



**AMITY UNIVERSITY**  
**MADHYA PRADESH**

(Established by Ritn and Balved Education Foundation)

# **GREEN AUDIT REPORT**

## **(2017-2018)**



**Amity University Madhya Pradesh**  
**Maharajpura, Gwalior (M.P.) – 474005, India**  
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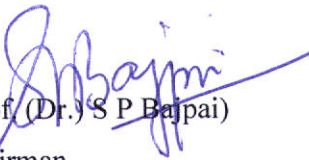
Established vide Government of Madhya Pradesh Act No. 27 of 2010

Dated: 20/07/2018

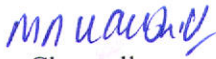
## Note sheet


This is in reference to the office order Ref. No. AUMP/Letter/Audit/03/2018 dated 13/07/2018 issued by the Registrar, Amity University Madhya Pradesh.

I am hereby submitting the Green Audit Report for the period 2017-18 for your kind reference and perusal.

  
(Prof. (Dr.) S P Bajpai)  
Chairman

  
Registrar

  
Pro Vice Chancellor

  
Hon'ble Vice Chancellor



# AMITY UNIVERSITY

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Ref. No. AUMP/Letter/Audit/03/2018

Dated: 13/07/2018

## Office Order

1. An audit team comprising of the following staff members of Amity University Madhya Pradesh (AUMP) is hereby constituted for the internal green audit of the university for 2017-18.

S.No	Name	Designation
1.	<b>Chairman</b> Prof. (Dr.) S.P Bajpai	HOI, Department of Environmental Science (EVS)
2.	<b>Member</b> Dr. Swapnil Rai	Assistant Professor, Department of Environmental Science
3.	<b>Member</b> Arch. Aashish Sharma	Assistant Professor, Amity School of Architecture and Planning (ASAP)
4.	<b>Member Secretary</b> Mr. Umesh Kumar Sharma	Assistant Director Administration, AUMP

2. The audit team is requested to evaluate that the development of the campus foster to the concept of environmental sustainability and green campus. The audit report is to be submitted latest by 20/07/2018

3. Issued by the order of the Hon'ble Vice Chancellor

  
Registrar  




## Acknowledgement

The Green Audit Assessment Team is thankful to the Lt. Gen. V. K. Sharma, AVSM (Retd.) Hon'ble Vice Chancellor, Amity University Madhya Pradesh, Gwalior for assigning the task of Green Audit. We are also grateful to the administration, staff, faculty members and students for the support during the assessment work.

Our special thanks are due to:

- ❖ Pro Vice Chancellor AUMP
- ❖ Dy. Pro Vice Chancellor AUMP
- ❖ Registrar AUMP
- ❖ Director Administration, AUMP

For giving us necessary guidance and inputs to carry out this very important exercise of Green Audit.

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## Executive Summary

Green audits serve to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene and safety, reduce liabilities and save money and achieve values of virtue. Concern about environmental degradation and realization of values of environment are logical consequences of scholarly research, teaching and learning process. In its pursuit for improving environmental quality and to maintain a pristine environment for the future generation of students, Amity University Madhya Pradesh, Gwalior has made a self-inquiry on environmental quality of the campus with the following main objectives:

- ❖ The specific objectives of the audit are to evaluate the compliance with the applicable regulations, policies, and standards to ensure that the development of the campus foster to the concept of environmental sustainability and green campus.
- ❖ The purpose of the audit is to make sure that the practices followed in the campus are healthy and environment friendly.

This report is compiled by a committee constituted by the university. As there was no standard model for such an environment/green audit of campuses in the state, the committee analyzed and evolved a questionnaire. With the help of student volunteers who are part of the ECO Club, a major part of the data was compiled, which the committee analyzed. The remaining part which involved measurement of quality was entrusted with the Department of Environmental Sciences. The committee has made short term and long-term suggestions to take environment protection to higher levels and it is hoped that this will receive due attention of University authorities and all stakeholders of the University.

The methodology included: preparation and filling up of questionnaire, physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and recommendations. It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work, Alternative Energy and Mapping of Biodiversity. With this in mind, the specific objectives of the audit was to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health, learning outcome, operational costs, and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.



## **1. Introduction**

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyse environmental practices within and outside the university campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

### **1.1 About the University**

Amity University Madhya Pradesh was established by Ritnand Balved Education Foundation (RBEF) vide Madhya Pradesh Government Legislature Act of 2010 with the view to promote professional, industry-oriented education in the state of Madhya Pradesh. Amity University Madhya Pradesh, Gwalior located on a sprawling campus of 102 acres of land opposite Gwalior Airport, imparts modern, practical, and research-oriented courses which will lead to the development of professionals who are employable and industry ready. This in turn will drive the socio-economic upliftment of the region. Amity imparts education in almost all areas including management, engineering, architecture, biotechnology, law, communication, behavioral science, fine arts, fashion etc. Amity University Madhya Pradesh was adjudged the "Best Private University of Madhya Pradesh" by CMAI Association of India and has been accredited as "Premier University" by Accreditation Service for International Colleges (ASIC).

The University has two N.S.S. units sanctioned by the university, which are doing tremendous job through organizing activities like blood donations, tree plantations, health check-up, personality development etc. are conducted by this unit.

## **2. Objectives of the Study**

The main objective of the green audit is to promote the Environment Management and Conservation in the University Campus. The purpose of the audit is to identify, quantify, describe, and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies, and standards. The main objectives of carrying out Green Audit are:

- To inculcate awareness among the students to real concerns of environment and its sustainability.
- To promote the concept of environmental conservation to minimize the extent of exploitation of resource use inside the campus.
- To ensure that the development of the campus foster to the concept of environmental sustainability and green campus.
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requiring high cost.
- To bring out a status report on environmental compliance.

## **3. Methodology**

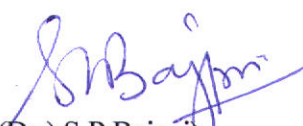
To perform green audit, the methodology included different tools such as physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- Water management
- Waste management
- Green area management




#### 4. Green Audit Assessment Team

S.No	Name	Designation
1.	Prof. (Dr.) S.P Bajpai Chairman	HOI, Department of Environmental Science (EVS)
2.	Dr. Swapnil Rai Member	Assistant Professor, Department of Environmental Science
3.	Arch. Aashish Sharma Member	Assistant Professor, Amity School of Architecture and Planning (ASAP)
4.	Mr. Umesh Kumar Sharma Secretary	Assistant Director Administration, AUMP

  
(Prof. (Dr.) S.P Bajpai)

  
(Arch. Aashish Sharma)

  
(Dr. Swapnil Rai)

  
(Umesh Kumar Sharma)

## 5. Observations and Recommendations

### 5.1 Water Management

This indicator addresses water consumption, water sources, and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

#### a) Observations

The University is presently dependent on Borewells which are presently 10 in numbers. The water is hard with average prevailing TDS 1800. However, soft water plant with capacity of 30 KL of ION EXCHANGE is installed in the Campus to improve the quality of water.

In addition, for drinking water 24 Nos of 50 litre capacity RO are fitted in the entire campus. They are regularly maintained under AMC. In addition to above application for water supply has been forwarded to Nagar Nigam, Gwalior for supply of water with overall cost for laying dedicated pipelines amounting to Rs 67 lakh has been deposited by the University. The work is yet to be completed.

Water is used for drinking purpose, toilets, and gardening. During the survey, no loss of water is observed, neither by any leakages, nor by overflow of water from overhead tanks. The data collected from all the departments is examined and verified. Water quality is enhanced by using soft water plant of ION exchange of capacity 30 KL and ROs of 50 liter in 24 Nos are installed in the Campus to provide potable water.

#### b) Recommendations

- Reuse and recycle of water system are necessary. Although the wastewater from the RO water purifier is used for gardening purpose, the scope can be increased to large scale re-cycling of water.
- Ensure that all cleaning products used by university staff have a minimal detrimental impact on the environment, i.e. they are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.
- Gardens should be watered by using sprinkler system for efficient water management.
- Advanced Rainwater harvesting system needs to be installed in the campus. This will not only provide an additional source of water for use, but it will also help in recharging of the bore wells as well.



## 5.2 Waste Management

The university has segregated waste into three parts:

- Solid Waste
- Liquid Waste
- e-Waste

**Solid Waste:** The waste is generated by all sorts of routine activities carried out in the university that includes paper, plastics, glass, metals, foods, etc. The waste is segregated at each level and source. The administrative supervisor in each block ensures that the waste in each floor is collected at designated time intervals. The block cleaning workers in each floor collect, clean, segregate and compile the waste in the dustbins (Green and Blue) provided at each floor. The floor dustbins are emptied in movable containers/dustbins provided for each block and is taken to the dumping yard provided by the University.

The University has contacted an authorized vendor, who collects the waste from the designated place, segregates them, recycles them and disposes them at the landfills authorized by the government.

**Liquid Waste:** Liquid wastes generated by the university are of two types:

1. Sewage waste
2. Laboratory, Laundry, and cafeteria effluent waste

The above waste is treated through Sewage Treatment Plants (STPs) and Effluent Treatment Plants (ETPs) and the water is used for horticulture and flushing in toilets.

**e-Waste Management:** Flip flops, memory chips, motherboard, compact discs, cartridges etc generated by electronic equipment's such as Computers, Radio, TV, Phones, Printers, Fax, and Photocopy machines are recycled properly. Instead of buying a new machine buyback option is taken for technology upgradation.

The e-waste generated from hardware which cannot be reused or recycled is being disposed-off centrally through government authorized vendors.

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be processed through recycling, repair, and reuse. Solid waste generation and management is a burning issue.



Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus.

**a) Observations**

The waste management is well organized in the University. Two STPs have been installed with following capacity: -

- (a) STP No -1 – 2.10 KL
- (b) STP No--2 - 1.60 KL

The above Sewage Treatment Plants are maintained by S. Green Wastetech located at Gurugram, Haryana under Annual Maintenance Contact.

Waste generated from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste. Single sided used papers are recommended for use for writing and printing in all departments.

Most of the official correspondence is through emails which has drastically reduced the use of papers.

Metal waste and wooden waste is stored and given to authorized scrap agents for further processing. The solid waste is collected by the municipal corporation and disposed by their methods.

**b) Recommendations**

- Make full use of all recycling facilities provided by City Municipality and private suppliers. Products such as glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture needs to re-cycle.
- Important and confidential papers after their validity to be sent for pulping.
- Use reusable resources and containers and avoid unnecessary packaging where possible.
- Single used plastic may be banned, and paper glass and other recyclable items can be used in canteen and mess.

**5.3 Green Area Management**

This includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programmes.

**a) Observations**

The University has maintained the existing and added to the land scape environment of the Campus. The layout of the land has not been disturbed and existing hill features have been

used for layout of the entire Campus. This has made the campus layout beautiful and has been appreciated by all dignities and visitors visiting the campus. Campus is in the vicinity of many trees (species) to maintain the biodiversity. Various tree plantation programs are being organized at university campus and surrounding villages through NSS (National Service Scheme) unit, ECO Club etc. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes various types of indigenous species of ornamental, medicinal and multipurpose tree species (MPTS).

The University has installed Solar Power Plant 307 Kilo Watt capacity to save energy.

#### **b) Recommendations**

- Celebrate every year June 5<sup>th</sup> as 'World Environment Day' and plant trees on this day to make the campus Greener.
- Promote environmental awareness through scientific lectures, conferences, seminars, independent research projects, and community service.
- To review periodically the list of trees planted in the garden, allot numbers to the trees, and keep records. Assign scientific names to the trees.
- Ensure that an audit is conducted annually, and action is taken based on audit report, recommendation, and findings.
- Create awareness of environmental sustainability and take actions to ensure environmental sustainability inside the campus.

#### **5.4 Eco-Club at the Campus**

Eco-club of Amity University Madhya Pradesh, Gwalior has been constituted for spreading awareness among students, for generating knowledge about the environment and towards making clean and green campus. Eco-club is continuously organizing World Environment Day, tree plantation, educational tour, special lectures, and awareness programmes every year.

- Eco-Club has celebrated Earth Day on 22<sup>nd</sup> April 2018 through various awareness campaigning.
- Eco-Club has celebrated Tree Plantation ceremony on World Environment Day on 5<sup>th</sup> June 2018.
- Eco-club of AUMP introduced Recyclable Paper Box/Bins to stop the use of Plastic Dust Bins inside the campus as a part of Environmental Awareness.

- Eco-club of AUMP organized Elocution Competition on Hariyali Mahotsav on 8 August 2017.
- Eco-club of AUMP regularly inform and aware students, staff, faculty members about the banned single used plastic bottles as a as a part of Environmental Awareness.
- Members of Eco-club became a part of “Jal Shakti Team” to aware people about water conservation in schools, colleges, villages.
- Members of Eco-club spread awareness through social media on World Ozone Day, 16 September 2017.



## 6. Conclusions

The environmental awareness initiatives undertaken by the university in the ten years of its existence are substantial. The installation of solar panels as renewable/alternative source of energy and two units of STPs for waste management is noteworthy. Besides, environmental awareness programmes initiated by the administration/departments shows how the campus is going green. Few recommendations are added like installation of water harvesting system and more efficient waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus, thus sustainable environment, and community development.

As part of green audit of campus, we carried out the environmental monitoring of campus including illumination and ventilation of the classroom. It was observed that illumination and ventilation is adequate considering natural light and ICT facility are provided in all the Lecture Theatres and Classroom on need basis. In addition, WIFI is provided to the entire Campus including Hostels.

## 7. References:

- The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- The Petroleum Act: 1934 – The Petroleum Rules: 2002
- The Central Motor Vehicle Act: 1988 (Amended 2011)
- Energy Conservation Act 2010.
- The Water [Prevention & Control of Pollution] Act – 1974 (Amended 1988)
- The Air [Prevention & Control of Pollution] Act – 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules – 1982
- E-waste management rules 2016 □ Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)
- The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)
- The Noise Pollution Regulation & Control rules, 2000 (Amended 2010)
- The Batteries (Management and Handling) rules, 2001 (Amended 2010)
- Relevant Indian Standard Code practices

## Green Audit Details

Year	2017	2018
Full-grown trees	957	1125
Semi-grown trees	667	980
Bushes (including floriculture plants)	422	2490
Lawn	60000	75000
Total no. of incandescent lamps used earlier	250	0
LED tube lights	60	900
Solar System	307 KW	307
Rainwater Harvesting Pits	10	10
compostable solid waste	4500 Kgs	5500
non-compostable waste	900 Kgs	1200
vermicompost	800	1200
Four wheelers	40	65
Two wheelers	159	220
<b>Physical Structure</b>		
Classrooms	70	70
Staff rooms	12	12
Laboratories	50	50
Conference halls	4	4
Libraries	4	4
Administrative Office	13	13





**Tree Plantation**



**Environmental Awareness programme for Faculty & Staff member**



**Landscaping**



**Solar Panels**