

GREEN AUDIT REPORT YEAR 2022-23



**GOVT. SHYAM LAL PANDAVIYA COLLEGE, MORAR,
DISTT. GWALIOR (M.P.)**

CONDUCTED BY:

SABS ENERGY ENVIRO PVT.LTD.

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: sabsindia2018@gmail.com,

Contact number : 9826012991

THE GREEN 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. Rahul Goyal	Energy Consultant

Internal Audit Team		
1	Principal	Dr. R.K.S. Sengar
2	IQAC & NAAC Coordinator	Dr. Sadhna Shrivastava
3	Committee Member	Dr. Rachna Joshi (HOD Zoology)
4	Committee Member	Dr. Manisha Deshpandey (Associate Prof)
5	Committee Member	Dr. B.B. Gupta (Asst. Prof. Botany-Dept.)
6	Committee Member	Dr. Nisha Tomar (Asst. Prof. Botany)
7	Committee Member	Dr. Muzeeb Khan, Asst. Prof. Chemistry - Dept.
8	Committee Member	Ms. Shaily Arya (Lab. Attendant)

Acknowledgement

Sabs Energy Enviro Pvt.Ltd. is thankful to the Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior (M.P.) 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 22-23

The officials of Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior (M.P.) coordinated and helped to the audit team during the field study and measurement. Sabs Energy Enviro Pvt. Ltd. expresses special thanks to the following persons of Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior (M.P.)

Internal Audit Team		
1	Principal	Dr. R.K.S. Sengar
2	IQAC & NAAC Coordinator	Dr. Sadhna Shrivastava

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 ENERGY ENVIRO PVT.LTD.



Mr. Sanjay Singh

A P: Indian Green Building Council Green Building Consultant

EA 1462 Bureau of Energy Efficiency

Ministry of Power Govt. of India

GREEN AUDIT Certificate



This is to certify that Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior (M.P.) has conducted, Green Audit in the academic year 2022 - 2023 to assess the environmental initiative planning, efforts, activities, implemented in the college campus like Plantation, Rain Water Harvesting, Plastic ban, Conservation of Energy, Energy Management and various Green Awareness activities. **Sabs Energy Enviro Pvt. Ltd.** has verified campus data of Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior (M.P.) This Green Audit are also aimed to assess impact of environmental development initiatives for maintenance of the campus eco-friendly.

Mr. Sanjay Singh

Handwritten signature of Mr. Sanjay Singh.



A P: Indian Green Building Council Green Building Consultant
EA 1462 Bureau of Energy Efficiency
Ministry of Power Govt. of India

Save Energy save Nation



Table of Contents

CHAPTER: 1.....	8
ABOUT THE COLLEGE	8
Goals & Objective:	8
1.1 Audit Framework.....	9
1.2 Objective of the Green Audit	9
1.3 Methodology.....	9
1.4 Division of Audit.....	10
CHAPTER - 2.....	11
GENERAL OVERVIEW OF THE	11
2.1 Introduction	11
2.2 Methodology Adopted for Land Use Mapping	11
2.3 Data Processing and Analysis.....	12
2.4 Geographical Location with Campus Map in Scale	12
2.5 Data Processing and Analysis.....	12
CHAPTER - 3.....	13
TREE DIVERSITY OF COLLEGE CAMPUS.....	13
3.1 Objective:	13
3.2 Methodology	13
3.3 Presentation of Data	13
3.4 Result.....	13
3.5 Flora of Shyam Lal Pandaviya Govt. Post Graduate College, Morar, Gwalior (MP)	19
3.6 Recommendations-	23
CHAPTER - 4 FAUNA DIVERSITY	30
4.1 Introduction	30
4.2 Observations and Recommendations.....	31
CHAPTER - 5.....	38
CARBON FOOT PRINT.....	38
CHAPTER -6.....	40
WASTE MANAGEMENT.....	40
CHAPTER -7.....	42

List of Table

Table 1. List of Tree	14
Table 2. Various Types of Trees in College	19
Table 3. Details Of Shrubs And Climbers In College Campus	20
Table 4. List of tree of cultivated herbs in college campus:	21
Table 5. Wild Herbaceous Plants	22
Table 6. List of all the Birds in the campus	31

List of Figure

Figure 1. Shyamlal Pandaviya Govt. Post Graduate College Morar, Gwalior view	10
Figure 2. Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior Satellite View	11
Figure 3. Main Front Garden of college	25
Figure 4. Plant/ Trees at Garden of college	26
Figure 5. Plantation activity at college campus	40

CHAPTER: 1

ABOUT THE COLLEGE

Shyamlal Pandaviya Govt.PG College, Morar was established in 1970 with aim to impart education of Science to students of rural and semi urban area .Now it become multidisciplinary co-education college and acquired renowned position in rural area of Morar. The college is recognized by UGC under 2f -12B act 1956 .It is affiliated to Jiwaji University Gwalior. The college is enriched with highly qualified and experienced faculties, sports Officer and Librarian. Total 7 UG program,9 PG program ,one PG diploma program in yoga and 5 Ph.D .Program were running in the college. The college has two NCC units, and one NSS units. The library of the college is well structured with E-Library facility. It has 24 well spacious and well ventilated room out of which five smart class room well equipped with ICT facilities. The students are punctual, sincere and participated in many extracurricular activities and sports .They also learn human values through various awareness rally and camps of NCC and NSS units outside the campus. The total strength of college is 4597(4320boys and 277 girls) The aim of the college is to produce well educated, self dependent, and socially responsible student for future.

Vision:

- Shyamlal Pandviya Government P.G. College, Morar, Gwalior, seeks to be an excellent learning center of high academic standards with more and more access, equity, excellence and employability by using all high-quality modes of teaching and learning for overall development of students.

Mission:

- To ensure Inclusion and Access of Quality education.
- To help with all possible means to underprivileged and differently able students.
- To Provide an Environment of learning that enhances dissemination of knowledge.
- To enhance the holistic approach aiming at integration of traditional knowledge with innovative and advanced practices.
- To impart Social, Environmental and Gender sensitivity in students through extension outreach.
- To help students to attain Moral, Emotional and National Integrity.

Goals & Objective:

- To develop new academic courses and revise current academic programmes to keep place with the changing scenario.
- To vocationalize courses.
- To enhance and promote excellence in teaching and learning.
- To encourage and support innovation in teaching and learning.
- To develop a systematic approach for the success of students.
- To create an ICT infrastructure that is supportive of academic and administrative needs.
- To promote computer competency for students and faculty and staff.
- To provide supportive services to students.
- To increase awareness of student support services, policies and campus events among students.
- To maintain an administrative information system that is useful integrated and user friendly.
- To promote communication, cooperation and shared decision making among

administrative and academic departments.

- To support and encourage staff for personal academic growth.
- To Support & encourage students for co-curricular activities.
- To provide a clean accessible environment, this meets the needs of student's faculty and staff.
- To promote a spirit of community service among students, faculty and staff.
- To ensure and sustain the institutional standards to highest level.
- The goals and objectives are communicated to students and parents by following means
- The mission and vision statements are printed in prospectus.
- At the time of counseling for admission these are explained to parents.

1.1 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.

1.2 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.

1.3 Methodology

The Green Audit taken up by Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior, has been divided into Three stages:

- Data/Observation
- Analysis of finding
- Recommendations

1.4 Division of Audit

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

The college has adopted the ‘Green Campus’ system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO2 emission, energy and water use, while creating atmosphere where students can learn and be healthy



Figure 1. Shyamlal Pandaviya Govt. Post Graduate College Morar, Gwalior view

CHAPTER - 2

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.

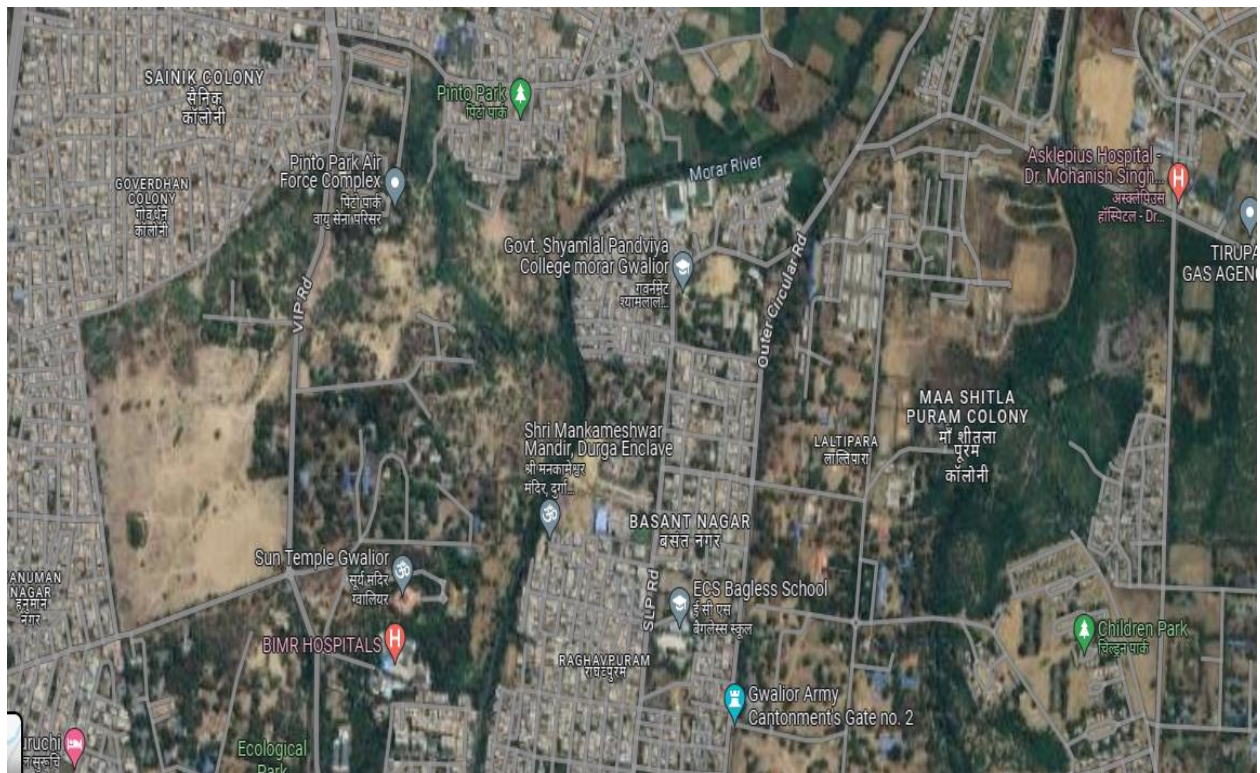


Figure 2. Shyam Lal Pandaviya Govt. Post Graduate College Morar, Gwalior Satellite View

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 as **prawling pollution-free campus spread over 21 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 7 km from Gwalior Railway Station. 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.



2.5 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.

CHAPTER - 3

TREE DIVERSITY OF COLLEGE CAMPUS

3.1 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.

3.2 Methodology

Photo 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.




3.3 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. fungi, Pteridophyta (Pteris), gymnosperms (Cycas, Juniperus, Araucaria, Thuja)



3.4 Result




This campus harbors 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 1. List of Tree

S. No	Plant Species	Specification
1	<p>PolyalthialongifoliaThw</p> 	<p>Family-Annonaceae Hindi name- Ashok English name- False ashok No. of trees -10</p>
2	<p>AzadirachtaindicaA. Juss.</p> 	<p>Family-Meliaceae Hindiname-Neem English name- The Margosa Tree No. of trees - 30</p>
3	<p>DalbergiasissooRoxb</p> 	<p>Family-Papilionaceae Hindi name-Shisham EnglishName- No. of trees -</p>
4	<p>Cassia fistula L.</p>	

		<p>Family- Caesalpinaceae Hindi name-Amaltas English name- Indian Laburnu No. of trees -</p>
5	<p><i>Emblica officinalis Gaertn.</i></p>	
		<p>Family-Fabaceae Hindi name- Amla English name-Vachellianilotica No. of trees -</p>
6	<p><i>Moringa oleifera Lam</i></p>	
		<p>Family-Moringaceae Hindi name-Surjanafali English name- Drumstick tree No. of trees -</p>
7	<p><i>Delonix regia (Boj.) Rafin.</i></p>	

		<p>2.1 Family-Caesalpinaceae Hindi name-Gulmohar English name-Flamboyanttree No. of trees -</p>
8	<p><i>Mangifera indica L.</i></p>	
		<p>Family-Anacardiaceae Hindi name-Aam English name-Mango No. of trees -</p>
9		
10	<p><i>FicusbenghalensisL.</i></p>	

		<p>Family-Moraceae Hindi name-Bargad, Barh English name- The Banyan No. of trees – 1</p>
<p>11</p>	<p><i>Ficus religiosa Linn.</i></p>	
		<p>Family-Moraceae Hindi name-Pipal English name- No. of trees –5</p>
<p>12</p>	<p><i>MurrayakoenigiiL.</i></p>	
		<p>Family-Rutaceae Hindi name-Meethaneem, Kadaipatta English Name- No. of trees -</p>
<p>13</p>	<p><i>Psidium guajava L.</i></p>	



Family-Myrtaceae
Hindi name-Amrood
English name-Guava
No. of trees –

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

Table 2. Various Types of Trees in College

3.5 Flora of Shyam Lal Pandaviya Govt. Post Graduate College, Morar, Gwalior (MP)

SHYAMLAL PANDVIYA GOVT. P. G. COLLEGE, MORAR, GWALIOR

A- DETAILS OF VARIOUS TYPES OF TREE IN COLLEGE CAMPUS

S.No	Scientific Name	Vernacular Name	Family	Number
1	<i>Dalbergia sissoo</i>	Shisham	Leguminosae	20
2	<i>Azadirachta indica</i>	Neem	Meliaceae	76
3	<i>Holoptelea integrifolia</i>	Chirol	Ulmaceae	70
4	<i>Ficus bengalensis</i>	Bargad	Urticaceae	05
5	<i>Pongamia glabra</i>	Karanj	Fabaceae	04
6	<i>Terminalia Arjuna</i>	Arjun	Combretaceae	05
7	<i>Tectona grandis</i>	Sagon	Verbenaceae	07
8	<i>Cassia fistula</i>	Amaltas	Fabaceae	04
9	<i>Ziziphus jujuba</i>	Ber	Rhamnaceae	10
10	<i>Acacia leucophloea</i>	Reonja	Mimosaceae	04
11	<i>Ficus religiosa</i>	Peepal	Moraceae	08
12	<i>Delonix regia</i>	Gulmohar	Fabaceae	03
13	<i>Putranjiva roxburghii</i>	Putranjeeva	Euphorbiaceae	06
14	<i>Nyctanthes arbortistis</i>	Harshringar	Oleaceae	02
15	<i>Saraca indica</i>	Ashok	Fabaceae	09
16	<i>Aegle marmelos</i>	Bel	Rutaceae	05
17	<i>Neolamarckia cadamba</i>	Kadam	Rubiaceae	02
18	<i>Morus alba</i>	Shahtoot	Moraceae	07
19	<i>Alstonia scholaris</i>	Saptaparni	Apocyanaceae	07
20	<i>Bauhinia variegata</i>	Kachnar	Caesalpiniaceae	01
21	<i>Cassia semia</i>	Khaosod	Caesalpiniaceae	09
22	<i>Acacia nilotica</i>	Babool	Mimosaceae	02
23	<i>Mangifera indica</i>	Aam	Anacardiaceae	02
24	<i>Psidium guajava</i>	Amrood	Myrtaceae	03
25	Citrus	Neebu	Rutaceae	02
26	<i>Syzygium cumini</i>	Jamun	Myrtaceae	04
27	<i>Phoenix dactylifera</i>	Khajoor	Arecaceae	02
28	<i>Eucalyptus</i>	Neelgiri	Myrtaceae	02
29	<i>Emblica officenalis</i>	Amla	Euphorbiaceae	04
30	<i>Moringa oleifera</i>	Sahjan	Moringaceae	02
31	<i>Cordia dichotoma</i>	Lasoda	Boraginaceae	02
32	<i>Caryota urens</i>	FishTail palm	Arecaceae	04
33	<i>Roystonea regia</i>	Royal palm	Arecaceae	04
34	<i>Carica papaya</i>	Papeeta	Caricaceae.	03

Table 3. Details Of Shrubs And Climbers In College Campus

S.No	Scientific Name	Vernacular Name	Family	Number
1	<i>Bambusa vulgaris</i>	Bamboo	Poaceae	01
2	<i>Annona reticulata</i>	Shitafal	Annonaceae	06
3	<i>Carissa carandas</i>	Karonda	Apocynaceae	01
4	<i>Lawsonia inermis</i>	Henna	Lythraceae	50
5	<i>Plumeria champaca</i>	Champa	Apocyanaceae	02
6	<i>Tabernaemontana</i>	Chandani	Apocyanaceae	01
7	<i>Thuja plicata</i>	Vidhya	Pinaceae	02
8	<i>Jatropha integrifolia</i>	Fire cracker	Euphorbiaceae	02
9	<i>Bougainvillea spectabilis</i>	Bougainvillea	Nyctaginaceae	02
10	<i>Cascabela thevetia</i>	Yellow kaner	Apocyanaceae	02
11	<i>Nerium oleander</i>	Kaner	Apocyanaceae	06
12	<i>Capparis decida</i>	Kareel	Capparidaceae	01
13	<i>Murraya koenigii</i>	Meethi Neem	Rutaceae	02
14	<i>Bambusa vulgaris</i>	Bamboo	Poaceae	01
15	<i>Murraya exotica</i>	Madhukamini	Rutaceae	08
16	<i>Mansoa alliacea</i>	Lahsun Bel	Bignoniaceae.	01
17	<i>Tinospora cordifolia</i>	Giloya	Menispermaceae	04
18	<i>Clitoria Ternatea</i>	Aparajita	Fabaceae,	04
19	<i>Cissus quadrangularis</i>	Hadjod	Vitaceae	01
20	<i>Asparagus scandens</i>	Satawari	Asparagaceae	01

Table 4. List of tree of cultivated herbs in college campus:

S.No	Scientific Name	Vernacular Name	Family
1	<i>Sansevieria</i>	Snake plant	Asparagaceae
2	<i>Duranta erecta</i>	Golden hedge	Verbenaceae
3	<i>Clerodendrum Inerme</i>	Sankuppi	Verbenaceae
4	<i>Cymbopogon citratus</i>	Lemon grass	Poaceae
5	<i>Ocimum tenuiflorum</i>	Marua Tulsi	Lamiaceae
6	<i>Ocimum sanctum</i>	Holy basil Tulsi	Lamiaceae
7	<i>Zephyranthes rosea</i>	Rain lilies	Amaryllidaceae
8	<i>Canna indica</i>	Canna lily	Cannaceae
9	<i>Hymenocallis littoralis</i>	Spider lily	<u>Amaryllidaceae</u>
10	<i>Syngonium</i>	Arrow head Plant	Araceae
11	<i>Loropetalum</i>	Lalsa plant	Hamamelidaceae
12	<i>Catharanthus rosea</i>	Sadabahar	Apocyanaceae
13	<i>Ruellia simplex</i>	Mexican petunia	Acanthaceae.
14	<i>Euphorbia tithymaloides</i>	Devil's backbone	Euphorbiaceae
15	<i>Polianthes tuberosa</i>	Rajnigandha	Asparagaceae
16	<i>Euphorbia tirucalli</i>	Pencil tree	Euphorbiaceae
17	<i>Euphorbia milii</i>	Crown of thorns	Euphorbiaceae
18	<i>Crassula ovata</i>	Jade plant	Crassulaceae
19	<i>Dieffenbachia seguine</i>	dumbcane	Araceae
20	<i>Ficus elastica,</i>	Rubber plant	Euphorbiaceae
21	<i>Epipremnum aureum</i>	Money Plant	Araceae
22	<i>Portulaca oleracea</i>	Office time	Portulacaceae
23	<u><i>Portulaca Grandiflora</i></u>	Moss rose	Portulacaceae
24	<i>Tradescantia pallida</i>	Purple heart	Commelinaceae
25	<i>Mirabilis jalapa</i>	4 O'clock plant	Nyctaginaceae
26	<i>Euphorbia grantii</i>	African milk bush	Euphorbiaceae
27	<i>Cestrum nocturnum</i>	Rat ki rani	Solanaceae

Table 5. Wild Herbaceous Plants

S.No	Scientific Name	Vernacular Name	Family
1.	<i>Parthenium hysterophorus</i>	Congress grass	Asteraceae
2.	<i>Setaria verticillata</i>	Bristlegrass	Poaceae
3.	<i>Oxalis corniculata</i>	Changeri	Oxalidaceae
4.	<i>Eleusine procera</i>	Jhingari	Poaceae
5.	<i>Calotropis procera</i>	Aak	Asclepidaceae
6.	<i>Achyranthus aspera</i>	Latjeera	Amaranthaceae.
7.	<i>Chenopodium alba</i>	Bathua	Amaranthaceae.
8.	<i>Boerhaavia diffusa</i>	Punarnava	Nyctaginaceae
9.	<i>Cocculus hirsutus</i>	Jaljamni	Menispermaceae
10.	<i>Malvastrum coromandelianum</i>	Mallow	Malvaceae
11.	<i>Cassia occidentalis</i>	Sanay	Fabaceae
12.	<i>Senna obtusifolia</i>	Sicklepod	Fabaceae
13.	<i>Triumfetta pentandra</i>	Burbark	Tiliaceae
14.	<i>Eclipta prostrata</i>	bhringaraj	Asteraceae.
15.	<i>Euphorbia hitra</i>	Badi dudhi	Euphorbiaceae
16.	<i>Corchorus trilocularis</i>	Jangali jute	Malvaceae
17.	<i>Alternanthera pungens</i>	Khaki weed	Amaranthaceae
18.	<i>Oplismenus burmannii</i>	Basketgrass	Poaceae
19.	<i>Cyperus rotundus</i>	Cyprus grass	Cyperaceae
20.	<i>Cyperus deformis</i>	Dila/motha	Cyperaceae
21.	<i>Acalypha indica</i>	Copper leaf	Euphorbiaceae
22.	<i>Datura alba</i>	Thorn apple	Solanaceae
23.	<i>Tridax procumbens</i>	Coat buttons	Asteraceae
24.	<i>Sonchus arvensis</i>	Milk thistle	Asteraceae
25.	<i>Cleome viscosa</i>	Hur hur	Cleomaceae.
26.	<i>Ageratum conyzoides</i>	goatweed	Asteraceae
27.	<i>Evolvulus alsinoides</i>	dwarf morning-glory	Convolvulaceae
28.	<i>Cyanodon dactylon</i>	Doob ghaas	Poaceae
29.	<i>Solanum nigrum</i>	Makoi	Solanaceae
30.	<i>Argemone maxicana</i>	Satyanashi	Papaveraceae
31.	<i>Euphorbia thymifolia</i>	Laghududhika.	Euphorbiaceae
32.	<i>Euphorbia hypericifolia</i>	Dudhi	Euphorbiaceae
33.	<i>Tribulus terrestrialis</i>	Gokhuru	Zygophyllaceae
34.	<i>Pupalia lappacea</i>	Forest Burr	Amaranthaceae
35.	<i>Xanthium strumarium</i>	Cocklebur	Asteraceae.
36.	<i>Calotropis procera</i>	Aak/Madar	Asclepiadaceae:
37.	<i>Anagallis arvensis</i>	Neel krishna	Primulaceae
38.	<i>Spergula arvensis</i>	Van dhaniya	Caryophyllaceae
39.	<i>Lathyrus sativum</i>	Khesari	Fabaceae
40.	<i>Polygonum</i>	Knot weed	Polygonaceae

41	<i>Eleusine indica</i>	goosegrass	Poaceae
----	------------------------	------------	---------

3.6 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.



GREEN PLANTATION IN THE CAMPUS



Figure 3. Main Front Garden of college





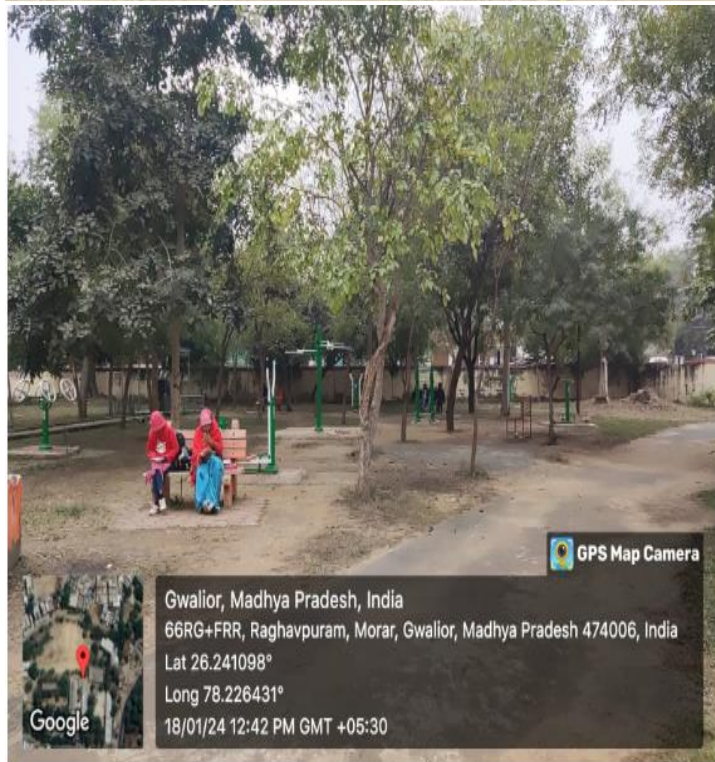
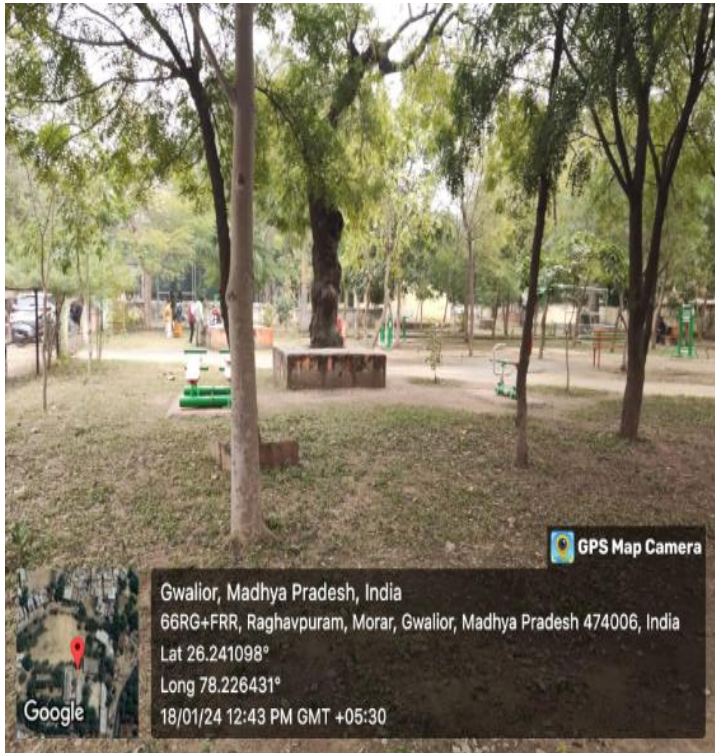
Figure 4. Plant/ Trees at Garden of college



GREEN TREE AT CAMPUS









CHAPTER - 4

FAUNA DIVERSITY

4.1 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. Shyam Lal Pandaviya Govt. Post Graduate Morar, Gwalior (M.P.) is home to many different species around the campus. It has a very rich biodiversity. It consists 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 Cyanophlyctis*)
- iii. Burrowing Frog (*Sphaerotheca Braviceps*)

c) Family Rhacophoridae

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

d) Lizard Family

- i. House wall lizard (*Hemidictylus flaviviridis*)
- ii. Common Bark Gecko (*Hemidictylus leschenaultii*)
- iii. Brahmini (*Lygosoma punctata*)
- iv. Many keeled grass skink (*Eutrophiscarinata*)
- 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*)
- iii Peacock – (*Phasianidae*)

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 6. List of all the Birds in the campus




S. No.	Common name	Scientific name
1	Crow	Corvovus 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




4.2 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.





4.3 Details of fauna





1.	<p>Scientific Name: – <i>Scolopendra sp.</i> Common Name: - Centipede</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class-Chilopoda</p> <p>Order-Scolopendromorpha</p> <p>Genus-<i>Scolopendra</i></p>	
2.	<p>Scientific Name – <i>Poeciloceris sp.</i></p> <p>Common Name- Grasshopper</p> <p>Classification –</p> <p>Phylum- Arthropoda</p> <p>Class- Insecta</p> <p>Order- Orthoptera</p> <p>Genus-<i>Poekilocerus</i></p>	

<p>3.</p>	<p>Scientific Name: – <i>Carausius sp.</i></p> <p>Common Name: - Stick insect</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Plasmida</p> <p>Genus-<i>Carausius</i></p>	
<p>4.</p>	<p>Scientific Name: – <i>Forficula sp</i></p> <p>Common Name: - Earwig</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Dermaptera</p> <p>Genus-<i>Forficula</i></p>	
<p>5.</p>	<p>Scientific Name: – <i>Mantis sp.</i></p> <p>Common Name:Praying Mantis</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Dictyptera</p> <p>Genus-<i>Mantis</i></p>	

6.	<p>Scientific Name: – <i>Periplaneta sp.</i></p> <p>Common Name: - Cockroach</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Blattodea</p> <p>Genus-<i>Periplaneta</i></p>	
7.	<p>Scientific Name: – <i>34an asp34</i></p> <p>Common Name: - Cloth Moth</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Lepidoptera</p> <p>Genus-<i>Tinea</i></p>	
8.	<p>Scientific Name: – <i>Papilios</i> .Common Name: - Butterfly</p> <p>Classification:</p> <p>Phylum-Arthropoda</p> <p>Class- Insecta</p> <p>Order- Lepidoptera</p> <p>Genus-<i>Papilio</i></p>	

<p>9.</p>	<p>Scientific Name: <i>Helix</i> sp Common Name: -Garden snail Classification: Phylum-Mollusca Class-Gastropoda Order-Stylommalophora Genus-<i>Helix</i></p>	
<p>10.</p>	<p>Scientific Name: – <i>Rana</i> sp. Common Name: - Frog Classification: Phylum- Chordata Class- Amphibia Order- Anura Genus-<i>Rana</i></p>	
<p>11.</p>	<p>Scientific Name: – <i>Calotes</i> sp. Common Name: -Bloodsucker Classification: Phylum- Chordata Class- Reptilia Order-Lepidoptera Genus-<i>Calotes</i></p>	

12.	<p>ScientificName: –<i>Hemidactylussp.</i></p> <p>Common Name: - Wall lizard</p> <p>Classification:</p> <p>Phylum- Chordata</p> <p>Class- Reptilia</p> <p>Order- Lepidoptera</p> <p>Genus-<i>Hemidactylus</i></p>	
13.	<p>Scientific Name: – <i>Passer sp</i></p> <p>CommonName: -HousesparroworGauriya</p> <p>Classification:</p> <p>Phylum-Chordata</p> <p>Class-Aves</p> <p>Order-Passeriformes</p> <p>Genus-<i>Passer</i></p>	
14.	<p>Scientific Name: – <i>Columba sp.</i></p> <p>CommonName: -BluerockpigeonorKabutar</p> <p>Classification:</p> <p>Phylum-Chordata</p> <p>Class-Aves</p> <p>Order-Columbiformes</p> <p>Genus-<i>Columba</i></p>	
15.	<p>Scientific Name: – <i>Psittacula sp.</i></p> <p>Common Name: - Hiramantota</p> <p>Classification:</p> <p>Phylum-Chordata</p> <p>Class-Aves</p> <p>Order-Psittaciformes</p> <p>Genus-<i>Psittacula</i></p>	

<p>16.</p>	<p>Scientific Name: Corvus sp Common Name: Crow or Kag Classification: Phylum-Chordata Class-Aves Order-Passeriformes Genus-<i>Corvus</i></p>	
<p>17.</p>	<p>Scientific Name: – Pteropus sp. Common Name: - Fruit bat or Chamgadar Classification: Phylum- Chordata Class- Mammalia Order-Chiroptera Genus-Pteropus</p>	
<p>18.</p>	<p>Scientific Name: – Funambulus sp. Common Name: - Gilhari Classification: Phylum- Chordata Class- Mammalia Order- Rodentia Genus-Funambulus</p>	
<p>19.</p>	<p>Scientific Name: – Rattus sp. Common Name: - Black rat Classification: Phylum- Chordata Class- Mammalia Order- Rodentia Genus-Rattus</p>	

CHAPTER - 5

CARBON FOOT PRINT

Carbon footprint by measurement in the Campus:

The level of Carbon dioxide is measured in different places across the Organization campus using a portable CO₂ Analyzer (Non dispersive infra-red meter). In addition, CO₂ meter is also displayed the readings of atmospheric temperature, relative humidity and dew point in the places, where the level CO₂ is measured. The meter started measurements of CO₂ level in the atmosphere after powered ON and updated the readings every second in the display screen. If the operating environment is changed (example from high to low temperature) which took 30 seconds for CO₂ sensor to respond and 30 minutes for flexibility in relative humidity. The meter features an audible alarm to give warnings when CO₂ concentration exceeds the set limit. It emits beeps (Abt.80Db) when CO₂ level goes over the set value and stops when any key (except SET) is pressed or the readings fall below the set values.

[The Methodology of the Audit is presented in the following chart](#)



[Flow chart of Energy Audit](#)

[Methodology](#)

Calculating Carbon footprint

CHAPTER -6

WASTE MANAGEMENT

WASTE AUDIT

Solid Waste

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. 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 vermi-composting pit. This converts the 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.

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.



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.

E- Waste

E-waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Poly chlorinated biphenyls (PCBs) that can damage human health and the environment.

College separates E- waste differently than the other type of waste. It is collected, stored and disposed differently than other solid waste.

CHAPTER -7

WATER MANAGEMENT

Water conservation is a key activity as water availability affects on the development of the campus as well as on all area of development such as farming, industries, etc. Keeping this view water conservation activity is carried out.

SOURCES OF WATER

- Open Well water
- Bore water

A Main source of water is Ground water is extracted to full the requirement. At present there are 3# wells out of which with 1# has open well structure whereas remaining 02 are bore wells. The college stores the water in overhead tank.



PLANTATION IN COLLEGE



Figure 6. Plantation activity at college campus







