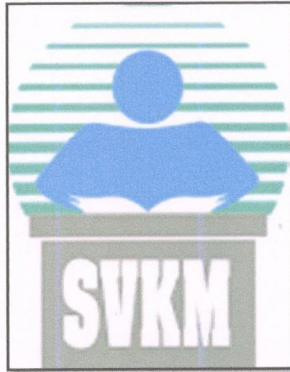


GREEN AUDIT REPORT
of
**SHRI VILE PARLE KELAVANI MANDAL'S,
INSTITUTE OF PHARMACY, DHULE**



Year: 2021-22

Prepared by:

ENGRESS SERVICES

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



MAHARASHTRA ENERGY DEVELOPMENT AGENCY



Maharashtra Energy Development Agency

(Government of Maharashtra Institution)

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

Aundh, Pune, Maharashtra 411067

Ph No: 020-35000450

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

ECN/2022-23/CR-43/1709

10th May, 2022

**CERTIFICATE OF REGISTRATION
FOR CLASS 'A'**

We hereby certify that, the firm having following particulars is registered with **MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)** under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

Name and Address of the firm : M/s Engress Services
Yashshree, 26, Nirmal Bag Society,
Near 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,
Near Muktangan English School, Parvati, Pune 411 009
Tel: 09890444795 Email: engress123@gmail.com

Ref: ES/ SVPKMIOP /21-22/02

Date: 12/5/2022

CERTIFICATE

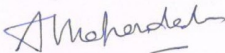
This is to certify that we have conducted Green Audit at, Shri Vile Parle Kelavani Mandal's Institute of Pharmacy, Dhule in the Year 2021-22.

The Institute has adopted following Energy Efficient and Green Practices:

- Usage of Energy Efficient LED Fittings
- Installation of 72 kWp Capacity Roof Top Solar PV Plant
- Segregation of Waste at Source
- Provision of Sanitary Waste Incinerator, for disposal of Sanitary Waste
- Installation of Sewage Treatment Plant, for treatment of Waste Liquid
- Installation of Rain Water Management Project
- Good Internal Road
- Internal Tree Plantation
- Provision of Ramp for Divyangajan
- Creation of Awareness by Display of Posters on importance of Plastic Free Campus.
- Tree Plantation Drive in the Institute Campus

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 at Engress Services, Pune, express our sincere gratitude to the management of Shri Vile Parle Kelavani Mandal's Institute of Pharmacy, Dhule for awarding us the assignment of Green Audit of their Campus for the Academic Year: 2021-22.

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



EXECUTIVE SUMMARY

1. **Shri Vile Parle Kelavani Mandal's Institute of Pharmacy, Dhule** consumes Energy in the form of **Electrical Energy and LPG** used for various gadgets, office & other facilities.

2. Present Energy Consumption & CO₂ Emission:

No	Parameter/ Value	Energy Purchased, kWh	LPG Consumed, Kg	CO ₂ Emissions, MT
1	Total	44348	114	40
2	Maximum	6220	13	5.63
3	Minimum	1185	4	1.09
4	Average	3695.66	9.50	3.35

3. Energy Conservation projects already installed:

- Usage of Energy Efficient LED fittings
- Usage of BEE STAR Rated Equipment
- Installation of **72 kWp** Solar PV Plant

4. Usage of Renewable Energy & CO₂ Emission Reduction:

- The Institute has installed a Roof Top Solar PV Plant of Capacity **72 kWp**.
- The Energy Generated by Roof Top Solar PV Plant in 21-22 is **86400 kWh**.
- The Annual Reduction in CO₂ Emission in 21-22 is **78 MT**.

5. Waste Management:

5.1 Segregation of Waste at Source:

The waste is segregated at source. There are separate bins for collection at various points and the Waste is handed over to Municipal Corporation for further action.

5.2 Liquid Waste Management:

The Institute has installed Sewage Treatment Plant. The treated water is used for flushing purpose.

5.3 Sanitary Waste Management:

The Institute has installed Sanitary Waste Incinerator, to dispose of the Sanitary Waste.

5.4 Laboratory Liquid Waste Management:

The Chemical Laboratory Liquid Waste is very negligible.

6. Rain Water Management:

The Institute has installed Rain Water Management Project, wherein the Rain Water from terrace is collected and is used to increase the underground water table.

7. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Maintenance of Internal Garden
- Provision of Ramp for Divyangajan
- Creation of Awareness on Plastic Free Campus, by Display of Posters
- Tree Plantation Event in the Institute Campus

8. Assumptions:

- 1 kWh of Electrical Energy releases 0.9 Kg of CO₂ into atmosphere
- 1 Kg of LPG releases 2.68 Kg of CO₂ into atmosphere
- Average Energy generated by 1 kWp Solar PV Plant : 4 kWh/Day
- Annual Solar Energy Generation Days: 300 Nos

9. References:

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

ABBREVIATIONS

SVKM	Shri Vile Parle Kelavani Mandal
kWh	Kilo Watt Hour
kWp	Kilo Watt Peak
Kg	Kilo Gram
MT	Metric Ton
CO ₂	Carbon Di Oxide
LPD	Liters per Day
LPG	Liquefied Petroleum Gas

CHAPTER-I

INTRODUCTION

1.1 Objectives:

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

1.2 Table No 1: General Details of the Institute:

No	Head	Particulars
1	Name of the Institution	Shri Vile Parle Kelavani Mandal's Institute of Pharmacy
2	Address	Mumbai Agra Highway, Dhule-424001
3	Year of Establishment	2017
4	Affiliation	Dr. Babasaheb Ambedkar Technological University, Lonere

CHAPTER-II STUDY OF PRESENT ENERGY CONSUMPTION

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

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

No	Month	Energy Purchased, kWh	LPG Consumed, Kg
1	Feb-21	4755	12
2	Mar-21	5849	9
3	Apr-21	4440	10
4	May-21	4196	11
5	Jun-21	5002	12
6	Jul-21	6220	13
7	Aug-21	5253	4
8	Sep-21	2525	6
9	Oct-21	1345	8
10	Nov-21	1323	10
11	Dec-21	2255	10
12	Jan-22	1185	9
13	Total	44348	114
14	Maximum	6220	13
15	Minimum	1185	4
16	Average	3695.66	9.50

Chart No: 1: Study of variation of Monthly Electrical Energy Consumption:

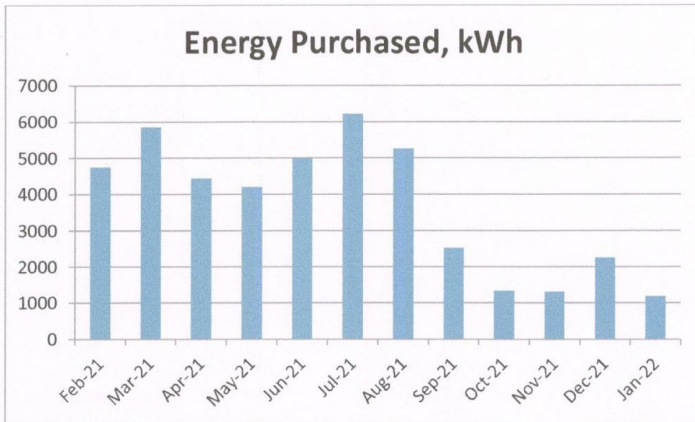


Chart No 2: Study of Month wise LPG Consumption:

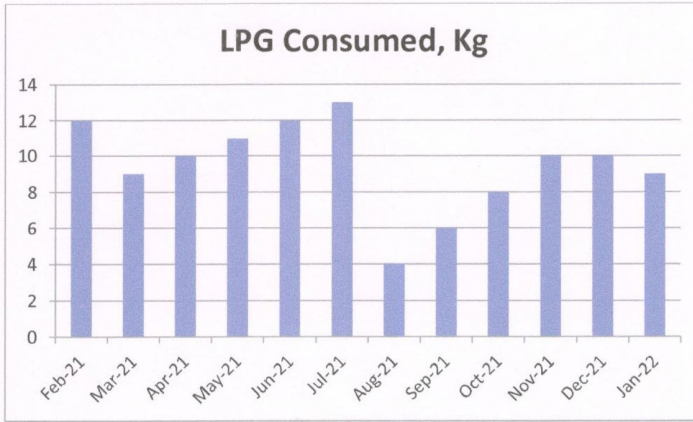


Table No 3: Variation in Important Parameters:

No	Parameter/ Variation	Energy Purchased, kWh	LPG Consumed, Kg
1	Total	44348	114
2	Maximum	6220	13
3	Minimum	1185	4
4	Average	3695.66	9.50

CHAPTER-III

STUDY OF CO₂ EMISSION

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities.

In this we compute the emissions of Carbon-Di-Oxide, by usage of the various forms of Energy used by the Institute for performing its day to day activities

The Institute uses two forms of Energy namely: Electrical Energy for various Electrical gadgets and LPG.

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 0.8 Kg of CO₂ into atmosphere
- 1 Kg of LPG releases 2.68 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 Institute due to its Day to Day operations

Table No 4: Month wise CO₂ Emissions:

No	Month	Energy Purchased, kWh	LPG Consumed, Kg	CO2 Emissions, MT
1	Feb-21	4755	12	4.31
2	Mar-21	5849	9	5.29
3	Apr-21	4440	10	4.02
4	May-21	4196	11	3.81
5	Jun-21	5002	12	4.53
6	Jul-21	6220	13	5.63
7	Aug-21	5253	4	4.74
8	Sep-21	2525	6	2.29
9	Oct-21	1345	8	1.23
10	Nov-21	1323	10	1.22
11	Dec-21	2255	10	2.06
12	Jan-22	1185	9	1.09
13	Total	44348	114	40
14	Maximum	6220	13	5.63
15	Minimum	1185	4	1.09
16	Average	3695.66	9.50	3.35

Chart No: 3: Representation of Month wise CO₂ Emissions:

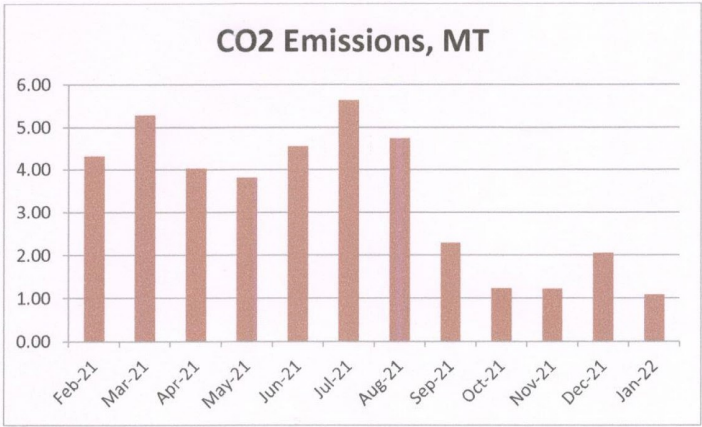


Table No 5: Variation in Important Parameters:

No	Parameter/ Value	Energy Purchased, kWh	LPG Consumed, Kg	CO ₂ Emissions, MT
1	Total	44348	114	40
2	Maximum	6220	13	5.63
3	Minimum	1185	4	1.09
4	Average	3695.66	9.50	3.35

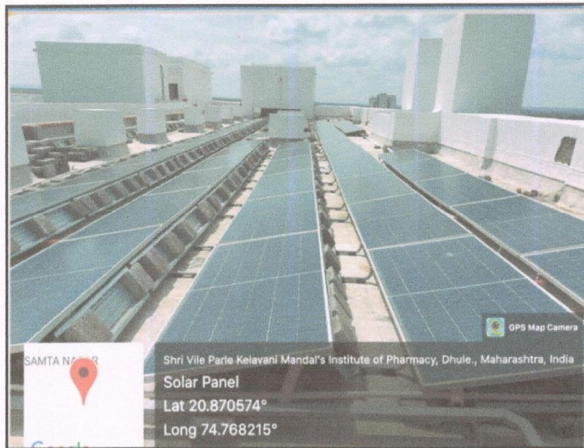
CHAPTER-IV STUDY OF USAGE OF RENEWABLE ENERGY

The Institute has installed a **72 kWp** capacity Roof top Solar PV Plant. We compute the Reduction in Annual CO₂ Emission.

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

No	Particulars	Value	Unit
1	Roof Plant Solar PV Plant Capacity	72	kWp
2	Average Daily Energy Generated by Solar PV Plant	4	kWh
3	Annual Generation Days	300	Nos
4	Annual Energy Generated = 1*2*3	86400	kWh
5	1 kWh of Electrical Energy emits	0.9	Kg of CO ₂
6	Reduction in CO ₂ emission by Solar PV Plant = (4) * (5)	78	MT/Annum

Photograph of Roof Top Solar PV Plant:



CHAPTER V STUDY OF WASTE MANAGEMENT

5.1 Segregation of Waste at Source:

The waste is segregated at source. There are separate bins for collection at various points and the Waste is handed over to Municipal Corporation for further action.

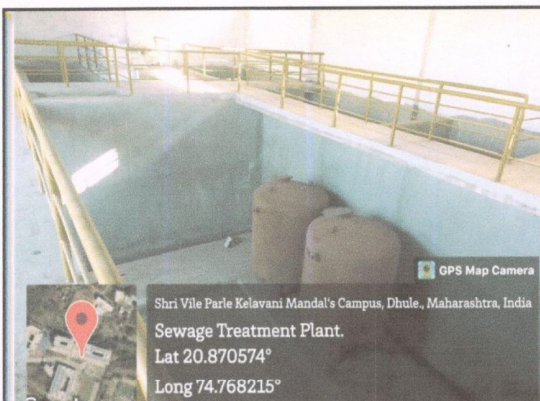
Photograph of Waste Disposal:



5.2 Liquid Waste Management:

The Institute has installed Sewage Treatment Plant. The treated water is used for flushing purpose.

Photograph of Sewage Treatment Plant:



5.3 Sanitary Waste Management:

The Institute has installed Sanitary Waste Incinerator, to dispose of the Sanitary Waste.

Photograph of Sanitary Waste Incinerator:



5.4 Laboratory Liquid Waste Management:

The Chemical Laboratory Liquid Waste is very negligible.

CHAPTER-VI STUDY OF RAIN WATER MANAGEMENT

The Institute has installed Rain Water Management Project, wherein the Rain Water from terrace is collected and is used to increase the underground water table.

Photograph of Rain Water Collecting Pipe:



CHAPTER-VII STUDY OF GREEN AND SUSTAINABLE PRACTICES

7.1 Pedestrian Friendly Road:

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

Photograph of internal road in the campus:



7.2 Internal Tree Plantation:

The Institute has well Tree Plantation as well as Medicinal Plant in the campus

Photograph of Tree Plantation in the campus:



7.3 Provision of Ramp for Divyangajan:

The Institute has made provision for Ramp for easy movement of Divyangajan.

Photograph of Ramp:



7.4 Creation of Awareness on Plastic Ban by Display of Posters:

The Institute has displayed Poster emphasizing Plastic Free Campus

Photograph of Poster on Plastic Free Campus:



7.5 Tree Plantation Event:

The Institute arranged Tree Plantation Drive in the Institute campus on 13/09/2021.

Photograph of Tree Plantation Event:

