DPU

DR. D. Y. PATIL VIDYAPEETH (DPU), PIMPRI, PUNE

(Deemed to be University)

(Accredited (3rd Cycle) by **NAAC** with a **CGPA** of **3.64** on four point scale at **'A++' Grade)**

(Declared as **Category - I University** by UGC Under Graded Autonomy Regulations, 2018)

ENVIRONMENTAL IMPACT

Environmental Sustainability

REPORT ON CO_2 EMISSIONS

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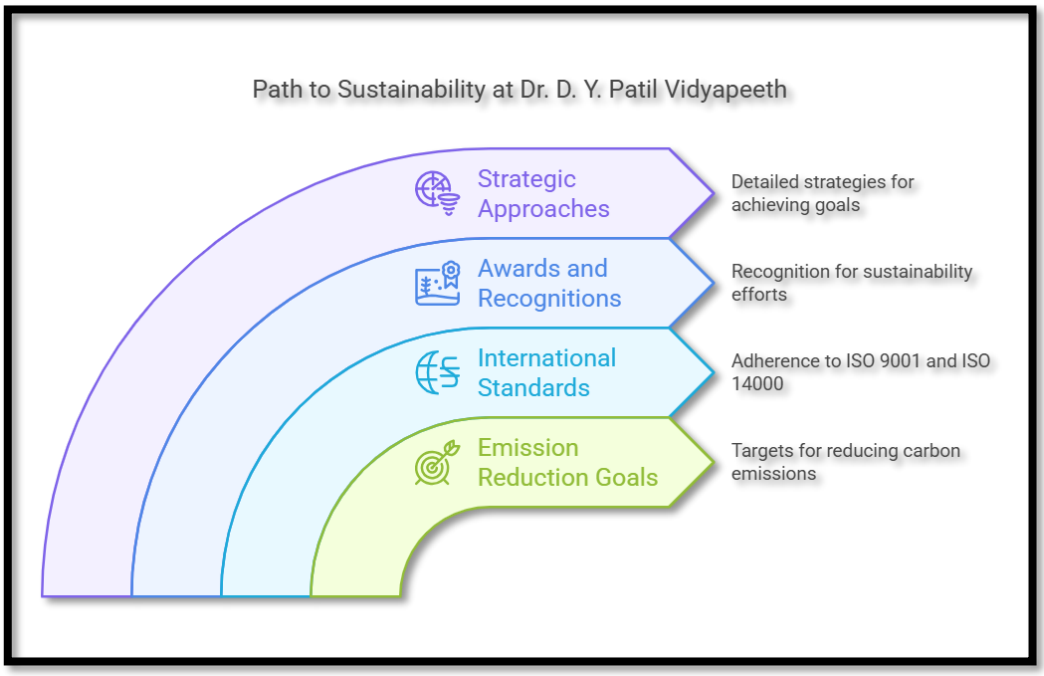
CHAPTER - 1

1.1 INTRODUCTION

Carbon dioxide (CO_2) emissions have become a major global concern due to their significant contribution to climate change and environmental degradation. As industries, transportation, and energy production continue to rely heavily on fossil fuels, CO_2 levels in the atmosphere have risen at an alarming rate. This report examines the sources of CO_2 emissions, their impact on the environment, and the measures being taken to reduce them.

Dr. D. Y. Patil Vidyapeeth is committed to achieving net zero carbon emissions across all greenhouse gas sources, in accordance with the World Resources Institute's Greenhouse Gas Protocol (GHG Protocol) and covers the period 1st August 2023 - 31st July 2024. This commitment includes a targeted reduction of gross Scope 1 and Scope 2 emissions.

By examining energy consumption, transportation, waste management, and other emission-related activities, this report aims to provide insights into the university's carbon footprint. Additionally, it explores sustainable practices that can be implemented to minimize CO_2 emissions, aligning with global environmental goals and fostering a culture of sustainability within the institution. The university follows international sustainability standards such as ISO 9001 and ISO 14000 to ensure a structured and effective approach to environmental responsibility. Additionally, the university has been recognized for its sustainability efforts, winning two awards for its Green Education Campus initiatives. This report details the strategies for achieving these goals in a transparent and rigorous manner.



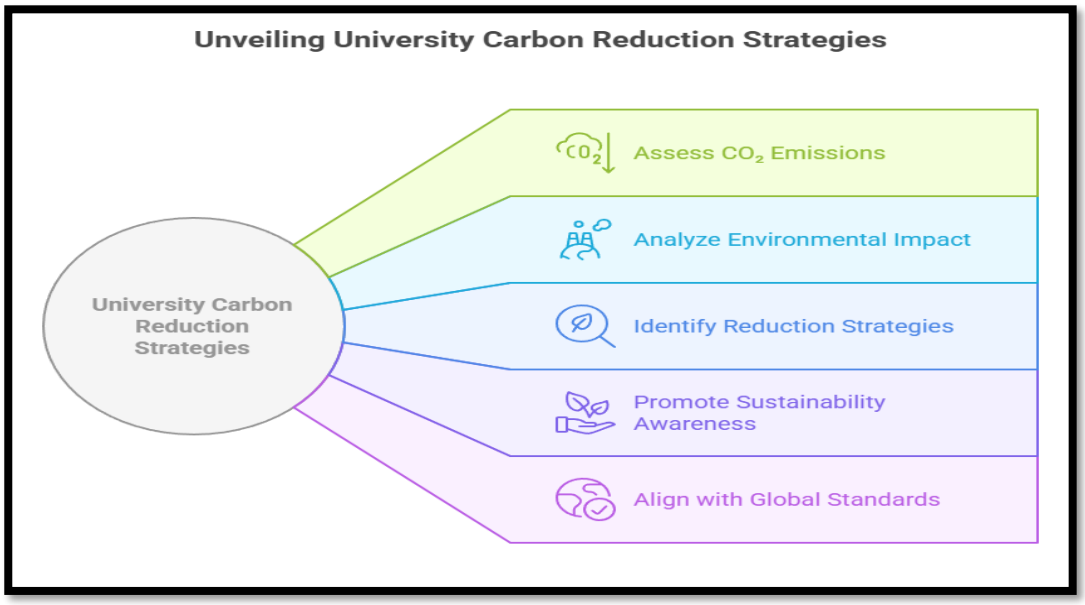
1.2 VISION

Dr. D.Y Patil, Vidyapeeth, Pune (Deemed to be University) has a Vision to create a sustainable and energy-efficient institution that serves as a model for reducing environmental impact, enhancing operational efficiency, and adopting innovative, renewable energy solutions.

1.3 OBJECTIVES OF THE REPORT

The primary objectives of this CO_2 Emission Report on Dr. D. Y. Patil University are:

1. **Assess CO_2 Emissions –** Identify and quantify the major sources of carbon dioxide emissions within the university, including energy consumption, transportation, and waste management.
2. **Analyse Environmental Impact –** Evaluate the effects of the university's CO_2 emissions on the local environment and broader climate change concerns.
3. **Identify Reduction Strategies –** Explore and recommend sustainable practices to reduce carbon emissions, such as renewable energy adoption, efficient waste management, and eco-friendly transportation options.
4. **Promote Sustainability Awareness –** Encourage students, faculty, and staff to participate in sustainability initiatives and adopt environmentally friendly behaviours.
5. **Align with Global Standards –** Ensure that the university's efforts align with national and international environmental policies, such as the United Nations Sustainable Development Goals (SDGs).



1.4 REPORTING PERIOD

The reporting period of this report covers 1st August 2023 - 31st July 2024. This period will act as a base year for future measurements to track corporate GHG emissions comprehensively and consistently across all categories and all three scopes.

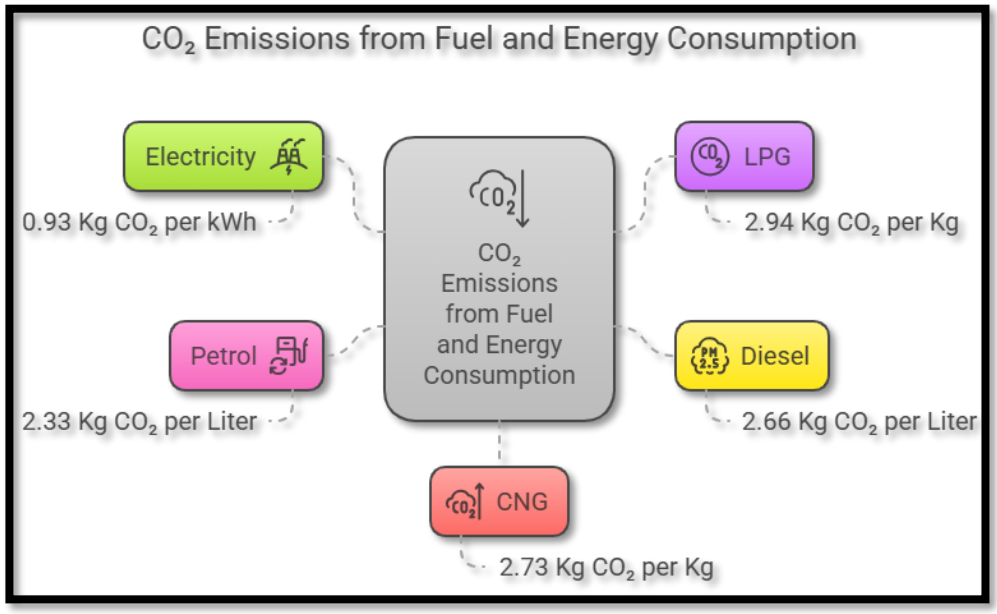
1.5 ABOUT REPORTING ENTITY:

Carbon Footprint was carried out at the campus of Dr. D. Y. Patil Vidyapeeth spread over 250000 sq. mt. of land in lush green surroundings with extensive playgrounds and open spaces.

CHAPTER - 2

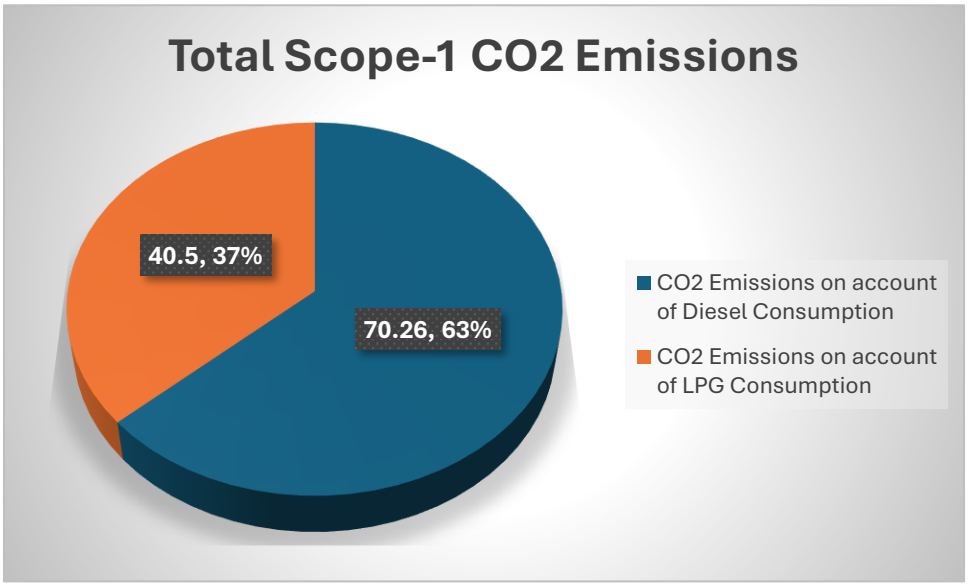
2.1 STUDY OF ENERGY CONSUMPTION & CO2 EMISSION

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

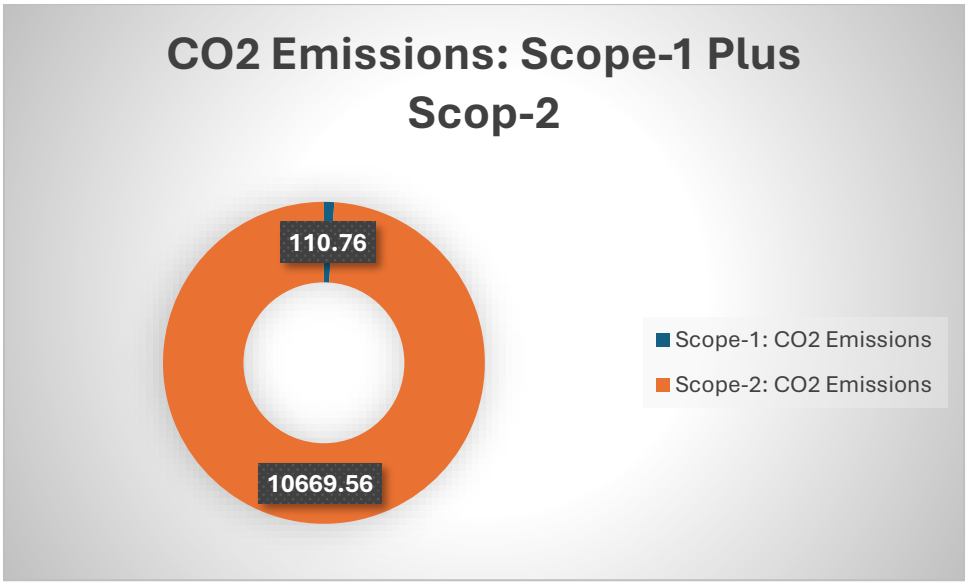


2.2 COMPUTATION OF SCOPE-1 CO2 EMISSIONS:

In computing the **Scope-1,** emissions**,** we take into account the Emissions due to **Diesel** Consumption & **LPG** Consumption**.**



2.3 COMPUTATION OF TOTAL SCOPE-1 AND SCOPE-2 CO2 EMISSIONS:



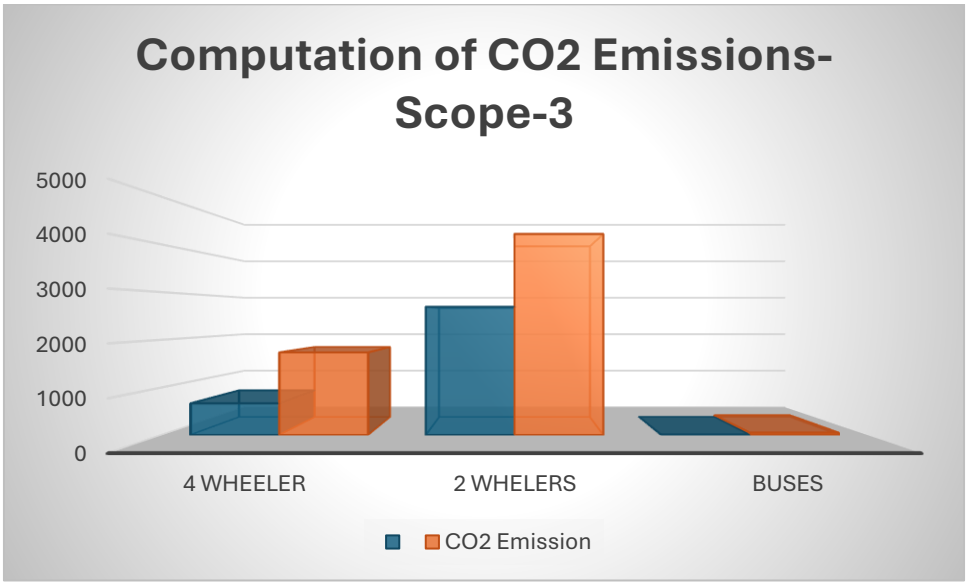
2.4 CO2 EMISSION RATIO: (FOR SCOPE-1&2):

Ratio of Annual CO2 Emissions to Total Built-Up area of the University.

Table No 1: CO2 Emission Benchmark: (For Scope-1&2)

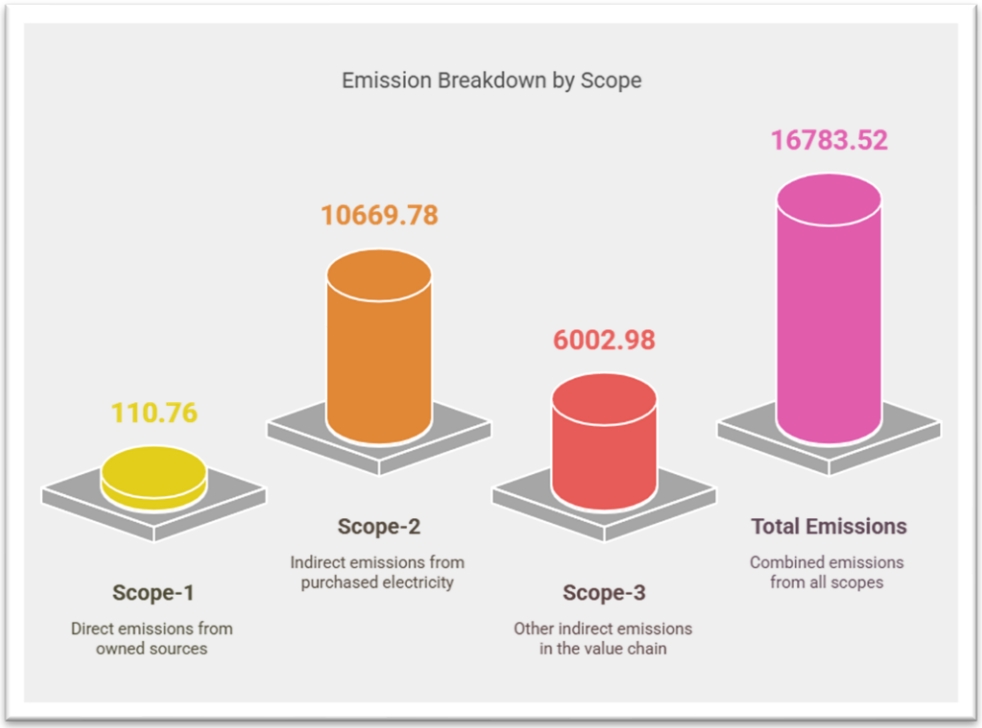
No	Particulars	Value	Unit
1	Annual CO_2 Emissions: **Scope1+2**	10780.32	tco_2e
2	Total Built Up Area of University:23-24	250000	m^2
3	**CO_2 Emission Ratio: (1) / (2)**	0.043	tco_2e/m^2

2.5 COMPUTATION OF SCOPE -3 CO2 EMISSION:



2.6 TOTAL CO2 EMISSIONS- SCOPE-1, SCOPE-2 PLUS SCOPE-3:

For computation of Scope-3, we consider the emissions on account of Vehicle transportation of Stakeholders.



CHAPTER - 3

3.1 SUSTAINABILITY INITIATIVES

Dr. D. Y. Patil Vidyapeeth (DPU) in Pune has undertaken several initiatives to enhance energy efficiency and promote sustainability across its campus. A notable effort includes the installation of energy-efficient LED lighting throughout the campus, which significantly reduces electricity consumption.

In addition to lighting upgrades, DPU operates battery-powered vehicles to provide pollution-free transportation for students, staff, and patients within the campus. This initiative not only reduces the carbon footprint but also contributes to a cleaner and greener campus environment.

Furthermore, DPU offers academic programs focused on environmental sustainability, such as the Bachelor of Science in Environment & Sustainability (BSc-ES). This program equips students with the knowledge and skills necessary to address environmental challenges through sustainable practices and innovations.

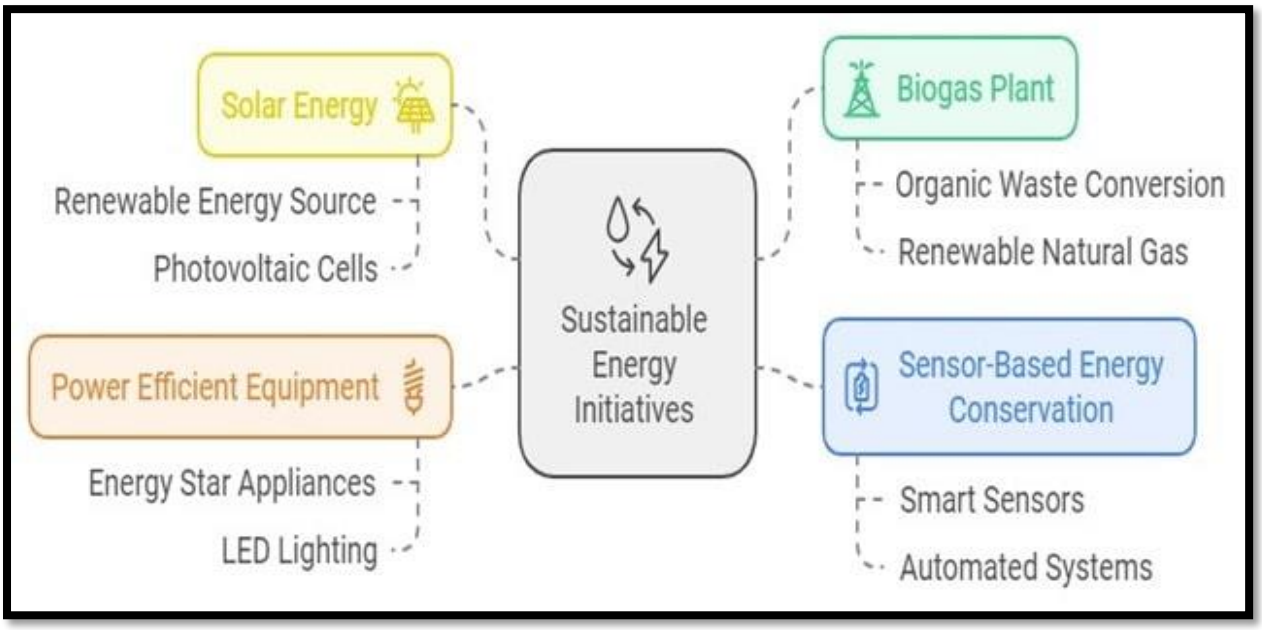
These collective efforts demonstrate DPU's commitment to reducing its environmental impact and fostering a culture of sustainability within its academic community.

Dr. D. Y. Patil Vidyapeeth has implemented several sustainability initiatives to reduce its carbon footprint, including:

- **Renewable Energy Adoption**:

➢ The University's policy on energy efficient and Energy Conservation supports the following SDG's:
SDG 7: Affordable and Clean Energy
SDG 12: Responsible Consumption and Production
SDG 13: Climate Action

➢ The institution has following facilities for alternate sources of energy and energy conservation measures.



- The Vidyapeeth has installed Roof Top Solar PV Plant of Capacity 1395.6 kWp. In the following Table, present the reduction in CO2 emissions due to Solar Energy:

Table No 2: Computation of Reduction in CO_2 Emissions:

No	Particulars	Value	Unit
1	Installed Capacity of Roof Top Solar PV Plant Capacity	**1395.6**	kWp
2	Energy Generated in per kWp	4	4 kWh/kWp
3	Annual Solar Energy Generation Days	300	Nos
4	Energy Generated in the Year: 23-24	**1674720**	kWh
5	1 kWh of Electrical Energy saves	**0.93**	Kg/kWh
6	**Qty of CO_2 Saved by Solar PV Plant = (4) *(5) /1000**	**1557.49**	**tCO_2e**

Roof Top Solar PV Plant

Battery Operated Vehicles

LED Light

BLDC Fan

- Energy Efficiency Measures adopted has been adopted like Energy Efficient LED Fittings, STAR Rated Acs, BLDC Fans, E Vehicle in the Campus

Table No 3: Computation of Per Capita Energy Consumption:

No	Particulars	Value	Unit
1	Total Annual Energy Purchased	**11472645**	kWh
2	Annual Energy Generated	**1674720**	kWh
3	Annual Energy Consumed=1+2	**13147365**	kWh
4	Total No of Students Plus Patients catered	**22909**	Nos
5	Per Capita Energy Consumption = **(3) / (4)**	**573.9**	kWh/Annum

- **Waste Management**:

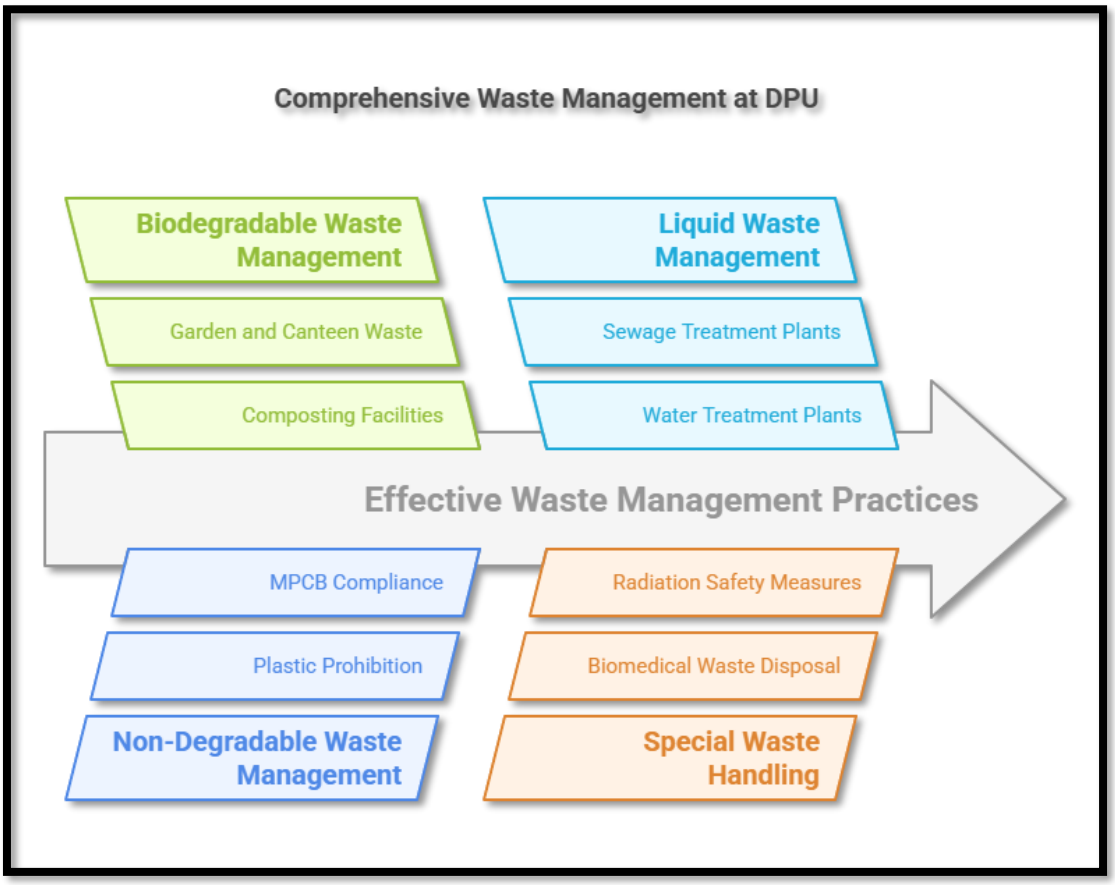
➢ The University's policy on waste management supports the following SDG's:

SDG 6: Clean Water and Sanitization

SDG 11: Sustainable cities and Communities

SDG 12: Responsible Consumption and Production

➢ DPU has implemented a comprehensive system to manage waste from its source to its end of life. This system addresses each waste typology, ensuring that reusable materials are utilized on-site, recyclable waste is redirected to appropriate facilities, and hazardous waste—posing risks to public safety—is handled with strict protocols. Every aspect has been carefully considered to establish mandatory waste management procedures.'



- Biodegradable solid waste from the garden and canteen is composted at a **vermi-compost plant** on the DPU campus. Plastic is prohibited by the Maharashtra government, and DPU has obediently followed this directive.
- our **sewage treatment plants (STP)** in Vidyapeeth can manage liquid waste **1170 m3/day** is their aggregate capacity. Two **water treatment plants (WTP)** with a combined capacity of **650 m3/day** and one **effluent treatment plant (ETP)** with a **50 m3/day** total capacity have also been erected.
- After processing, recycled water is used for gardening and toilets. Hospitals follow standards when it comes to disposing of biomedical waste. Every day, waste is gathered, put in coloured bags and special containers, and delivered to PCMC's shared disposable facility. DPU possesses the necessary license and MPCB contracts.
- Vidyapeeth and **J.S. Enterprises** have an e-waste disposal agreement. The basic protective measures and regulations set forth by the Atomic Energy Regulatory Board (AERB) have been followed to ensure radiation safety. Radiation exposure is monitored via the "Thermoluminescent Dosimeter" badge. The Department of Radiodiagnosis has received approval from AERB for its imaging equipment and layout designs.

Biodegradable Waste Management:

Vermi compost

Plastic Free Campus

Liquid Waste: Installed Sewage Treatment Plant. The treated Water is used for gardening purpose.

Sewage Treatment Plant

Water Treatment Plant

- **Green Sustainable Practices:**

➢ The University's Policy on Green Campus supports the following SDG's:
SDG 9: Industry, Innovations and Infrastructure
SDG 11: Sustainable Cities and Communities
SDG 12: Responsible Consumption and Production
SDG 13: Climate Action

Video Link: https://cdn.dpuerp.in/ShowResources?ID=71500009

- **Water Conservation**:

➢ The University's Policy on Water Conservation and Reuse supports the following SDG's:
SDG 6: Clean Water and Sanitisation
SDG 12: Responsible Consumption and Production

➢ DPU has implemented a comprehensive water conservation strategy to ensure sustainable usage and management of water resources. This includes efficient water recycling, rainwater harvesting, and the use of water-saving technologies. Strict protocols are in place to minimize wastage, optimize consumption, and promote eco-friendly practices across all operations. Through these measures, DPU aims to enhance water efficiency and support long-term environmental sustainability.

Rain Water Harvesting

Open Well

3.2 CARBON NEUTRAL CAMPUS/FUTURE INITIATIVE:

In 2021, serving as the baseline year, academic and administrative activities were still impacted by the COVID-19 pandemic, with many online classes, remote work, and limited campus operations, leading to lower electricity and fuel consumption. By 2023–24, the campus likely returned to full-scale operations, including in-person classes, labs, hospital activities, and hostels, naturally leading to increased energy use and higher emissions.

Dr. D. Y. Patil Vidyapeeth has been expanding its medical, dental, biotechnology, and management wings, along with research and hospital facilities. The construction or operation of new buildings, research labs, and medical equipment would contribute to higher direct fuel usage (Scope 1) and electricity consumption (Scope 2).

The University currently has an annual electrical energy demand of approximately **115 lakh units**.

To address this sustainably, a **50 MW Solar PV Plant** is being installed on campus. This plant is expected to generate around **525 lakh units of clean energy annually**, far exceeding the University's present energy needs.

With the commissioning of this solar facility, the University will achieve **complete carbon neutrality in electricity consumption** from the very first day of operation.

Moreover, this initiative sets the foundation for a **100% carbon-free campus by the year 2035**, aligning with long-term sustainability and climate goals.