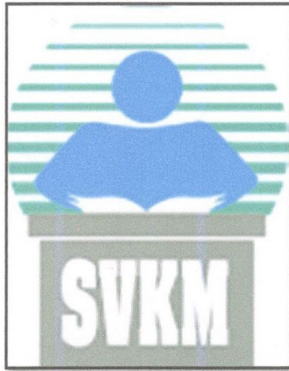


**GREEN AUDIT REPORT**  
of  
**SHRI VILE PARLE KELAVANI MANDAL'S,  
INSTITUTE OF PHARMACY, DHULE**



Year: 2022-23

Prepared by:

**ENGRESS SERVICES**

Yashashree, 26, Nirmal Bag Society,  
Near Muktangan English School, Parvati, Pune 411009  
Phone: 09890444795, Email: [engress123@gmail.com](mailto: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@mahauria.com](mailto:eee@mahauria.com), Web: [www.mahauria.com](http://www.mahauria.com)

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ECN/2022-23/CR-43/1709 10<sup>th</sup> 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 Mukhtangan 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/AE-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 **09<sup>th</sup> 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)

 **GEM Certificate** 

*ASSOCHAM hereby certifies that*  
**Mr. AY Mehendale**

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

*He/she is now eligible to execute the GEM Sustainability Certification Projects.*  
*ASSOCHAM feels proud to award the GEM Certified Professional title to him/her.*

 **Pankaj R. Dharkar**  
Chairman, GEM

**GEM CP 22/788**

 **Deepak Sood**  
Secretary General, ASSOCHAM



## ENGRESS SERVICES

Yashashree, 26, Nirmal Bag Society,  
Near Muktangan English School, Parvati, Pune 411 009  
Tel: 09890444795 Email: [engress123@gmail.com](mailto:engress123@gmail.com)

Ref: ES/ SVPKMIOP/22-23/02

Date: 22/2/2023

### CERTIFICATE

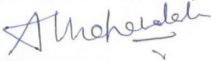
This is to certify that we have conducted Green Audit at, Shri Vile Parle Kelavani Mandal's Institute of Pharmacy, Dhule in the Year 2022-23.

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
- Installation of Sewage Treatment Plant
- Installation of Rain Water Management Project
- Maintenance of Good Internal Road
- Medicinal Plant Garden
- Provision of Ramp, Wheel Chair & Signage for Divyangajan
- Creation of Awareness by Display of Posters on importance of Resource Conservation & Clean & Green Campus
- Provision of E Vehicle in the campus.
- Celebration of World Environment Day

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

ASSOCHAM GEM Certified Professional: GEM: 22/788



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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 Pimpri Campus for the Academic Year: 2022-23.

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 & CO<sub>2</sub> Emission:

No	Parameter/ Value	Energy Purchased, kWh	LPG Consumed, Kg	CO <sub>2</sub> Emissions, MT
1	Total	56431	133	51
2	Maximum	7633	12	6.90
3	Minimum	1030	9	0.96
4	Average	4703	11	4.26

### 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 & CO<sub>2</sub> 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 22-23 is **86400 kWh**.
- The reduction in Annual CO<sub>2</sub> Emission in 22-23 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 Sanitary Waste Management:

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

#### 5.3 Liquid Waste Management:

The Institute has installed Sewage Treatment Plant of Capacity 600 m<sup>3</sup>/Day. The treated water is used for flushing purpose.

#### 5.4 Laboratory Liquid Waste Management:

The Chemical Laboratory Liquid Waste Quantity is very negligible.

#### 5.5 E Waste Management:

The Institute authorities have entered in to a Memorandum of Understanding with HP Customer Support for disposal of E Waste.

## 6. Rain Water Management & Water Conservation:

The rain water falling on the terrace is collected through pipes and is used for increasing the underground water table. A soak tank is provided for collection of drained water. An open well is there, wherein the rain water is collected by gravity is stored and is used for gardening purpose.

## 7. Green & Sustainable Practices:

- Maintenance of good Internal Road
- Maintenance of Internal Garden
- Provision of Ramp, Wheel Chair & Signagae for Divyangajan
- Creation of Awareness on Resource Conservation, by Display of Posters
- Conducting various Activities on the occasion of World Environment Day

## 8. Assumptions:

- 1 kWh of Electrical Energy releases 0.9 Kg of CO<sub>2</sub> into atmosphere
- 1 Kg of LPG releases 2.68 Kg of CO<sub>2</sub> into atmosphere
- Average Energy generated by 1 kWp Solar PV Plant : 4 kWh/Day
- Annual Solar Energy Generation Days: 300 Nos

## 9. References:

- For CO<sub>2</sub> Emissions: [www.tatapower.com](http://www.tatapower.com)
- For Roof Top Solar Energy Generation: [www.solarrooftop.gov.in](http://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 <sub>2</sub>	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 CO<sub>2</sub> emissions
3. To study usage of Renewable Energy
4. Study of Waste Management
5. Study of Rain Water Harvesting
6. Study of Green & Sustainable Practices

### 1.2 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

### 1.3 Google Earth Image:



Institute Building



## 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: 22-23:

No	Month	Energy Purchased, kWh	LPG Consumed, Kg
1	Feb-22	1030	12
2	Mar-22	1470	12
3	Apr-22	5819	9
4	May-22	4923	12
5	Jun-22	7633	11
6	Jul-22	6104	12
7	Aug-22	5287	12
8	Sep-22	7128	12
9	Oct-22	5344	11
10	Nov-22	4038	9
11	Dec-22	3739	11
12	Jan-23	3915	10
13	Total	56431	133
14	Maximum	7633	12
15	Minimum	1030	9
16	Average	4703	11

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

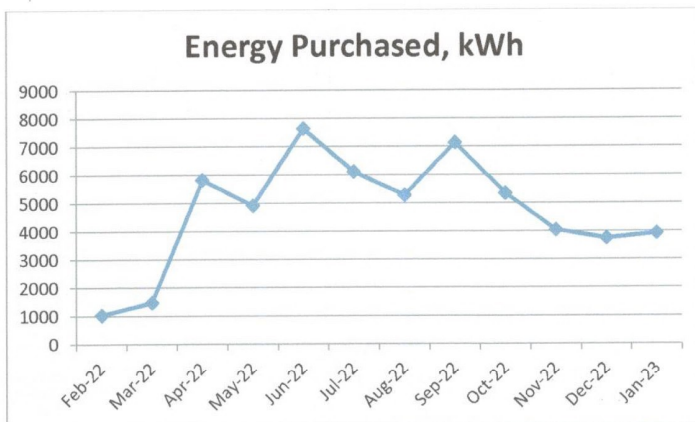


Chart No 2: Study of Month wise LPG Consumption:

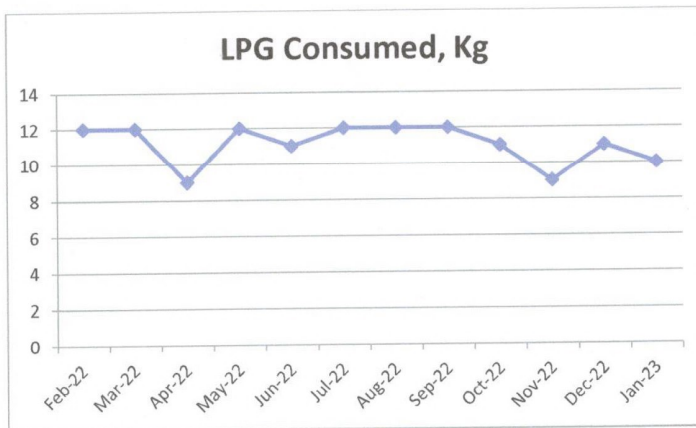


Table No 3: Variation in Important Parameters:

No	Parameter/ Variation	Energy Purchased, kWh	LPG Consumed, Kg
1	Total	56431	133
2	Maximum	7633	12
3	Minimum	1030	9
4	Average	4703	11

## CHAPTER-III STUDY OF CO<sub>2</sub> 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 CO<sub>2</sub> Emissions:

The basis of Calculation for CO<sub>2</sub> emissions due to LPG & Electrical Energy are as under

- 1 kWh of Electrical Energy releases 0.9 Kg of CO<sub>2</sub> into atmosphere
- 1 Kg of LPG releases 2.68 Kg of CO<sub>2</sub> into atmosphere.

Based on the above Data we compute the CO<sub>2</sub> emissions which are being released in to the atmosphere by the Institute due to its Day to Day operations

**Table No 4: Month wise CO<sub>2</sub> Emissions:**

No	Month	Energy Purchased, kWh	LPG Consumed, Kg	CO <sub>2</sub> Emissions, MT
1	Feb-22	1030	12	0.96
2	Mar-22	1470	12	1.35
3	Apr-22	5819	9	5.26
4	May-22	4923	12	4.46
5	Jun-22	7633	11	6.90
6	Jul-22	6104	12	5.53
7	Aug-22	5287	12	4.79
8	Sep-22	7128	12	6.45
9	Oct-22	5344	11	4.84
10	Nov-22	4038	9	3.66
11	Dec-22	3739	11	3.39
12	Jan-23	3915	10	3.55
13	Total	56431	133	51
14	Maximum	7633	12	6.90
15	Minimum	1030	9	0.96
16	Average	4703	11	4.26

Chart No: 3: Representation of Month wise CO<sub>2</sub> Emissions:

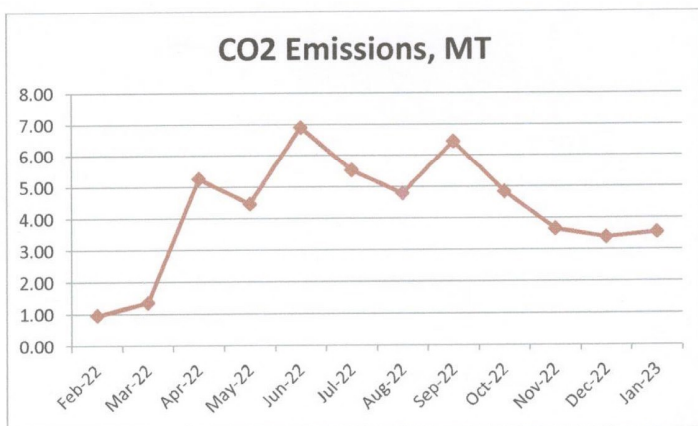


Table No 5: Variation in Important Parameters:

No	Parameter/ Value	Energy Purchased, kWh	LPG Consumed, Kg	CO <sub>2</sub> Emissions, MT
1	Total	56431	133	51
2	Maximum	7633	12	6.90
3	Minimum	1030	9	0.96
4	Average	4703	11	4.26

## 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 CO<sub>2</sub> Emission.

**Table No 6: Computation of Reduction in Annual CO<sub>2</sub> Emission:**

No	Particulars	Value	Unit
1	Roof Plant Solar PV Plant Capacity	72	kWp
2	Average Daily Energy Generated by 72 kWp Plant	4	kWh
3	Annual Generation Days	300	Nos
4	Annual Energy Generated	<b>86400</b>	kWh
5	1 kWh of Electrical Energy emits	<b>0.9</b>	Kg of CO <sub>2</sub>
6	Reduction in CO <sub>2</sub> emission by Solar PV Plant = (4) * (5)/1000	<b>78</b>	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 Collection Bins:



### 5.2 Sanitary Waste Management:

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

#### Photograph of Sanitary Waste Incinerator:



### 5.3 Liquid Waste Management:

The Institute has installed Sewage Treatment Plant of Capacity 600 m<sup>3</sup>/Day. The treated water is used for flushing purpose.

#### Photograph of Sewage Treatment Plant:



### 5.4 Laboratory Liquid Waste Management:

The Chemical Laboratory Liquid Waste Quantity is very negligible.

### 5.5 E Waste Management:

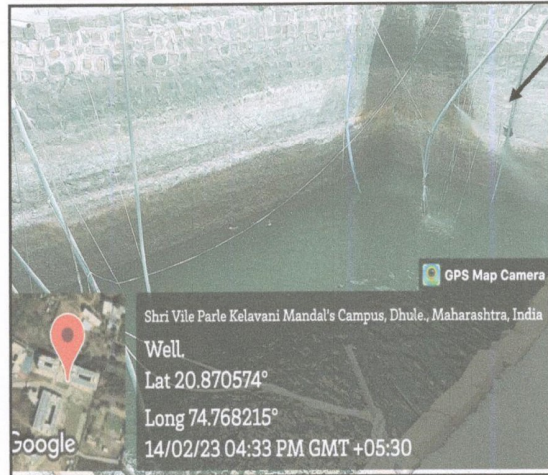
The Institute authorities have entered in to a Memorandum of Understanding with HP Customer Support for disposal of E Waste.



## CHAPTER-VI STUDY OF RAIN WATER MANAGEMENT & WATER CONSERVATION

The rain water falling on the terrace is collected through pipes and is used for increasing the underground water table. A soak tank is provided for collection of drained water. An open well is there, wherein the rain water is collected by gravity is stored and is used for gardening purpose.

### Photograph of Underground Rain Water Pipe and Water Collection Tank:



Water Carrying  
Pipe & Storage  
Tank

## 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.

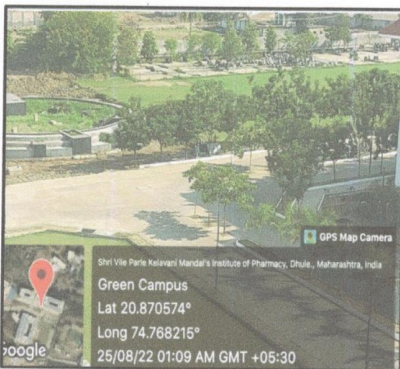
Photograph of internal road in the campus:



### 7.2 Internal Tree Plantation:

The Institute has maintained tree plantation in the campus. A medicinal Plant garden is also there in the campus.

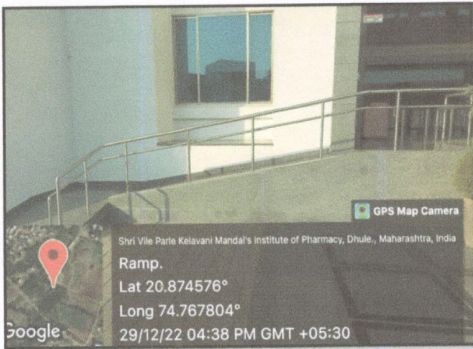
Photograph of Tree Plantation & Medicinal Plant Garden in the campus:



### 7.3 Provision of Ramp, Wheel Chair & Signage for Divyangajan:

The Institute has made provision for Ramp for easy movement of Divyangajan. Also dedicated wash rooms are made available.

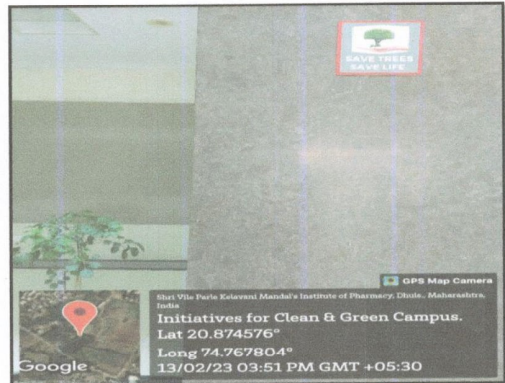
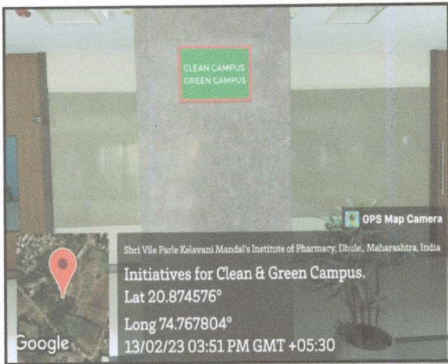
Photograph of Ramp & Signage:



### 7.4 Creation of Awareness on Importance of Resource Conservation & Clean & Green Campus:

The Institute has displayed Poster emphasizing the importance of Saving Trees and Clean & Green Campus.

Photograph of Poster on Saving Trees and Clean & Green Campus:



### 7.5 Usage of E Vehicle in the Campus:

The Institute has an E Vehicle in the campus for travelling inside the campus.

#### Photograph of E Vehicle:



### 7.6 Celebration of World Environment Day:

On the occasion of World Environment Day on 4/6/2022, the Institute conducted various activities.

The major events include:

- Rangoli Competition
- Competition on innovative ideas on Water Conservation
- E Poster competition on Only One Earth
- Cycle Rally
- Idea Competition

## ANNEXURE-I

### LIST OF VARIOUS MEDICINAL PLANTS IN THE CAMPUS

Sr. No.	Name of Plant	Sr. No.	Name of Plant
1.	Aasmantara	2.	Kuchla
3.	Aawla	4.	Mandukparni
5.	Aapta	6.	Mehendi
7.	Acacia babhul	8.	Mogra
9.	Aduisa-Hirva	10.	Musali
11.	Alpinia	12.	Naral
13.	Arjun	14.	Neem
15.	Ashwagandha	16.	Nimbu
17.	badam	18.	Nirgudi-hirvi
19.	Bael	20.	Palas
21.	Bakul	22.	Panfuti
23.	Behera	24.	Panowa
25.	Bhokar	26.	Parijat
27.	Bhuiarmla	28.	Peru
29.	Biba	30.	Pimpli-Lendi
31.	Bitti Yellow	32.	Putranjiva
33.	Cassia alata	34.	Raktachandana
35.	Chafa-Lal	36.	Ratrani
37.	Chafa-nag	38.	Ritha
39.	Chitrak	40.	Sadafuli
41.	Croton	42.	Santra
43.	Dalchini	44.	Sarpagandha
45.	Damvel	46.	Stevia
47.	Devkapas	48.	Shatavari
49.	Gavtichaha	50.	Silver Oak
51.	Gunj-Pandhari	52.	Sita Ashok
53.	Gudmar	54.	Sitaphal
55.	Gulvel-Lahan	56.	Sonchafa
57.	Gulvel-Motha	58.	Tagar
59.	Gunj-Black	60.	Tejpan
61.	Halad kali	62.	Tuti
63.	Haladpopati	64.	Veldoda

65.	Hirda	66.	KapurTulsi
67.	Insulin	68.	LaungTulsi
69.	Jaifal	70.	Kunda
71.	Jambhul	72.	Kapur
73.	Jasvanda	74.	Ananta
75.	Jotishmati	76.	Kalmegh
77.	Kadamb	78.	Miri
79.	Kadipatta	80.	RaktRohida
81.	Kallashpati	82.	Sahadevi
83.	Kanchan-White	84.	Shevga
85.	Karanj	86.	Kolinjan
87.	Khair	88.	Anjir
89.	Kokkum	90.	Avocado
91.	Korfad	92.	Grape Fruit
93.	Krishna kamal	94.	Id Limbu

**List of Trees:-**

Campus			In House			
Almond	Palm Tree	Other	Small	Large	Planted	Botanical Garden
14	60	82	100	70	12	94