



ANNASAHEB DANGE

COLLEGE OF ENGINEERING AND TECHNOLOGY, ASHTA

(An Empowered Autonomous Institute affiliated to
Shivaji University Kolhapur)



Approved by
AICTE, New Delhi



Affiliated to
Shivaji University,
Kolhapur



Accredited by
NAAC with
A++ Grade



NBA Accredited
Programmes



ISO 9001:2015
Certified Institution

GREEN AUDIT REPORT

ACADEMIC YEAR 2026-2027



ACADEMIC
INTEGRATION



CAPACITY
DEVELOPMENT



INNOVATION
AND PROJECTS



COMMUNITY
ENGAGEMENT



SUSTAINABLE
CAMPUS PRACTICES



CULTURE
AND DIALOGUE



Prepared By

Dr. Manoj H. Mota

Professor & Head, Department of Civil Engineering
Annasaheb Dange College of Engineering
and Technology, Ashta

Dr. Shailendrakumar B. Hivarekar

Professor, Department of Civil Engineering
Annasaheb Dange College of Engineering
and Technology, Ashta



EDUCATE



ENGAGE



EMPOWER



SUSTAIN

Engineering a Better Tomorrow for All



MONTH & YEAR: **JULY 2026**

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta

An Autonomous Institute

Approved by AICTE, New Delhi | Affiliated to Shivaji University, Kolhapur

Accredited by NAAC with **A++ Grade**

NBA Accredited Programmes

ISO 9001:2015 Certified Institution

Green Audit Report

Prepared By

Dr. Manoj H. Mota

Professor & Head, Department of Civil Engineering
Annasaheb Dange College of Engineering and Technology, Ashta

Dr. Shailendrakumar B. Hivarekar

Professor, Department of Civil Engineering
Annasaheb Dange College of Engineering and Technology, Ashta

Submitted To

The Director

Annasaheb Dange College of Engineering and Technology (ADCET)
Ashta, Dist. Sangli, Maharashtra – 416301

Month & Year: July 2026

CERTIFICATE

This is to certify that the **Green Audit of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta** has been conducted for the **Academic Year 2026–2027** to evaluate the institution's environmental performance and assess the effectiveness of its sustainability initiatives.

The audit was carried out through a systematic assessment of the campus infrastructure, resource utilization practices, environmental management systems, and sustainability initiatives adopted by the institution. The assessment covered various aspects including energy conservation, water management, waste management, biodiversity, green landscaping, transportation, environmental awareness, laboratory practices, and other environmentally significant activities undertaken on the campus.

The audit involved site inspections, interaction with faculty and administrative staff, verification of relevant records, review of institutional policies, and physical observation of campus facilities. The findings presented in this report are based on the information made available during the audit and the observations recorded during the assessment period.

Based on the evaluation, it is concluded that **Annasaheb Dange College of Engineering and Technology, Ashta** has demonstrated a strong commitment towards sustainable campus development through continuous implementation of environmentally responsible practices. The institute has established several initiatives for efficient utilization of natural resources, pollution prevention, conservation of biodiversity, renewable energy utilization, and promotion of environmental awareness among its stakeholders.

This report presents the audit observations, key findings, strengths, opportunities for improvement, and recommendations to further enhance the environmental sustainability performance of the institution.

Audit Team:

Dr. Manoj H. Mota

Professor & Head, Department of Civil Engineering, ADCET Ashta

Dr. Shailendrakumar B. Hivarekar

Professor, Department of Civil Engineering, ADCET Ashta

Approved by:

Dr. L. Y. Waghmode

Director, Annasaheb Dange College of Engineering and Technology (ADCET), Ashta

FOREWORD

It gives me immense pleasure to present the **Green Audit Report of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta** for the Academic Year **2026–2027**.

At ADCET, we firmly believe that educational institutions have a vital responsibility in promoting environmental stewardship and sustainable development. As a premier technical institution, we are committed not only to academic excellence but also to cultivating environmentally conscious citizens who contribute meaningfully to society and the planet.

The Green Audit serves as an important mechanism for assessing the institute's environmental performance, evaluating the effectiveness of sustainable practices, and identifying opportunities for continual improvement. The findings of this report reflect our collective efforts toward conserving natural resources, improving energy efficiency, promoting renewable energy, managing water and waste responsibly, enhancing biodiversity, and maintaining a clean, safe, and eco-friendly campus.

Over the years, the institute has implemented several initiatives aimed at strengthening environmental sustainability. These include the adoption of renewable energy systems, rainwater harvesting, water conservation measures, scientific waste management, green landscaping, biodiversity conservation, and various awareness programmes involving students, faculty members, staff, and the local community. Such initiatives demonstrate our commitment to integrating sustainability into institutional planning, governance, teaching-learning processes, research, extension activities, and campus operations.

This Green Audit Report not only highlights our present achievements but also provides a roadmap for future improvements. The recommendations presented herein will guide the institute in further enhancing its environmental performance and advancing toward a more sustainable and resilient campus.

I appreciate the dedicated efforts of the Environmental Audit Team, faculty members, administrative staff, students, and all stakeholders who contributed to this assessment through their active participation and support.

I am confident that this report will strengthen our commitment to environmental sustainability and inspire continuous improvement in our journey toward building a greener and more sustainable campus.

I extend my best wishes to all members of the ADCET family for their continued efforts in preserving the environment and promoting sustainable development.

Dr. L. Y. Waghmode

Director

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta

PREFACE

Environmental sustainability has become an integral component of institutional development and responsible governance in higher education. Educational institutions play a significant role in promoting environmental awareness, conserving natural resources, and fostering sustainable practices among students, faculty, staff, and the surrounding community. A systematic evaluation of these efforts through a Green Audit enables institutions to assess their environmental performance and identify opportunities for continual improvement.

The **Green Audit Report of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta** for the Academic Year **2026–2027** has been prepared with the objective of evaluating the environmental practices adopted across the campus and documenting the initiatives undertaken towards sustainable development. The report provides a comprehensive assessment of various aspects of campus sustainability, including energy conservation, water resource management, waste management, biodiversity conservation, green landscaping, transportation practices, environmental awareness programmes, and pollution prevention measures.

The audit was conducted through detailed site inspections, interaction with various stakeholders, examination of institutional records, and verification of existing facilities and practices. The observations presented in this report reflect the current environmental status of the campus and highlight both the strengths and the areas requiring further improvement.

The report is intended to serve as a reference document for institutional planning, policy formulation, environmental management, accreditation processes, and continuous quality improvement. The recommendations incorporated in the report are expected to support the institute in strengthening its environmental performance and adopting innovative sustainable practices in the years ahead.

We sincerely acknowledge the valuable support extended by the Management, Director, faculty members, administrative staff, students, and all other stakeholders during the conduct of this Green Audit. Their active cooperation and commitment towards environmental sustainability have significantly contributed to the successful completion of this report.

We hope that this report will not only document the institute's present environmental status but will also serve as a guiding document for achieving higher standards of environmental excellence and sustainable campus development.

Dr. Manoj H. Mota

Professor & Head, Department of Civil Engineering,

Dr. Shailendrakumar B. Hivarekar

Professor, Department of Civil Engineering

ACKNOWLEDGEMENT

The successful completion of the **Green Audit Report of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta** for the Academic Year **2026–2027** has been possible through the valuable support, guidance, and cooperation of numerous individuals and stakeholders associated with the institute.

We are deeply thankful to the **Director of ADCET** for his constant encouragement, valuable guidance, and commitment towards developing a sustainable and environmentally responsible campus.

We also express our appreciation to all Heads of Departments, faculty members, administrative officers, technical staff, supporting staff, and students for their wholehearted cooperation during the audit process. Their willingness to provide information, facilitate site inspections, and share relevant records greatly contributed to the successful completion of this audit.

Special appreciation is extended to the Estate and Maintenance Section, Electrical Maintenance Team, Housekeeping Staff, Garden and Landscape Maintenance Team, Transport Section, and all concerned administrative offices for providing the required information and extending continuous support during the field observations and data collection.

We also acknowledge the collective efforts of all stakeholders who have consistently contributed towards maintaining a clean, green, safe, and environmentally sustainable campus. Their active participation in resource conservation, waste management, energy efficiency, water conservation, biodiversity enhancement, and environmental awareness programmes has significantly strengthened the institute's sustainability initiatives.

We sincerely hope that the findings and recommendations presented in this report will serve as a valuable guide for further improving the environmental performance of the institute and reinforcing its commitment towards sustainable development.

Dr. Manoj H. Mota

Professor & Head, Department of Civil Engineering

Dr. Shailendrakumar B. Hivarekar

Professor, Department of Civil Engineering

Contents

1. INTRODUCTION	9
1.1 Background	9
1.2 Green Audit: Concept and Need	9
1.3 Objectives of the Green Audit	10
1.4 Scope of the Audit	10
1.5 Audit Methodology	11
Stage I: Preliminary Planning	11
Stage II: Data Collection	11
Stage III: Site Inspection and Physical Verification	11
Stage IV: Data Analysis and Assessment	11
Stage V: Report Preparation	12
1.6 Audit Criteria and Assessment Framework:	12
1.7 Institutional Commitment to Environmental Sustainability	12
1.8 Organization of the Report	12
2. INSTITUTIONAL PROFILE	13
2.1 About the Institute	13
2.2 Green Campus Initiatives: Overview	14
3. ENERGY MANAGEMENT	15
3.1 Introduction	15
3.2 Electricity Consumption and Renewable Energy Generation	15
3.3 Energy Conservation Initiatives	16
3.3.1 Rooftop Solar Photovoltaic System	16
3.3.2 LED Lighting	16
3.3.3 Solar Street Lighting	17
3.3.4 Electric Campus Vehicle	17
3.3.5 Energy-Efficient Operational Practices:	17
3.4 Key Observations	18
3.5 Recommendations	18
3.6 Conclusion	18
4. WATER RESOURCE MANAGEMENT	20
4.1 Introduction	20

4.2 Water Supply and Distribution System	20
4.3 Rainwater Harvesting and Groundwater Recharge	21
4.4 Water Conservation Practices	21
4.5 Key Observations	22
4.6 Recommendations.....	22
4.7 Conclusion.....	22
5. SOLID AND LIQUID WASTE MANAGEMENT	23
5.1 Introduction	23
5.2 Solid Waste Management	23
5.3 Organic Waste Management	24
5.4 Recycling and Resource Recovery	24
Recycling of Used Examination Answer Books	24
Reuse of Single-Side Printed Paper	24
Municipal Solid Waste Collection	24
5.5 Liquid Waste Management	25
5.6 Key Observations	25
5.7 Recommendations.....	26
5.8 Conclusion.....	26
6. BIODIVERSITY AND GREEN CAMPUS	27
6.1 Introduction	27
6.2 Green Campus Development	27
6.3 Biodiversity Conservation	27
6.4 Medicinal and Thematic Gardens	28
6.5 Plantation and Landscape Management	29
6.6 Environmental Benefits of Green Cover	29
6.7 Key Observations	30
6.8 Recommendations.....	31
6.9 Conclusion.....	31
7. ENVIRONMENTAL GOVERNANCE AND SUSTAINABILITY INITIATIVES	32
7.1 Introduction	32
7.2 Institutional Environmental Governance	32
7.3 Green Campus Policy and Institutional Practices	32

7.4 Education for Sustainable Development (ESD)	33
7.5 SDG Integration	33
7.6 Environmental Awareness and Community Engagement	33
7.6.1 Environmental Education, Research and Community Engagement	34
Environmental Education	34
Research and Student Projects	34
Community Outreach and Extension Activities	34
7.7 Key Observations	35
7.8 Recommendations	35
7.9 Conclusion	35
8. AUDIT FINDINGS, RECOMMENDATIONS AND WAY FORWARD	37
8.1 Introduction	37
8.2 Major Audit Findings	37
Energy Management	37
Water Resource Management	37
Solid and Liquid Waste Management	37
Biodiversity and Green Campus	38
Environmental Governance	38
8.3 Strengths Identified	38
8.4 Opportunities for Further Improvement	38
8.5 Way Forward	39
8.6 Conclusion	39

CHAPTER 1

INTRODUCTION

1.1 Background

The rapid pace of industrialization, urbanization, and population growth has significantly increased the pressure on natural resources and the environment. Global concerns such as climate change, biodiversity loss, depletion of natural resources, environmental pollution, and unsustainable patterns of production and consumption have necessitated the adoption of environmentally responsible practices across all sectors of society. In this context, Higher Educational Institutions (HEIs) have emerged as key stakeholders in promoting environmental sustainability by integrating sustainable practices into education, research, innovation, governance, and campus operations.

Educational institutions not only impart knowledge but also serve as centres for developing environmentally responsible citizens capable of addressing contemporary environmental challenges. A sustainable campus demonstrates responsible management of natural resources, minimizes environmental impacts, promotes environmental awareness, and establishes best practices that can be replicated by society at large.

Recognizing this responsibility, Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has consistently undertaken initiatives aimed at improving environmental quality through efficient resource utilization, renewable energy adoption, water conservation, scientific waste management, biodiversity conservation, green landscaping, environmental awareness programmes, and sustainable campus development.

The Green Audit has therefore been undertaken as a systematic exercise to evaluate the institute's environmental performance, assess the effectiveness of existing environmental management practices, identify opportunities for improvement, and provide recommendations for strengthening sustainability initiatives across the campus.

1.2 Green Audit: Concept and Need

A Green Audit is a systematic, objective, and comprehensive assessment of the environmental performance of an institution. It evaluates the consumption of natural resources, environmental management practices, pollution prevention measures, resource conservation initiatives, and sustainability interventions implemented within the campus.

The primary objective of a Green Audit is to assess the environmental impact of institutional activities, identify strengths and areas requiring improvement, and recommend strategies that promote sustainable

development and continual environmental improvement. The audit also facilitates informed decision-making by providing evidence-based information regarding the institution's environmental performance.

For Higher Educational Institutions, Green Audits have become an important component of quality assurance and sustainable campus governance. They encourage institutions to monitor their environmental footprint, improve operational efficiency, conserve natural resources, reduce waste generation, enhance biodiversity, and create environmentally responsible learning environments.

Furthermore, Green Audits support institutional compliance with national quality assurance frameworks, environmental regulations, accreditation requirements, and sustainability initiatives while fostering environmental ethics among students, faculty members, staff, and other stakeholders.

1.3 Objectives of the Green Audit

The Green Audit of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has been undertaken with the following objectives:

- To evaluate the overall environmental performance of the institute.
- To assess the efficient utilization of energy, water, land, and other natural resources.
- To examine the effectiveness of waste management and pollution prevention practices.
- To assess biodiversity conservation and green landscaping initiatives within the campus.
- To identify environmentally sustainable practices implemented by the institute.
- To evaluate existing environmental management systems and operational practices.
- To identify opportunities for improving resource efficiency and environmental sustainability.
- To promote environmental awareness and responsible environmental behaviour among all stakeholders.
- To provide practical recommendations for continual improvement in environmental performance.
- To create a benchmark for future Green Audit assessments and sustainability monitoring.

1.4 Scope of the Audit

The Green Audit encompasses a comprehensive assessment of the environmental management practices adopted throughout the institute campus. The scope of the audit includes evaluation of:

- Campus infrastructure and green landscaping
- Energy consumption and conservation practices
- Renewable energy utilization
- Water resources and water conservation measures
- Rainwater harvesting systems
- Solid waste management
- Liquid waste management

- E-waste management
- Laboratory waste management
- Biodiversity and green cover
- Transportation and mobility practices
- Environmental awareness programmes
- Health, safety, and environmental protection measures
- Sustainable campus initiatives and best practices

The audit primarily focuses on environmental performance during the Academic Year 2026–2027 based on available records, field observations, stakeholder interactions, and institutional documentation.

1.5 Audit Methodology

The Green Audit was conducted using a systematic and evidence-based methodology to ensure an objective assessment of the institute's environmental performance. The methodology adopted comprised the following stages:

Stage I: Preliminary Planning

- Identification of the audit objectives and scope.
- Collection of preliminary institutional information.
- Preparation of the audit framework and assessment parameters.

Stage II: Data Collection

- Collection of quantitative and qualitative information from various departments and administrative sections.
- Review of institutional records, utility data, maintenance records, policy documents, and sustainability initiatives.

Stage III: Site Inspection and Physical Verification

- Physical inspection of campus facilities and infrastructure.
- Observation and verification of environmental management practices.
- Assessment of infrastructure related to energy, water, waste management, biodiversity, transportation, and campus maintenance.

Stage IV: Data Analysis and Assessment

- Compilation and analysis of the collected data and field observations.
- Evaluation of the institute's environmental performance.
- Identification of strengths, gaps, and opportunities for continual improvement.

Stage V: Report Preparation

- Documentation of observations, findings, recommendations, and suggested action plans.
- Compilation of the Green Audit Report for institutional reference, environmental management, and continual improvement.

1.6 Audit Criteria and Assessment Framework:

The assessment presented in this report has been carried out using accepted principles of environmental management and sustainable campus development. The audit framework considers institutional policies, environmental regulations, resource management practices, infrastructure, operational procedures, and environmental best practices applicable to Higher Educational Institutions.

The evaluation emphasizes continual improvement, resource conservation, environmental compliance, pollution prevention, stakeholder participation, and adoption of sustainable practices across various campus operations.

1.7 Institutional Commitment to Environmental Sustainability

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta recognizes environmental sustainability as an integral component of institutional development and social responsibility. The institute has consistently undertaken initiatives to promote efficient resource utilization, renewable energy adoption, water conservation, biodiversity enhancement, waste minimization, and environmental awareness.

The active participation of the management, faculty members, staff, students, and supporting personnel has enabled the institute to establish a campus environment that encourages responsible environmental behaviour and continual improvement in sustainability practices. These efforts reflect the institute's commitment towards creating a clean, green, safe, and environmentally responsible campus.

1.8 Organization of the Report

This Green Audit Report has been organized into a series of chapters covering different aspects of environmental performance assessment. The introductory chapter provides the background, objectives, scope, methodology, and assessment framework of the audit. Subsequent chapters present the institutional profile, detailed assessment of various environmental components, observations, findings, best practices, recommendations, and concluding remarks.

The report is intended to serve as a comprehensive reference document for institutional planning, environmental management, quality assurance, accreditation processes, and future sustainability initiatives.

CHAPTER 2

INSTITUTIONAL PROFILE

2.1 About the Institute

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta is one of the premier institutions for technical education in Western Maharashtra, committed to imparting quality engineering education, promoting research and innovation, and contributing to sustainable societal development. Established with the vision of developing competent engineering professionals equipped with technical knowledge, ethical values, leadership qualities, and social responsibility, the institute has consistently maintained high academic standards while embracing modern educational practices.

The institute is approved by the **All India Council for Technical Education (AICTE), New Delhi**, affiliated with **Shivaji University, Kolhapur**, and functions as an **Autonomous Institution**. ADCET has earned recognition for its academic excellence through accreditation by the **National Assessment and Accreditation Council (NAAC)** with an **A++ Grade**, while several of its undergraduate programmes are accredited by the **National Board of Accreditation (NBA)**.

The institute offers undergraduate, postgraduate, and doctoral programmes in various disciplines of engineering and technology, management, and computer applications. Academic activities are supported by qualified faculty members, modern laboratories, advanced computing facilities, well-equipped libraries, industry collaborations, innovation ecosystems, research centres, and student development initiatives that foster holistic learning.

Spread over a spacious and well-maintained campus, the institute provides an environment conducive to academic excellence, innovation, research, and sustainable development. The campus infrastructure has been developed with due consideration for environmental conservation through green landscaping, efficient resource utilization, renewable energy adoption, water conservation measures, scientific waste management practices, and eco-friendly campus operations.

As an institution committed to sustainable development, ADCET continuously strives to integrate environmental responsibility into its governance, infrastructure, teaching-learning processes, research, extension activities, and community engagement programmes. The institute actively encourages students and staff to participate in environmental awareness programmes and sustainability initiatives, thereby contributing towards the development of an environmentally conscious society.

The Green Audit has been undertaken as a part of the institute's commitment to periodically assess its environmental performance, strengthen sustainable campus practices, and promote continual improvement in environmental management. The findings presented in this report demonstrate the institute's ongoing

efforts to create a cleaner, greener, safer, and more sustainable campus environment for present and future generations.

2.2 Green Campus Initiatives: Overview

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has consistently demonstrated its commitment towards environmental sustainability by implementing a wide range of green initiatives aimed at conserving natural resources, improving environmental quality, and promoting sustainable campus operations. These initiatives are integrated into the institute's day-to-day functioning and reflect its commitment to responsible environmental stewardship.

The institute has adopted several measures to enhance energy efficiency, including the installation of energy-efficient lighting systems and the utilization of renewable energy through on-campus solar photovoltaic installations. Water conservation practices such as rainwater harvesting, efficient water distribution systems, and responsible water utilization contribute significantly towards sustainable water resource management.

Scientific management of solid waste, liquid waste, and electronic waste has been adopted through waste segregation at source, recycling practices, and environmentally sound disposal mechanisms. Continuous efforts are also undertaken to minimize plastic usage and maintain a clean and hygienic campus environment.

The campus is enriched with extensive green landscaping, avenue plantations, ornamental gardens, lawns, and a variety of native and ornamental plant species that contribute to biodiversity conservation, improve microclimatic conditions, and enhance the aesthetic value of the campus. Regular plantation drives and maintenance of green spaces further strengthen the ecological balance of the institute.

Environmental awareness is actively promoted through student participation in plantation programmes, cleanliness drives, environmental campaigns, awareness programmes, outreach activities, and academic initiatives related to sustainable development. The institute also encourages environmentally responsible practices among all stakeholders through institutional policies, awareness activities, and community engagement.

The Green Audit presented in this report evaluates these initiatives in detail and identifies opportunities for further strengthening environmental sustainability through continual improvement and effective resource management.

CHAPTER 3

ENERGY MANAGEMENT

3.1 Introduction

Energy is one of the most critical resources for the functioning of a higher educational institution. Efficient energy management not only minimizes operational costs but also reduces greenhouse gas emissions and contributes significantly towards environmental sustainability. Recognizing the importance of energy conservation, Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has adopted a systematic approach towards efficient energy utilization by integrating renewable energy resources, implementing energy-efficient technologies, and promoting responsible energy consumption practices across the campus.

The institute continuously strives to reduce its dependence on conventional grid electricity through the adoption of solar photovoltaic systems, energy-efficient electrical equipment, LED lighting, and renewable energy-based infrastructure. These initiatives are aligned with the institute's long-term commitment towards sustainable campus development and reduction of its carbon footprint.

The Energy Management component of this Green Audit evaluates the institute's electricity consumption, renewable energy generation, and major energy conservation initiatives implemented during the assessment period.

3.2 Electricity Consumption and Renewable Energy Generation

The institute regularly monitors its electricity consumption to promote efficient utilization of energy resources and identify opportunities for conservation. Simultaneously, the institute has significantly invested in renewable energy infrastructure to reduce dependence on conventional energy sources.

The annual electricity consumption and corresponding solar energy generation for the last three years are presented in **Table 3.1**, while **Figure 3.1** illustrates the comparative trend.

Table 3.1 Annual Electricity Consumption and Solar Energy Generation:

Academic Year	Grid Electricity Consumption (kWh)	Solar Energy Generated (kWh)	Percentage of Energy Offset (%)
AY 2023–24	989,906	101,075	10.21
AY 2024–25	994,152	80,706	8.12
AY 2025–26	1,006,118	86,206	8.57
Average	996,725.3	89,329	8.97

The data indicate the institute's continuous efforts towards increasing the contribution of renewable energy in its overall energy consumption. The integration of solar energy has substantially reduced dependence on conventional electricity and contributed towards lowering greenhouse gas emissions.

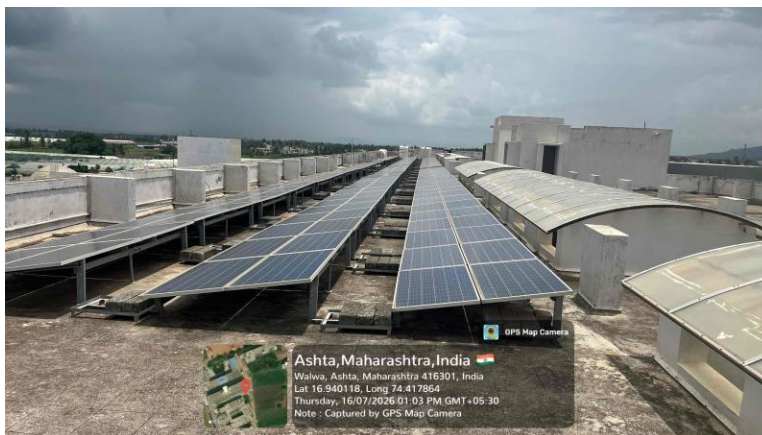


Fig 1: Solar Panels

3.3 Energy Conservation Initiatives

ADCET has implemented several energy conservation measures to improve energy efficiency and promote sustainable campus operations. The major initiatives are summarized below.

3.3.1 Rooftop Solar Photovoltaic System

The institute has established a **100 kWp rooftop Solar Photovoltaic (PV) System** operating under the net-metering mechanism. The system contributes significantly towards meeting the campus electricity demand by generating clean and renewable electricity.

To further strengthen renewable energy utilization, an additional **178 kWp rooftop solar photovoltaic system** has been installed and is awaiting commissioning. Upon commissioning, the total installed solar capacity of the institute will increase to **278 kWp**, substantially enhancing the institute's renewable energy generation capacity.

3.3.2 LED Lighting

The institute has progressively replaced conventional lighting fixtures with energy-efficient LED lighting across academic buildings, laboratories, administrative offices, corridors, hostels, and other campus facilities. The use of LED lighting has considerably reduced electricity consumption while improving illumination quality and reducing maintenance requirements.

3.3.3 Solar Street Lighting

To promote the utilization of renewable energy for outdoor lighting, the institute has installed **16 solar street lights** at strategic locations across the campus. These installations reduce dependence on grid electricity while ensuring adequate illumination during night hours.

3.3.4 Electric Campus Vehicle

As part of its commitment towards sustainable transportation, the institute has introduced an **electric campus vehicle** for in-campus mobility. The vehicle supports environmentally friendly transportation by reducing dependence on conventional fossil-fuel-based vehicles and contributing towards lowering carbon emissions within the campus.



Fig. 2: Electric vehicle

3.3.5 Energy-Efficient Operational Practices:

In addition to infrastructure improvements, the institute encourages responsible energy utilization through operational practices such as switching off electrical equipment when not in use, maximizing daylight utilization, preventive maintenance of electrical systems, periodic monitoring of electricity consumption, and promoting awareness regarding energy conservation among students and staff.

3.4 Key Observations

The assessment of energy management practices indicates the following:

- The institute has established a systematic mechanism for monitoring electricity consumption.
- Renewable energy generation through rooftop solar photovoltaic systems has significantly contributed towards reducing dependence on conventional electricity.
- Progressive replacement of conventional lighting with LED fixtures has improved overall energy efficiency.
- Installation of solar street lights demonstrates the institute's commitment towards renewable energy utilization.
- Introduction of an electric campus vehicle reflects the institute's initiative towards sustainable and low-carbon campus transportation.
- Continuous investment in renewable energy infrastructure indicates the institute's long-term commitment towards sustainable energy management.

3.5 Recommendations

To further strengthen energy management practices, the following measures are recommended:

- Commission the newly installed **178 kWp rooftop solar photovoltaic system** at the earliest to maximize renewable energy utilization.
- Continue periodic monitoring and analysis of electricity consumption to identify additional opportunities for energy conservation.
- Expand the use of renewable energy-based infrastructure wherever technically feasible.
- Continue replacing any remaining conventional electrical fixtures with energy-efficient alternatives.
- Conduct periodic energy awareness programmes to encourage responsible energy utilization among all stakeholders.

3.6 Conclusion

The Energy Management assessment indicates that Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has established a strong foundation for sustainable energy management through the adoption of renewable energy technologies and energy-efficient practices. The operational rooftop solar photovoltaic system, ongoing expansion of solar energy infrastructure, extensive use of LED lighting, installation of solar street lights, and introduction of an electric campus vehicle collectively demonstrate the institute's commitment towards reducing its environmental footprint and promoting sustainable campus development.

The institute is well positioned to further enhance its energy performance through the commissioning of the additional solar photovoltaic capacity and continued implementation of energy conservation initiatives, thereby contributing towards its long-term sustainability goals.

CHAPTER 4

WATER RESOURCE MANAGEMENT

4.1 Introduction

Water is one of the most precious natural resources and plays a vital role in maintaining environmental sustainability. Efficient management of water resources is essential for ensuring uninterrupted campus operations while minimizing the environmental impact associated with excessive water consumption. Institutions of higher education have a significant responsibility to adopt sustainable water management practices through conservation, efficient distribution, groundwater recharge, rainwater harvesting, and responsible utilization.

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has implemented a comprehensive water management system to ensure adequate water availability for academic buildings, laboratories, hostels, administrative offices, landscaped areas, and other campus facilities. The institute continuously strives to optimize water utilization through systematic infrastructure maintenance, rainwater harvesting, groundwater recharge, and regular monitoring of water distribution systems.

This chapter presents the major water management practices adopted by the institute with special emphasis on rainwater harvesting, which forms one of the key components of ADCET's sustainability initiatives.

4.2 Water Supply and Distribution System

ADCET has developed a well-planned water supply and distribution network to ensure reliable and efficient water availability throughout the campus. The institute primarily receives water from the regional water supply system, supplemented by groundwater through borewells whenever required. Water is stored in strategically located underground and overhead storage tanks before being distributed through a dedicated underground pipeline network to various academic, residential, and utility buildings.

The entire distribution system is periodically inspected and maintained to minimize leakages, prevent water losses, and ensure uninterrupted water supply. Preventive maintenance of pipelines, valves, pumps, storage tanks, water coolers, and RO treatment systems is carried out regularly to improve operational efficiency and ensure the availability of safe drinking water for students, faculty, staff, and visitors.

The institute has also established Reverse Osmosis (RO) water purification facilities at appropriate locations to provide safe and potable drinking water across the campus.

4.3 Rainwater Harvesting and Groundwater Recharge

Recognizing the importance of groundwater conservation and sustainable water resource management, ADCET has implemented a comprehensive Rainwater Harvesting (RWH) system across the campus. The system has been designed to capture rooftop runoff from major institutional buildings and facilitate groundwater recharge through scientifically designed recharge structures.

The rainwater harvesting infrastructure significantly reduces surface runoff during the monsoon season while enhancing groundwater recharge and improving long-term water availability. The initiative also contributes towards reducing soil erosion, mitigating localized flooding, and improving the overall hydrological balance of the campus.

A detailed assessment of the Rainwater Harvesting system has been carried out separately under the institute's Rainwater Harvesting Assessment Report. The assessment includes scientific estimation of rooftop runoff potential, recharge capacity, catchment-wise calculations, and the expected annual groundwater recharge based on local rainfall characteristics.

The major components of the Rainwater Harvesting system include:

- Rooftop rainwater collection network
- Rainwater conveyance through PVC pipeline systems
- Recharge pits and groundwater recharge structures
- Filtration arrangements prior to groundwater recharge
- Surface runoff management and controlled discharge

The implementation of the Rainwater Harvesting system demonstrates the institute's proactive approach towards groundwater conservation and climate-resilient campus infrastructure.

4.4 Water Conservation Practices

In addition to rainwater harvesting, ADCET has implemented several water conservation practices aimed at improving water-use efficiency across the campus.

The institute periodically monitors the water distribution network to identify and rectify leakages at the earliest possible stage. Preventive maintenance of pipelines, valves, pumps, overhead storage tanks, and plumbing fixtures helps minimize avoidable water losses.

Water-efficient plumbing fixtures have been installed at various locations to reduce unnecessary water consumption. Regular maintenance of drinking water treatment systems and water coolers ensures both water quality and operational efficiency.

The campus landscape is maintained using planned irrigation practices that promote efficient utilization of available water resources while preserving the aesthetic and ecological value of the green campus.

Students and staff are regularly encouraged to adopt responsible water-use practices through awareness programmes and institutional initiatives that promote conservation of this valuable natural resource.

4.5 Key Observations

The Green Audit indicates that the institute has established an effective water resource management system supported by appropriate infrastructure and sustainable conservation practices.

The major observations are as follows:

- A reliable water supply and distribution network has been established across the campus.
- Preventive maintenance practices minimize leakages and improve operational efficiency.
- Reverse Osmosis (RO) treatment facilities ensure the availability of safe drinking water.
- Rainwater Harvesting infrastructure significantly contributes towards groundwater recharge.
- Water conservation practices are integrated into routine campus operations.
- The institute demonstrates a strong commitment towards sustainable water resource management.

4.6 Recommendations

The following recommendations are suggested for further strengthening water sustainability initiatives:

- Continue periodic inspection and maintenance of the campus water distribution network.
- Expand Rainwater Harvesting infrastructure for future campus developments.
- Periodically assess the performance of recharge structures and carry out maintenance before every monsoon season.
- Explore opportunities for greywater reuse for landscape irrigation and other non-potable applications.
- Continue awareness programmes promoting responsible water utilization among all campus stakeholders.

4.7 Conclusion

ADCET has established a robust framework for sustainable water resource management through efficient water distribution, preventive maintenance, provision of safe drinking water, and scientifically designed Rainwater Harvesting systems. These initiatives significantly contribute towards groundwater conservation, efficient utilization of available water resources, and long-term environmental sustainability.

The continued implementation and periodic enhancement of these practices will further strengthen the institute's commitment to sustainable campus development and support its broader environmental goals.

CHAPTER 5

SOLID AND LIQUID WASTE MANAGEMENT

5.1 Introduction

Effective waste management is an essential component of environmental sustainability and plays a significant role in maintaining a clean, healthy, and eco-friendly campus environment. Educational institutions generate different types of waste during their routine academic, administrative, residential, and landscaping activities. Proper segregation, collection, treatment, recycling, and safe disposal of waste are necessary to minimize environmental impacts and promote responsible resource utilization.

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has adopted systematic waste management practices that emphasize waste minimization, resource recovery, recycling, composting, and environmentally sound disposal methods. The institute continuously encourages students, faculty members, staff, and other stakeholders to participate in maintaining a clean and sustainable campus.

5.2 Solid Waste Management

The institute has established an organized system for collection, segregation, and disposal of solid waste generated from academic buildings, administrative offices, laboratories, hostels, canteen, gardens, and common areas. Dustbins are strategically placed throughout the campus to facilitate proper collection and segregation of waste at the source. Housekeeping staff regularly collect the waste and transport it to designated collection points for further processing or disposal.

The major categories of solid waste generated on the campus include:

- Paper waste
- Plastic waste
- Food waste from the canteen
- Horticultural waste
- Packaging waste
- Miscellaneous municipal solid waste

Scientific management of these waste streams ensures cleanliness of the campus while minimizing environmental impacts.

Suggested Photographs

- Waste segregation bins

- Collection bins in academic buildings
- Housekeeping practices

5.3 Organic Waste Management

Organic waste generated from gardening activities, fallen leaves, and landscape maintenance is scientifically managed through on-campus composting facilities. Compost pits have been developed to process biodegradable horticultural waste using composting/vermicomposting techniques.

The compost produced is utilized as an organic soil conditioner for maintaining lawns, gardens, medicinal plant gardens, and other landscaped areas within the campus. This practice significantly reduces the quantity of biodegradable waste sent for disposal while promoting circular utilization of organic resources.

Suggested Photograph

- Compost pits
- Utilization of compost in gardens

5.4 Recycling and Resource Recovery

ADCET actively promotes recycling and reuse of recyclable materials generated during institutional activities.

The major recycling initiatives include:

Recycling of Used Examination Answer Books

Used examination answer books generated by the Controller of Examinations are systematically collected and handed over to authorized recycling agencies for paper recycling. This initiative contributes towards resource conservation and reduction in paper waste generation.

Reuse of Single-Side Printed Paper

Single-side printed sheets generated during office and academic activities are reused for internal communication, draft printing, and other administrative purposes, thereby reducing paper consumption and promoting resource efficiency.

Municipal Solid Waste Collection

The remaining non-recyclable municipal solid waste is collected regularly through the waste collection system operated by the local municipal authority, ensuring environmentally sound disposal in accordance with applicable regulations.

Table 5.1: Summary of Waste Management Initiatives.

Waste Category	Source	Management Practice
Paper Waste	Offices, Examination Section	Recycling through authorized recycler
Food Waste	Canteen	Municipal collection
Horticultural Waste	Gardens	Composting/Vermicomposting
Plastic Waste	Campus Activities	Segregation and municipal disposal
Liquid Waste	Buildings, Hostels	Underground drainage, septic tanks and approved disposal

5.5 Liquid Waste Management

Liquid waste generated from academic buildings, hostels, canteen, and other campus facilities is managed through a well-planned underground drainage network.

Wastewater generated from various campus facilities is conveyed through the underground sewerage system to appropriate disposal and treatment arrangements. Hostel wastewater is managed through septic tanks and soil percolation systems, while wastewater from the canteen and other facilities is disposed of through approved municipal systems wherever applicable.

The institute periodically maintains the drainage infrastructure to ensure efficient functioning and prevent environmental contamination.

Photographs:

- Underground drainage system
- Septic tank or wastewater collection facility

5.6 Key Observations

The Green Audit identified the following strengths in waste management practices:

- Source segregation of waste is practiced across the campus.
- Adequate waste collection infrastructure is available.
- Organic waste is converted into compost and reused for gardening.
- Paper waste is recycled through authorized agencies.
- Reuse of single-side printed paper minimizes paper consumption.
- Municipal waste is disposed of through the authorized local collection system.

- Liquid waste is managed through an organized underground drainage network and appropriate disposal systems.

5.7 Recommendations

To further strengthen waste management practices, the following measures are recommended:

- Continue strengthening source segregation of waste across all campus buildings.
- Expand awareness programmes on waste minimization and responsible disposal.
- Periodically monitor compost production and utilization.
- Maintain records of waste quantities recycled and compost generated.
- Explore additional opportunities for recycling laboratory packaging materials and other non-hazardous recyclable waste.
- Continue preventive maintenance of the campus drainage and wastewater disposal infrastructure.

5.8 Conclusion

ADCET has established an effective and environmentally responsible waste management system that integrates waste segregation, recycling, composting, and scientific disposal practices. The institute's emphasis on resource recovery, organic waste utilization, paper recycling, and proper liquid waste management demonstrates its commitment to sustainable campus operations and environmental stewardship. Continued improvement of these practices will further support the institute's long-term sustainability objectives.

CHAPTER 6

BIODIVERSITY AND GREEN CAMPUS

6.1 Introduction

Biodiversity conservation is an integral component of environmental sustainability and plays a significant role in improving ecological balance, enhancing air quality, conserving native flora, and creating a healthy learning environment. Educational institutions contribute to biodiversity conservation by developing green landscapes, preserving plant diversity, increasing tree cover, and promoting environmental awareness among students and staff.

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has developed a vibrant green campus through systematic plantation programmes, landscape development, medicinal gardens, avenue plantations, lawns, and biodiversity conservation initiatives. These efforts contribute towards improving the campus microclimate, enhancing aesthetic value, reducing dust pollution, supporting local biodiversity, and promoting environmental sustainability.

6.2 Green Campus Development

ADCET has consistently undertaken plantation and landscaping activities to maintain a clean, attractive, and environmentally sustainable campus. Green spaces have been developed around academic buildings, administrative blocks, hostels, internal roads, playgrounds, and common areas to create a pleasant academic environment.

The campus landscape comprises a combination of ornamental plants, shade trees, flowering plants, shrubs, lawns, and avenue plantations. These green spaces contribute significantly towards carbon sequestration, temperature moderation, noise reduction, and improvement of ambient air quality.

Regular maintenance activities, including irrigation, pruning, manuring, and seasonal plantation, ensure the healthy growth of vegetation throughout the campus.

6.3 Biodiversity Conservation

The institute has developed and maintained a rich diversity of plant species across the campus. Special emphasis has been given to the conservation of medicinal plants, native species, ornamental vegetation, and ecologically important trees.

The campus includes well-maintained medicinal gardens and thematic plantations that serve not only as biodiversity conservation areas but also as educational resources for students and visitors. The presence of

diverse vegetation supports birds, butterflies, insects, and other small fauna, thereby enhancing the ecological richness of the campus.

The institute periodically undertakes plantation drives involving students, faculty, staff, and community stakeholders to further strengthen campus biodiversity.

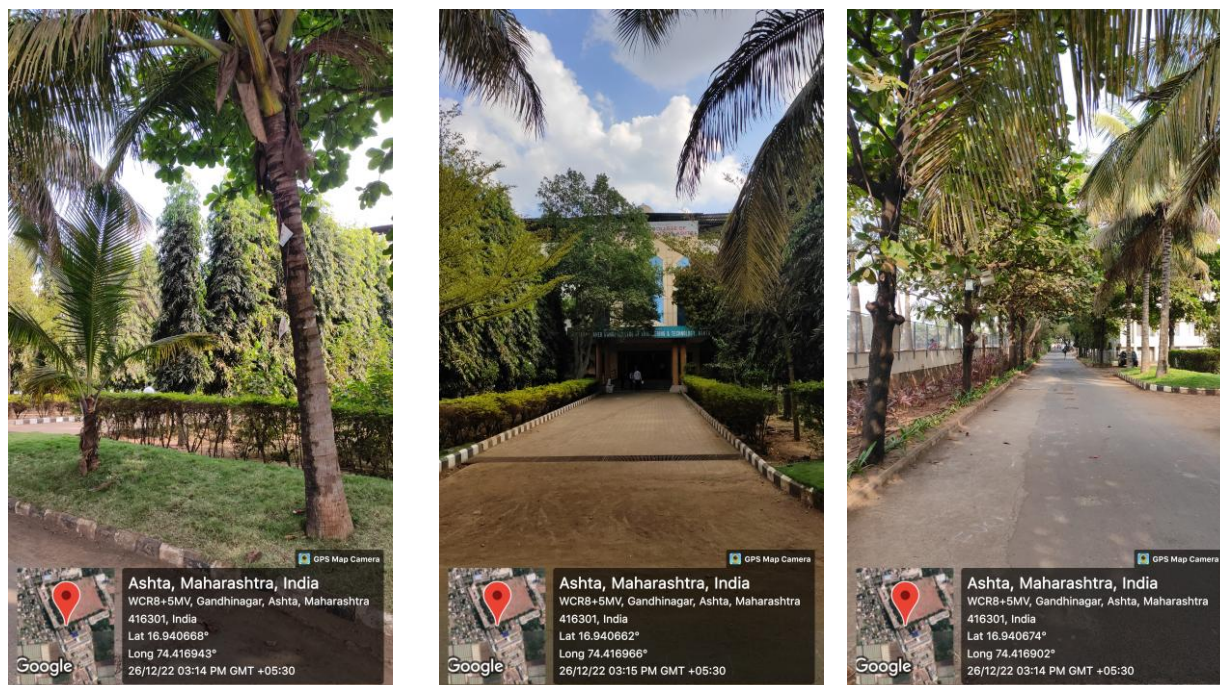


Fig. 3: Green campus, ADCET

6.4 Medicinal and Thematic Gardens

One of the unique features of ADCET is the development of dedicated medicinal and thematic gardens that promote awareness of indigenous plant species and their ecological and medicinal importance.

The campus includes gardens such as:

- Charak Medicinal Plant Garden
- Sushrut Medicinal Plant Garden
- Dhanvantari Medicinal Plant Garden
- Vagbhatta Medicinal Plant Garden
- Nakshatra Garden
- Rashi Garden
- Navagraha Garden

These gardens provide valuable opportunities for environmental education, biodiversity conservation, and preservation of traditional knowledge associated with medicinal plants.

6.5 Plantation and Landscape Management

The institute adopts systematic landscape management practices to ensure healthy growth and long-term sustainability of campus vegetation.

Major landscape management practices include:

- Regular plantation drives
- Maintenance of lawns and gardens
- Organic manure application using campus-generated compost
- Seasonal pruning and tree care
- Efficient irrigation practices
- Replacement of damaged or dead plants
- Continuous beautification of open spaces

These practices have significantly enhanced the aesthetic and ecological value of the campus.



Fig 4: enhanced the aesthetic and ecological value

6.6 Environmental Benefits of Green Cover

The extensive green cover developed within the campus provides several environmental benefits, including:

- Improvement in ambient air quality.
- Carbon dioxide sequestration and oxygen generation.
- Reduction in dust levels.
- Moderation of campus temperature and mitigation of the urban heat island effect.

- Habitat creation for birds, butterflies, and beneficial insects.
- Reduction in soil erosion.
- Enhancement of campus aesthetics and psychological well-being.

The green campus also provides a conducive environment for academic activities while fostering environmental responsibility among students and staff.

Table 6.1: Distribution of Thematic Gardens

Garden	Major Purpose
Charak Medicinal Garden	Conservation of medicinal plant species
Sushrut Medicinal Garden	Medicinal plant collection
Dhanvantari Medicinal Garden	Herbal biodiversity
Vagbhatta Medicinal Garden	Conservation and awareness
Nakshatra Garden	Cultural and ecological significance
Rashi Garden	Traditional plant conservation
Navagraha Garden	Educational and cultural value

Table 6.2: Biodiversity Highlights

Parameter	Status
Green campus	Well maintained
Avenue plantation	Available
Medicinal gardens	Available
Thematic gardens	Available
Landscape maintenance	Regular
Compost utilization	Yes
Plantation drives	Regular

6.7 Key Observations

The Green Audit indicates that:

- The institute has developed extensive green landscaping across the campus.
- A wide variety of trees, ornamental plants, and medicinal species are maintained.
- Dedicated medicinal and thematic gardens enhance biodiversity conservation.
- Plantation and maintenance activities are carried out regularly.
- Compost generated from campus horticultural waste is utilized for maintaining green spaces.
- The green campus contributes significantly to environmental quality and ecological sustainability.

6.8 Recommendations

The following recommendations are suggested:

- Continue expanding plantation activities with emphasis on native species.
- Periodically update the inventory of plant species and biodiversity.
- Increase labeling of plant species for educational purposes.
- Promote student participation in biodiversity monitoring and conservation.
- Continue utilizing organic compost produced on campus for landscape maintenance.
- Strengthen documentation of biodiversity conservation initiatives.

6.9 Conclusion

ADCET has established a vibrant and environmentally sustainable green campus through systematic biodiversity conservation, landscape development, plantation programmes, and maintenance of medicinal and thematic gardens. These initiatives significantly contribute to ecological conservation, environmental quality, and the overall sustainability of the campus. Continued enhancement of green infrastructure will further strengthen the institute's commitment to environmental stewardship and sustainable development.

CHAPTER 7

ENVIRONMENTAL GOVERNANCE AND SUSTAINABILITY INITIATIVES

7.1 Introduction

Environmental sustainability extends beyond efficient management of natural resources and requires the active participation of institutional leadership, faculty members, students, administrative staff, and external stakeholders. Effective environmental governance ensures that sustainability principles are integrated into institutional planning, infrastructure development, academic activities, research, community engagement, and day-to-day campus operations.

Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has adopted a holistic approach towards environmental governance by integrating sustainability into its policies, institutional practices, academic ecosystem, and community outreach programmes. These initiatives collectively contribute towards achieving long-term environmental sustainability and responsible institutional development.

7.2 Institutional Environmental Governance

The institute has established appropriate administrative mechanisms to promote and monitor environmental sustainability initiatives across the campus. Various institutional committees oversee planning, implementation, monitoring, and continual improvement of environmental practices related to energy conservation, water management, waste management, biodiversity conservation, infrastructure development, and campus maintenance.

Environmental considerations are integrated into campus planning, infrastructure development, procurement practices, maintenance activities, and institutional decision-making processes to promote sustainable campus operations.

7.3 Green Campus Policy and Institutional Practices

ADCET has adopted institutional policies and operational practices that encourage environmentally responsible behaviour among all stakeholders.

The major institutional initiatives include:

- Promotion of energy-efficient infrastructure.
- Adoption of renewable energy technologies.
- Water conservation and rainwater harvesting.
- Scientific waste management.

- Biodiversity conservation and green landscaping.
- Paper conservation through digital communication wherever feasible.
- Sustainable procurement and maintenance practices.
- Continuous improvement in environmental performance.

These initiatives collectively support the institute's commitment towards responsible environmental management.

7.4 Education for Sustainable Development (ESD)

The institute recognizes that higher education plays a critical role in developing environmentally responsible engineers and professionals. Sustainability concepts are integrated into teaching-learning processes through curriculum implementation, project work, laboratory activities, field visits, research, extension activities, and capacity-building programmes.

Faculty members actively encourage students to develop innovative solutions addressing environmental challenges and sustainable development goals through interdisciplinary learning and project-based education.

7.5 SDG Integration

ADCET has initiated systematic integration of the **United Nations Sustainable Development Goals (SDGs)** into institutional activities. Academic programmes, student projects, research initiatives, extension activities, innovation programmes, and community engagement are aligned with relevant Sustainable Development Goals to promote holistic and sustainable development.

The institute has also developed institutional mechanisms to document and monitor SDG-related initiatives across academic and administrative activities, thereby strengthening its commitment to sustainability-oriented higher education.

7.6 Environmental Awareness and Community Engagement

The institute regularly organizes programmes to create environmental awareness among students, faculty members, staff, and the surrounding community.

Major activities include:

- Tree plantation programmes.
- Cleanliness and campus maintenance drives.
- Environmental awareness campaigns.
- Water conservation awareness.

- World Environment Day celebrations.
- Community outreach programmes related to environmental sustainability.
- Student participation through NSS and other institutional forums.

These activities encourage environmental responsibility and strengthen community participation in sustainable development.

7.6.1 Environmental Education, Research and Community Engagement

As a higher educational institution, ADCET recognizes that environmental sustainability extends beyond campus operations and must be integrated into education, research, innovation, and community service. The institute actively promotes environmental consciousness among students through academic programmes, research activities, extension initiatives, and outreach programmes that address real-world environmental challenges.

Environmental Education

Environmental sustainability is integrated into the teaching-learning process through curriculum delivery, laboratory experiments, field visits, project-based learning, and interdisciplinary academic activities. Courses related to environmental engineering, sustainable development, pollution control, water resource management, renewable energy, and climate change equip students with the knowledge and skills required to address emerging environmental challenges.

Faculty members continuously encourage students to adopt sustainable engineering practices and incorporate environmental considerations into design, planning, and problem-solving activities.

Research and Student Projects

The institute promotes research and innovation focused on environmental sustainability through undergraduate and postgraduate projects, faculty research, and interdisciplinary collaborations. Students are encouraged to undertake projects related to resource conservation, renewable energy, waste management, water treatment, pollution control, sustainable construction, and climate resilience.

These academic activities foster innovation while contributing practical solutions to local and regional environmental issues.

Community Outreach and Extension Activities

ADCET actively engages with neighbouring communities through various environmental awareness and extension programmes aimed at promoting sustainable practices and improving environmental quality.

Major initiatives include:

- Water quality testing camps in nearby villages to assess the quality of drinking water and create awareness regarding safe water practices.
- Environmental awareness programmes conducted through the National Service Scheme (NSS).
- Tree plantation and cleanliness drives involving students, faculty members, and local communities.
- Village awareness programmes focusing on water conservation, sanitation, waste management, and environmental protection.
- Extension activities that encourage community participation in sustainable development and environmental stewardship.

Through these initiatives, the institute strengthens the connection between academic learning and societal needs while fostering environmental responsibility among students and the wider community.

7.7 Key Observations

The Green Audit indicates that:

- Environmental sustainability is supported through institutional governance mechanisms.
- Sustainability principles are integrated into academic and administrative activities.
- SDG integration has strengthened institutional commitment towards sustainable development.
- Environmental awareness programmes encourage stakeholder participation.
- The institute demonstrates continual improvement in environmental management practices.

7.8 Recommendations

To further strengthen institutional sustainability, the following measures are recommended:

- Continue periodic review of environmental policies and sustainability initiatives.
- Strengthen documentation and monitoring of sustainability performance indicators.
- Expand interdisciplinary research addressing environmental challenges.
- Increase stakeholder participation in environmental awareness programmes.
- Continue integrating Sustainable Development Goals into institutional planning and academic activities.

7.9 Conclusion

ADCET has established an effective environmental governance framework supported by institutional leadership, stakeholder participation, sustainable campus policies, and integration of environmental sustainability into academics and community engagement. These initiatives complement the institute's

resource conservation efforts and demonstrate its commitment to developing an environmentally responsible and sustainable educational ecosystem.

CHAPTER 8

AUDIT FINDINGS, RECOMMENDATIONS AND WAY FORWARD

8.1 Introduction

The Green Audit of Annasaheb Dange College of Engineering and Technology (ADCET), Ashta was undertaken to assess the institute's environmental performance and evaluate the effectiveness of its sustainability initiatives. The audit examined various aspects of environmental management, including energy conservation, water resource management, waste management, biodiversity conservation, and institutional sustainability practices.

The assessment indicates that the institute has made significant progress in implementing environmentally responsible practices and has established a strong foundation for sustainable campus development. This chapter presents the major findings of the audit, identifies opportunities for further improvement, and outlines a roadmap for strengthening environmental performance through continual improvement.

8.2 Major Audit Findings

Based on the observations made during the Green Audit, the following key findings are summarized:

Energy Management

- Rooftop solar photovoltaic systems significantly contribute to renewable energy generation.
- Progressive replacement of conventional lighting with LED fixtures has improved energy efficiency.
- Solar street lighting and the electric campus vehicle demonstrate the institute's commitment to clean energy adoption.
- Energy consumption is periodically monitored to support efficient resource utilization.

Water Resource Management

- A reliable water supply and distribution network is available across the campus.
- Rainwater harvesting systems support groundwater recharge and sustainable water management.
- Preventive maintenance minimizes water losses through leakages.
- Safe drinking water is ensured through RO purification systems.

Solid and Liquid Waste Management

- Waste segregation practices are implemented throughout the campus.
- Organic waste is scientifically managed through composting.
- Paper waste is recycled through authorized agencies.

- Liquid waste is managed through appropriate drainage and disposal systems.

Biodiversity and Green Campus

- The institute maintains extensive green landscaping and plantation.
- Dedicated medicinal and thematic gardens contribute to biodiversity conservation.
- Compost produced on campus is utilized for maintaining green spaces.
- Regular plantation and landscape maintenance activities enhance environmental quality.

Environmental Governance

- Sustainability initiatives are integrated into institutional governance.
- Green Campus Policy and SDG integration support long-term environmental planning.
- Environmental awareness and community engagement activities promote responsible environmental behaviour among stakeholders.

8.3 Strengths Identified

The Green Audit identified the following major strengths of the institute:

- Strong institutional commitment towards environmental sustainability.
- Significant investment in renewable energy infrastructure.
- Effective implementation of rainwater harvesting and groundwater recharge.
- Scientific management of solid and liquid waste.
- Well-maintained green campus with rich biodiversity.
- Integration of sustainability into institutional governance and academic activities.
- Active participation of students, faculty, and staff in environmental initiatives.
- Continuous improvement approach towards sustainable campus management.

8.4 Opportunities for Further Improvement

Although the institute has demonstrated commendable environmental performance, continual improvement remains an integral component of sustainable development. The following opportunities may be considered:

- Further increase the share of renewable energy in overall campus energy demand.
- Expand rainwater harvesting facilities to future campus developments.
- Strengthen documentation and quantitative monitoring of environmental performance indicators.
- Explore greywater reuse for landscape irrigation and other non-potable applications.
- Enhance biodiversity documentation through periodic ecological surveys.
- Continue promoting digital practices to minimize paper consumption.
- Strengthen environmental awareness programmes involving all campus stakeholders.

8.5 Way Forward

To further strengthen environmental sustainability, ADCET may focus on the following strategic priorities:

- Continual enhancement of renewable energy infrastructure.
- Periodic review of Green Campus initiatives and sustainability policies.
- Expansion of biodiversity conservation programmes.
- Strengthening environmental data management and performance monitoring.
- Promotion of interdisciplinary research addressing sustainability challenges.
- Increased participation of students in environmental innovation and community outreach.
- Regular Green Audits and environmental performance reviews to monitor progress and identify new opportunities for improvement.

These initiatives will contribute towards achieving long-term sustainability objectives while supporting national and global environmental commitments.

8.6 Conclusion

The Green Audit demonstrates that Annasaheb Dange College of Engineering and Technology (ADCET), Ashta has established a comprehensive environmental management framework encompassing energy conservation, water resource management, waste management, biodiversity conservation, and institutional sustainability practices. The institute has successfully integrated environmental responsibility into its infrastructure, operations, and academic ecosystem, thereby creating a sustainable and environmentally conscious campus.

The audit concludes that ADCET possesses a strong foundation for sustainable development and is well positioned to further enhance its environmental performance through continual improvement, innovation, stakeholder participation, and responsible resource management. The implementation of the recommendations presented in this report will further strengthen the institute's commitment to environmental stewardship and contribute towards achieving its long-term sustainability goals.