

ENVIRONMENTAL AND GREEN AUDIT REPORT

YEAR-2020-21



UMIYA KANYA MAHAVIDHYALAY,
Rangwasa Rau, Shri Umiya Dham Rangwasa
Indore,453331 Madhya Pradesh, India

CONDUCTED BY:



SABS INDIA



WE BUILDS A SOLID FOUNDATION FOR SAVING ENERGY

**90/2 Abhinav Nagar, Teen Imli Square, Behind Vishesh Hospital
Indore, Madhya Pradesh -452001 India**

Email Address : sabsind@yahoo.co.in , info@sabsindia.com

Contact number : 8236088801, 9826012991

THE AUDIT TEAM

External Audit Team		
Sr. No.	Name	Position
1	Mr. Sanjay Singh	BEE, Certified Energy Auditor, EA-1462
2	Mr. Rambabu Raghuvanshi	BEE, Certified Energy Auditor
3	Mr. Rameshwar Basedia	Energy Consultant
4	Mr. Hrishabh Mishra	Energy Consultant

Internal Audit Team		
1	Dr. Anupama Chhajer	Principal
2	IQAC Coordinator	Mrs. Sarita Sharma
3	NAAC Coordinator	Mrs. Nidhi Pal
4	Audit Team Member	Mr. Tufan Benal
5	Electrician	Mr. Sunil
6	Audit Team Member	Mrs. Sonali Sharma
7	Audit Team Member	Dr. Neha Sengar
8	Audit Team Member	Mr. Ravi Patidar

Acknowledgement

SABS INDIA is thankful to the **UMIYA KANYA MAHAVIDHYALAY** for their positive support in undertaking this intricate task of Green Audit. The field studies would not have been completed on time without their interaction and timely support. We are grateful for their co-operation during field studies and provision of data for the study. The field study of this audit was carried out on September 2018 to June 2019

The officials of **UMIYA KANYA MAHAVIDHYALAY** coordinated and helped to the audit team during the field study and measurement. **SABS INDIA** expresses special thanks to the following persons of **Umiya Kanya Mahavidhyalay**.

1	Dr. Anupama Chhajed	Principal
2	IQAC Coordinator	Mrs. Sarita Sharma
3	NAAC Coordinator	Mrs. Nidhi Pal
4	Audit Team Member	Mr. Tufan Benal
5	Electrician	Mr. Sunil
6	Audit Team Member	Mrs. Sonali Sharma
7	Audit Team Member	Dr. Neha Sengar
8	Audit Team Member	Mr. Ravi Patidar

And all other officers, technicians and staffs for the keen interest shown in this study and the courtesy extended.

We are thankful to the management for giving us the opportunity to be involved in this very interesting and challenging project.

We would be happy to provide any further clarifications, if required, to facilitate implementation of the recommendations.

SABS INDIA
Indore



MR. SANJAY SINGH
EA-1462
Certified Energy Auditor
M. Tech (Energy Management)

Certificate



SABS (INDIA)

www.sabsindia.com

Ref.No./SABS/GEAC/2020-21/230

Date:17/06/2021

Certificate

This is certify that “**Shri Umiya Kanya Mahavidhyalaya, Indore (M.P.)**” has conducted Energy Audit, Environment Audit and Green Audit in the academic year 2020 - 2021 to assess the green initiative planning, efforts, activities, implemented in the college campus like Plantation, Waste Management, Rain Water Harvesting, Plastic ban, Conservation of Energy, Energy Management and various Environmental Awareness activities. Sabs India Sales Corporation has verified campus data of **Shri Umiya Kanya Mahavidhyalaya, Indore Umiyadham Rangwassa- Rau, Indore (M.P.)**

This Energy Audit, Environment Audit and Green Audit are also aimed to assess impact of green initiatives for maintenance of the campus eco-friendly.



Mr. Sanjay Singh

Certified Energy Auditor, BEE

SABS INDIA SALES CORPORATION



WORKS :90/2 ABHENAV NAGAR, CHITAWAD RING ROAD, TEN IMALLI, INDORE

MOB.- +9198260-12991, +918236088801

E-MAIL- sabsind@yahoo.co.in sabsindia2018@gmail.com

List of Contents

Sr. No.	Topic	Page No.
1	Introduction	6-7
2	General Overview of The Concept of Land use	8-9
3	Air Quality	10-11
4	Water Management	12-14
5	Tree Diversity of College	15-25
6	Fauna Diversity	26-27
7	Energy Audit	28-29
8	Waste Management	30-31

1 CHAPTER

ABOUT THE COLLEGE

1.1 Introduction

Shri Umiya Kanya Mahavidyalaya has been founded with an objective to promote higher education among girls, who belong to rural areas in Madhya Pradesh and bordering states. They are imparted qualitatively optimum education at minimum fees. A great deal of emphasis is laid on inculcating in them a sense of responsibility and ethical values. Moreover, the students are taught various skills which grooms up their entrepreneurial skills to shape them up as self-employed individuals eventually. In addition to academic pursuits the students are also inspired to participate in various co-curricular activities and interact with other sports clubs. Industrial visits are also conducted impart the desired exposure to them.

In order to uplift the social stature of students, they are given empirical knowledge enabling them to understand the realistic approach towards all the challenges that they confront in their lives. It is quite evident that educating a girl is akin to educate the entire family. Keeping in view the fulfilment of the cherished ambition of students, the right kind of platform is created. It is one of the prime objectives of the institute to promote Indian traditional values and in view of this aim regional festivals are celebrated at the college frequently, every day at Shri Umiya Kanya Mahavidyalaya starts with morning prayers. In keeping with much valued cultural ethics and to maintain equanimity, a decent dress-code has been designed..

(A) Audit Framework

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development. Green Audit is a planned identification, data analysis and reporting of mechanisms of environmental diversity. The “Green Audit” aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly environment.

(B) Objective Of The Green Audit

The institute, with the advice of the External Quality Assessment Cell (IQAC) has set up an environmental quality assessment Team that aimed at performing the green audit of the College. The main objectives of the audit are:

- To fulfill the Institution’s responsibility towards reducing carbon footprint and contribute to environmental protection.
- To promote Environmental Consciousness and Responsibility among students.
- To implement green practices consistently and effectively towards creating a sustainable campus.
- To monitor and evaluate the green practices, towards a sustainable campus
- To generate innovative green practices, promoting the spirit of eco-innovation among students.

(C) Methodology

The Green Audit taken up by UMIYA KANYA MAHAVIDHYALAY has been divided into Three stages:

- Data/ /Observation
- Analysis of finding
- Recommendations

(D) Division Of Audit

For better investigation and pinpoint observation our team has divided this work in 6 parts

2 CHAPTER

GENERAL OVERVIEW OF THE CONCEPT OF LAND USE

2.1 Introduction

Land use refers to man's activities and the various uses which are carried on and derived from land. Viewing the earth from space, it is now very crucial in man's activities on natural resource. In situations of rapid changes in land use, observations of the Earth from space give the information of human activities and utilization of the landscape.

Remote sensing and GIS techniques are now providing new tools for advanced land use mapping and planning. The collection of remotely sensed data facilitates the synoptic analyses of earth system, functions, patterning, and change in the local, regional as well as at global scales over time. Satellite imagery particularly is a valuable tool for generating land use map.

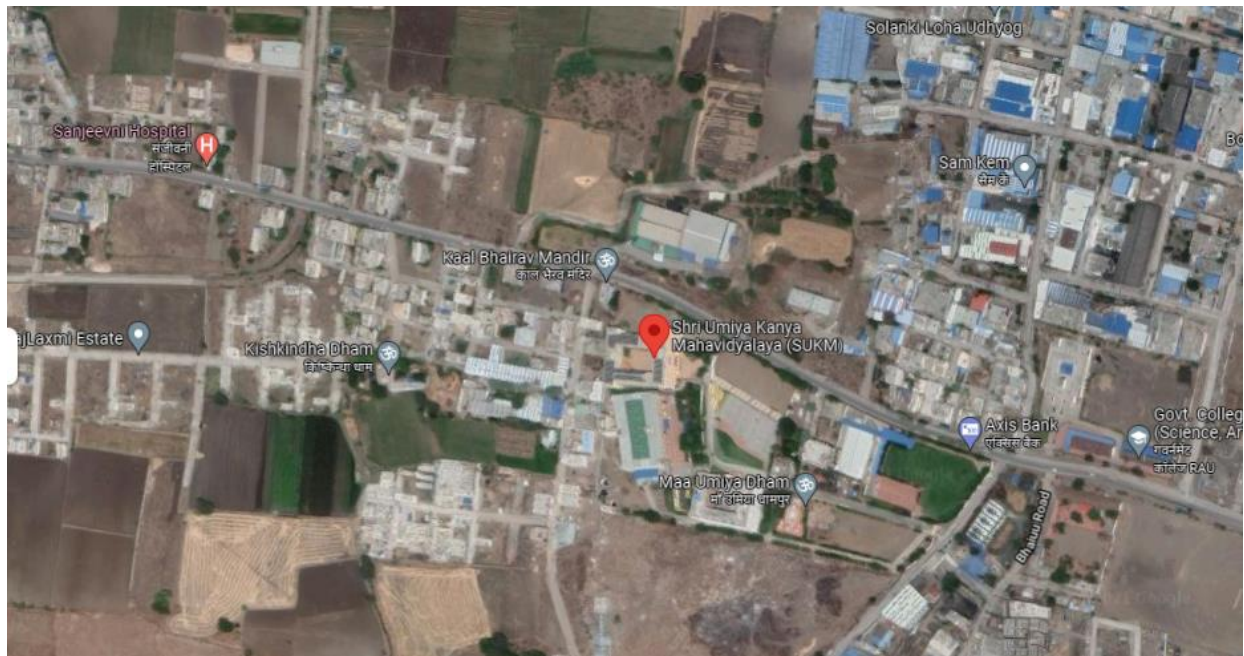


Figure 1: UMIYA KANYA MAHAVIDHYALAY Satellite View

2.2 Methodology Adopted For Land Use Mapping

Three types of data that are GPS points, field survey data and Google earth data for Geo referencing have been used in this study. Land use map of the study area have been prepared using the above three types of data with the help of ArcGIS Pro software.

2.3 Data Processing And Analysis

Land use map preparation is executed through the following steps:

Acquisition of data, Geo-coding and Geo referencing of satellite imageries by extracting the ground control points. Supervised classification was carried out with the aid of ground truth data collected during field survey. Scanning and digitization of maps and editing of all the Geo referenced maps were done using GIS. Data manipulation and analysis and linking the spatial data with the attribute data for creation of topology was carried out using GIS software. Creation of GIS output in the form of land use map showing various land use have been prepared.

Therefore, attempt has been made in this study to map land use for Geography Department of with a view to detect the land consumption in the built-up land area using both remote sensing and GIS techniques.

2.4 Geographical Location With Campus Map In Scale

The college has a **sprawling pollution-free campus spread over 14 acres** of land in the heart of District. It has an ideal geographical location with the approximately to the important cities of the region The college is located at 2 km from Rau Railway Station and 18 km from Indore airport. Scaled image of college campus is shown. Green color in Map is representing green area. The Google aerial view of College Campus has been shown in figure.

3 CHAPTER

AIR QUALITY AUDIT

3.1 Data/Observations

Air quality in the academic college is very significant for creating good educational atmosphere as well as for the health of the students, faculty, staff and other stake holder of the institute. College is exposed to various atmospheric pollutants from vehicles as well as by other external means of urban areas, but mainly turn proves us that vehicles may contribute to high carbon dioxide emission.

Table 1 : Air Quality Data of The Location of Past Three Months On Selected Date

Date	PM ₁₀	PM _{2.5}	No _x	CO	SO ₂	NH ₃	O ₃
01 April 2021	164	42	20.6	NA	15.2	9.9	85.4
08 April 2021	145	45	19.2	NA	9.6	12.7	81.3
15 April 2021	124	43	24.6	NA	14.6	11.7	86.4
22 April 2021	125	54	15.8	NA	12.8	11.5	76.6
30 April 2021	130	58	17	0.41	13.6	10.8	73.3
01 May 2021	169	41	12.7	NA	14.5	19.2	58.1
08 May 2021	172	71	22.9	1.32	33.2	26.5	47
15 May 2021	93	39	13.6	0.5	13.1	15.3	45.5
24 May 2021	157	36	15.9	0.65	10.7	21.6	52.6
31 May 2021	79	24	10.2	NA	11.3	13.7	106.9
01 June 2021	98	15	8.6	NA	11.3	26.8	66.3
08 June 2021	83	26	11.7	NA	8.8	15.2	NA
15 June 2021	102	18	19.2	NA	7.4	13	66.1
22 June 2021	101	33	13.9	0.85	9.8	5.9	NA
30 June 2021	57	22	20.9	NA	8.9	19.6	66.3

3.2 Finding

From the above study on air quality during these times air quality is Moderate most of the times, sometimes satisfactory and a few times good, which indicates medium pollution most of the times.

Study shows the changes in air quality due to regulatory parameters which includes Sulphur di oxide, nitrogen per oxide and particle matter.

PM₁₀ is **more than standard value on some of the days**. All other parameters were within permissible range air quality index inside and around the college campus was better than other parts of the city, mainly because of the greenery & also students prefer public transport to

commute. Most students use public transport for commuting since the college is well connected by public transport services as local bus service. Use of Bicycles and public transport is encouraged by the institute amongst the students., faculty members, office staff residing nearby are encouraged to come by bicycles, or public transport which help in reduction of the release of carbon-dioxide in the campus.

3.3 Observations & Recommendation

College has campus Covered with trees, number of garden and greenery in campus beautify the campus and automatically neutralize carbon footprint. College has already taken some steps like Plantation of local and common plant species, arranges special programs by inviting the eminent personalities for environmental consciousness of teaching and nonteaching staff in college as well as student, cleaning and beautification of our campus by various activities through various units. The college should plant different types of large number of trees in the campus, this greenery in campus helps to neutralize the carbon products generated. There should be ban on the entry of vehicles in college premises.

4 CHAPTER

WATER AUDIT

4.1 Introduction

Water is a natural resource, all living matters depend on water. While freely available in many natural environments, in human settlements potable (drinkable) water is less readily available. We need to use water wisely to ensure that drinkable water is available for all, now and in the future. A small drip from a leaky tap can waste more than 180 liter of water in a day. It is therefore essential that any environmentally responsible institution should examine its water use practices. Water audit improves the knowledge and documentations of distribution system:

- It leads to reduce water losses.
- It improves financial performance.
- Efficient use of existing water.

The concerned auditor investigates the relevant method that can be adopted and improved to balance the demand and supply of water.

4.2 Observations :

Questioner for data collection

1) What are the uses of water in college?

Answer- Drinking, Washing, Toilet, Lab, Garden, Canteen, Hostel, Staff quarter.

2) What are the sources of water in college?

Answer-The main source of water is borewell and Municipality water.

3) No. of motors used for pumping water ?

Answer- There are two pumps in college both are in working condition. One has the capacity 7.5 HP and other have 2.5 HP.

4) Is there any water collection and recharge system.

Answer- No, there is no water collection and recharge system for waste water coming from water cooler and taps.

5) Is there any Wastage of water?

Answer- No, there is no major wastage of water, 1. No leakage from Taps, 2. No wastage from over flowed tanks 3. Some wastage from water cooler.

6) Is there any treatment plant for the lab water?

Answer-No there is no treatment plant for the lab water .As water drains out in a pit and goes to ground.

7) What is the Capacity of tank?

Answer- 10000 liters each approximately.

8) No. of tanks in the Campus?

Answer- There are 4 such tanks.

9) Any water used in agriculture purpose.

Answer-Yes in garden.

10) Does college harvest rain water?

Answer- No, there is no rain water harvesting system in Campus.

11) Is drip irrigation used to water plants outside?

Answer- No

12) Some idea for how your college could save more water.

Answer -a) Stop leakage of water from taps.

b) Use minimum water needed for daily needs.

c) Immediate turns off the, taps after washing hands.

d) Renew water ball for water tanks to 100% prevent the waste of water.

Saving water helps to preserve our environment. It reduces the energy required to process and deliver water, which helps in conserving resources.

4.3 Key findings:-

1. Main water uses in the campus.

- a) Garden
- b) Lab
- c) Cleaning
- d) Drinking
- e) Toilet
- g) Washing

2) No water treatment system in Place = 0

5) No. of water pump = 2

6) Municipal water connection - Yes

7) Using water from own well – Yes

- 8) No. of water tank for water storage = 4
- 9) Amount of water stored =10000 Liters each.

4.4 Reason for water wastage –

- 1) There is no water consumption monitoring system in the college campus.
- 2) The college does not have waste water treatment plant for waste water, generated from laboratories, canteen, hostel, Toilets.
- 3) There is no rain water harvesting system in building. Need of this system in every building of college.
- 4) Automatic switching system is not installed for pump sets used for overhead tank filling.

4.5 Recommendations-

- 1) Remove old taps and install sensitive taps if possible.
- 2) Drip irrigation for gardens and vegetable cultivation can be initiated.
- 3) Establish rain water harvesting system for each building.
- 4) Water treatment system should be installed for labs.
- 5) Awareness program on water conservation to be conducted.
- 6) Install display boards to control over exploitation of water.

5 CHAPTER

TREE DIVERSITY OF COLLEGE CAMPUS

5.1 Objective –

The main objective of green audit is to enlist and enumerate the plant diversity of college campus. This is a continuous process and helps in maintenance and conservation of flora of campus.

This study was undertaken with following objectives –

- (a) To identify the plant species growing in the area.
- (b) To make a habit wise list along with their frequency.
- (c) To generate basic data for further reference.
- (d) To create awareness among students.

5.2 Methodology

Phyto diversity of campus was studied by the investigative team. It was divided into parts. Different team visited these areas and noted name and number of plant species. This data was then cumulated and tabled.

5.3 Presentation of Data

The data was categorized on the basis of habits. Grasses and sedges were innumerable so their names were mentioned. In addition to angiospermic plants, other groups were also represented for eg. algae (Diatoms, Oscillatoria, Spirogyra, Vaucheria), fungi, bryophytes (Riccia, Polytrichum, Cyathodium), Pteridophyta (Pteris), gymnosperms (Cycas, Juniperus, Araucaria, Thuja)




5.4 Result

This campus harbours a rich diversity of plants. It is an old institution \ and hence some members of natural vegetation are still present here. Some plants are introduced for avenue purpose and are combined to the road facing area.




Table 2: List of Trees

S.No	Plant Species	Specification
1	Pongamia pinnata A.Cunn. 	Family- Papilionaceae Hindi name-Karanz English name- Indian Beach No. of trees - 8
2	Polyalthia longifolia Thw 	Family-Annonaceae Hindi name- Ashok English name- False ashok No. of trees - 68
3	Azadirachta indica A. Juss. 	Family-Meliaceae Hindi name-Neem English name- The Margosa Tree No. of trees - 115

4	<p><i>Ailanthus excelsa Roxb.</i></p> 	<p>Family-Simaroubiaceae Hindi name-Mahaneem, Mahrukh English name- Heavens Tree</p>
5	<p><i>Dalbergia sissoo Roxb</i></p> 	<p>Family-Papilionaceae Hindi name-Shisham English Name- No. of trees - 4</p>
6	<p><i>Cassia fistula L.</i></p> 	<p>Family- Caesalpiniaceae Hindi name-Amaltas English name- Indian Laburnu No. of trees - 4</p>
7	<p><i>Emblica officinalis Gaertn.</i></p>	

		<p>Family-Euphorbiaceae Hindi name-Aola, Amla English name-Emblic myrobolan No. of trees - 2</p>
8	<p><i>Moringa oleifera Lam</i></p> 	<p>Family-Moringaceae Hindi name-Surjana falī English name- Drumstick tree No. of trees - 2</p>
9	<p><i>Delonix regia (Boj.) Rafin.</i></p> 	<p>2.1 Family-Caesalpinaceae Hindi name-Gulmohar English name-Flamboyant tree No. of trees - 3</p>
10	<p><i>Mangifera indica L.</i></p>	

		<p>Family-Anacardiaceae Hindi name-Aam English name-Mango No. of trees -14</p>
<p>11</p>	<p><i>Terminalia catappa Linn.</i></p> 	<p>Family-Combretaceae Hindi name-Jungli Badam English name- Indian Almond No. of trees - 14</p>
<p>12</p>	<p><i>Ficus benghalensis L.</i></p> 	<p>Family-Moraceae Hindi name-Bargad, Barh English name- The Banyan No. of trees - 4</p>
<p>13</p>	<p><i>Ficus religiosa Linn.</i></p>	

		<p>Family-Moraceae Hindi name-Pipal English name- No. of trees - 8</p>
14	<p><i>Murraya koenigii L.</i></p> 	<p>Family-Rutaceae Hindi name-Meetha neem, Kadai patta English Name- No. of trees - 40</p>
15	<p><i>Psidium guajava L.</i></p> 	<p>Family-Myrtaceae Hindi name-Amrood English name-Guava No. of trees - 10</p>
16	<p><i>Santalum album L.</i></p>	

		<p>Family-Santalaceae Hindi name-Chandan English name-Sandal Wood tree No. of trees - 3</p>
17	<p>Thevatia neriifolia</p> 	<p>Family-Apocynaceae Hindi name- Peela Kaner English Name- Yellow Oleande No. of trees - 22</p>

Other than these there are other trees in the campus. The list of the trees are given below:

Table 3 : Various Types of Trees in College

<p align="center">Details of various type of Tree in College Campus</p>				
Sr. No.	Scientific Name	Varnacular Name	Family	Number
1	Azadirachta Indica	Neem	Meliaceae	115
2	Mangifera Indica	Mango	Anacardiaceae	14
3	Hevea brasiliensis	Rubber Tree	Euphorbiaceae	3

Details of various type of Tree in College Campus

Sr. No.	Scientific Name	Varnacular Name	Family	Number
4	Cassia Fistula	Amalatas	Fabaceae	4
5	Ficus bengalensis	Banyan	Moraceae	4
6	Fiscus Religiosa	Peepal	Moraceae	8
7	Saraca Asoca	Ashoka Tree	Fabaceae	68
8	Artocarpus Heterophyllus	Kathal	Moraceae	39
9	Nyctanthes arbor tristis	Parizat	Oleaceae	5
10	Tabernaemontana divaricata	Chandni		6
11	Annona reticulata	Sitafal	Annonaceae	14
12	Madhuca Longifolia	Mahua	Sapotaceae	2
13	Manilkara Zapota	Chikoo	Sapotaceae	38
14	Ficus racemosa	Gular	Moraceae	1
15	Cocos nucifera	Coconut Tree	Arecaceae	1
16	Millettia Pinnata	Karanz	Fabaceae	8
17	Crescentia Cujete	Kalabus	Bignoniaceae	1
18	Senna Siamea	Kasood	Fabaceae	11

Details of various type of Tree in College Campus

Sr. No.	Scientific Name	Varnacular Name	Family	Number
19	Psidium Guajava	Guava	Myrtaceae	10
20	Wodyetia Bifurcata	Foxtail Tree (Palm)	Aracaceae	38
21	Syzygium Cumini	Jamun	Myrtaceae	4
22	Neolamarckia Cadamba	Kadamb	Rubiaceae	3
23	Areca Catechu	Arica Palm	Aracaceae	2
24	Delonix Regia	Gulmohar	Fabaceae	3
25	Prunus Dulcis	Almond Tree	Rosaceae	14
26	Cascabela thevetia	Kaner	Apocynaceae	22
27	Dalbergia Sissoo	Sheesam	Fabaceae	4
28	Murraya Koenigii	Sweet Neem	Rutaceae	40
29	Santalum album	Chandan tree	Santalaceae	3
30	Magnolia Chamaka	Michelia Champaka	Magnoliaceae	24
31	Phyllanthus emblica	Amla Plants	Phyllanthaceae	2
32	Morus Nigra	Sahtoot	Moraceae	17
33	Ficus benamina	Ficus	Moraceae	175

Details of various type of Tree in College Campus				
Sr. No.	Scientific Name	Varnacular Name	Family	Number
34	Aegle Marmelos	Beal Patra	Rutaceae	8
35	Moringa Oleifera	Surajana Fali	Moringaceae	2
TOTAL				713

Other than these trees the campus hosts a long list of shrubs, Grasses. Details of which are given in following tables respectively.

Table 4 : List of Shrubs grass and bael

Sr. No.	Scientific Name	Varnacular Name	Family	Number
1	Murraya Paniculata	Madhu Kamini	Rutaceae	3
2	Cestrum Nocturnum	Ratrani	Solanaceae	1
3	Gardenia Jasminoides	Gandhraj	Rubiaceae	1
4	Hibiscus Rosa Sinensis	Gudhal	Malvaceae	2
5	Ficus retusa	Ficus retusa	Moraceae	86
6	Melaleuca bracteata	Golden Battelbrush	Myrataceae	100
7	Plumeria Pudica	Naag Champa	Apocynaceae	1
8	Bouganvillea Spectabilis	Bogan Belia	Nuctaginaceae	5
TOTAL				199

1. Details of various type of Grass in College Campus				
Sr. No.	Scientific Name	Varnacular Name	Family	
1	Achnatherum brachyactum	Puna Grass	Poaceae	
2	Cynodon dactylon	Selection grass	Poaceae	
2. Details of various type of Bael in College Campus				
Sr. No.	Scientific Name	Varnacular Name	Family	Number
1	Jasminum Sambac	Mogra Bael	Oleaceae	80
2	Mandolia	Mandolia Bael		2
TOTAL				82

Recommendations-

- Geo tagging of all trees should be done.
- Students should be assigned plants to take care for.
- Each and every tree should be well documented.

6 FAUNA DIVERSITY

6.1 Introduction

Biodiversity is the part of the campus. A rich biodiversity not only provides the shelter to many species around the college but also take us closer to the nature and for a student it is very important to connect to nature at every level. Umiya Kanya Mahavidhyalay is home to many different species around the campus. It has a very rich biodiversity. It consist of the following different animals in the campus-

a) Family Bufonidae

- i. Common Toad (*Duttaphrynus Melanostictus*)

b) Family Dicroglossidae

- i. Common Bull Frog (*Hoplobatrachus Tigrinus*)
- ii. Common Skittering Frog (*Euphlyctis Cyanophylictis*)
- iii. Burrowing Frog (*Sphaerotheca Braviceps*)

c) Family Rhacophoridae

- i. Common tree frog (*Polypedates maculatus*)

d) Lizard Family

- i. House wall lizard (*Hemiductylus flaviviridis*)
- ii. Common Bark Gecko (*Hemiductylus leschenaultii*)
- iii. Brahmini (*Lygosoma punctata*)
- iv. Many keeled grass skink (*Eutrophis carinata*)
- v. Goh or Goyra or Monitor lizard (*Varanus bengalensis*)
- vi. Girgit or Garden lizard (*Calotes versicolor*)

e) Reptiles Family

- i Indian Rat Snake – (*Ptyas Mucosa*)
- ii Cobra – (*Serpentis*)

f) Birds in the Campus

Various type of birds are also present in the campus. List of all the birds in the campus is given below:

Table 5 : List of all the Birds in the campus

S. No.	Common name	Scientific name
1	Crow	Corvus Corax
2	Pigeon	Columbia livia
3	Myna	Acridotheres
4	Nightingale	Luscinia megarhynchos
5	Humming Bird	Trochilidae
6	Sparrow	Passeridae
7	Eagle	Accipitridae
8	Cuckoo	Cuculidae
9	Hawk	Accipitridae
10	Kite	Milvus migrans
11	Owl	Strigiformes
12	Dove	Columbidae

6.2 Observations and Recommendations

- Biodiversity of the campus is very rich.
- Maximum possible animals should be identified.
- All the identified animals should be well documented.
- Students should be aware about the fauna diversity of the college.

7 ENERGY AUDIT

Energy Audit is an effective means of establishment present efficiency levels and identifying Potential areas of improvement in energy consumption.

Energy audit of utility systems largely helps, Which are given below:

- Reducing the energy consumption with resultant reduction in electricity bills.
- Audit involves data collection, data verification and detailed analysis of the data.
- The analysis leads to recommendations, which are short term (with minimum investment), medium term (with moderate investment) and long term (with capital expenditure).

The cost benefit analysis of various energy conservation proposals enables managements to take decisions regarding implementation schedules.

Here we are concerned about alternate energy as well as present use of energy.

7.1 Data/Fact

Alternate Energy initiatives such as:

Power requirement of the Institution met by the renewable energy

Table 6 : Savings by Solar System installed in campus

Capacity of Solar System Installed in Campus					75 KW
Month	Total units consumed	Total units supplied	Units generated by solar	Per unit energy charges	Saving
	KWH	KWH	KWH	Rs	Rs
Jan-21	4589	1264	3325	7.25	24106.25
Feb-21	4791	1330	3461	7.25	25092.25
Mar-21	11642	4337	7305	7.25	52961.25
Apr-21	10027	5516	4511	7.25	32704.75
May-21	4687	1328	3359	7.25	24352.75
Jun-21	4497	1219	3278	7.25	23765.5
Total Units (KWH) generated by solar			25239	Total Savings in Rs.	182983

7.2 Finding

Table 7 : Light and Fan Details

Total lighting load	Percentage lighting through LED bulbs	Percentage lighting through Others sources
20.91 KW	66%	34%
Total Fan Load	Percentage Fan load by BLDC Fans	Percentage Fan through Others type of Fans
72.98 KW	0%	100%

7.3 Recommendation

- Power by renewable energy sources must be added in campus.
- LED lights should be used at all places.
- BLDC Fans should be used instead of conventional ones.

Note – We appreciate use of LED lights at some places in the campus.

8 WASTE AUDIT

8.1 Solid waste

- **Fact –**

Waste is produced by all types of routine activities carried out in the college that includes waste papers, parts of trees, leaf, poly bags plastics, glass, food products, etc.

- **Finding-**

Reduce-Reuse-Recycle is the root of sustainable development and qualitative human life with green environment, college strongly believes in this philosophy.

Reuse: Reuse of waste materials and recycling of those

Recycle: Organic waste material like parts of trees, leaf litters collected & dump in compost pits. This compost pit is in Botany Dept. This waste convert is to compost & reuse as a manure in garden for campus.

The waste papers from college centrally collected answer sheets and question papers from Autonomous Dept. Practical records collected from science laboratory. Newspapers and magazines from library, etc. The Institute has outsourced a Vendor to dispose of all the Answer Sheets, News Papers and other Paper Material. The Vendor recycle the paper as per the agreed the vendor. All paper waste given to vendors for recycling at regular intervals.

The waste is separated at each level and source. Throwing the waste anywhere is strictly prohibited. Usage of plastic bags is discouraged within the premises of the College. Dustbins are provided throughout the campus. The administrator in each building confirms that the waste in each floor is collected at selected time to time. The staff in each floor collects, clean, segregates and compiles the waste in the Green & Blue dustbins provided at each floor. The floor dustbins are covered and easily portable. Dry garbage from college campus collected by hour keeping staff from different collection point (from different lab, office, hostel.) Indore Municipal Corporation has system to collect the garbage daily from the Institute campus solid waste. The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and environment to support economic development and superior quality of life. The entire campus is duly cleaned regularly by sweepers and cleansing works.

8.2 Liquid Waste

Well-constructed drainage system leading to the IMC constructed chambers is there in place within the campus. Liquid waste is duly discharged by means of underground well laid pipe lines. But the college does not have waste water treatment plant for waste water, generated from laboratories, canteen, hostel, Toilets.

- **Recommendations for Liquid Waste Management:** Water Treatment System should be Placed in college campus.

8.3 E-waste

E-waste: The E-waste is collected separately than the other type of waste generated in the campus. Separated E-waste is deposited in the separate box provided for the same purpose.