

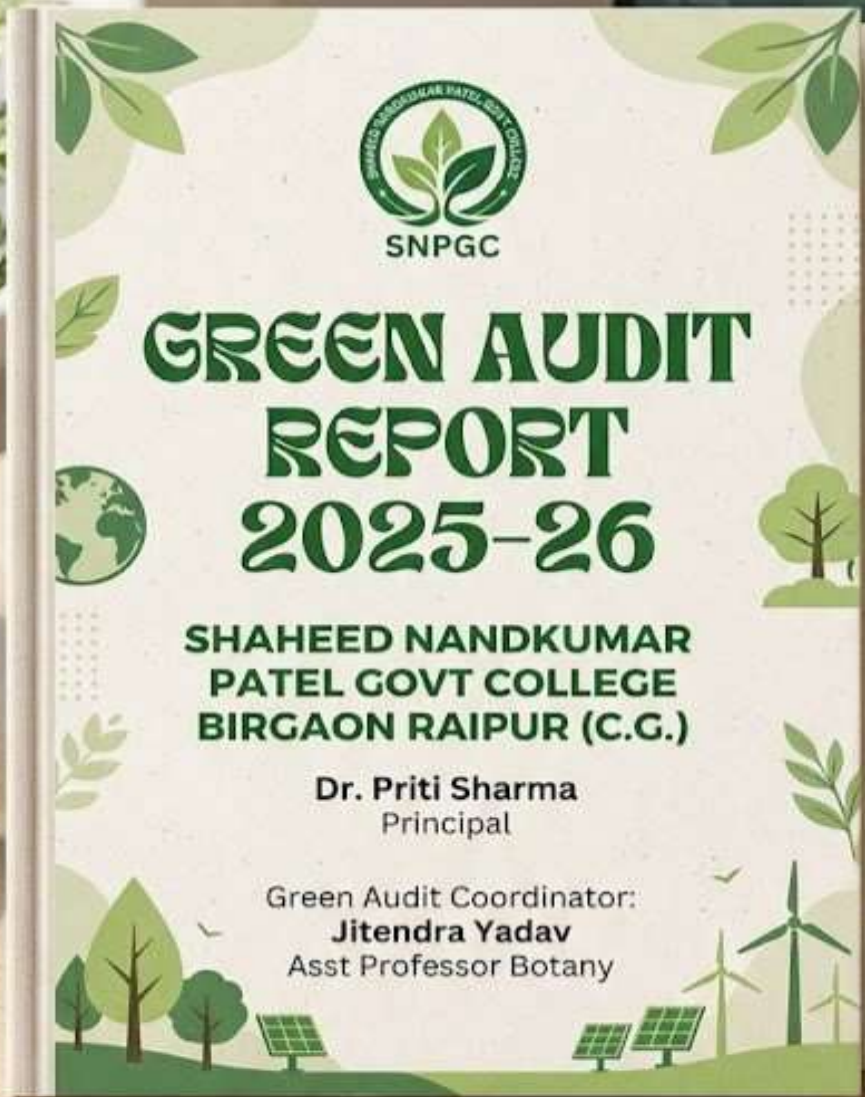


# GREEN AUDIT REPORT 2025-26

**SHAHEED NANDKUMAR  
PATEL GOVT COLLEGE  
BIRGAON RAIPUR (C.G.)**

**Dr. Priti Sharma**  
Principal

Green Audit Coordinator:  
**Jitendra Yadav**  
Asst Professor Botany





## GREEN AUDIT REPORT



Institution: **Shaheed Nandkumar Patel Government College, Birgaon, Raipur, Chhattisgarh**

**Audit Conducted by:** Internal Audit Committee & External Experts

**Audit Date:** April 2026

**Campus Area:** 4.10 Acres

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### **Part 1: Executive Summary (The NAAC Perspective)**

Shaheed Nandkumar Patel Government College serves an urban-residential demographic in Birgaon. This audit evaluates the "Triple Bottom Line": **Ecological Health, Energy Efficiency, and Waste Circularity**. Amidst the extreme heat of April 2026 (Avg. 38°C), the campus maintains a **Green Score of 7.5/10**, highlighting a robust biodiversity profile but identifying critical gaps in water management and invasive species control.

The rapid environmental degradation at local, regional and global level is leading us to global “Environmental poverty”. Stabilization of human population, adoption of environmentally sound and sustainable technologies, reforestation and ecological restoration are crucial elements in creating an equitable and sustainable future for all humans in harmony with nature and natural resources. Thus, academic leaders must initiate and support mobilization of internal and external resources and knowledge so that their institutions respond to environmental challenges. The College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends of environment degradation. We deeply subscribe to the fact that humans should be stewards of Mother Nature and that we all have a profound responsibility to protect the earth’s resources in perpetuity.

The college is aware of its responsibilities towards environmental issues and therefore has resolved to play a major role in the education, research, policy formation and information exchange necessary for a sustained environmental campaign. This report is based on the approaches and interventions done on part of the college to address the environmental concerns of the campus. The current environmental audit represents the first stage in our efforts to build environmental sustainability on the campus. The audit was conducted by a team of faculty of the college. This commitment of college has lead to actions whose reflection is visible remarkably on ground. This environmental audit conducted is not only significant for the institution, but also for the other institutions to emulate and adopt as a model and therefore contribute regionally as well as nationally in this endeavour of sustainable environment for all.

### **Introduction to environmental audit**

Environmental audit or Green audit is a general term that reflects various kinds of evaluations intended to identify environmental compliance and management system, implementation gaps, along with related corrective actions. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit is a useful tool to determine how and where the most energy or water resources are being used; and can then considerations be given on how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve

waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It imparts a better understanding of Green impact on campus to staff and students.

### **Need for environmental audit**

If self enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self enquiry is a natural and necessary outgrowth of a quality educational institution. Thus, it is imperative that the college evaluates its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent. 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 imperative to adopt the system of the “Green Campus” for the Institutes which will lead to sustainable development and at the same time reduces a sizable amount of atmospheric carbon dioxide from the environment. The National Assessment and Accreditation Council, Bengaluru (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

### **Objectives of environmental audit**

Concern about environmental degradation and realization of values of environment are logical consequences of scholarly research, teaching and learning process. In its pursuit for improving environmental quality and to maintain a pristine environment for the future generations of students, BGSB College has made a self-inquiry on environmental quality of the campus with the following objectives to achieve:

- i. Establishing a baseline of existing environmental conditions with focus on natural and physical environment;
- ii. Understanding the current practices of sustainability with regard to the use of water and energy, generation of wastes, purchase of goods, transportation, etc;
- iii. Awareness generation among students concerning real issues of environment and its sustainability .
- iv. Promotion of environmental awareness through participatory auditing process;
- v. To create a report that document baseline data of good practices and provide strategies and action plans towards improving environmental quality for future.

### **vi. Water Audit and Conservation Report:**

- vii. Water is one of the most essential natural resources for sustaining life and maintaining ecological balance. With increasing population and institutional activities, the demand for water is continuously rising. Therefore, conducting a water audit and implementing conservation practices has become a necessity for educational institutions.
- viii. Water audit is conducted periodically to determine water supplied in the distribution system as well as water lost and/or used within a distribution system. It aims to establish the water consumption pattern in individual sections, so as to realise the consumption levels with respect to exploring various pollution prevention and waste water minimisation opportunities. Water audit also helps to establish the existing water distribution system as well as waste water collection and recycling, if any. The water is supplied in the College by municipal supply as well as by the ground water supply. The storage capacity of water in the College is shown in Table.

### **ix. Table : Total water storage capacity in the College**

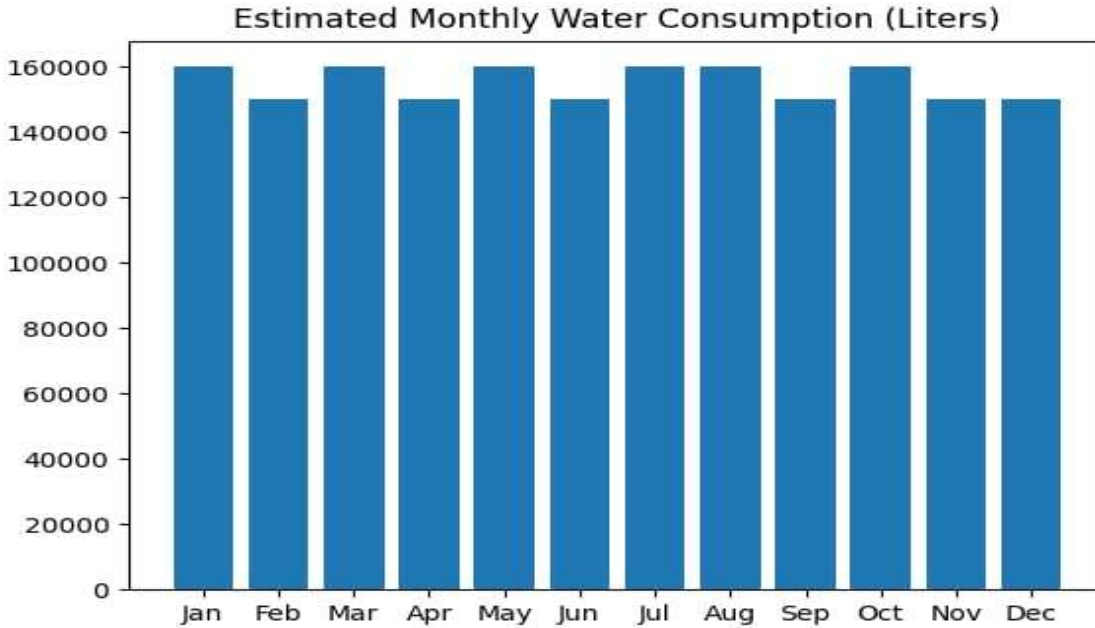
S.N.	Storage Resources	Number	Storage Capacity (in liters)	Total capacity
1	Water Tanks	02	2000	4000

2	Water Tanks	02	500	1000
<b>TOTAL STORAGE CAPACITY</b>				<b>5000</b>

**Water Consumption Details :**

- **Daily Water Consumption** = 10,000 liters
- **Total Working Days (Annual)** = 186 days

**Total Annual Water Consumption = 10,000 × 186 = 18,60,000 liters**



**Water Audit Analysis:**

The analysis shows that the daily water requirement (10,000 liters) is higher than the storage capacity (5,000 liters), indicating:

- Frequent refilling is required
- Dependence on continuous water supply
- Possibility of water wastage if not monitored properly

**Key Areas of Water Usage:**

- Drinking water for students and staff
- Laboratory and practical work
- Gardening and plantation
- Sanitation and cleaning purposes

**Water Conservation Measures Adopted**

To ensure sustainable use of water, the college has adopted the following measures:

1. **Rainwater Harvesting** Installation of rainwater harvesting systems to recharge groundwater.
2. **Leakage Control** Regular inspection and repair of pipelines, taps, and tanks.
3. **Efficient Water Use** Use of low-flow taps and awareness to avoid unnecessary wastage.
4. **Reuse of Water** Reuse of wastewater for gardening and cleaning purposes.
5. **Awareness Programs** Conducting awareness campaigns among students regarding water conservation.
6. **Green Campus Initiative**
  - Plantation drives to improve groundwater recharge and reduce evaporation loss.

## Recommendations

- Increase water storage capacity to meet daily demand
- Install additional rainwater harvesting units
- Implement water metering system for monitoring usage
- Promote drip irrigation for gardening
- Encourage behavioral change among students and staff

## Conclusion

The water audit highlights the importance of efficient water management in the college. By adopting sustainable practices and increasing awareness, **Shaheed Nand Kumar Patel Government College, Birgaon Raipur (C.G.)**

### Group A: Primary Canopy & Timber Trees (High Carbon Sequestration)

S.N.	Botanical Name	Common Name	Family	count
1	<i>Azadirachta indica</i>	Neem	Meliaceae	12
2	<i>Polyalthia longifolia</i>	Ashoka Tree	Annonaceae	8
3	<i>Mangifera indica</i>	Mango	Anacardiaceae	5
4	<i>Ficus religiosa</i>	Peepal	Moraceae	3
5	<i>Dalbergia sissoo</i>	Shisham	Fabaceae	4

### Group B: Medicinal, Ornamental & Small Flora (The Verified List)

*Consolidated from your specific audit findings.*

S.N.	Botanical Name	Common Name	Family	Count
1	<i>Kalanchoe pinnata</i>	Air Plant / Life Plant	Crassulaceae	24
2	<i>Agave attenuata</i>	Foxtail Agave	Asparagaceae	1
3	<i>Catharanthus roseus</i>	Madagascar Periwinkle	Apocynaceae	3
4	<i>Syngonium podophyllum</i>	Umbrella Plant	Araceae	3
5	<i>Duranta erecta</i>	Golden Dewdrop	Verbenaceae	2
6	<i>Ficus benjamina</i>	Weeping Fig	Moraceae	2
7	<i>Alternanthera spp.</i>	Joyweed / Tinpatiya	Amaranthaceae	5
8	<i>Musa × paradisiaca</i>	Banana	Musaceae	2
9	<i>Stachytarpheta indica</i>	Blue Snakeweed	Verbenaceae	1

10	<i>Nerium oleander</i>	Oleander (Kaner)	Apocynaceae	1
11	<i>Hibiscus rosa-sinensis</i>	China Rose	Malvaceae	3
12	<i>Ixora coccinea</i>	Jungle Geranium	Rubiaceae	4
13	<i>Tabernaemontana divaricata</i>	Crape Jasmine	Apocynaceae	2
14	<i>Ficus bengalensis</i>	Banyan tree	Moraceae	2
15	<i>Opuntia monacantha</i>	Prickly Pear	Cactaceae	4
16	<i>Ocimum sanctum</i>	Holy Basil	Lamiaceae	3
17	<i>Hamelia patens</i>	Firebush	Rubiaceae	1
18	<i>Clitoria ternatea</i>	Butterfly Pea	Fabaceae	2
19	<i>Bougainvillea spectabilis</i>	Bougainvillea	Nyctaginaceae	2
20	<i>Mirabilis jalapa</i>	Four O'Clock Flower	Nyctaginaceae	1
21	<i>Euphorbia hirta</i>	Asthma Plant	Euphorbiaceae	1
22	<i>Epipremnum aureum</i>	Money Plant	Araceae	2
23	<i>Dracaena reflexa</i>	Song of India	Asparagaceae	1
24	<i>Aloe barbadensis</i>	Aloe Vera	Asphodelaceae	1
25	<i>Pilea microphylla</i>	Artillery Plant	Urticaceae	2

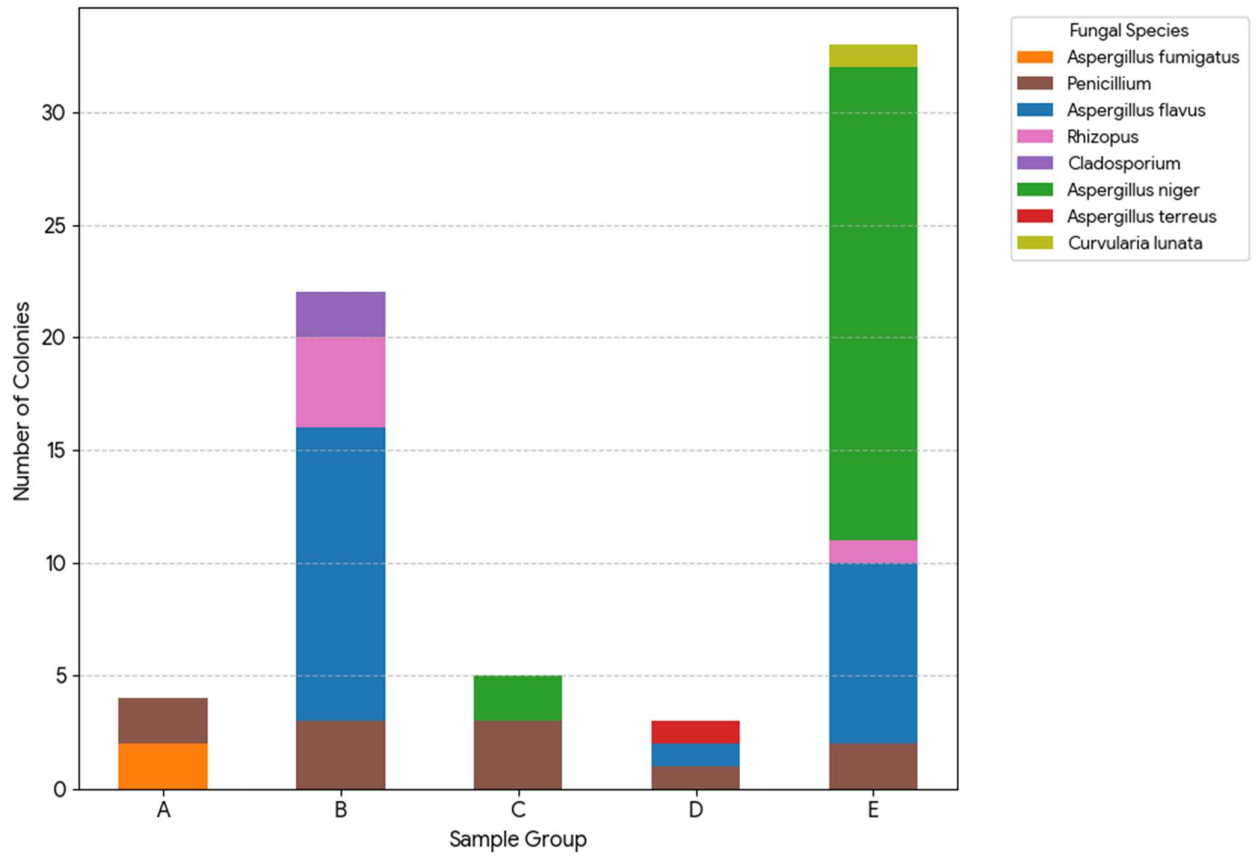
**Group C, D, & E: Grasses, Shrubs & Wild Flora**

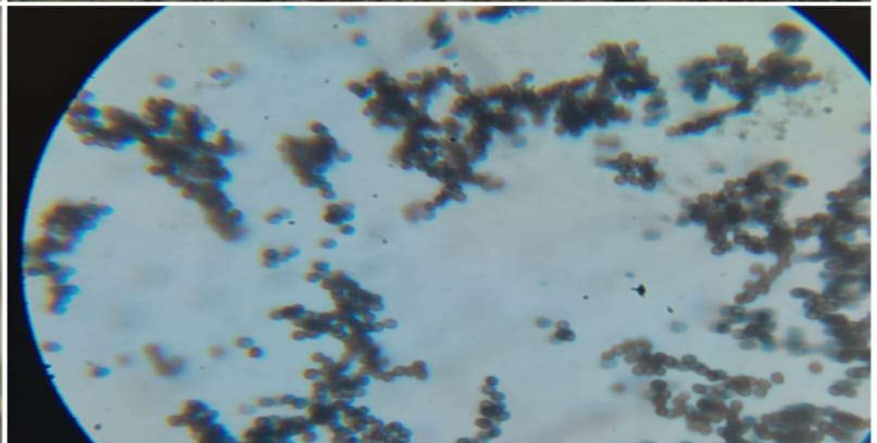
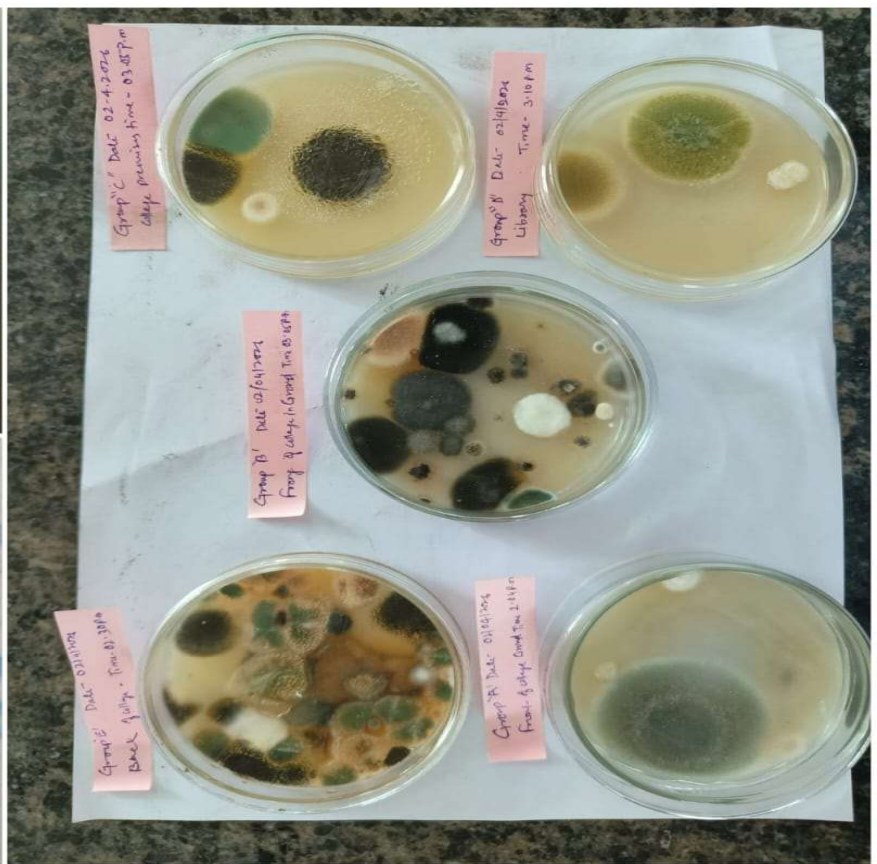
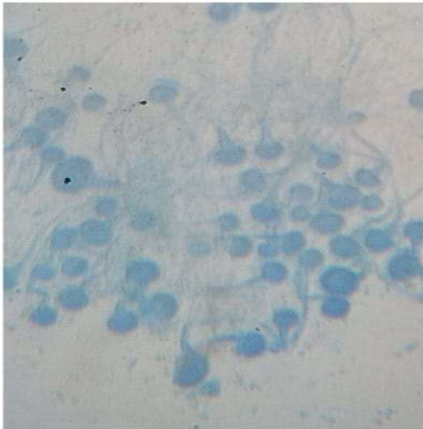
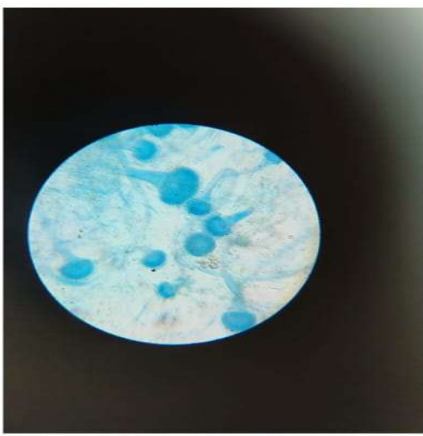
S.N.	Botanical Name	Type	Key Species
1	<i>Chloris virgata</i>	Grass (E)	Feather Grass (6 units)
2	<i>Panicum antidotale</i>	Grass (E)	Blue Panic Grass (1 unit)
3	<i>Parthenium hysterophorus</i>	Invasive (E)	Gajar Ghas (85% abundance)
4	<i>Lantana camara</i>	Shrub (C)	Wild Sage (12 units)
5	<i>Chloris virgata</i>	Grass (E)	Feather Grass (6 units)

**Group A,B,C, D, & E: Fungal Species**

<b>S.N.</b>	<b>Botanical Name</b>	<b>Family</b>	<b>No. of Colony</b>	<b>Group</b>
1	<i>Aspergillus fumigatus</i>		(2 Colony)	A
2	<i>Penicillium</i>		(2 Colony)	A
3	<i>Aspergillus flavus</i>		(13Colony)	B
4	<i>Penicillium</i>		(3 Colony)	B
5	<i>Rhizopus</i>		(4 Colony)	B
6	<i>Cladosporium</i>		(2 Colony)	B
7	<i>Aspergillus niger</i>		(2Colony)	C
8	<i>Penicillium</i>		(3 Colony)	C
9	<i>Penicillium</i>		(1 Colony)	D
10	<i>Aspergillus terreus</i>		(1Colony)	D
11	<i>Aspergillus flavus</i>		(1Colony)	D
12	<i>Aspergillus niger</i>		(21Colony)	E
13	<i>Aspergillus flavus</i>		(8Colony)	E
14	<i>Penicillium</i>		(2 Colony)	E
15	<i>Rhizopus</i>		(1 Colony)	E
16	<i>Curvularia lunata</i>		(1 Colony)	E

Distribution of Fungal Colonies by Group



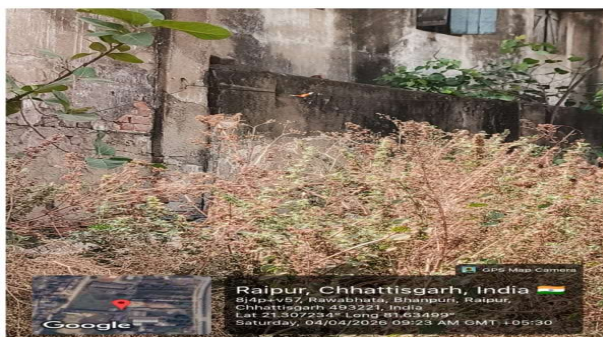


## Data Summary

- **Group E** has the highest total concentration, dominated by **Aspergillus niger** (21 colonies).
- **Aspergillus flavus** is most prevalent in **Group B** (13 colonies).
- **Penicillium** is the most consistent genus, appearing across all five groups.
- **Groups A and D** show the lowest overall fungal diversity and colony counts.

**Group A,B,C, D, & E: Fauna**

S.N.	Zoological Name	Common Name	Family	Count
1	<i>Papilio demolus</i>	Lime Butterfly	Papilionidae	(3 units)
2	<i>Copsychus fulicatus</i>	Indian robin	Muscicapidae	(1 units)
3	<i>Musca domestica</i>	House fly	Muscidae	(20 units)
4	<i>Hemidactylus frenatus</i>	Chhipkali	Gekkonidae	(10 units)
5	<i>Perithemis intensa</i>	Dragon fly	Libellulidae	(2 units)
6	<i>Paraponera clavata</i>	Bullet ant	Formicidae	(100 units)
7	<i>Plexippus paykulli</i>	Greater housefly catcher (Jumping Spider)	Salticidae	(1 units)
8	<i>Pseudozizeeria maha</i>	Pale grass blue	Lycaenidae	(2 units)
9	<i>Aedes aegypti</i>	Mosquito	Culicidae	(15 units)
10	<i>Canis lupus</i>	Dog	Canidae	(2 units)
11	<i>Bos taurus indicus</i>	Cow	Bovidae	(2 units)
12	<i>Chamaeleo chamaeleon</i>	Chamaeleon	Chamaeleonidae	(2 units)
Total No. of Species 12			No. of Animals/insect 160	







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**Raipur, Chhattisgarh, India**  
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 Chhattisgarh 493221, India  
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 Chhattisgarh 493221, India  
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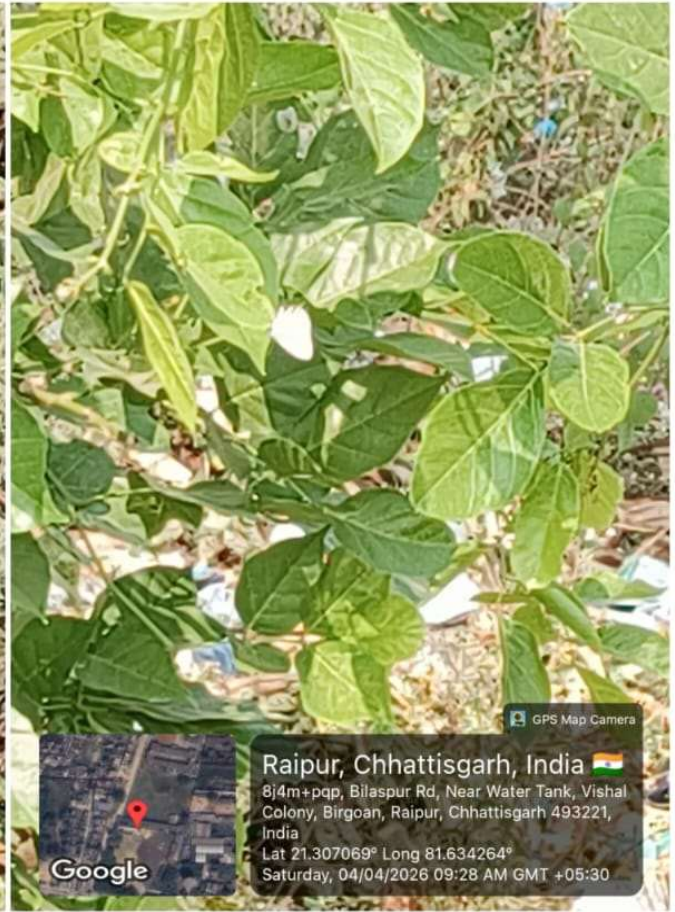
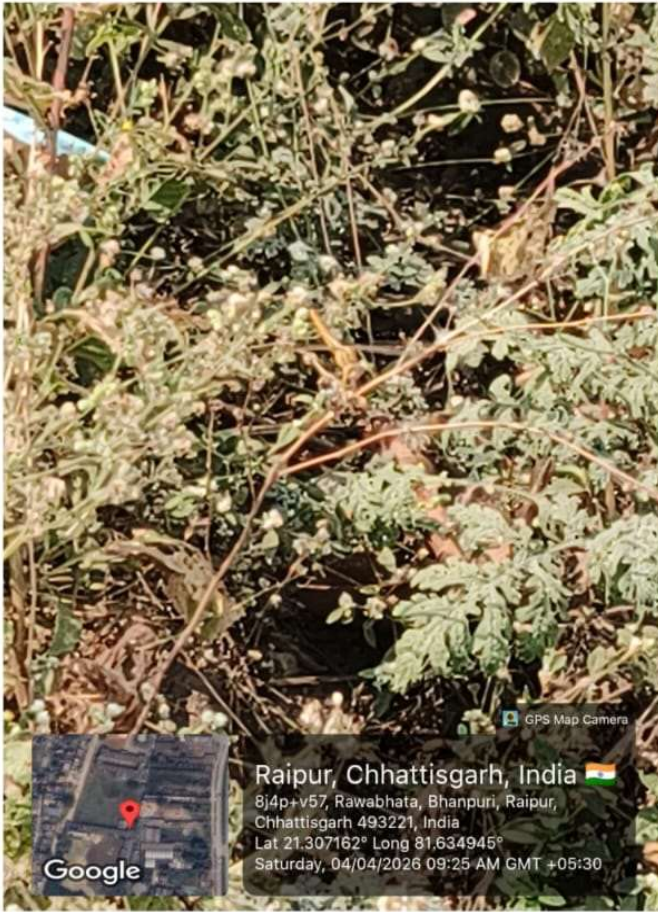
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## Campus Infrastructure

The college is situated 3 km from railway station of Urkura relway Station, is well connected by rail and road. Spread over an area of 4.1 acres, the college buildings housing 13 classrooms, 5 UG labs, library, computer lab, administrative office, Principal's room, etc. The following table gives details –

Sl. No.	Building Section	Purpose / Facilities Included
1.	Main Block	13 Classrooms
2.		2 Staff rooms
3.		Library
4.		1 Department
5.		2 Administrative office
6.		Computer lab
7.		1 Seminar hall
8.		1 Day care centre/Red Cross
9.		1 Counseling centre
10.		2 Restrooms (for girls)
11.		2 Restrooms (for Boys)
12.		5 Restrooms (for the staff)
13.		5 UG Labs
14.		1 NSS Office
15.		1 Sports Office

### Methodology

This compilation is based on the Survey by Questionnaire. The survey was done in the whole campus by dividing it into Five sections. On the basis of data requirement, set of questionnaires about water consumption, waste generation, solid waste collection and transport were prepared.

### Analysis and reporting

The completed questionnaires were tabulated as per their modules in excel spreadsheets. This tabulated data was used for further analysis. Average and percentage values were determined to avoid complications. With the help of student volunteers, the major part of the data was compiled, which the committee analysed. The data regarding the plantation was assessed by the Department of Botany. Data on energy and water was assessed by the Department of physics, where assessment of data on solid waste generation was carried out by the Department of Botany. The results are depicted graphically to have a quick glance of the status and interpretation of the results of the audit.

### Data Analysis

**Land use-** College is using land for diverse purposes so that facilities are provided to all concerned for the smooth functioning and working. The College covers an area of 38283.27. After digital image processing of the area, the information about the area occupied by the various land uses from the map is gathered. The data is reflected in Table.

Area under various land uses in the college Campus

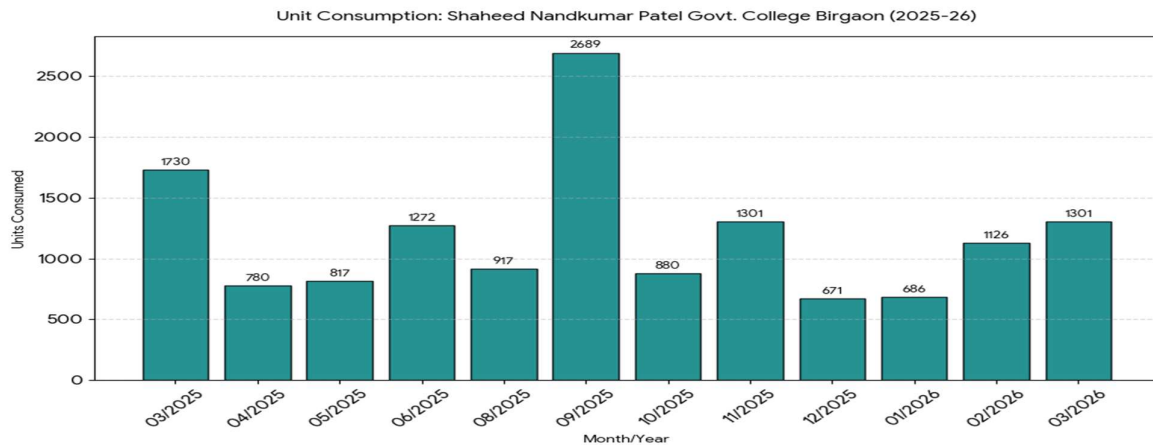
Landuse	Area (in Sqm)
Built up	4447.5
Green Spaces	94.25
Playground	966.00
Road	102.50
Vehicle Parking Spaces	150.00
<b>Total Area</b>	<b>5760.25</b>

### Part 3: Specific Energy Audit Report

**Audit Lead:** Dr. Yugbodh Patle (Physics Dept.)

#### 1. Energy Consumption Profile: Primary Source: State Electricity Board Grid.

क्रमांक	माह	राशि	यूनिट
1	03 / 2025	13000	1730
2	04 / 2025	5840	780
3	05 / 2025	5310	817
4	06 / 2025	8270	1272
5	08 / 2025	5960	917
6	09 / 2025	17480	2689
7	10 / 2025	5720	880
8	11 / 2025	8460	1301
9	12 / 2025	4360	671
10	01 / 2026	4470	686
11	02 / 2026	8112	1126
12	03 / 2026	8460	1301



## Analysis of Consumption

- **Highest Consumption:** September 2025 recorded the maximum usage at **2,689 units**.
  - **Lowest Consumption:** December 2025 saw the minimum usage at **671 units**.
  - **Average Usage:** The college consumes approximately **1,156 units per month** on average.
2. **Peak Demand:** Higher in September due to ceiling fans and lab equipment operation during 40°C heat.
  1. **Lighting:** 65% of the campus has transitioned to LED bulbs.
  3. **Findings:**
    1. Thermal gain in top-floor classrooms is high.
    2. Energy leakage noted in older administrative wiring.
  4. **Recommendations:**
    5. **Solar Integration:** Install a 10KW Rooftop Solar PV system to offset daytime load.
    6. **Sensor Lights:** Install PIR motion sensors in corridors to reduce phantom load.

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## Part 4: Waste Management Plan

1. **Solid Waste:**
  0. **Current Practice:** Open bin collection.
    1. **Proposed Improvement:** Implementation of **Three - Bin System** (Biodegradable, Recyclable, Hazardous).
2. **Liquid Waste:**
  0. Chemical waste from Chemistry labs is currently diluted.
  1. **Requirement:** Installation of a small-scale neutralization tank before discharge.
3. **E-Waste:**
  0. Periodic disposal of computer peripherals through certified recyclers.
4. **Green Waste (Biomass):**
  0. Leaf litter from 94 species is abundant.
  1. **Action:** Construction of two **Vermicompost Pits** to convert leaf litter into organic manure for the botanical garden.


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## Part 5: Conclusion & Future Roadmap


The college is on a positive trajectory. To move from a **7.5 to a 9.0 Green Score**, the following "Green Action Plan" is mandated for 2026-2027:


- **Signage:** Botanical nameplates with QR codes for all 94 species.
- **Water:** Recharge pits for the existing tube well to combat April drought conditions.
- **Biodiversity:** Systematic eradication of *Parthenium* via student-led NSS drives.


## Audit Committee:

-   
**Dr. Koushlya Sahu**
- **Asst. professor Botany (External auditors Flora Auditor)**
- **Shaed Rajiv Pandey Govt College Bhatagaon Raipur C.G.**

-   
**Dr. Hit Narayan Tandon**
- **Asst. Professor S HOD Dept of Zoology (External Auditor Fauna)**
- **Gurughasidas Govt P.G. College Kurud Dist Dhamtari C.G.**

-   
**Jitendra Yadav**
- **Asst. Professor (Co-ordinator of green audit Flora, Water)**
- **Shaed Nandkumar Patel Govt College Birgaon Raipur C.G.**

-   
**Smt. Anuradha Sahu**
- **Asst. Professor Zoology**
- **(Internal Auditor Fauna)**
- **Shaed Nandkumar Patel Govt College Birgaon Raipur C.G.**

-   
**Dr. Yugbodh Patle**
- **(Asst. Professor Physics)**
- **(Internal Auditor Electric)**
- **Shaed Nandkumar Patel Govt College Birgaon Raipur C.G.**

## Signatures:

  
**Dr. Preeti Sharma**

Principal 13/14/26

Shaed Nandkumar Patel Govt. College  
Birgaon Raipur C.G.  
शाहीद नंदकुमार पटेल  
शासक्रीय महाविद्यालय बीरगाँव  
जिला- रायपुर (उ.प्र.)