# Nutan Urja Solutions

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Date: 17/08/2025

## CERTIFICATE

This is to certify that we have conducted Environmental Audit at D Y Patil International University Akurdi, Pune in the year 2024-25.

The University has already adopted following projects for making the campus **Energy Efficient.**

- Installation of Sewage Treatment Plant
- Maximum Usage of Day Lighting.
- Installation of Rain Water Harvesting System
- Installation of **350 kW** Solar PV Power Plant.

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

**Nutan Urja Solutions,**

K G Bhatwadekar,
Certified Energy Auditor,
EA – 22428

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# Report

# On

# Environmental Audit

# At

# D Y Patil International University

# Akurdi,Pune

# (Year 2024-25)

D Y PATIL
INTERNATIONAL
UNIVERSITY
AKURDI PUNE

Prepared by

**Nutan Urja Solutions**

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## Acknowledgement

We at Nutan Urja Solutions, Pune wish to express our sincere gratitude to the management of D Y Patil International University, Akurdi, Pune for assigning the work of Environmental Audit of university campus.

We appreciate the co-operation and support extended to our team members during the entire tenure of field study. We are also thankful to all other staff members who helped us during the Measurements at the field and for giving us the necessary inputs to carry out this vital exercise.

## Executive Summary

After the Field measurements & analysis, we present herewith important observations made and various measures to reduce the dependency on Natural resources & reduce the pollution.

D Y Patil International University Akurdi, Pune consumes various resources for day to day operations, namely: Air, Water, Electrical Energy & LPG.

**1. Various Pollution due to university Activities:**

- Air pollution: Mainly $CO_2$ on account of Electricity & LPG Consumption
- Solid Waste: Bio degradable Kitchen Waste, Garden Waste
- Liquid Waste: Human liquid waste

**2. Present Level of $CO_2$ Emissions:**

| Sr no | Parameter | Energy consumed, (Units) | CO2 Emission (MT) |
|---|---|---|---|
| 1 | Maximum | 84,335 | 67.47 |
| 2 | Minimum | 41,568 | 33.25 |
| 3 | Average | 58,920 | 47.14 |
| 4 | Total | 7,07,038 | 565.63 |

**3. The various projects already implemented for Environmental Conservation:**

- Usage of Energy Efficient BEE STAR Rated ACs
- Usage of Natural Day light in corridors
- Implementation of Rain Water Harvesting
- Installation of **350 kW** Solar PV Power Plant.
- Installation of Sewage Treatment Plant

**4. Recommendations:**

1. Installation of Bio Gas Generator Plant
2. Installation of Bio Composting Plant to generate fertilizer from garden waste.

**5. Notes & Assumptions:**

1. **1 kWh** of Electrical Energy releases **0.8 Kg of $CO_2$** into atmosphere

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2. 1 kWp Solar PV plant generates 5 kWh/day Electrical Energy for 300 days in an year.

## Abbreviations

| | | |
|---|---|---|
| AC | : | Air conditioner |
| PES | : | Progressive Education Society |
| CFL | : | Compact Fluorescent Lamp |
| FTL | : | Fluorescent Tube Light |
| LED | : | Light Emitting Diode |
| kWh | : | kilo-Watt Hour |
| Qty | : | Quantity |
| W | : | Watt |
| kW | : | Kilo Watt |
| PF | : | Power Factor |
| M D | : | Maximum Demand |
| PC | : | Personal Computer |
| MSEDCL | : | Maharashtra State Electricity Distribution Company Ltd |

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# 1. Introduction

## 1.1 Important Definitions:

### 1.1.1 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

### 1.1.2. 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*

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

### 1.1.4. Relevant Environmental Laws in India: Table No-1:

| | |
|---|---|
| 1927 | The Indian Forest Act |
| 1972 | The Wildlife Protection Act |
| 1974 | The Water (Prevention and Control of Pollution) Act |
| 1977 | The Water (Prevention & Control of Pollution) Cess Act |
| 1980 | The Forest (Conservation) Act |
| 1981 | The Air (Prevention and Control of Pollution) Act |
| 1986 | The Environment Protection Act |
| 1991 | The Public Liability Insurance Act |
| 2002 | The Biological Diversity Act |
| 2010 | The National Green Tribunal Act |

### 1.1.5. Some Important Environmental Rules in India: Table No-2:

| | |
|---|---|
| 1989 | Hazardous Waste (Management and Handling) Rules |
| 1989 | Manufacture, Storage and Import of Hazardous Chemical Rules |
| 2000 | Municipal Solid Waste (Management and Handling) Rules |
| 1998 | The Biomedical Waste (Management and Handling) Rules |
| 1999 | The Environment (Siting for Industrial Projects) Rules |
| 2000 | Noise Pollution (Regulation and Control) Rules |
| 2000 | Ozone Depleting Substances (Regulation and Control) Rules |

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| | |
|---|---|
| 2011 | E-waste (Management and Handling) Rules |
| 2011 | National Green Tribunal (Practices and Procedure) Rules |
| 2011 | Plastic Waste (Management and Handling) Rules |

### 1.1.6 National Environmental Plans & Policy Documents: Table No-3:

| | |
|---|---|
| 1. | National Forest Policy, 1988 |
| 2. | National Water Policy, 2002 |
| 3. | National Environment Policy or NEP (2006) |
| 4. | National Conservation Strategy and Policy Statement on Environment and Development, 1992 |
| 5. | Policy Statement for Abatement of Pollution (1992) |
| 6. | National Action Plan on Climate Change |
| 7. | Vision Statement on Environment and Human Health |
| 8. | Technology Vision 2030 (The Energy Research Institute) |
| 9. | Addressing Energy Security and Climate Change (MoEF and Bureau of Energy Efficiency |
| 10 | The Road to Copenhagen; India's Position on Climate Change Issues (MoEF) |

## 1.2 Objectives

1. To study present usage of Natural resources the university is consuming
2. To Study the present pollution sources
3. To study various measures to make the campus Self sustainable in respect of Natural resources
4. To suggest the various measures to reduce the pollution: Air, Water, Noise

## 1.3 Audit Methodology:

1. Study of university campus as System
2. Study of Electrical Energy Consumption
3. Study of CO2 emissions
4. Suggestions on usage of Renewable Energy

## 1.4 General Details

| No | Head | Particulars |
|---|---|---|
| 1 | Name of Institution | D Y Patil International University Akurdi, Pune |
| 2 | Address | Padmashree D. Y. Patil Educational Complex, Sector 29, Nigdi, Akurdi, Maharashtra 411044 |

## 2. Study of Consumption of Various Resources

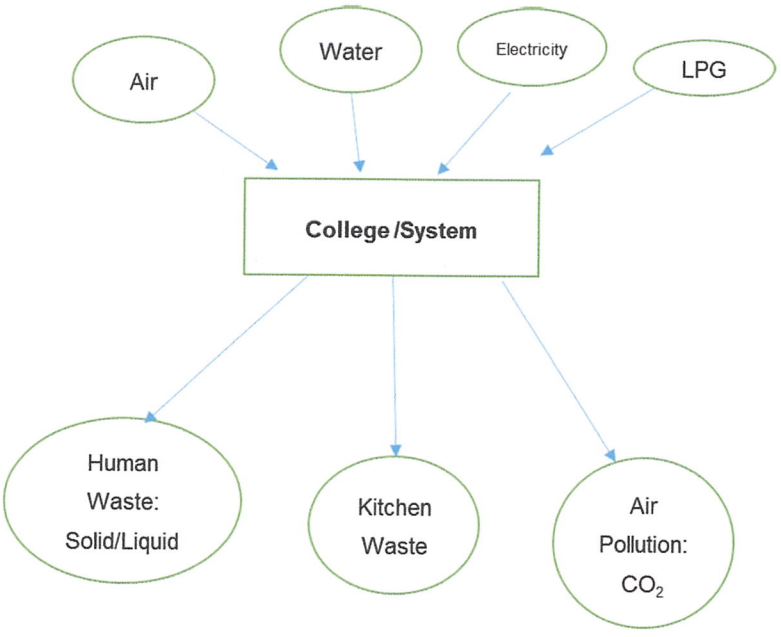
The Institute consumes following basic/derived Resources:

1. Air
2. Water
3. Electrical Energy
4. Liquefied Petroleum Gas

Also, institute emits following pollutants to environment

1. Human Waste: Solid/ Liquid
2. Kitchen waste
3. Air pollution

We try to draw a schematic diagram for the university System & Environment as under.




Now we compute the Generation of CO2 on account of consumption of Electrical Energy & LPG as under.

D Y Patil International University Akurdi, Pune is situated in Padmashree D. Y. Patil Educational Complex. Entire Educational Complex is having single energy meter for all institutes situated in complex. The bill analysis is carried for electricity bills of entire campus. The calculation of electrical energy consumption by university can be given as,

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