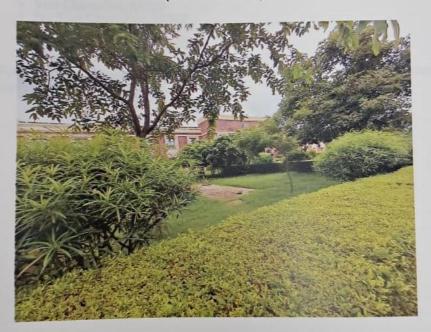


ENVIRONMENT AUDIT REPORT

(2023-2024)



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ENVIRONMENT AUDIT REPORT (2023-2024)

Acknowledgement

Environment Audit Assessment Team thanks the Hon'ble Pro Chancellor Amity University Madhya Pradesh for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to:

- Vice Chancellor, AUMP
- Pro Vice Chancellor, AUMP
- Registrar AUMPDirector Administration, AUMP

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

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Executive Summary

Concern about environmental degradation and realization of values of the environment are logical consequences of scholarly research, teaching and learning process. In its pursuit for improving environmental quality and maintaining 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 compliance with the applicable regulations, policies and standards to ensure that the development of the campus fosters the concept of environmental sustainability.
- ❖ To assess whether investments made in increasing awareness among students regarding electricity, biodiversity and the environment have helped the Institution
- ❖ 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 people 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. The specific objective 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, 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 also all stakeholders of the University.

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.

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 has been honored with the title of "Institution of Happiness 2024" by QS I-Gauge. As per QS Southern Asia ranking, Amity University Madhya Pradesh is ranked 278 under Southern Asia category and in Asia it comes under 851-900 Band. AUMP has been ranked No. 1 in Private University in Madhya Pradesh. Ranked between 201 – 300 Band in the Engineering category by National Institutional Ranking Framework (NIRF) India Ranking 2024. In the year 2023-24 AUMP Ranked 3rd in West Zone, under the category of Multidisciplinary Emerging University. Amity University Madhya Pradesh bestowed with award of "Excellence in Placement Award 2024" by ZEE MP & CG Education Excellence Conclave on 1st June 2024. Amity University has been ranked in between 1001 – 1500 Band overall and as per Quality Education it is ranked between 601-800 Band, as per Decent Work and Economic growth it is ranked between 610-800 Band, as per Gender Equality it is ranked in 1000+ Band and as per partnership for the goals the University is ranked in 301-400 Band.

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

Objectives of the Study

The main objective of the environment audit is to promote Environment Management and Conservation in the University Campus. The purpose of the audit is to identify, quantify, describe and prioritize the 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 of real concerns of the 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 fosters the concept of environmental sustainability.
- To assess whether investments made in increasing awareness among students regarding
 judicious use of electricity, biodiversity conservation, plastic free campus and
 environment have helped the Institution
- To establish baseline data to assess future sustainability by avoiding interruptions in environment that are more difficult to handle and their corrections requiring high cost.
- To bring out a status report on environmental compliance.

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 environmental management in the campus:

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

Environment Audit Team

S.No	Name	Designation
1.	Prof. (Dr.) Kuldip Dwivedi Chairman	Head, Department of Environmental Science (EVS)
2.	Prof. (Dr.) Swapnil Rai, Member	Professor, Department of Environmental Science
2.	Dr. Rwitabrata Mallick Member	Associate Professor, Department of Environmental Science
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Dr. Nidhi Shukla Assistant Professor, Department of Environmental Science

Dr. Abhishek Kumar Bhardwaj Assistant Professor,

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Mr. Umesh Kumar Sharma Deputy Director Maintenance, AUMP

Observations and Recommendations

The main findings of the audit show that, in general, all the institutions/departments and students are aware about the need for environmental protection at a general level. It was also observed that a number of best practices such as maintaining garden, planting trees in the campus, solid waste management, plastic free campus etc. are followed in the campus

Biodiversity conservation:

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 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.

Compulsory ENVS paper of 100 marks in the University Syllabus for all the students of all streams to develop Environmental Awareness.

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:

- Proposal for expansion of the botanical garden with more diversity of plants with economic importance.
- Organizing more community events, seminars and conferences in order to create
 awareness among students and others for the need to conserve diversity and encourage
 plantation of multipurpose tree species and high carbon sequestration potential.

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 improve the efficiency of its use.

a) Observations

The University is presently dependent on Borewells, which are presently 11 in numbers. The water is hard with an average prevailing TDS of 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 the above application for water supply has been forwarded to Nagar Nigam, Gwalior for supply of water with overall cost for laying dedicated pipe lines amounting to Rs 67 lakh has been deposited by the University. The work is yet to be completed.

Water is used for drinking purposes, 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 recycling water systems are necessary. Although the wastewater from the RO water purifier is used for gardening purposes, 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 a drip/sprinkler irrigation system to maximize water use efficiency.
- Rainwater harvesting systems need to be installed on the campus. This will not
 only provide an additional source of water for use, but it will also help in
 recharging the bore wells as well.

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 the following capacity: -

- (a) STP No -1 2.5 KLPD
- (b) STP No-2 1.60 KLPD

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 on the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste. Single side-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 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 of 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, printing cartridges, cardboard and furniture need to be recycled.
- Important and confidential papers after their validity to be sent for pulping.
- Use reusable resources and containers and avoid unnecessary packaging where possible.

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 landscape 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 an 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 K.watt capacity. To save energy. This is likely to be enhanced further

b) Recommendations

- 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.
- 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.
- Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
- Celebrate every year 5th June as 'Environment Day' and plant trees on this day to make the campus Greener.

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 11 Nos of Borewells as

no water from Nagar Nigam is being supplied.

2. The borewells dug in the campus do not have enough ground water to yield water

continuously. Half the 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 11 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.

Water Consumption in 2023-24

2023-24 - 1,09,500 KL

Plantation Data 2023-24

2023-24- 4698 Nos

New Pit/STP/Water Harvesting Data 2023-24

(i) No new pit constructed during 2023-24

(ii) STP-1 Cap 2.5 KLPD & STP-2 1.6 KLPD

(iii) Water Harvesting data

Harvesting Pits of Cap 30 KL - 11 Nos are available in the Campus.

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 show how the campus is going green. Few recommendations are added like installation of a 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 class room. 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.

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

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

AMITY UNIVERSITY MADHYA PRADESH, GWALIOR **DETAILS OF TREE PLANTED**

	_		_																							_		
Name of Plant	Amaltas	Gulmohar	Kushum	Boganbolia	Kanair	Neem	Sheesham	Kanji	Maulshree	Arjun	Champa	Cycus	Alustinia	Tikoma	Bottle Brush	Bargad	Peepal	Kadam	Kalendera	Dhak	Dalmoth	Oomar	Palm	Alustonia	Bustoniya	Ambla	Shahtoot	T o t a I
Locati	1	2	3	4	5	6	7	8	9	1	1	1 2	1	1	1 5	1 6	1 7	1	1 9	2	2	2	2	2	2 5	2	2	
Main gate to Block-A Jn trench side	1 1 0	9	9	1 6 1	2	4 4	8	1 0	1	0	1		5	4	ח	0	/	0	9	0	1		5	4	ס	6		2 5 4
Main gate to Block-A Jn bundry side	1	8	6	1 4 4	6	2	4	3																				2 0 1
Black-A to Hostel gate sport Gd side	4 5	1			7 0	2	6			2	8	3	2	6	1	1	3	1										2 9 9
Black-A to Hostel gate Boundry side	1			1 2 2	1	8	1			3	4		2	4			3											3 0 8
Behind Block-A		5		2	1 8	4 0			1											1 0	2							7 8
BK-B/C Jn to BK-A Turning Hill side				9	3	3	3		1	1 7	8			1 9					2 2			1						2 8 6
BK-B/C Jn to BK-A Turning BK-B side				5 5	6 0	1			1	6	4 7			2					1 2									2 1 9
Behind Block-B																							1					1
BK-C Front side		4		6 8	1 0 5	3	4					1 2		1					4				8					2 4 5
Behind BK-C		6				2 8	7																					4 1
Chiller Plant to Bk-C Jn Chiller side			3	3	6	1				7	1 9			2					4									1 4 1
Chiller Plant to Bk-C Jn Ahuja side	7			1 5	4 3	6	2	2		3	2		2	1 5				1 4	4									1 8 8
Generato r side					3					8		1																4

					8																							7
Name of Plant	Amaltas	Gulmohar	Kushum	Boganbolia	Kanair	Neem	Sheesham	Kanji	Maulshree	Arjun	Champa	Cycus	Alustinia	Tikoma	Bottle Brush	Bargad	Peepal	Kadam	Kalendera	Dhak	Dalmoth	Oomar	Palm	Alustonia	Bustoniya	Ambla	Shahtoot	T o t a
Alustonia Park	3			3			3	1		2														1 4				5 3
Hostel JN to H1 Receptio n Hostel side	1 2	6		1	7	6	1	1 2	1		1 2			9						9					2			1 6 4
Hostel JN to H1 Receptio n STP side	1	4			1	2				3				7										1 2				7
AIS Gate to H1 Receptio n Fencing side					5	1 4				1								2										4
Hostel Plaza Area H1 side		2			1 9			2			1 0 4										2				2			1 5 6
Hostel Plaza Area H2 side					2						7														2 9			1 0 8
New Hostel H3 Area	1				9	1 1						1 9		2									7					4 9
H2 Hostel Park side	1	1		3	1 4 6			1			2			9					1	5	8			1	2			2 5 9
H2 Hostel Sport Complex side	8	1			9									2					2									3
Main Gate to Pump House No-2	3 6		4	1 2 3		1 7	5			5 1						1	1			8								2 4 6
STP-II to Pump House No-2		1		2 1 4	4	4 9	3										4			5						1	1	3 6 6
Pump No-2 to security Post 10				1 4 1		7	2													2								2 3 6
Security Post 10 to Partition Zali				2 7 6		8	8																					4 4 2
By UGC Team																	5											5

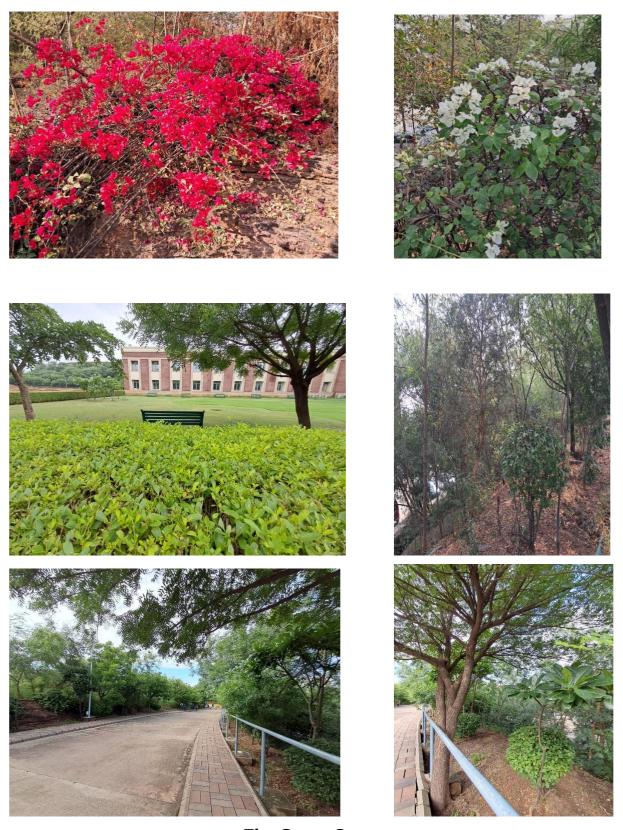
On 16 Jul 19 by Order of Ho'ble Governer at various locations																	2											2
Name of Plant	Amaltas	Gulmohar	Kushum	Boganbolia	Kanair	Neem	Sheesham	Kanji	Maulshree	Arjun	Champa	Cycus	Alustinia	Tikoma	Bottle Brush	Bargad	Peepal	Kadam	Kalendera	Dhak	Dalmoth	Oomar	Palm	Alustonia	Bustoniya	Ambla	Shahtoot	T o t a I
By Hon'ble Guest (Ex Dubai)																	1											1
Sep-19						2 5																						2 5
Total	1 5 8	6 7	2 2	1 4 7 8	7 2 7	6 0 3	1 9 3	4	1 4	1 7 6	5 2 1	6	4 8	1 1 3	1	2	3 7	1 7	4 9	8	1 2	1	2 8	2 7	9	1	1	4 5 9 2







Rainwater Harvesting pits at different locations in the campus



The Green Campus















Glimpses of Environment Friendly Campus









Sewage Treatment Plants (STP) at the campus