
STUDY OF INDOOR COMFORT CONDITION PARAMETERS

In this Chapter, we present the various Indoor Comfort Parameters measured during the Audit.The Parameters include:

1. Temperature
2. Humidity
3. Lux Level
4. Noise Level.

Table No 8: Study of Indoor Comfort Condition Parameters:

No	Location	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Office	31	42	220	37
2	Principal Cabin	30.1	44	240	39.2
3	Library	30.1	44	210	37
4	Seminar Hall	30.2	44	230	40
5	Staff Room	29.8	45	245	39.2
6	Home Economics Dept.	29.6	44	244	38.2
7	Class Room 1	29	44	310	38
8	Class Room 2	30.1	45	305	41
9	Class Room 3	30	46	289	42
10	Class Room 4	30	46	250	41
11	**Maximum**	**31**	**46**	**310**	**41**
12	**Minimum**	**29**	**42**	**210**	**37**

CHAPTER VI
STUDY OF WASTE MANAGEMENT

6.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

Photograph of Waste Collection Bins:

6.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

Photograph of Bio Composting Pit:

6.3 Liquid Waste Management:

The Institute has installed Septic Tanks it cleans periodically.

6.4 Sanitary Waste Management:

It is recommended to install Sanitary Waste Incinerator, for disposal of the Sanitary Waste.

6.5 E Waste Management:

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

CHAPTER-VII
STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for recharging the land water table and gardening purpose.

Photograph of Rain Water Management & Pipe Section:

CHAPTER-VIII
STUDY OF ECO FRIENDLY INITIATIVES

8.1 7.1 Internal Tree Plantation:

The College has internal Tree Plantation.

Photograph of Internal Tree Plantation:

8.2 Creation of Awareness about Energy Conservation:

The Institute has displayed posters emphasizing on importance of Energy Conservation.

Photograph of Poster on Energy Conservation:

ANNEXURE-I:
VARIOUS AIR QUALITY, WATER QUALITY, NOISE & INDOOR COMFORT STANDARDS:

1. Category Wise Air Quality Index Values & Concentration of PM 2.5 & PM10:

No	Category	AQI Value	Concentration Range, PM 2.5	Concentration Range, PM 10
1	Good	0 to 50	0 to 30	0 to 50
2	Satisfactory	51 to 100	31 to 60	51 to 100
3	Moderately Polluted	101 to 200	61 to 90	101 to 250
4	Poor	201 to 300	91 to 120	251 to 350
5	Very Poor	301 to 400	121 to 250	351 to 430
6	Severe	401 to 500	250 +	430 +

2. Recommended Water Quality Standards:

No	Designated Best Use	Criteria
1	Drinking Water Source without conventional Treatment but after disinfection	pH between **6.5 to 8.5** Dissolved Oxygen **6 mg/l or more**
2	Drinking water source after conventionaltreatment and disinfection	pH between **6 to 9** Dissolved Oxygen **4 mg/l or more**
3	Outdoor Bathing (Organized)	pH between **6.5 to 8.5** Dissolved Oxygen **5 mg/l or more**
4	Controlled Waste Disposal	pH between **6 to 8.5**

3. Recommended Noise Level Standards:

No	Location	Noise Level dB
1	Auditoriums	20-25
2	Outdoor Playground	55
3	Occupied Class Room	40-45
4	Un occupied Class Room	35
5	Apartment, Homes	35-40
6	Offices	45-50
7	Libraries	35-40
8	Restaurants	50-55

4. Thermal Comfort Conditions: For Non-conditioned Buildings:

No	Parameter	Value
1	Temperature	Less Than 33^{0}C
2	Humidity	Less Than 70%

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.The Institute has adopted following Energy Efficient practices:

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

We appreciate the support of Management, involvement of faculty members and students in the process of making the Campus Energy Efficient.

For Engress Services,

A Y Mehendale,
B E-Mechanical, M Tech- Energy
BEE Certified Energy Auditor, EA-8192

REGISTRATION CERTIFICATES

National Productivity Council
(National Certifying Agency)
PROVISIONAL CERTIFICATE

Achyut Yashavant Mehendale
Yashavant

AUDITOR CERTIFICATE

Maharashtra Energy Development Agency

CERTIFICATE OF REGISTRATION
FOR CLASS 'A'

MEDA Registration Certificate

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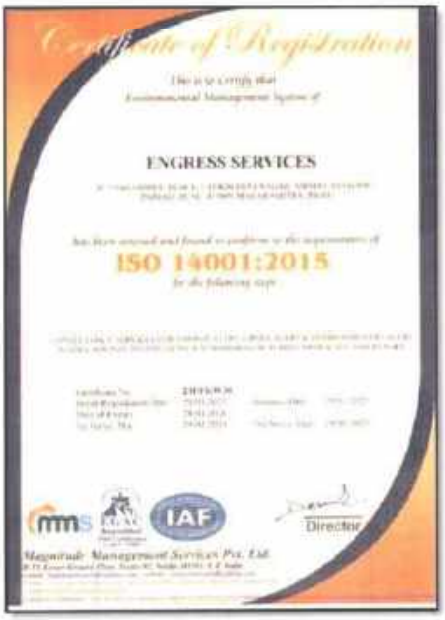

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ENGRESS SERVICES PUNE

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EXECUTIVE SUMMARY

1. **Shri Saibaba Lok Prabodhan Kala Mahavidyalaya, Wadner** consumes Energy in the form of **Electrical Energy** used for various Electrical Equipment, office & other facilities.

2. **Present Connected Load & Annual Energy Consumption:**

No	Particulars	Value	Unit
1	Total Connected Load	23	kW
2	Annual Energy Consumption	4223	kWh
3	Annual CO_2 Emissions	3.80	MT

3. **Energy Performance Index:**

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	4223	kWh
2	Total Built up area of Institute	980	m^2
3	Energy Performance Index =(1) / (2)	**4.30**	kWh/m^2

4. **Study of Lighting Power Density & % of LED Lighting:**

No	Particulars	Value	Unit
1	Lighting Power density	0.53	W/m^2
2	% of Usage of LED Lighting to Total Lighting Load	25.33	%

5. **Renewable Energy & Energy Efficiency Projects:**

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

6. **Assumption:**

1. 1 kWhof Electrical Energy releases 0.9 Kg of CO_2into atmosphere

7. **References:**

- Audit Methodology: www.mahaurja.com
- Energy Conservation Building Code: ECBC-2017: www.beeindia.gov.in
- For CO_2 Emissions: www.tatapower.com

ABBREVIATIONS

LED	:	Light Emitting Diode
MSEDCL	:	Maharashtra State Electricity Distribution Company Limited
BEE	:	Bureau of Energy Efficiency
ECBC	:	Energy Conservation Building Code
MEDA	:	Maharashtra Energy Development Agency
PV	:	Photo Voltaic
Kg	:	Kilo Gram
kWh	:	kilo-Watt Hour
CO_2	:	Carbon Di Oxide
MT	:	Metric Ton

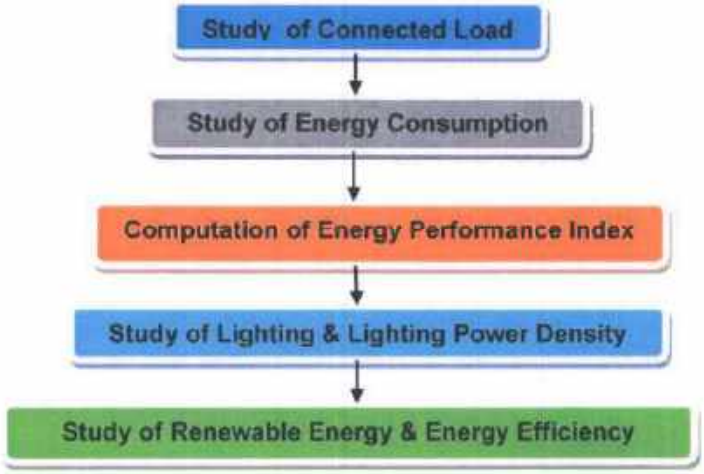
CHAPTER-I
INTRODUCTION

1.1 Introduction:

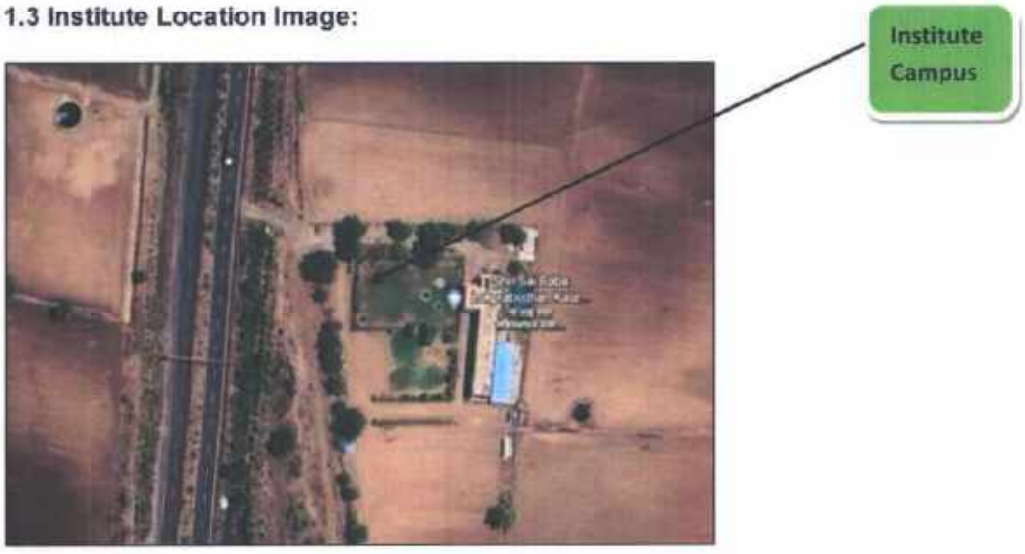
An Energy Audit is conducted at Shri Saibaba Lok Prabodhan Kala Mahavidyalaya, Wadner. The guidelines followed for conducting the Energy Audit are:

- BEE India's Energy Conservation Building Code: ECBC-2017
- Maharashtra Energy Development Agency (www.mahaurja.com)
- Tata Power: www.tatapower.com

1.2Audit Procedural Steps:



1.3 Institute Location Image:



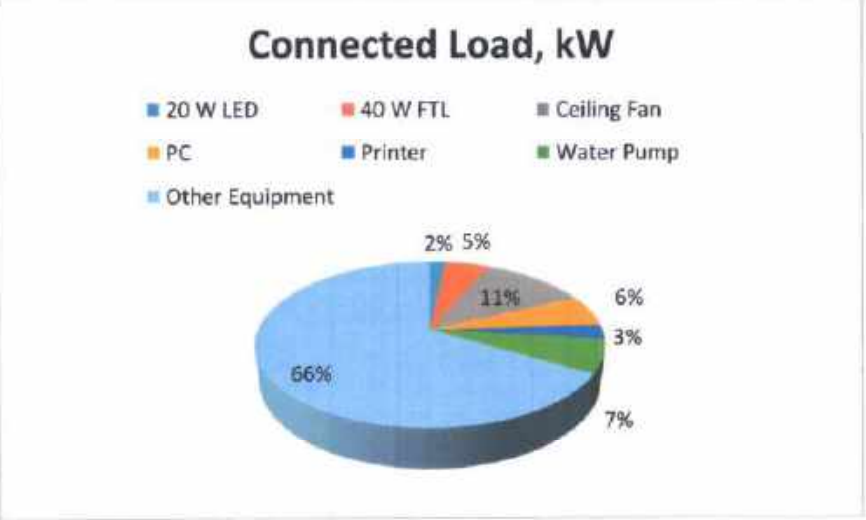
CHAPTER-II
STUDY OF CONNECTED LOAD

The major contributors to the connected load of the Institute include:

Table No 1: Study of Equipment wise Connected Load:

No	Equipment	Qty	Load, W/Unit	Load, kW
1	20 W LED	19	20	0.38
2	40 W FTL	28	40	1.12
3	Ceiling Fan	40	65	2.6
4	PC	9	150	1.35
5	Printer	4	150	0.6
6	Water Pump	2	746	1.492
7	Other Equipment	100	150	15
8	**Total**			**23**

Chart No 1: Study of Connected Load:



CHAPTER-III
STUDY OF PRESENT ENERGY CONSUMPTION

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

Table No 2: Electrical Bill Analysis- 2022-23:

No	Month	Energy Consumed, kWh	CO_2 Emissions, MT
1	Apr-22	536	0.482
2	May-22	358	0.322
3	Jun-22	263	0.236
4	Jul-22	244	0.219
5	Aug-22	287	0.258
6	Sep-22	339	0.305
7	Oct-22	318	0.286
8	Nov-22	328	0.295
9	Dec-22	344	0.309
10	Jan-23	391	0.351
11	Feb-23	440	0.396
12	Mar-23	375	0.337
13	Total	4223	3.800
14	Maximum	536	0.482
15	Minimum	244	0.219
16	Average	351.91	0.316

Chart No 2: Variation in Monthly Energy Consumption:

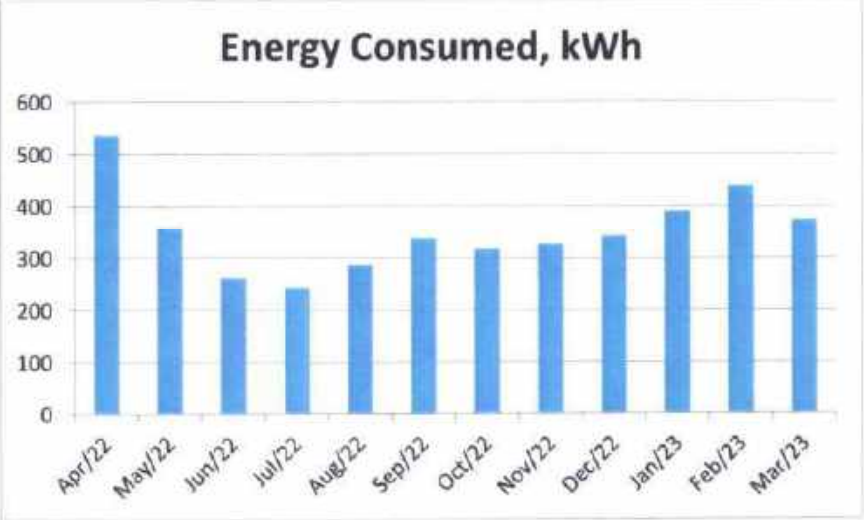


Table No 3: Important Parameters:

No	Parameter/ Variation	Energy Consumed, kWh	CO_2 Emissions, MT
1	Total	4223	3.800
2	Maximum	536	0.482
3	Minimum	244	0.219
4	Average	351.91	0.316

CHAPTER-IV
STUDY OF ENERGY PERFORMANCE INDEX

Energy Performance Index: Energy Performance Index of a Building is its Annual Energy Consumption in Kilo Watt Hours per square meter of the Building

It is determined by:

$$EPI = \frac{\text{(Annual Energy Consumption in kWh)}}{\text{(Total Built-up area in m}^2\text{)}}$$

Now we compute the EPI for the Institute as under:

Table No4: Computation of Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Consumed	4223	kWh
2	Total Built up area of Institute	980	m^2
3	Energy Performance Index =(1) / (2)	**4.30**	kWh/m^2

CHAPTER V
STUDY OF LIGHTING

Terminology:

1. Lumen is a unit of light flow or luminous flux. The lumen rating of a lamp is a measure of the total light output of the lamp. The most common measurement of light output (or luminous flux) is the lumen. Light sources are labeled with an output rating in lumens

2. Lux is the metric unit of measure for illuminance of a surface. One lux is equal to one lumen per square meter.

3. Circuit Watts is the total power drawn by lamps and ballasts in a lighting circuit under assessment.

4. Installed Load Efficacy is the average maintained illuminance provided on a horizontal working plane per circuit watt with general lighting of an interior. Unit: lux per watt per square metre (lux/W/m²)

5. Lamp Circuit Efficacy is the amount of light (lumens) emitted by a lamp for each watt of power consumed by the lamp circuit, i.e. including control gear losses. This is a more meaningful measure for those lamps that require control gear. Unit: lumens per circuit watt (lm/W)

6. Installed Power Density. The installed power density per 100 lux is the power needed per square metre of floor area to achieve 100 lux of average maintained illuminance on a horizontal working plane with general lighting of an interior
Unit: watts per square metre per 100 lux (W/m²/100 lux) 100 Installed power density (W/m²/100 lux)

7. Lighting Power Density: It is defined as Total Lighting Load in a room divided by the Area of that Room in square meters.

In this Chapter we compute: Lighting Power Density of a Class Room. We also compute the percentage usage of LED Lighting to total Lighting Load of the Institute.

Table No 5: Computation of Lighting Power Density:

No	Particulars	Value	Unit
1	No of 20 W LED Tube Lights in Class Room	4	Nos
2	Demand of 20 LED Tube Light	20	W/Unit
3	Total Lighting Load in the Class Room= **(1) * (2)**	**80**	W
4	Area of Class Room	149.57	m^2
5	Lighting Power Density = **(3)/ (4)**	**0.53**	W/m^2

Now, we compute the usage of LED Lighting to Total Lighting Load, as under.

Table No 6: Percentage Usage of LED Lighting to Annual Lighting Load:

No	Particulars	Value	Unit
1	No of 40 W FTL Fittings	28	Nos
2	Demand of 40 W FTL Fitting	40	W/Unit
3	Total Electrical Load of 40 W FTL Fittings	**1.12**	kW
4	No of 20 W LED Tube Lights	19	Nos
5	Demand of 20 W LED Tube Light	20	W/Unit
6	Total Electrical Load of 20 W LED Fittings	**0.38**	kW
7	Annual Total Lighting Load = 3+6	**1.5**	kWh
8	Annual LED Lighting Load = 6	**0.38**	kWh
9	**Annual Lighting Requirement met by LED= 8*100/7**	**25.33**	%

CHAPTER-VI
STUDY OF RENEWABLE ENERGY& ENERGY EFFICIENCY

6.1 Usage of Renewable Energy:

As on today College has not install solar roof-top PV plant, Solar thermal water heating plant; the percentages of uses of alternate energy to the annual energy demand work to be zero percent.

6.2 Energy Efficiency Measures Adopted:

- The Institute has adopted Energy Efficient LED Lighting.

GREEN AUDIT REPORT

of

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Year: 2022-23

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

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society, Near Muktangan English School,
Parvati, Pune 411 009Tel: 09890444795 Email: engress123@gmail.com
MEDA Registration No: ECN/2022-23/CR-43/1709
ISO: 9001-2015 Certified (Cert No: 23EQKC13),
ISO: 14001-2015 Certified (Cert No: 23EEKW20)

GREEN AUDIT CERTIFICATE

Certificate No: ES/SSLPKM/22-23/02 **Date: 28/09/2023**

This is to certify that we have conducted Green Audit at Shri Saibaba Lok Prabodhan Kala Mahavidyalaya Wadner, in the Year 2022-23.

The Institute has adopted following Green & Sustainable Practices:

- Usage of Energy Efficient LED Light Fitting
- Segregation of Waste at Source
- Installation of Bio Composting Pit
- College has installed septic tanks and it is cleaned periodically
- Installation of Rain Water Harvesting Project
- Maintenance of good Internal Road
- Tree Plantation in the campus
- Provision of Ramp for Divyangajan
- Creation of awareness by display of Posters on Resource Conservation

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,
B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-8192
ASSOCHAM GEM Certified Professional: GEM: 22/788

REGISTRATION CERTIFICATES

Maharashtra Energy Development Agency

CERTIFICATE OF REGISTRATION
FOR CLASS 'A'

MEDA Registration Certificate

GEM Certificate

ASSOCHAM hereby certifies that

Mr. A Y Mehendale

has successfully passed the
Green and Eco-Friendly Monument Certified Professional Test (GEM CP)
with
"Excellent Performance"
on
06 June, 2022

Pankaj R. Dhatkar — GEM CP 22/196 — Deepak Sood

GEM Certified Professional Certificate

Certificate of Registration

This is to Certify that
Quality Management System of

ENGRESS SERVICES

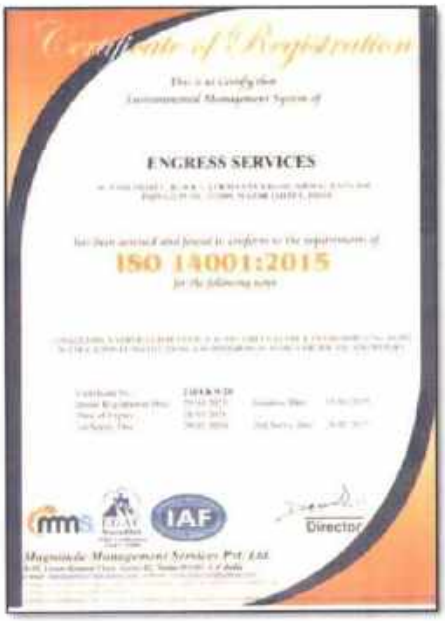
has been assessed and found to conform to the requirements of
ISO 9001:2015
for the following scope :

IAF

Director

Magnitude Management Services Pvt. Ltd.

ISO: 9001-2015 Certificate



Certificate of Registration

This is to Certify that
Environmental Management System of

ENGRESS SERVICES

has been assessed and found to conform to the requirements of
ISO 14001:2015
for the following scope :

IAF

Director

Magnitude Management Services Pvt. Ltd.

ISO: 14001-2015 Certificate

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ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of Shri Saibaba Lok Prabodhan Kala Mahavidyalaya, Wadner for awarding us the assignment of Green Audit of their Campus for the Year: 2022-23.

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

EXECUTIVE SUMMARY

1. Shri Saibaba Lok Prabodhan Kala Mahavidyalaya Wadner consumes Energy in the form of Electrical Energy used for various Electrical Equipment, office & other facilities.

2. Present Energy Consumption& CO_2 Emission:

No	Particulars	Value	Unit
1	Annual Energy Consumption	4223	kWh
2	Annual CO_2 Emissions	3.80	MT

3. Renewable Energy & Energy Efficiency Projects:

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

4. Waste Management:

5.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

5.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

5.3 Liquid Waste Management:

The Institute has installed Septic Tank and it cleans periodically.

5.4Sanitary Waste Management:

It is recommended to install Sanitary Waste Incinerator, for disposal of the Sanitary Waste.

5.5 E-Waste Management:

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

6. Rain Water Management:

The Institute has installed the Rainwater Management project; the rain water falling on the terrace is collected through pipes and is used for recharging the land water table.

7. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Provision of Ramp for Divyangajan
- Creation of awareness on Resource Conservation Display of Posters

8. Assumption:

1. 1 kWh of Electrical Energy releases 0.9 Kg of CO_2into atmosphere

9. Reference:

- For CO_2 Emissions: www.tatapower.com

ABBREVIATIONS

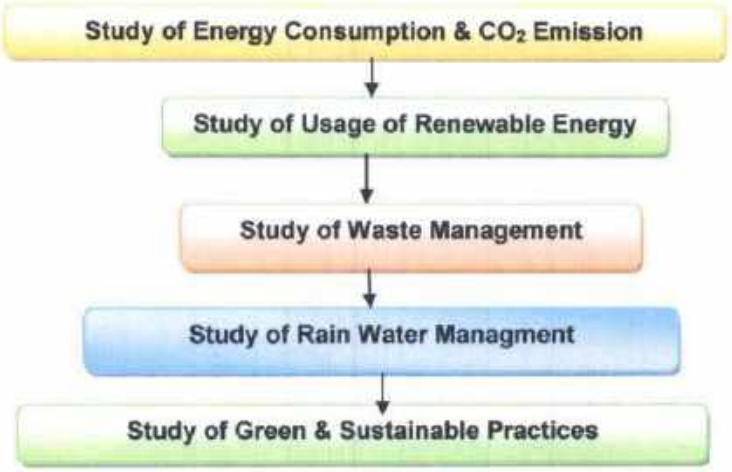
BEE	Bureau of Energy Efficiency
kWh	Kilo Watt Hour
LPD	Liters Per Day
Kg	Kilo Gram
MT	Metric Ton
CO_2	Carbon Di Oxide
Qty	Quantity

CHAPTER-I
INTRODUCTION

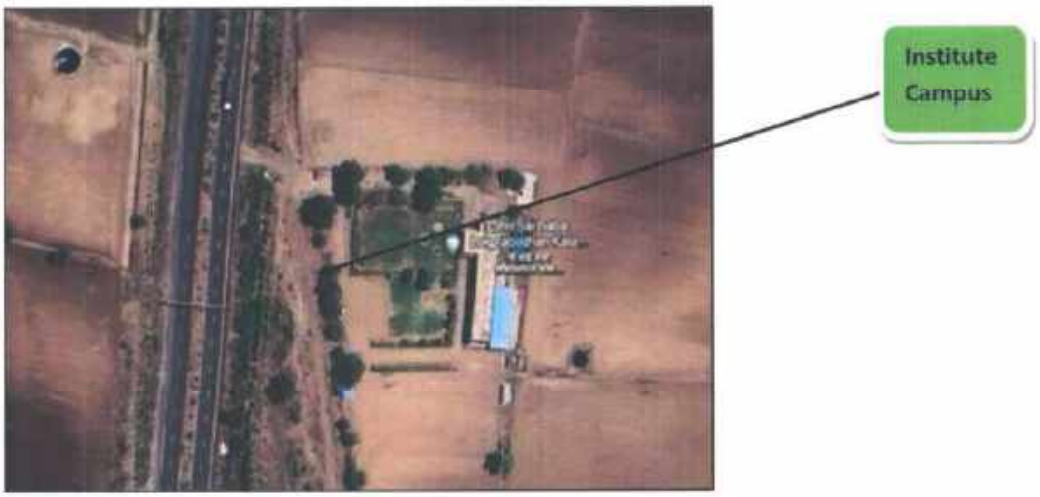
1.1 Introduction:

A Green Audit is conducted at Shri Saibaba Lok Prabodhan Kala Mahavidyalaya Wadner.

1.2 Audit Procedural Steps:



1.3 Institute Location Image:



CHAPTER-II
STUDY OF ENERGY CONSUMPTION& CO_2 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 Institute for performing its day to day activities

The Institute uses Electrical Energy for various Electrical gadgets.

Basis for computation of CO_2 Emissions:

The basis of Calculation for CO_2 emissions due to Electrical Energy is as under

- **1 kWh** of Electrical Energy releases **0.9 Kg of CO_2** into atmosphere

Based on the above Data we compute the CO_2 emissions which are being released in to the atmosphere by the Institute due to its Day to Day operations

Table No1: Month wise CO_2 Emissions:

No	Month	Energy Consumed, kWh	CO_2 Emissions, MT
1	Apr-22	536	0.482
2	May-22	358	0.322
3	Jun-22	263	0.236
4	Jul-22	244	0.219
5	Aug-22	287	0.258
6	Sep-22	339	0.305
7	Oct-22	318	0.286
8	Nov-22	328	0.295
9	Dec-22	344	0.309
10	Jan-23	391	0.351
11	Feb-23	440	0.396
12	Mar-23	375	0.337
13	Total	4223	3.800
14	Maximum	536	0.482
15	Minimum	244	0.219
16	Average	351.91	0.316

Chart No 1: Month wise CO_2 Emissions:

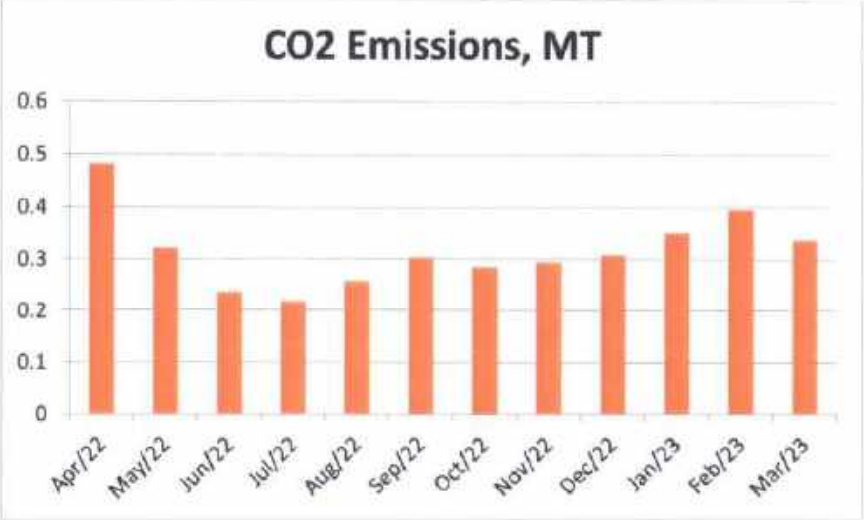


Table No2: Important Parameters:

No	Parameter/ Value	Energy Consumed, kWh	CO_2 Emissions, MT
1	Total	4223	3.800
2	Maximum	536	0.482
3	Minimum	244	0.219
4	Average	351.91	0.316

CHAPTER III
STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has not installed Roof Top Solar PV Plant. It is recommended to install Roof Top Solar PV Plant.

CHAPTER IV
STUDY OF WASTE MANAGEMENT

4.1 Segregation of Waste at Source:

The Waste is segregated at source in separate Waste Bins & is handed over for further action.

Photograph of Waste Collection Bins:

4.2 Bio Composting Pit:

The Institute has a Bio Composting Pit, to convert the Leafy Waste into Bio Compost.

Photograph of Bio Composting Pit:

4.3Liquid Waste Management:

The Institute has installed Septic Tanks it cleans periodically.

4.4 Sanitary Waste Management:

It is recommended to install Sanitary Waste Incinerator, for disposal of the Sanitary Waste.

4.5 E Waste Management:

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

CHAPTER V
STUDY OF RAIN WATER MANAGEMENT

The Institute has implemented the Rain Water Management Project. The Institute has installed Pipes from the terrace and the Rain water falling on the terrace is gathered and is used for recharging the land water table and gardening purpose.

Photograph of Rain Water Management & Pipe Section:

CHAPTER VI
STUDY OF GREEN & SUSTAINABLE PRACTICES

6.1 Internal Pedestrian:

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

Photograph of Internal Pedestrian:

6.2 Internal Tree Plantation:

The College has well maintained landscaped garden in the campus.

Photograph of Tree plantation:

6.3 Provision of Ramp for Divyangajan:

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

Photograph of Ramp:

6.3 Creation of Awareness about Energy Conservation:

The Institute has displayed posters emphasizing on importance of Energy Conservation.

Photograph of Poster on Energy Conservation:

ANNEXURE-I
LIST OF TREES & PLANTS IN THE CAMPUS

No	Name of Trees	Number of Trees
1	Azadirachta Indica (Neem)	30
2	Cestrum nocturnum (Ratrani)	02
3	Betea monosperma (Palas)	05
4	Tectona Grandis (Sagwan)	02
5	Thuja (Vidya)	25
6	Delonix Regia (Gulmohar)	02
7	Madhuca longifolia (Mahau)	05
8	Millettia pinnata (Karanj)	8
9	Lawsonia inermis (Mehendi)	100
10	Santalum album (sandalwood)	23
11	Citrus limon (Lemon)	02
12	Citrus limetta (Mausambi)	02
13	Terminalia catappa (Almond)	01
14	Nyctanthes arbor-tristis (Parijat)	02
15	Murraya koenigii (Curry Leaves)	02
16	Ficus benghalensis (Banyan)	01
17	Aegle marmelos (Indian bael)	01