



DVV 7.1.3

Queries :

1. HEI is requested to kindly note that data for the assessment period only to be considered in this report. As provided certificate in supporting documents for academic year 2023-24 should not be considered.
2. Kindly provide sports & activities.
3. Kindly provide action taken reports and achievement report as clean and green campus initiatives.
4. Kindly provide policy document on energy usage and environmental.
5. Kindly provide certificate from the external accredited auditing agency (preferably government concern department of affiliating university).
6. Kindly provide Geo tagged photographs with caption and date.
7. Kindly provide any other supporting document for the adopted environmental practices.

DVV 1

1. HEI is requested to kindly note that data for the assessment period only to be considered in this report. As provided certificate in supporting documents for academic year 2023-24 should not be considered.

Justification :

Data for the assessment period is attached here with Green Audit certificate & report, Environment Audit certificate & Report and Energy audit certificate & report for year 2022-23 is attached.

DIRECTOR
IIMHRD (W)
PUNE





DVV-2 :

- HEI is requested to kindly note that data for the assessment period only to be considered in this metric. As provided certificate in supporting documents for academic year 2023-24 should not be considered.

Justification :

- Data for the assessment period is attached here with Green Audit report, Environment Audit Report and Energy audit report for year 2023-23 is attached.


DIRECTOR
IIMHRD (W)
PUNE





DVV-3 :

3. Kindly provide action taken reports and achievement report as clean and green campus initiatives.

Justification :

- Action Taken Report and achievement report as clean and green campus is attached herewith.

DIRECTOR
IIMHRD (W)
PUNE



DVV-4 :

4. Kindly provide policy document on energy usage and environmental.

Justification :

- Energy usage and environment policy document is attached herewith.

DIRECTOR
IIMHRD (W)
PUNE





DVV-5 :

3. Kindly provide certificate from the external accredited auditing agency (preferably government, concern department of affiliating university).

Justification :

- Audit certificates from ENGRESS Services - external Govt. authorized auditing agency is attached herewith.

DIRECTOR
IIMHRD (W)
PUNE



DVV-6 :

6. Kindly provide Geo tagged photographs with caption and date.

Justification :

- Photographs are attached.

DIRECTOR
IIMHRD (W)
PUNE



**DVV-7 :**

7. Kindly provide any other Supporting document for beyond the campus environmental promotions.

Justification :

- AQI Index certificate is attached.


 DIRECTOR
 IIMHRD (W)
 PUNE



Detailed Reports , Certificates are attached as given below :

Sn	Audit Details	
1	Energy Audit Certificate	Attached
2	Environment Audit Certificate	Attached
3	Green Audit Certificate	Attached
4	Energy Audit Report	Attached
5	Environment Audit Report	Attached
6	Green Audit Report	Attached
7	AQI certificate	Attached
8	Policy Document	Attached
9	Clean and green campus initiative photographs	Attached
10	Action Taken Report and Appreciation	Attached



Energy Audit Certificate 2022-23

ENGRESS SERVICES

Head Office: Dr. Amal (Jag. Society, Near Muljangan English School), Pimpri, Pune 411 004
Tel: 020-2444728 (land) enpro@engress.com
MEGA-Registration No: EON01021308 45/1108
ISO: 9001:2015 Certified (Cert No: 20004011)
ISO: 14001:2015 Certified (Cert No: 2101K0020)

ENERGY AUDIT CERTIFICATE

Certificate No: ESIIMHRD02-23/01

Date: 18/4/2023

THIS is to certify that we have conducted an Energy Audit at International Institute of Management & Human Resource Development (W), Near Dabawad, Near Pimpri (T) Pune, Pune 411 004, in the Year 2022-23.

The Institute has adopted following Energy Efficient Practices:

- Usage of Energy Efficient LED Fixings
- Installation of High Top Solar PV Plant of Capacity 9 kWp
- Maximum usage of Day Lighting

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

For Engress Services,

A.T. Mahendran,
B.E-Mechanical, M.Tech- Enpro
BEE Certified Energy Auditor, EA-4188



DIRECTOR
IIMHRD (W)
PUNE





Environment Audit Certificate Year 2022-23

ENGRESS SERVICES

Address: B-1, Sector-109, Gurgaon, Near Shalimar English School,
 Farukh, Phase-411-300 Tel: 0126444700 Email: enr@engress.com
 B2B Registration No: 20N2027-2028-21178
 ISO: 9001:2015 Certified (Cert No: 20E08013)
 ISO: 14001:2015 Certified (Cert No: 20E09022)

ENVIRONMENTAL AUDIT CERTIFICATE

Certificate No: III/IMHRD/22-23/03

Date: 15/02/23

This is to certify that we have conducted Environmental Audit of International Institute of Management & Human Resource Development (W), Near Dabawad, Near H.W. Road of Park, Phase 411-300, in the Year 2022-23.

The Institute has adopted following Environment Friendly Practices:

- Usage of Energy Efficient LED Lighting
- Maximum usage of Day Lighting
- Installation of Solar Roof Top Solar PV Panel
- Segregation of Waste at source
- Provision of Septic Tank, for Aquat System Management
- Good Internal Road
- Internal Tree Plantation
- Creation of Awareness amongst of Energy Conservation.

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

For Engress Services,

A.T. Mahapatra,
 B.E. MNC, 31 Tech Engrs, Certified Energy Auditor - 24-2102
 ASSOCHAM OMB Certified Professional: 02/01-22/798



DIRECTOR
 IIMHRD (W)
 PUNE





Green Audit Certificate Year 2022-23

ENGRESS SERVICES

Industrial 25, Newer Bag Society, Near Maharashtra English School,
Haveli, Pune 411 003 Tel: 02000444795 Email: engress@engress.com
MEDA Registration No: EDN2020-03024-011499
ISO 9001:2015 Certified (IATF 16949:2016)
ISO 14001:2015 Certified (IATF No. 23228972)

GREEN AUDIT CERTIFICATE

Certificate No: ENHRD/2022-23/02

Date: 16/03/23

This is to certify that we have conducted Green Audit at International Institute of Management & Human Resource Development (II), New Baghaveli, New Haveli (T. Poo, Pune 411 003, in the Year 2022-23.

The Institute has adopted following Green & Sustainable Practices:

- 1. Usage of Energy Efficient LED Lights
- 2. Maximum usage of Day Lighting
- 3. Installation of 1 Wp Roof Top Solar PV Panel
- 4. Segregation of Waste at source
- 5. Provision of Drip Tap, for Water Waste Management
- 6. Green Internal Road
- 7. Green Tree Plantation
- 8. Creation of Awareness in helped of Energy Committee

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.T. Maheshwari,

B.E. Mem. of Tech-Energy, Certified Energy Auditor: EA-0102
ASSOCIATE CITY Council Professional: GDA 20156



**DIRECTOR
IIMHRD (W)
PUNE**





Energy Audit Report 2022-23

ENERGY AUDIT REPORT

**INTERNATIONAL INSTITUTE OF MANAGEMENT &
HUMAN RESOURCE DEVELOPMENT (W),**

More Dehroad, Near HSI, Road IT, PUNE Pune-411 004

Year: 2022-23

Prepared by:

ENGRESS SERVICES

Yashastree, 25, Nirmal Bag Society,

Near Madhange English School, Pune, Pune-411004

Phone: 9689444706 Email: engress173@gmail.com





Energy Audit Report, International Institute of Management & Human Resource Development (IIMHRD), Pune- 412 002

REGISTRATION CERTIFICATES



AUDITOR CERTIFICATE



MEDIA Registration Certificate



ISO: 9001-2015 Certificate



ISO: 14001-2015 Certificate



Energy Audit Report: International Institute of Management & Human Resource Development, Pune (2022-23)

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Energy Audit Report, International Institute of Management & Human Resource Development (II), Pune-2022-23

ACKNOWLEDGEMENT

We Engres Services, Pune, express our sincere gratitude to the management of International Institute of Management & Human Resource Development (II), New Dattawad, Near Hingwad: IT Park, Pune-411 033, for assisting us the assignment of Energy Audit of their Campus for the Year-2022-23.

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



Energy Audit Report: International Institute of Management & Human Resource Development (IIMHD) Pune-2021/22

EXECUTIVE SUMMARY

1. International Institute of Management & Human Resource Development (IIMHD) Pune consumes Energy in the form of Electrical Energy, used for various Electrical Equipment.

2. Present Connected Load & Energy Consumption:

No	Particulars	Value	Unit
1	Total Connected Load	23.82	kW
2	Annual Energy Purchased:	29814	kWh

3. Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Purchased	29814	kWh
2	Annual Energy Generated	6000	kWh
3	Annual Energy Consumed=1+2	35814	kWh
4	Total Built up area of Institute	2129	m ²
5	Energy Performance Index = (3) / (4)	16.45	kWh/m ²

4. Study of % Usage of LED Lighting:

No	Particulars	Value	Unit
1	% of Usage of LED Lighting to Total Lighting Load	100	%

5. Renewable Energy & Energy Efficiency Projects:

- Usage of Energy Efficient LED fittings
- Installation of 5 kWp Roof Top Solar PV Plant

6. Assumptions:

1. Energy Consumption is computed based on Load Utilization Factor
2. 1 kWh of Electrical Energy releases 2.2 kg of CO₂ into atmosphere
3. Energy generated by Roof Top Solar PV Plant: 4 kWh/kWh per Day
4. Annual Solar Energy Generation Data: 300 Kwh

7. References:

- Audit Methodology: www.enr/audit.com
- Energy Conservation Building Code: ECBC-2017, www.bre.com/india
- For CO₂ Emission: www.epa.gov
- For Solar PV Energy generation: www.solarcalculator.com.in



Energy Audit Report (Sarvajit Institute of Management & Human Resource Development), Pune, 2023-23

ABBREVIATIONS

AC	Air conditioner
MSEDCL	Maharashtra Electricity Distribution Company Limited
LED	Light Emitting Diode
wh	Watt Hour
Qty	Quantity
W	Watt
kWh	Kilo Watt
PC	Personal Computer
BT	Bionic Tool



Energy Audit Report: International Institute of Management & Human Resource Development (IIMHRD) Pune, 2020-21

CHAPTER-I INTRODUCTION

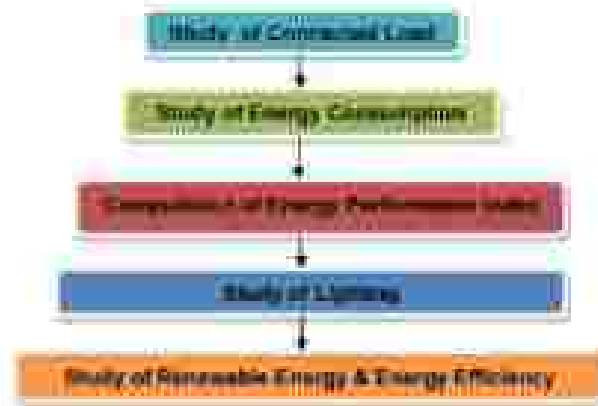
1.1 Introduction:

An Energy Audit is conducted at International Institute of Management & Human Resource Development (IIMHRD), Pune.

The guidelines followed for conducting the Energy Audit are:

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

1.2 Audit Procedural Steps:



1.3 Google Earth Location Image:



Institute
Campus



Energy Audit Report of International Institute of Management & Human Resource Development (IIMHED), Pune, 2020-21

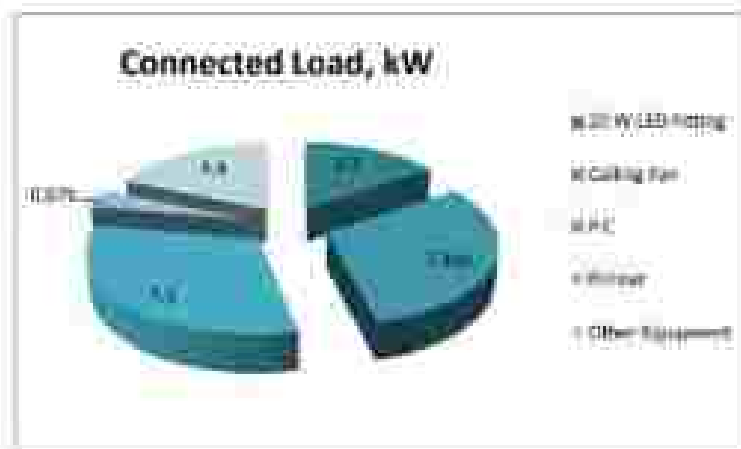
CHAPTER-II STUDY OF CONNECTED LOAD

In this chapter, we present the details of various Electrical loads as under:

Table No 1: Study of Equipment wise Connected Load

No.	Equipment	Qty	Load, W/mtr	Load, kW
1	20 W LED Fitting	145	20	2.9
2	Ceiling Fan	113	20	2.26
3	P.C	50	150	7.5
4	Printer	2	175	0.35
5	Other Equipment	20	300	6.0
6	Total			23.02

Chart No 1: Details of Connected Load





Energy Audit Report, International Institute of Management & Human Resource Development (W), Pune, 2022-23

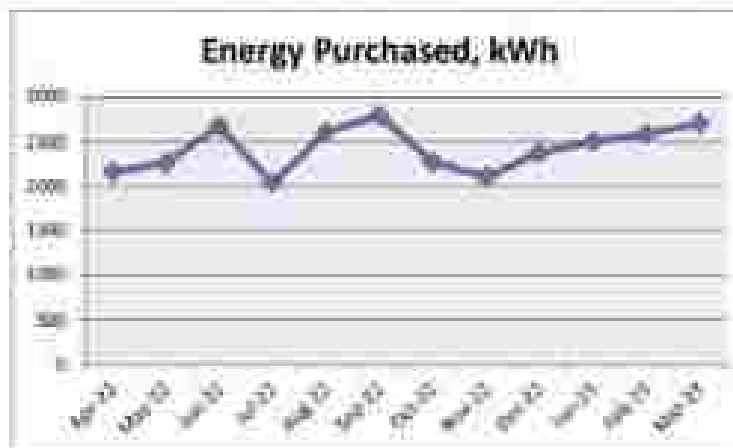
CHAPTER-III STUDY OF ENERGY CONSUMPTION

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

Table No 1: Electrical Energy Consumption Analysis- 2022-23

No	Month	Energy Purchased, kWh	CO ₂ Emission, MT
1	Apr-22	2160	1.94
2	May-22	2257	2.03
3	Jun-22	2685	2.40
4	Jul-22	2626	2.33
5	Aug-22	2698	2.34
6	Sep-22	2785	2.51
7	Oct-22	2298	2.04
8	Nov-22	2106	1.90
9	Dec-22	2268	2.10
10	Jan-23	2495	2.25
11	Feb-23	2579	2.32
12	Mar-23	2697	2.43
13	Total	29014	26.11
14	Maximum	2785	2.51
15	Minimum	2026	1.83
16	Average	2417.10	2.18

Chart No 2) To study the variation of Month wise Energy Purchased, kWh





Energy Audit Report: International Institute of Management & Human Resource Development (II) Pune, 2022-23

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:

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

Now we compute the EPI for the Institute as under:

Table No 3: Computation of Energy Performance Index:

No	Particulars	Value	Unit
1	Total Annual Energy Purchased	29014	kWh
2	Energy Generated by Solar PV Panel	6000	kWh
3	Total Energy Consumed= 1+2	35014	kWh
4	Total Built up area of Institute	2129	m ²
5	Energy Performance Index = (3) / (4)	16.40	kWh/m ²



Energy Audit Report, International Institute of Management & Human Resource Development (IIMHED), Pune (2023-24)

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 (lx/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 metres.

In this Chapter we compute the percentage usage of LED Lighting to total Lighting Load of the Institute.

Computation of Percentage Usage of LED Lighting to Total Lighting Load:

- The Total Lighting Load of the Institute is 3.7 kW
- All the Fixings are LED Type
- The % of LEDs to Total Lighting Load is 100 %



Energy Audit report International Institute of Management & Human Resource Development (Pune) Year: 2023-24

CHAPTER VI STUDY OF RENEWABLE ENERGY & ENERGY EFFICIENCY

6.1 Usage of Renewable Energy:

The Institute has installed:

- Roof Top Solar PV Plant of Capacity 8 MWp

Photograph of Roof Top Solar PV Plant:



6.2 Energy Efficiency Measures adopted:

- The Institute has Energy Efficient LED Fittings.
- Usage of GEE STAR Rated Equipment

ENVIRONMENTAL AUDIT REPORT

of

INTERNATIONAL INSTITUTE OF MANAGEMENT & HUMAN RESOURCE DEVELOPMENT (W)

(Nere Dattawadi, Near Hinjawadi IT Park Pune-411 033)

Year: 2022-23

Prepared by

ENGRESS SERVICES

Yashashree, 28, Nirmla Bag Society,
Near Mukdangan English School, Parvati, Pune-411009
Phone: 09890444795 Email: engress123@gmail.com



REGISTRATION CERTIFICATES



MEDA REGISTRATION CERTIFICATE

ASSOCHAM GEM CP CERTIFICATE



ISO: 9001-2015 CERTIFICATE

ISO: 14001-2015 CERTIFICATE

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5	Study of Indoor Comfort Condition Parameters	14
6	Study of Waste Management	15
7	Study of Rain Water Management	16
8	Study of Eco-Friendly Initiatives	17
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I	Indoor Air Quality, Noise & Indoor Comfort Standards	18

ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of International Institute of Management & Human Resource Development (W), Near Dattawadi, Near Hinjawadi IT Park, Pune 411 033, 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.

21

EXECUTIVE SUMMARY

1. International Institute of Management & Human Resource Development (W), Pune consumes Energy in the form of Electrical Energy, used for various Electrical Equipment.

2. Pollution due to Institute Activities:

- Air pollution: Mainly CO₂ on account of Electricity Consumption
- Solid Waste: Bio degradable Garden Waste, Paper & Plastic Waste
- Liquid Waste: Human liquid waste

3. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Purchased	29014	kWh
2	Annual CO ₂ Emissions	26.11	MT

4. Renewable Energy & Reduction in CO₂ Emissions:

- The Institute has installed Roof Top Solar PV Plant of Capacity 5 kWp.
- The Energy generated by Solar PV Plant in 22-23 is 6000 kWh.
- Reduction in CO₂ Emissions in 22-23 is 5.4 MT

5. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	50	30	32
2	Minimum	40	24	28

6. Indoor Comfort Conditions:

No	Parameter/Value	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Maximum	33.2	50	130	47.9
2	Minimum	33	49	114	43

7. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Liquid Waste	Septic Tank installed & cleaned periodically

8. Rain Water Management:

The Institute has yet to implement the Rain Water Management Project.

9. Environment Friendly Initiatives:

- Tree Plantation in the campus.
- Creation of awareness on Energy Conservation Display of Posters.

10. Assumptions:

1. Energy Consumption is computed based on Load Utilization Factor.
2. 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere.
3. Energy generated by Roof Top Solar PV Plant: 4 kWh/kWp per Day.
4. Annual Solar Energy Generation Days: 300 Nos.

11. References:

- For CO₂ Emissions: www.tatapower.com
- For Solar PV Energy generation: www.solarrooftop.gov.in
- For Various Indoor Air Parameters: www.ishrae.com
- For AQI & Water Quality Standards: www.cpcb.com

ABBREVIATIONS

KWh	:	Kilo-Watt Hour
Qty	:	Quantity
MT	:	Metric Ton
CO ₂	:	Carbon Di Oxide
LFD	:	Liters per Day
AQI	:	Air Quality Index
PM2.5	:	Particulate Matter of Size 2.5 microns
PM 10	:	Particulate Matter of Size 10 microns
CPCB	:	Central Pollution Control Board
ISHARE	:	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 complied 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:



1.3 Google Earth Location Image:



**Institute
Campus**

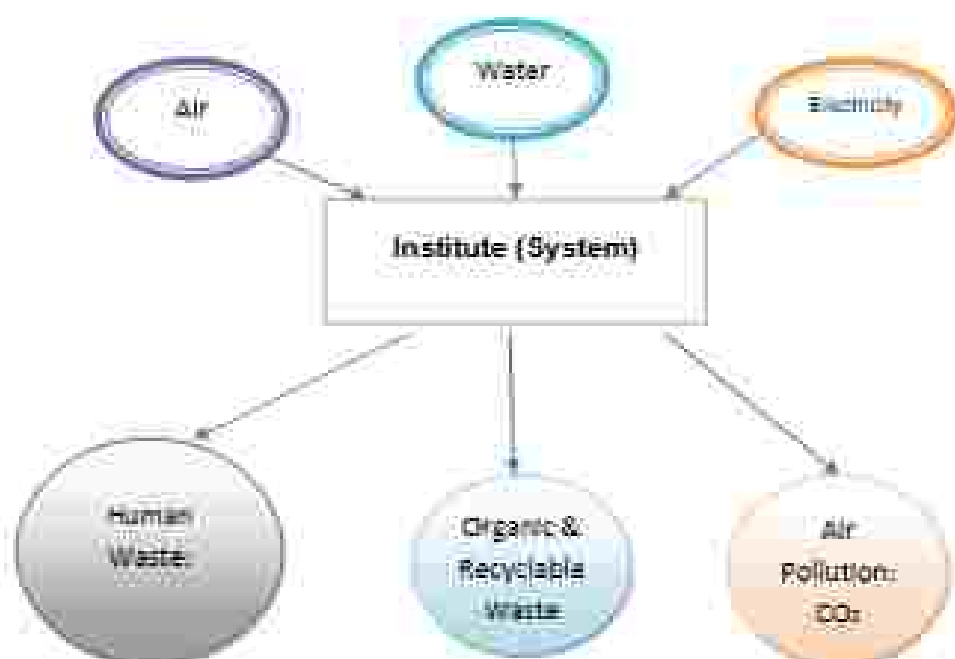
CHAPTER-II STUDY OF RESOURCE CONSUMPTION & CO₂ EMISSION

The Institute consumes following Natural/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:



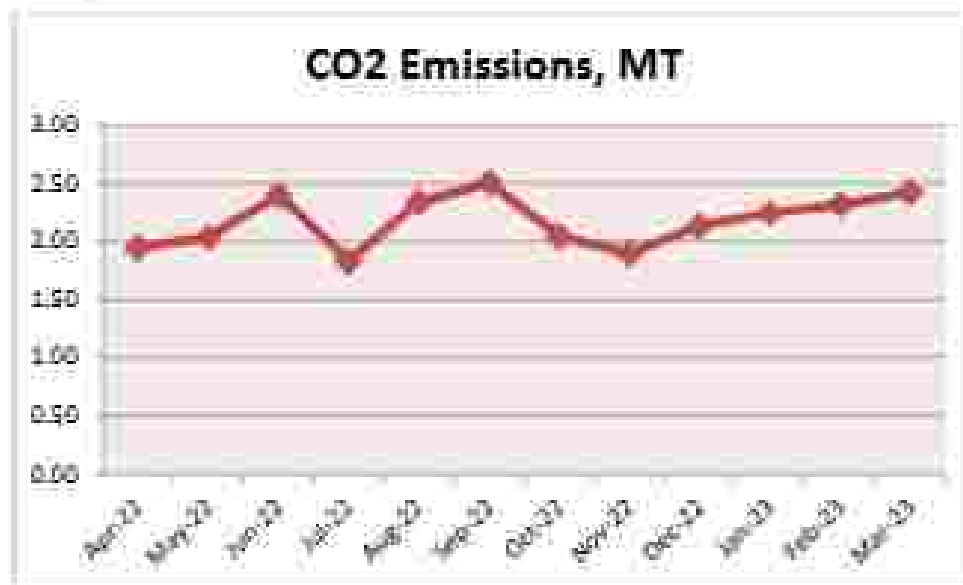
A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. Here we compute the emissions of Carbon-Di-Oxide, by usage of Electrical Energy. The basis of Calculation for CO₂ emissions due to Electrical Energy is 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere.

Table No 1: Study of Energy Purchased & CO₂ Emission: 2022-23:

No	Month	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Apr-22	2160	1.94
2	May-22	2257	2.03
3	Jun-22	2665	2.40
4	Jul-22	2036	1.83
5	Aug-22	2593	2.34
6	Sep-22	2785	2.51
7	Oct-22	2262	2.04
8	Nov-22	2106	1.90

9	Dec-22	2386	2.13
10	Jan-23	2496	2.25
11	Feb-23	2673	2.32
12	Mar-23	2697	2.43
13	Total	20014	26.11
14	Maximum	2785	2.51
15	Minimum	2036	1.83
16	Average	2417.83	2.18

Chart No 2: Representation of Month wise CO₂ emissions:



CHAPTER-III STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has installed Roof Top Solar PV Plant of Capacity 5 kWp.

In this Chapter, we compute the reduction in CO₂ Emissions on account of Usage of Solar Energy.

Table No 2: Computation of Reduction in CO₂ Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Solar PV Plant	5	kWp
2	Average Energy Generated by Solar PV Plant	4	kWh/kWp
3	Annual Generation Days	300	Nos
4	Total Solar Energy Generated= $2*3*4$	6000	kWh
5	1 kWh of Electrical Energy is equivalent to:	0.9	Kg of CO ₂
6	Reduction in CO ₂ Emissions in 22-23 = $4*5/1000$	8.4	MT

Photograph of 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, 0.030% 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.

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 10 micron

Table No 3: Indoor Air Quality Parameters:

No	Location	AQI	PM-2.5	PM-10
1	Director's Cabin	41	24	31
2	Classroom-4	40	24	30
3	Faculty Room	45	27	30
4	Computer Centre	43	26	28
5	Exam Centre	50	30	32
	Maximum	50	30	32
	Minimum	40	24	28

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 4: Study of Indoor Comfort Parameters:

No	Location	Temperature, °C	Humidity, %	Lux Level	Noise Level, dB
1	Director's Cabin	33.1	50	115	43
2	Classroom-4	33.1	49	123	47.9
3	Faculty Room	33	50	119	45
4	Computer Centre	33.2	49	130	44.8
5	Exam Centre	33.1	50	114	45
	Maximum	33.2	50	130	47.9
	Minimum	33	49	114	43

CHAPTER VI

STUDY OF WASTE MANAGEMENT

6.1 Segregation of Waste at Source:

The Waste is segregated at source. Waste collection Bins are placed at strategic locations.

Photograph of Waste Collection Bin:



6.2 Liquid Waste Management:

The Institute has a Septic Tank and is cleaned periodically.

CHAPTER-VII

STUDY OF RAIN WATER MANAGEMENT

The Institute has yet to install Rain Water Management Project.

CHAPTER-VIII

STUDY OF ENVIRONMENT FRIENDLY PRACTICES

8.1 Tree Plantation in the Campus:

The Institute has landscaped Lawn and well maintained Tree Plantation in the campus.

Photograph of Tree Plantation:



8.2 Creation of Awareness about Energy Conservation:

The Institute has displayed Posters on Importance of Energy Conservation.

Photograph of Poster on importance of Energy Conservation



ANNEXURE-I

AIR 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 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

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

No	Parameter	Value
1	Temperature	Less Than 33°C
2	Humidity	Less Than 70%

ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society, Near Multangan English School,
Parvati, Pune-411 009 Tel: 09890444795 Email: engress123@gmail.com
UDYAM Regn. No: UDYAM-MH-26-0135838,
MEDA Regn. No: EDN/2023-24/CR-43/1709
ISO: 9001-2015 Certified, ISO: 14001-2015 Certified (Cert No: 23EEKW20)



ENVIRONMENTAL PARAMETERS' CERTIFICATE

Certificate No: ES/IIHMRO/23-24/04

Date: 2/5/2024

During the Environmental audit at International Institute of Management & Human Resource Development (W), Nere Dattawadi, Near Hinjawadi IT Park, Pune 411 033, we have observed following Environmental Parameters:

1. Indoor Air Quality Parameters:

No	Parameter/Value	AQI	PM-2.5	PM-10
1	Maximum	46	28	33
2	Minimum	40	25	30

2. Indoor Lux & Noise Parameters:

No	Parameter/Value	Lux Level	Noise Level, dB
1	Maximum	225	46
2	Minimum	209	39

3. Conclusion:

3.1 The AQI, PM-2.5 & PM-10 are less than 50; Hence In Good Region.

3.2 The Lux Level is above 200 and Noise Level is less than 50; Hence it is in Good Range.

We appreciate the support of Management in making the Campus Eco-Friendly.

For Engress Services,

A Y Mehendale,

B E- Mech, M Tech-Energy, Certified Energy Auditor, EA-3182

ASSOCHAM GEM Certified Professional, GEM: 22/788



GREEN AUDIT REPORT
of
**INTERNATIONAL INSTITUTE OF MANAGEMENT &
HUMAN RESOURCE DEVELOPMENT (W)**

Ners Dattewadi, Near Hinjawadi IT Park Pune 411 033

Year: 2022-23

Prepared by

ENGRESS SERVICES

Yashashree, 26, Nirmla Bag Society,
Near Mukdangan English School, Farvadi, Pune 411009
Phone: 08890444795 Email: engress123@gmail.com



REGISTRATION CERTIFICATES



MEDA REGISTRATION CERTIFICATE

ASSOCHAM GEM CP CERTIFICATE



ISO: 9001-2015 Certificate



ISO: 14001-2015 Certificate

INDEX

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4	Study of Waste Management	10
5	Study of Rain water Management	11
6	Study of Green & Sustainable Practices	12

ACKNOWLEDGEMENT

We Engress Services, Pune, express our sincere gratitude to the management of International Institute of Management & Human Resource Development (W), Near Dattawadi, Near Hinjawadi IT Park, Pune 411 033, 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. International Institute of Management & Human Resource Development (W), Pune consumes Energy in the form of Electrical Energy, used for various Electrical Equipment.

2. Present Energy Consumption & CO₂ Emission:

No	Particulars	Value	Unit
1	Annual Energy Purchased	29014	kWh
2	Annual CO ₂ Emissions	26.11	MT

3. Renewable Energy & Reduction in CO₂ Emissions:

- The Institute has installed Roof Top Solar PV Plant of Capacity 5 kWp.
- The Energy generated by Solar PV Plant in 22-23 is 6000 kWh.
- Reduction in CO₂ Emissions in 22-23 is 5.4 MT

4. Waste Management:

No	Head	Particulars
1	Solid Waste	Segregation of Waste at source
2	Liquid Waste	Septic Tank installed & cleaned periodically.

5. Rain Water Management:

The Institute has yet to implement the Rain Water Management Project.

6. Green & Sustainable Practices:

- Maintenance of good Internal Road.
- Tree Plantation in the campus.
- Creation of awareness on Energy Conservation Display of Posters.

7. Assumptions:

1. Energy Consumption is computed based on Load Utilization Factor
2. 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere
3. Energy generated by Roof Top Solar PV Plant: 4 kWh/kWp per Day
4. Annual Solar Energy generation Days: 300 Nos

8. References:

- For CO₂ Emissions: www.batapower.com
- For Solar PV Energy generation: www.solarrooftop.gov.in

ABBREVIATIONS

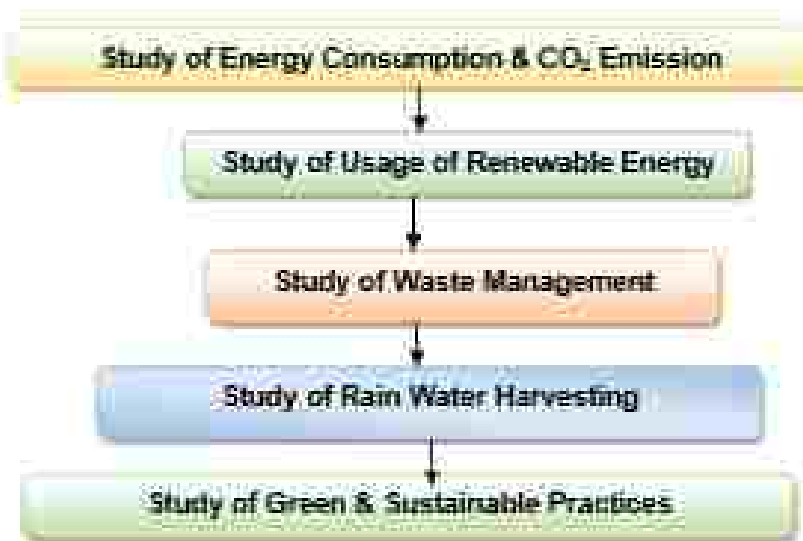
LED	:	Light Emitting Diode
KWh	:	kilo-Watt Hour
Qty	:	Quantity
W	:	Watt
kW	:	Kilo Watt
MT	:	Metric Ton

CHAPTER-I INTRODUCTION

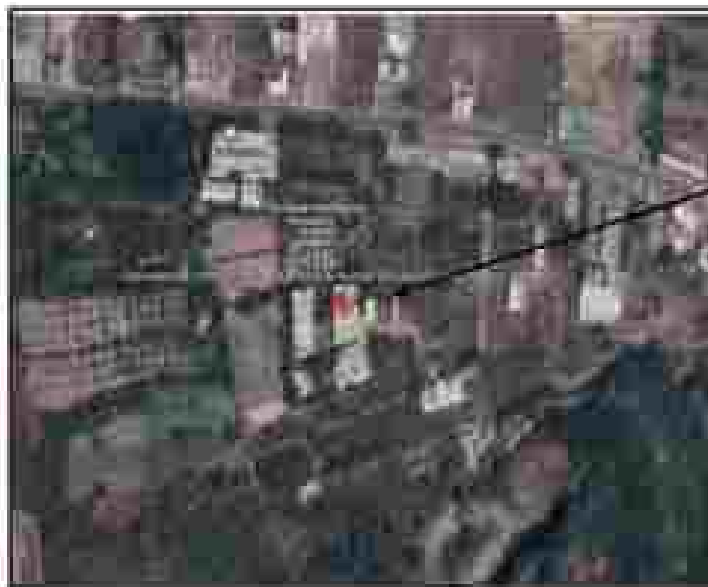
1.1 Introduction:

A Green Audit is conducted at International Institute of Management & Human Resource Development (W), Pune.

1.2 Audit Procedural Steps:



1.3 Google Earth Location Image:



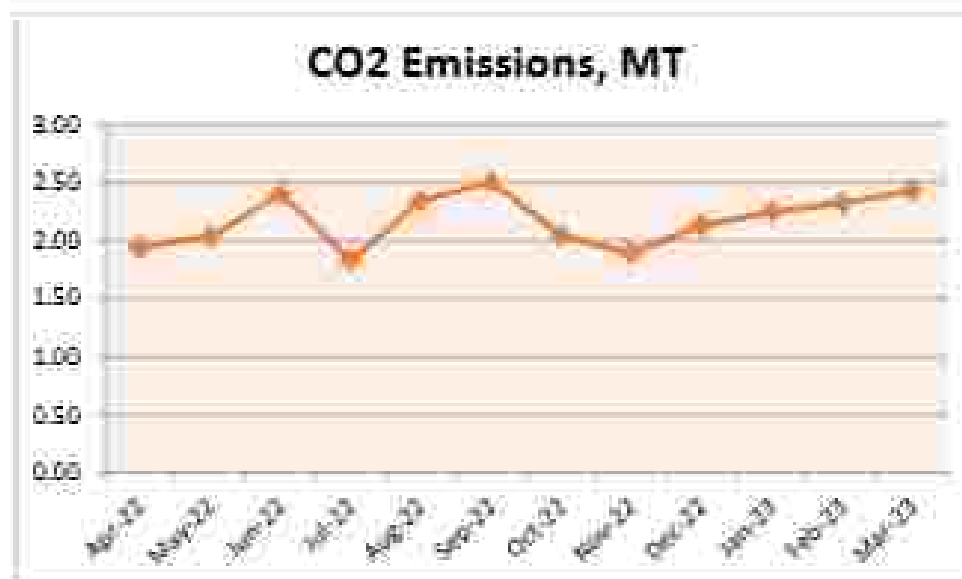
CHAPTER-II STUDY OF ENERGY CONSUMPTION & CO₂ EMISSION

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. Basis for computation of CO₂ Emissions: 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere.

Table No 1: Month wise Energy Purchased & CO₂ Emissions:

No	Month	Energy Purchased, kWh	CO ₂ Emissions, MT
1	Apr-22	2160	1.94
2	May-22	2257	2.03
3	Jun-22	2665	2.40
4	Jul-22	2035	1.83
5	Aug-22	2598	2.34
6	Sep-22	2785	2.51
7	Oct-22	2268	2.04
8	Nov-22	2106	1.90
9	Dec-22	2368	2.13
10	Jan-23	2496	2.25
11	Feb-23	2578	2.32
12	Mar-23	2697	2.43
13	Total	26014	26.11
14	Maximum	2785	2.51
15	Minimum	2035	1.83
16	Average	2417.83	2.18

Chart No 1: Month wise CO₂ Emissions:



CHAPTER-III

STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has installed Roof Top Solar PV Plant of Capacity 5 kWp.

In this Chapter, we compute the reduction in CO₂ Emissions on account of Usage of Solar Energy.

Table No 4: Computation of Reduction in CO₂ Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Solar PV Plant	5	kWp
2	Average Energy Generated by Solar PV Plant	4	kWh/kWp
3	Annual Generation Days	300	Nos
4	Total Solar Energy Generated= $2*3*4$	6000	kWh
5	1 kWh of Electrical Energy is equivalent to:	0.9	Kg of CO ₂
6	Reduction in CO ₂ Emissions in 22-23 = $4*5/1000$	8.4	MT

Photograph of Roof Top Solar PV Plant:



CHAPTER IV

STUDY OF WASTE MANAGEMENT

4.1 Segregation of Waste at Source:

The Waste is segregated at source. Waste collection Bins are placed at strategic locations.

Photograph of Waste Collection Bin:



4.2 Liquid Waste Management:

The Institute has a Septic Tank and is cleaned periodically.

CHAPTER-V

STUDY OF RAIN WATER MANAGEMENT

The Institute has yet to install Rain Water Management Project.

CHAPTER-VI

STUDY OF GREEN & SUSTAINABLE PRACTICES

6.1 Pedestrian Friendly Internal Road:

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

Photograph of Internal Road:



6.2 Internal Tree Plantation:

The Institute has well maintained Tree Plantation in the campus.

Photograph of Internal Tree Plantation:



6.3 Creation of Awareness about Energy Conservation:

The Institute has displayed Posters on Importance of Energy Conservation:

Photograph of Poster on importance of Energy Conservation:





7.1.3 Environment Promotion Activities





🔍 📷 📌 📍 📧 📞 📧 📞

← 📷 **IIMHRD(W) Students (F...** 🔍 📌 📍 📧 📞

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📷 **Feeling** 📌 **Post**

Recently Seen



Sakshi Shinde

6 Jun 2019

277

Warm Nataract Crootingall

World Environment Day (WED) is celebrated on the 5th of June every year, and is the United Nations' principal vehicle for encouraging awareness and action for the protection of our environment. First held in 1974, it has been a flagship date...



👍 15

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Most relevant



Anil Gupta

277



Sai Balaji Education Society Celebrates WORLD ENVIRONMENT DAY. 🌍
World Environment Day is celebrated across the globe to honour and recognize
the significance of nature, environment, and ecology
This World Environment Day, let's bring the change in ourselves before it's too
late. 💚
Live green, Breathe Green, Go Green 🌱


 DIRECTOR
 SAI BALAJI
 SOCIETY





Pranjal Bhojar

5 Jun 2020



World Environmental Day

The environment that we live in, is very important not only for our health but for our survival, so there is a huge need for us to protect it 🌍 We would not be able to survive if we do not have clean air and water and land to live on, so on June 5 o... See more



44

2 comments

Like

Comment

Send

Most relevant






DIRECTOR
CAMBODIAN COMMUNITY
HEALTH ORGANIZATION







Global warming is a man made disaster working like a slow poison and ruining the natural environment gradually. The natural driving force behind climate change is the greenhouse effect at work in our world's climate.

It is very necessary to increase awareness about it among the common public living in the society. Awareness regarding global warming can be enhanced in society by communicating to the society directly.

It was a great pleasure to represent our Rotaract Club of IIMHRD(W) in Thailand and conduct this activity of spreading knowledge amongst people about global warming and climate change.

Regards,

Rotaract club, IIMHRD(W)



"Let's nurture the nature so that we can have a better future"

This celebrates awareness among the masses about the protection of nature and our beautiful environment.

Rotaract Club of Saihalaji Education Society wishes all "Happy Environment Day 2021"



Sai Balaji Education Society Celebrates WORLD ENVIRONMENT DAY 🌍

World Environment Day is celebrated across the globe to honour and recognize the significance of nature, environment, and ecology.

This World Environment Day, let's bring the change in ourselves before it's too late. 🌱

Live green, Breathe Green, Go Green 🌿









Global warming is a man made disaster working like a slow poison and ruining the natural environment gradually. The natural driving force behind climate change is the greenhouse effect at work in our world's climate.

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Regards,

Rotaract club, IIMHRD(W)


DIRECTOR
IIMHRD (W)
BANG





SAI BALAJI EDUCATION SOCIETY
International Institute of Management & Human
Resources Development (W)



Let's Protect The Environment!

It is our responsibility to preserve nature and prevent climate change!

THINGS YOU CAN DO:



Plant more trees to help save energy & clean the air

Try to use more reusable plastic bags when you go for shopping

Lend a hand to save the planet.

We the students of Sai Balaji Education Society feeling so graceful to celebrate World Environment Day. Our planet's alarm is going off, and it is time to wake up and take action!


DIRECTOR
SAI BALAJI EDUCATION SOCIETY
PUNE







Tree Plantation - IIMHRD

Greetings From SaiBalaji Education Society's -International Institute of Management and Human Resource Development

On this significant occasion of "World Environment Day"

Let us pledge to unite in our efforts to safeguard our precious planet and create an even more better living future *


DIRECTOR
IIMHRD (M)
PUNE







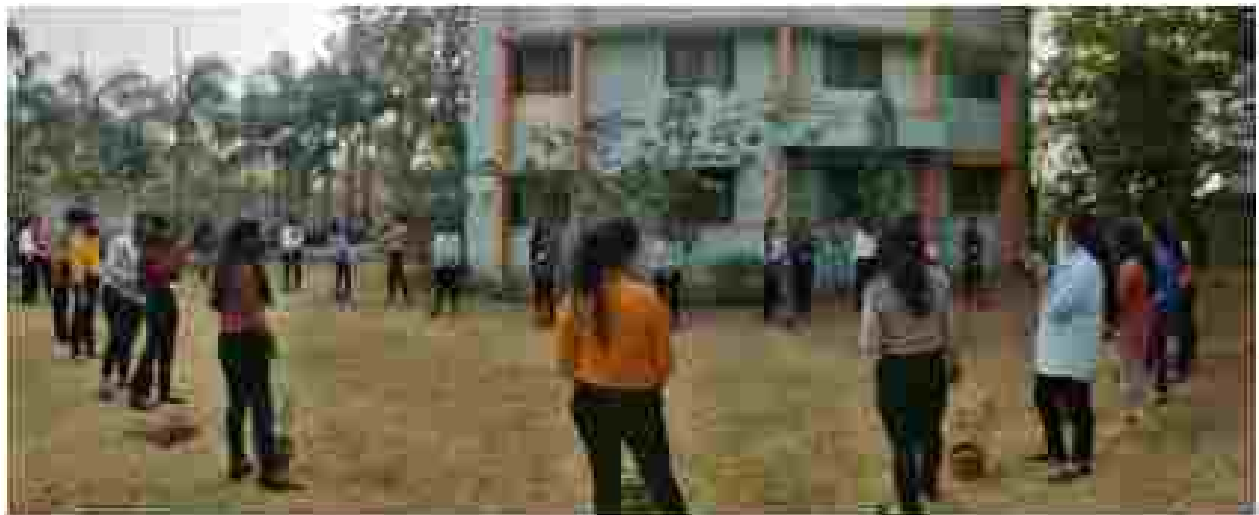

DIRECTOR
HMSRD IWT
PUNE






**DIRECTOR
UNHFD (W)
PUNE.**





Inaugural and Orientation Batch 2020-22

* Tree plantation*

"When we plant trees, we plant the seeds of peace and seeds of hope."

A Good start for a new journey and many more to come ahead





if you cut a tree, you kill a life. if you save a tree, you save a life.
if you plant a tree, you plant a life."



9:24 AM

Signal strength, Wi-Fi, cellular data, battery, and location icons.



Pranjal Bhoyar

15 Feb 2020



Greetings!!!

Rotaract Club of IIMHRD(W) organized an awareness session on "Crime Prevention and Self-defense" at Zitha Parishad School, Marunji. The activity was full of enthusiasm, joy and energy and the response we got from the students was appreciable.

Thank you founder President Prof. Manish R. Mundada , Director Dr. Anand Deshmukh and Prof. Ekta Joshi for giving us a platform and also thanks to the volunteers and rotaract club members for their participation.

Regards,
Rotaract Club of
IIMHRD(W) Pune





7.1.3 : Policy Document on Environment & Energy Audit Certification and Usage

Introduction

IIMHRD recognizes its responsibility as a leading educational institution to promote environmental stewardship and contribute to a sustainable future. We believe that fostering environmental consciousness and adopting responsible energy practices are crucial for the well-being of our planet and the communities we serve. This policy outlines IIMHRD's commitment and strategies towards achieving these goals.

Environmental Consciousness

- **Curriculum Integration:** Embedding sustainability principles, resource management, and environmental ethics throughout the MBA curriculum.
- **Educational Initiatives:** Organizing workshops, seminars, and awareness campaigns to educate students, faculty, and staff on environmental issues and best practices.
- **Waste Reduction:** Implementing a comprehensive waste management system that minimizes waste generation, prioritizes recycling and composting, and discourages single-use plastics through readily available alternatives and educational programs.

Green Procurement

- **Sustainable Practices:** Prioritizing environmentally friendly products and services during procurement. This includes considering factors such as recyclability, energy efficiency, and eco-certifications.
- **Supplier Partnerships:** Collaborating with suppliers who demonstrate a commitment to sustainability and environmental responsibility.

Biodiversity Conservation

- **Green Campus Development:** Preserving and enhancing existing green spaces on campus to foster biodiversity, provide opportunities for environmental education, and promote recreation.
- **Local Ecosystem Support:** Actively supporting initiatives aimed at the conservation of local ecosystems and wildlife.

Energy Management

- **Efficiency Measures:** Implementing energy-efficient technologies and practices throughout campus facilities. This includes conducting regular energy audits to identify areas for improvement and implement targeted measures.

- **Renewable Energy Integration:** Exploring and investing in renewable energy sources like solar, wind, or hydroelectric power to supplement campus energy needs. This policy encourages partnerships with renewable energy providers and investigates onsite generation possibilities.

Behavioural Change

- **Awareness Campaigns:** Promoting energy conservation behaviours among students, faculty, and staff through targeted campaigns and incentive programs.
- **Resource Optimization:** Encouraging the use of energy-efficient appliances and equipment within campus buildings and residences.

Monitoring and Reporting

- **Performance Tracking:** Establishing a robust monitoring system to track energy usage and key environmental performance indicators (KPIs) regularly.
- **Transparency and Accountability:** Publishing annual reports on energy consumption, greenhouse gas emissions, and progress towards established sustainability goals.

Implementation and Review

This policy comes into effect on June 5th, 2022, coinciding with World Environment Day. IIMHRD will conduct periodic reviews and evaluations to assess the effectiveness of the implemented initiatives under this policy.

Conclusion

IIMHRD is firmly committed to fostering a culture of environmental consciousness and responsible energy usage within its community. Through unwavering adherence to the principles outlined in this policy, collaboration with stakeholders, and continuous improvement efforts, IIMHRD aspires to make a significant contribution to a sustainable future for all.


DIRECTOR
IIMHRD (W)
PLINE





CRITERION - VII	
KEY INDICATOR	<p>7.1.3 Quality audits on environment and energy regularly undertaken by the Institution. The institutional environment and energy initiatives are confirmed through the following</p> <ol style="list-style-type: none"> 1. Green audit / Environment audit 2. Energy audit 3. Clean and green campus initiatives 4. Beyond the campus environmental promotion activities
METRIC NO.	7.1.3


 DIRECTOR
 IIMHRD (W)
 PUNE



ACTION TAKEN REPORTS AND ACHIEVEMENT REPORT AS CLEAN AND GREEN CAMPUS INITIATIVES

Assessment Period 2018-2023

IIMHRD Pune maintains a strong commitment to environmental sustainability and responsible living practices alongside its primary educational objectives. The institution has incorporated a comprehensive Green, Energy, and Environment Audit into its policy framework to ensure that environmental responsibility remains a central focus.

The institution has undertaken external audits. In recognition of the Institution's efforts for sustainable development, The Institution has successfully undergone Environmental Audit for the year 2021-2022 by auditing agency ENGRESS SERVICES Environmental, Pune and is credited with grade 'A'. Experts from this external agency visited the campus to evaluate the institution's environmental practices, energy and water resource utilization, and overall green initiatives.

The comprehensive reports provided by the external agency are carefully reviewed by institutional authorities, leading to the implementation of corrective measures and interventions aimed at enhancing the institution's sustainability practices. This holistic approach underscores the institution's commitment to minimizing its environmental footprint and promoting a sustainable and habitable planet.


DIRECTOR
IIMHRD (W)
PUNE





ACTION TAKEN REPORT

2021-2022

The auditing agency ENGRESS SERVICES Environmental, Pune conducted the Green and Environment Audit for the academic year 2021-2022. Subsequent to the reports provided by these auditing agencies, the following measures have been put into effect:

1. Faculty, staff, and students have received clear instructions to disconnect and turn off electrical devices when they are not in use or after using them.
2. Each classroom is equipped with display boards promoting electricity conservation.
3. Solar-sensitive lamps have been installed within the campus to enhance energy efficiency.
4. Regular maintenance checks on various gadgets and equipment have been introduced to optimize their efficiency.
5. Periodic assessments of water quality are conducted on a regular basis.
6. Efforts have been made to reinforce and enhance existing water management practices.
7. Both students and staff members are given clear instructions to adhere to Green protocols.
8. A waste management committee has been designated to oversee and ensure proper waste management activities on the campus.
9. E-waste regular collection and recycling of E-waste as per the PCMC Corporation e waste department.
10. Initiatives have been launched to establish effective e-waste management practices, including periodic e-waste collection drives and disposal.
11. Regular maintenance of incinerators is conducted.



ACTION TAKEN REPORT

2022-2023

The Energy Audit for the academic year 2022-2023 was carried out by ENGRESS SERVICES Solutions, Pune. Following the reports provided by these auditing agencies, the following measures have been implemented:

1. An agreement has been established through a Memorandum of Understanding (MoU) with ENGRESS SERVICES for taking the energy saving measures.
2. Separate arrangement of waste paper and scrap merchant to ensure the proper disposal and management of paper, glass, metal and plastic waste.
3. Faculty, staff, and students have actively adhered to clear instructions to disconnect and power off electrical devices when not in use.
4. Each classroom has been equipped with display boards that actively promote electricity conservation.
5. Solar-sensitive lamps have been successfully installed across the campus, significantly enhancing energy efficiency.
6. Regular maintenance checks on various gadgets and equipment have been instituted to optimise their performance and efficiency.
7. Periodic assessments of water quality are consistently carried out as part of routine procedures.
8. Ongoing efforts have been made to strengthen and improve existing water management practices.
9. Both students and staff members have been actively following Green protocols as instructed.
10. A dedicated waste management committee has been established to oversee and ensure proper waste management procedures on the campus.
11. Initiatives have been launched to establish effective e-waste management practices, including regular e-waste collection drives and disposal.
12. Incinerators undergo scheduled maintenance checks on a regular basis.
13. The Rotaract club, consisting of both students and staff, continues to exhibit a strong interest in tree planting and various environmentally friendly initiatives.



ACHIEVEMENT REPORT

Sensitization Programs:

- ☛ Environment Consciousness awakened among staff and students.
- ☛ Green projects and eco-friendly initiatives are undertaken by students with enthusiasm.
- ☛ Green protocol is strictly maintained.
- ☛ Solar Panels are used to utilize alternate energy sources resourcefully.
- ☛ Both staff and students actively engage in the Rotaract club activities.
- ☛ Various awareness initiatives, including Swachh Bharat Abhiyan, rallies, cleanliness drives, tree planting, and campaigns to reduce plastic usage, are regularly organized in and outside the campus to sensitize the staff, students, stakeholders and public of local area.
- ☛ Staff & Students learn healthy benefits of nature's practices.
- ☛ Biogas generation through waste management and decompose process.
- ☛ Students have acquired knowledge about composting and plant care.
- ☛ Creating a balanced ecosystem, natural habitats are provided for birds.
- ☛ The campus has maintained with healthy and medicinal plants.
- ☛ Entrepreneurial start-ups are taken up by students on sustainable development.
- ☛ Communication to staff students and stakeholders is done mainly through online medium to facilitate paperless office.
- ☛ ERP practices are implemented.
- ☛ Daily morning tea club with yoga and pranayama in Campus garden.


DIRECTOR
IIMHRD (W)
PUNE





Major Practices based on Green/Environment & Energy Audits:

Water conservation:

- ☛ Low-flow plumbing fixtures, such as aerators and water regulators, are installed.
- ☛ Water potability is checked on a quarterly basis.

Energy Conservation and Management:

- ☛ The installation of energy-efficient appliances wherever possible is actively promoted.
- ☛ Energy-Saving Measures Implemented:
 - ☛ More LED lamps have been replaced in place of TL and CFLs, optimizing energy usage.
 - ☛ Planning to install energy-efficient fans in the new floors of the building.
 - ☛ Yearly performance targets are being set.
 - ☛ Signboards are well placed in classrooms and around the campus to raise awareness about electricity consumption.
 - ☛ Solar sensor-based lighting has been installed in areas where constant lighting is unnecessary, leading to substantial energy savings.
 - ☛ Workshops on energy conservation have been organized to educate students, faculty, and staff, resulting in increased awareness.

Waste Management:

- ☛ The vermicomposting pit is well-maintained.
- ☛ Separate waste transportation is in place for different waste types.
- ☛ Proper mechanism is used for garden waste disposal.
- ☛ Plastic and paper waste are sold to authorized recycling vendors.
- ☛ Shredding and composting are preferred methods for treating paper waste.
- ☛ The concept of a 'Plastic-free Campus' has been instilled.
- ☛ To reduce waste and carbon footprint, the Institute has adopted paperless communication methods and maximized email usage.



Biodiversity Conservation:

- ☛ The Institute has a lush green campus and natural topography has been preserved.
- ☛ The campus has fruit-bearing trees, which have attracted various bird species.
- ☛ Display boards showcasing flora and fauna diversity have been installed, fostering enthusiasm among learners.
- ☛ Native tree planting initiatives have been expanded.

Reduction of Carbon Footprint:

- ☛ "No Vehicle Day" is observed at least once a month.
- ☛ Bicycles are promoted.
- ☛ CFC-free equipment is consistently used.
- ☛ Carpooling and ride-share programs are actively promoted and encouraged.

