



AMITY UNIVERSITY
MADHYA PRADESH

(Established by Ritnand Balved Education Foundation)

ENVIRONMENTAL AUDIT REPORT

(2017-2018)



Amity University Madhya Pradesh
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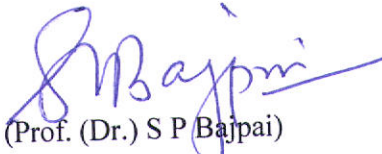
Established vide Government of Madhya Pradesh Act No. 27 of 2010

Dated: 04/07/2018


Note sheet


This is in reference to the office order Ref. No. AUMP/Letter/Audit/02/2018 dated 27/06/2018 issued by the Registrar, Amity University Madhya Pradesh.

I am hereby submitting the Environment 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

MADHYA PRADESH

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Ref. No. AUMP/Letter/Audit/02/2018

Dated: 27/06/2018

Office Order

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

S.No	Name	Designation
1.	Chairman Prof. (Dr.) S P Bajpai	HOI, Department of Environmental Science (EVS)
2.	Member Dr Swapnil Rai	Assistant Professor, Department of Environmental Science
3.	Member Dr Pankaj Mishra	Associate Professor, Amity School of Engineering & Technology (ASET)
4.	Member Secretary Mr. Umesh Kumar Sharma	Assistant Director Administration, AUMP

2. The audit team is requested 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. The audit report is to be submitted latest by 04/07/2018

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


Registrar



Acknowledgement

The Environmental 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 Environmental 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 Environment Audit.

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Executive Summary

An environmental audit is a type of evaluation intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. 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 purpose of the audit is to make sure that the practices followed in the campus are environment friendly.
- ❖ 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.
- ❖ To identify gaps and suggest recommendations to improve the environment quality status of the institution.

The methodology included 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 'Environmental conservation and sustainability' 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 Institutions/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.

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 with the help of the staff/student volunteers who are part of the ECO Club, the 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 also all stake-holders of the University.

1. Introduction

Environmental Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Environmental 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 Environmental 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 such Audit.

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 one 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 environment 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 create an awareness among the students to develop belongingness for the

environment.

- To promote the concept of sustainable development to minimize the exploitation of natural resources.
- To ensure that the development of the campus foster to the concept of environmental sustainability.
- 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.

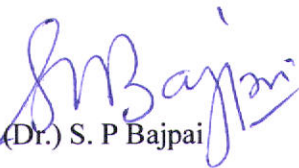
3. Methodology

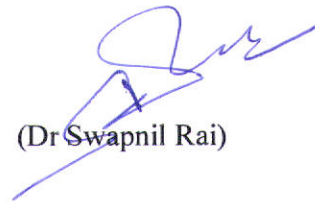
To perform environment audit, the methodology included different tools such as physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and recommendations. The study covered the following areas to summarize the present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

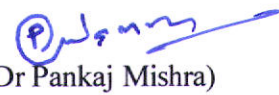
- Biodiversity conservation
- Water management
- Solid Waste management
- Green area management
- Campus facility and ambience

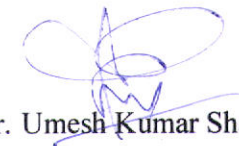
4. Environment Audit Assessment Team

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.	Dr Pankaj Mishra Member	Associate Professor, Amity School of Engineering & Technology (ASET)
4.	Mr. Umesh Kumar Sharma Secretary	Assistant Director Administration, AUMP


Prof. (Dr.) S. P Bajpai


(Dr Swapnil Rai)


(Dr Pankaj Mishra)


(Mr. Umesh Kumar Sharma)

5. Observations and Recommendations

The findings of the audit show that students, faculty members and staff of all institutions are aware about the importance of environmental conservation. It was also found that that best practices for the environmentally friendly campus such as plastic free campus, plantation, maintenance of garden area, solid waste management etc. are followed in the campus.

5.1 Biodiversity conservation:

The practices for the conservation of biodiversity are well adopted in the campus. This is done by planting local tree species, arranging food, and shed for the birds. This indicator addresses the extent of flora and fauna inside the campus and initiatives adopted by the University for maintenance and conservation. The different types of species of plants growing naturally and planted to provide sustainability to the man-made ecosystem.

A) Observations:

The university campus is lush green with plantations of ornamental plants, trees, shrubs, and herbaceous species. It has a well-maintained gardens and lawns.

Regular plantation of different types of plants is undertaken on important occasions like "World Environment Day, Raising day with the participation of staff and students.

The lush green campus of the environment is attracting the migratory bird particularly during the winter seasons. Adequate arrangements have been made to provide water and feed to the birds.

A botanical garden with about 50 species of medicinal plants has been set and will be upgraded.

b) Recommendations:

- Botanical garden may be expended with plants of ethnobotanical & medicinal importance
- Awareness programs and conferences should be organized to create an awareness among students and others for the need to conserve biodiversity and encourage plantation of multipurpose tree species with high carbon sequestration potential.

5.2 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.
- Gardens should be watered by using drip/sprinkler irrigation system to maximize water use efficiency.
- 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.
- The regular maintenance for all the drainage system and supply pipes should be adopted to avoid the wastage of water.

5.3 Waste Management

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

These sewage Treatment Plant are being maintained by authorized agency/S Green Wastetech located at Gurgoan (HR) under AMC.

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.

5.4 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 located 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 of 307-Kilowatt capacity to save energy. This likely to be enhanced further.

b) Recommendations

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

5.5 Rainwater harvesting in the campus

1. Amity University Madhya Pradesh was established in the year 2011 in 102 Acre of land. The requirement of water for the campus is being met by digging 10 Nos of Borewells as no water from Nagar Nigam is being supplied.
2. The borewells dug in the campus have not enough ground water to yield water continuously. Half numbers of the borewells dry up during continuous pumping. To recharge these existing borewells and to restrict the out-flow of rainwater. Amity University arranged to construct 10 Nos of Water Harvesting Pits of capacity 30,000 ltrs at various location (Water Catchment Area) to conserve rainwater. These pits have been provided enough filter media to restrict the mud/silt during rains.
3. This has also been applauded by Hon'ble High Court Gwalior MP. Local Newspaper cuttings are attached for ref.
4. The above has brought sea change in saving of rainwater and has thus improved the water level, of our borewells which helps us in meeting our water requirement in peak summers.

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 fostering sustainable environment and community development.

As part of environment 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

Particulars of flora inside the campus**DETAILS OF TREE GROWN NATURALLY**

Name of Plant	Neem	Dakhsni	Gulmohar	Peepal	Sheesham	Raimaza	Khair	Heesh	Babul Desi	Ber	Anar	Churail	Hingota	Ghot	Kareel	Shesho lato L	
Location	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Foresty																	
Block-A to Pump House No-1	16 4	11 5	78	4	5	14 0	37 7	54	8	6	2	5					95 8
Main Gate To Block- B(Back side)	22 2	41 2	16	2	1 7	29 1	55 3	65	9	1 0	1 1	25 4					18 63
Block-C to Pump House No-2	99	88 5	18		3	26 7	99	26	3 0	1 1		25	2	5 2			15 17
Pump House No-2 to Security Post	27	12 4				16 91	2	32	4	4		17	9	3			47 3
STP No-1Area	20	31			3	3			1	4							62
Security Post to New Hostel	12 0	18 8	11		3	40 2	47 1	53 5	5	5		5	58	19 8	6		20 07
New Hostel to Partition Zali	32 0	28 4	60		9	87	12 85	47 3	1 8	5		27 4	4	37	1 1	1 8	28 85
Total	97 2	20 39	18 3	6	4 0	12 81	29 47	11 85	7 5	4 5	3	2 5	62 8	24 6	7 2	1 8	97 65

AMITY UNIVERSITY MADHYA PRADESH, GWALIOR

DETAILS OF TREE PLANTED

Name of Plant	Amaltas	Gulmohar	Kushum	Bogambolia	Kanair	Neem	Sheesham	Kanji	Maulshree	Arjun	Champa	Cycus	Alustinia	Tikoma	Bottle Brush	Bargad	Peepal	Kadam	Kalendera	Dhak	Dalmoth	Oomar	Palm	Alustonia	Bustoniya	Ambla	Shahtoot	Total
Location	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Main gate to Block-A Jn trench side	10	9	9	16	12	4	8	10	1																			254
Main gate to Block-A Jn bundry side	10	8	6	14	6	20	4	3																				201
Black-A to Hostel gate sport Gd side	45	1			70	26	6			23	82	32	2	6	1	1	3	1										299
Black-A to Hostel gate Boundry side	1			12	11	84	13			3	43		24	4			3											308
Behind Block-A		5		2	18	40			1											10	2							78
BK-B/C Jn to BK-A Turning Hill side				90	33	33			10	17	88			19								1						286
BK-B/C Jn to BK-A Turning BK-B side				55	60	10			1	6	47			28														219
Behind Block-B																							13					13
BK-C Front side		4		68	105	30	4					12		10								4		8				245
Behind BK-C		6				28	7																					41
Chiller Plant to Bk-C Jn Chiller side			3	33	63	10				7	19			2								4						141
Chiller Plant to Bk-C Jn Ahuja side	7			15	43	6	2	2		37	21		22	15								14	4					188
Generator side					38					8		1																47

Alustonia Park	3			3			3	1		2									1			5		
				0															4			3		
Hostel JN to H1 Reception Hostel side	1	6		1	7	6	1	1		1											2	1	1	
	2				4																		4	
Hostel JN to H1 Reception STP side	1	4			1	2				3												1		7
	4				0	1																2		1
AIS Gate to H1 Reception Fencing side					5	1				1														4
						4				9														0
Hostel Plaza Area H1 side		2			1					2														1
					9																			5
Hostel Plaza Area H2 side					2																			1
																								0
New Hostel H3 Area	1				9	1						1												4
						1						9												9
H2 Hostel Park side	1	1			1					1														2
	1	1		3	4					4														5
					6																			9
H2 Hostel Sport Complex side	8	1			9																			3
		0																						1
Main Gate to Pump House No-2	3		4		1	1	5			5						1	1							2
	6				2	7				1														4
					3																			6
STP-II to Pump House No-2		1			2	4	4	3																3
					1		9	7																6
					4		3																	6
Pump No-2 to security Post 10					1	7	2																	2
					4	3	0																	3
					1																			6
Security Post 10 to Partition Zali					2	8	8																	4
					7	6	0																	4
					6																			2
By UGC Team																								5
																								5
On 16 Jul 19 by Order of Ho'ble Governer at various locations																								2
																								0
																								0
																								4
																								5
																								9
Total	1	5	6	2	4	7	6	1	4	1	5	2	6	4	1	3	1	4	8	1	2	2	9	4
	8	7	2	8	7	3	3	4	4	6	1	4	8	3	1	2	7	7	9	9	2	1	8	2
																								9
																								2



Rainwater Harvesting pits at different locations in the campus



Tree Plantation at the Campus



Bird habitat at Campus



Landscaping



Sewage Treatment Plants (STP) at the campus



Solid Waste Management



Campus View with Vegetation