# STANDARD OPERATING PROCEDURE (SOP)
# GREEN AUDIT
# ST. BEDE'S COLLEGE, SHIMLA

**SOP No.**: Green Audit/SOP/01/2026
**Effective from**: Academic Session 2026–27
**Year of Establishment:**
**Approved by**: Principal
**Responsible Unit**: Green Audit Cell

## 1. Purpose

To establish a systematic, documented and evidence-based procedure for conducting a Green Audit of an educational campus to assess its environmental performance, identify areas for improvement and promote sustainable campus management.

The audit will evaluate the use of natural resources, energy and water conservation, waste management, biodiversity, pollution prevention, green cover and environmental awareness.

## 2. Regulatory and institutional basis

This SOP is prepared with reference to the environmental management framework of the Himachal Pradesh State Pollution Control Board (HPSPCB), relevant Central Pollution Control Board (CPCB) guidance and applicable environmental legislation. The institution shall comply with applicable directions, authorisations and requirements issued by the competent authorities.

The audit should also consider:

- Environment (Protection) Act, 1986, and applicable rules.
- Water (Prevention and Control of Pollution) Act, 1974, as amended.
- Air (Prevention and Control of Pollution) Act, 1981, as amended.
- Solid Waste Management Rules, 2016, as amended or superseded by applicable current provisions.
- Plastic Waste Management Rules, 2016, as amended.
- E-Waste (Management) Rules, 2022, as amended.
- Applicable battery waste, hazardous waste and biomedical waste requirements, where relevant.
- CPCB's Guidelines for Environmental Audit.

## 3. Scope of the Green Audit

The audit shall cover all accessible campus facilities and operations, including:

- Academic blocks, administrative offices, laboratories and libraries.
- Hostels, residential quarters, kitchens and canteens.
- Water supply systems, drinking-water facilities and wastewater treatment arrangements.
- Electricity consumption, lighting, heating, cooling and backup generators.

- Waste collection, segregation, storage, recycling and final disposal.
- Gardens, lawns, plantations, forest patches and biodiversity areas.
- Parking areas, internal roads and vehicle movement.
- Procurement, paper consumption, plastic use and environmentally responsible practices.
- Environmental awareness, student participation and institutional policies.

**4. Objectives**

1. Assess the environmental performance of the campus through documented observations and measurable indicators.
2. Identify opportunities to conserve energy, water, soil and other natural resources.
3. Examine waste segregation, recycling and disposal practices.
4. Assess green cover, biodiversity and the protection of native plant species.
5. Identify potential sources of air, water, soil and noise pollution.
6. Verify relevant environmental records, authorisations and waste-disposal arrangements.
7. Recommend corrective measures with clear responsibilities and timelines.
8. Support environmental management, sustainability reporting and institutional quality-assurance documentation.

**5. Constitution of the Green Audit Committee**

The Head of Institution shall constitute a Green Audit Committee through an official order.

| **Member/designation** | **Responsibility** |
|---|---|
| Principal/Director | Overall supervision and approval |
| Green Audit Coordinator | Planning, coordination and reporting |
| Estate/Maintenance Officer | Energy, water, buildings and infrastructure records |
| Garden/Horticulture Officer/Faculty from Botany department | Green cover, plantations and biodiversity |
| Waste Management Nodal Officer | Waste segregation, storage and disposal verification |
| Faculty and student representatives | Field observations and awareness assessment |
| External environmental expert or competent auditor | Independent assessment, where required |

The audit team should be sufficiently independent to verify records and site conditions objectively. Laboratory testing, where required, should be assigned to an appropriately competent laboratory.

**6. Frequency of audit**

- Comprehensive Green Audit: Once every academic year is recommended for institutional sustainability assessment.
- Quarterly review: Recommended for water consumption, energy use, waste generation and implementation of corrective actions.
- Special audit: Whenever there is a significant environmental incident, major campus expansion, persistent complaint or regulatory direction.

These are recommended institutional intervals, not a claim that HPSPCB prescribes the same frequency for every educational campus.

## 7. Detailed Green Audit procedure

### Step 1: Planning and preparation

1. Obtain administrative approval for the audit.
2. Define the audit period, campus boundaries, objectives and assessment criteria.
3. Review the previous Green Audit report, if available.
4. Prepare a campus layout identifying buildings, water sources, drains, waste-storage areas, gardens, parking areas and pollution sources.
5. Issue an internal notice to departments requesting relevant records.
6. Prepare an inspection schedule and assign responsibilities to committee members.
7. Identify applicable statutory requirements and any specific conditions imposed by HPSPCB or other competent authorities.

Documents to collect before the visit:

- Campus layout and land-use information.
- Electricity bills and energy-consumption records.
- Water bills, meter readings and water-source records.
- Waste-generation and disposal records.
- Wastewater treatment and laboratory testing reports, where applicable.
- Records of tree plantation, gardening and biodiversity activities.
- Generator maintenance and emission-compliance documents, where applicable.
- Contracts, receipts or acknowledgements from authorised waste collectors and recyclers.
- Previous audit reports and action-taken reports.

### Step 2: Physical inspection of the campus

The audit team shall undertake a systematic walkthrough of the campus using a common checklist.

#### A. Energy management

Inspect lighting, fans, air conditioners, laboratory equipment, solar installations, electricity meters, generator use and energy-saving practices. Review monthly electricity consumption and identify avoidable energy losses.

#### B. Water management

Inspect water sources, storage tanks, pipelines, taps, toilets, rainwater harvesting structures, recharge pits and wastewater treatment facilities. Check leakage, water reuse and the availability of consumption records.

### C. Waste management

Check segregation at source, labelled bins, organic waste composting, recyclable collection, e-waste storage, laboratory waste handling and authorised disposal arrangements. Verify that waste is not openly burned or dumped.

### D. Green cover and biodiversity

Assess trees, shrubs, lawns, native species, plantation survival, soil protection, habitat features and the management of invasive plants. Record tree numbers and planted areas wherever feasible.

### E. Pollution prevention

Inspect drainage, wastewater discharge, laboratory chemical storage, generator emissions, dust, noise and possible contamination. Arrange air, water or noise measurements where the risk, audit objectives or applicable requirements justify testing.

### Step 3: Assessment of energy use

The audit team shall:

1. Collect electricity bills and meter readings for the audit period.
2. Record consumption by major buildings or departments where sub-metering is available.
3. Inspect energy-intensive equipment and assess operating practices.
4. Verify solar photovoltaic systems and other renewable-energy installations.
5. Identify inefficient lighting, unnecessary operation of equipment and excessive standby loads.
6. Record the status of energy-saving measures and maintenance schedules.

Energy intensity measures the annual electricity consumption of an educational institution per unit of its built-up area.

$$\text{Energy Intensity} = \frac{\text{Annual Electricity Consumption (kWh)}}{\text{Built-up Area (m}^2\text{)}}$$

The institution should state the calculation boundary and use consistent occupancy and area data for year-to-year comparisons.

### Step 4: Assessment of water use

The audit team shall:

1. Record the source of water, such as municipal supply, borewell, spring or other approved sources.
2. Measure or estimate water consumption using reliable records.
3. Inspect drinking-water points, washrooms, laboratories, kitchens and gardens.
4. Check for leaks, overflow and inefficient fixtures.
5. Verify rainwater harvesting and groundwater recharge arrangements.
6. Inspect sewage treatment or other wastewater treatment facilities, where present.
7. Verify wastewater testing records and the authorised destination of treated effluent.
8. Identify opportunities for reuse of treated wastewater for appropriate non-potable purposes.

Suggested indicators:

$$\text{Per-Capita Water Use} = \frac{\text{Total Water Consumed (L/day)}}{\text{Average Campus Population}}$$

The result should be reported in litres per person per day, with the population calculation and measurement period clearly stated.

**Step 5: Assessment of solid and other waste**

The audit shall cover:

- Wet and dry waste segregation at the point of generation.
- Collection, transport and temporary storage practices.
- Composting, vermicomposting or other approved organic-waste processing.
- Collection and recycling of paper, cardboard, metals, glass and plastics.
- E-waste, batteries, used oil, laboratory chemicals and other special waste streams, where generated.
- Authorised disposal or recycling arrangements.
- Prevention of open dumping, open burning and littering.
- Reduction of single-use plastics and unnecessary packaging.

Record waste quantities using weighing scales or documented collection records wherever possible.

$$\text{Waste Generation Rate} = \frac{\text{Waste Generated (kg/day)}}{\text{Average Campus Population}}$$

The numerator and denominator must cover the same waste streams and period. Material sent to an authorised recycler should not automatically be described as successfully recycled unless the evidence supports that claim.

**Step 6: Assessment of green cover and biodiversity**

The team shall:

1. Prepare or update a campus green-cover map.
2. Record the number and species of trees, shrubs and other significant vegetation.
3. Identify native species and, where relevant, invasive species.
4. Record tree plantation and survival rates.
5. Inspect erosion-prone slopes, exposed soil, drainage channels and areas requiring vegetation.
6. Document biodiversity-supporting features, including gardens, pollinator plants and natural habitats.
7. Assess the use of chemical fertilisers and pesticides in campus landscaping.
8. Recommend suitable native planting, mulching, compost use and water-efficient gardening.

In Himachal Pradesh, the audit should consider local elevation, slope, rainfall, soil conditions and native vegetation when recommending plantation or landscaping measures.

**Step 7: Pollution prevention and environmental compliance**

Air quality audit/monitoring is being carried out by the Himachal Pradesh State Pollution Control Board (HPSPCB). The College shall maintain the official reports available from the Board and ensure follow-up on any observations, recommendations or directions communicated by HPSPCB.

The committee shall inspect:

- Campus drainage and wastewater outlets.
- Generator sets, boilers and other combustion sources.
- Air and noise pollution sources near roads, workshops or construction areas.
- Laboratory chemical storage and disposal.
- Hazardous, biomedical or other regulated waste, where applicable.
- Plastic waste handling and compliance with applicable restrictions.
- Records of water, air or noise testing, if required.
- Relevant HPSPCB consents, authorisations, directions or compliance records applicable to the institution.

Air quality audit/monitoring for the campus is being undertaken by the Himachal Pradesh State Pollution Control Board (HPSPCB). The College shall facilitate access and provide relevant information when required, obtain and retain official air-quality reports or monitoring findings made available by HPSPCB, and address any recommendations or directions issued by the Board. Where additional air, water or noise testing is required for a specific audit objective or legal requirement, the institution shall engage an appropriately competent laboratory or agency. Visual inspection alone shall not be treated as proof of compliance with pollutant limits.

**Step 8: Environmental awareness and sustainable practices**

Assess whether the institution has:

- A written environmental or green-campus policy.
- An active Eco Club or equivalent student body.
- Environmental awareness programmes and campus cleanliness activities.
- No-idling, anti-littering and no-open-burning practices.
- Paper-saving, digital documentation and responsible procurement initiatives.
- Rainwater harvesting and plantation awareness activities.
- Records of student participation and measurable outcomes.

**Step 9: Evidence collection and verification**

Every audit observation should be supported by suitable evidence, such as:

- Bills, meter readings, registers and official records.
- Geotagged or dated photographs.
- Physical measurements and inspection notes.
- Laboratory reports and calibration records.
- Waste collection receipts and authorised vendor documents.
- Interviews with responsible personnel.
- Comparison of reported practices with actual site conditions.

Any discrepancy between a departmental record and the physical inspection must be documented and resolved or reported as an audit finding.

**Step 10: Analysis and preparation of the audit report**

The audit team shall consolidate its findings, calculate indicators where data are available, identify compliance gaps and prepare an action plan. Each recommendation must identify the responsible department, target date, resources required and method of verification.

**8. Green Audit checklist**

Use the following checklist during the campus inspection.

**Field inspection checklist**

Mark each item based on physical inspection and documentary evidence. "No" indicates a gap; "N/A" means the item does not apply.

**1. Energy management**

Electricity bills and consumption records available
Yes
No
N/A
Energy-efficient lighting and equipment used
Yes
No
N/A

Unnecessary lighting and equipment loads controlled
Yes
No
N/A
Renewable-energy systems inspected and documented
Yes
No
N/A

**2. Water management**

Water sources and consumption records documented
Yes
No
N/A
Leaks and overflow checked
Yes
No
N/A
Rainwater harvesting/recharge structures inspected
Yes
No
N/A
Wastewater treatment, testing and disposal records verified
Yes
No
N/A

**3. Waste management**

Waste segregated at source
Yes
No
N/A
Organic waste composted or appropriately processed
Yes
No
N/A
Recyclables collected through documented channels
Yes
No
N/A
E-waste, batteries and special wastes managed appropriately
Yes
No
N/A
No open dumping or burning observed
Yes
No
N/A

**4. Green cover and biodiversity**

Campus tree and vegetation inventory maintained

Yes

No

N/A

Native species and plantation survival assessed

Yes

No

N/A

Soil erosion and slope stability considered

Yes

No

N/A

Green areas maintained with water-efficient practices

Yes

No

N/A

**5. Pollution and compliance**

Drainage and discharge points inspected

Yes

No

N/A

Generator and other emission sources reviewed

Yes

No

N/A

Applicable permits and authorisations verified

Yes

No

N/A

Required environmental testing records reviewed

Yes

No

N/A

**6. Awareness and governance**

Green-campus/environmental policy available

Yes

No

N/A

Eco Club or student participation documented

Yes

No

N/A

Awareness and conservation programmes recorded

Yes

No

N/A
Previous audit recommendations reviewed
Yes
No
N/A

## 9. Evaluation and scoring

A scoring system may be used for internal performance tracking, provided it is clearly identified as an institutional assessment tool rather than an official HPSPCB rating.

For example, score each applicable checklist item as follows:

| Score | Assessment |
|---|---|
| 2 | Fully implemented and supported by evidence |
| 1 | Partially implemented or requiring improvement |
| 0 | Not implemented or a significant gap identified |
| N/A | Not applicable; excluded from the calculation |

$$\text{Audit Score (\%)} = \frac{\text{Points Obtained}}{\text{Maximum Applicable Points}} \times 100$$

Do not use the score to conceal statutory non-compliance. A high overall score does not compensate for a serious breach of an applicable environmental requirement.

## 10. Green Audit report format

The final report should contain the following sections:

1. Cover page and approval details.
2. Executive summary.
3. Introduction, objectives and scope.
4. Institutional profile and campus description.
5. Audit methodology, dates and team composition.
6. Applicable environmental standards and legal requirements.
7. Findings for energy, water, waste, biodiversity and pollution prevention.
8. Environmental performance indicators and supporting calculations.
9. Photographic evidence and relevant documents.
10. Identified deficiencies, risks and opportunities.
11. Recommendations and corrective action plan.
12. Conclusion and follow-up monitoring schedule.
13. Annexures, including checklists, records and laboratory reports.

## 11. Corrective action plan

The audit team shall maintain an action-taken register.

| Audit finding | Recommended action | Responsibility | Target date | Verification evidence |
|---|---|---|---|---|
| Water leakage | Repair defective pipes and taps | Maintenance Officer | Within 30 days | Repair record and follow-up inspection |
| Poor waste segregation | Provide labelled bins and staff/student training | Waste Nodal Officer | Within 30 days | Photographs and waste inspection |
| High electricity consumption | Review energy-intensive equipment and implement efficiency measures | Estate Officer | Within 60 days | Bills and consumption comparison |
| Low native tree survival | Replace failed plants and improve aftercare | Horticulture Officer | Suitable planting season | Updated inventory and survival assessment |
| Incomplete waste-disposal records | Obtain receipts and verify authorised collection arrangements | Waste Nodal Officer | Within 30 days | Receipts and vendor records |

These are illustrative timelines; the institution should set deadlines according to the severity of each finding and the resources required.

**Approved by: Principal, St. Bede's College, Shimla**

**Signature:** Sr. Rosily Jom

**Date:** 03-11-2026

**Green Audit Coordinator:** Dr. Renu Thakur

**Signature:** Renu

03/11/2026