

BIDHANNAGAR COLLEGE



EXECUTIVE SUMMARY OF GREEN, ENVIRONMENT & ENERGY AUDIT 2023

Bidhannagar College in association with Institute of Nature Research and Conservation (INRC) conducted vital task of Green, Environment and Energy audit for the year 2021, 2022 and 2023. Which depicts the awareness and responsibility of the college authority and other stakeholders to achieve a green, energy efficient and environment friendly campus which foster a healthy environment for education.

A Green Audit Committee (framed up with internal as well as external members) framed by Principal and IQAC of the Bidhannagar College, involved an audit team to collect the College Biodiversity, environmental and energy related data which is supervised and regularly verified by the said committee.

Body of the Green Audit Committee framed by Principal and IQAC Bidhannagar College-

Sl. No.	Name	Designation	Institution	Internal/ External Member
1	DR. NIMAI CHANDRA SAHA (PRINCIPAL)	Chairman	Bidhannagar College, Kolkata	Internal
2	PROF. DR. SATYAJIT SAHA	Professor, Department of Physics & Dean, Faculty of Science	Vidyasagar University, Medinipur	External
3	DR. SUBHASIS PANDA	Principal	Govt. General Degree College Chapra, Nadia	External
4	DR. SUBHAS CHANDRA SAHA	Assistant Professor, Department of Electronics	Vidyasagar University, Medinipur	External
5	DR. KAUSIK MAJUMDAR	IQAC Coordinator	Bidhannagar College, Kolkata	Internal
6	DR. MOUSUMI MUKHOPADHYAY	Convenor	Bidhannagar College, Kolkata	Internal
7	DR. SUMIT MANNA	IQAC Coordinator Moyna College & Secretary, Institute of Nature Research & Conservation (INRC), Howrah & ISO Lead Auditor EMS (UIN: 840180406937)	Assistant Professor Dept. of Botany, Moyna College, Purba Medinipur	External
8	DR. SUDIP KUMAR GHOSH	Teachers' Council Secretary	Bidhannagar College, Kolkata	Internal
9	DR. AMIT MANNA	Vice-President, Institute of Nature Research & Conservation (INRC), Howrah & ISO Lead Auditor EnMs (UIN:292286787454)	Institute of Nature Research and Conservation (INRC), Howrah	External

10	DR. AMARESH MONDAL	Joint Convenor	Bidhannagar College, Kolkata	Internal
11	MR. NILANJAN SADHUKHAN	Faculty, Moyna College	Dept. of Botany Moyna College, Purba Medinipur	External

The Green, Environment and Energy audit was conducted following the standard methodology of Pre audit data collection, interview with Principal, IQAC members and other different stakeholders, Ground survey and post audit analysis before final audit report preparation.

Summary of Green Audit

During audit it was observed that the college is situated with an area of 7.5 Acer of land of which 85.40% is vegetation area and open land including playground. College presently providing 16 under graduate and 6 post graduate courses under different disciplines of science and arts.

During the Green audit it was observed that there was a total of 106 species of flowering plants out of which 70 species were considered as Major Tree Species (MTS), 10 species belong from shrubs, 19 species grouped into herbs and 7 species were considered as climbers and lianas. Most of the MTS were found to be achieved to their phenological stages with a high DBH and green canopy coverage providing a diverse niche for different avifaunal species. A total of 26% less common and 7% locally threatened MTS was observed in the college campus. These 70 MTS with 356 mature individuals were found to be distributed under 35 different taxonomic families which represent that the taxonomic diversity is very high in the college campus. The Biodiversity Index of the college campus was noticed to be very high $D = 0.0028$.

Out of 36 species of Shrubs, Herbs, Climbers and Lianas under 21 different taxonomic families recorded from College Campus, 65% have medicinal property as recorded in the published literature. Only 5 alien invasive species were recorded to be present in the campus with very low population size (except *Parthenium hysterophorus*) which is good for the college biodiversity. When community structure of herbaceous plants was studied through quadrat method, it was observed that *Eragrostis tenella* followed by *Parthenium hysterophorus* shown their highest Importance Value Index (IVI) value (217.182 and 205.37 respectively).

As the college is situated at the in a congested area of Calcutta, there is no such wild habitat recorded in the college campus. Here in this green audit the total fauna of the college campus has been categorized into 1. Soil fauna 2. Butterflies and Dragon flies and other 3. Birds 4. Reptiles and Mammals. A total of 19 species of soil fauna, 22 species of Butterflies, Moth, Dragon flies, 18 species of birds and 6 species of mammals were recorded from the college campus.

Urban colleges like Bidhannagar College have the potential to be powerful advocates and practitioners of fauna conservation. Through education, research, habitat creation,

community engagement, sustainable practices, and strategic collaborations, these institutions can significantly contribute in preserving and enhancing urban biodiversity. By fostering a culture of environmental stewardship among students and the community, This Urban college can help ensure a sustainable future for both people and city wildlife.

Different green initiatives which have been taken by the college are -

- There is a Medicinal Garden - 'Parasar Udyan' maintained by the Department of Botany which is not only integral to the study of the UG syllabus but also an important instrument for environment consciousness.
- "Prakriti Porichoy" under the aegis of WWF was initiated from the year 2013.
- One vermicompost unit was installed in the college campus and found in functional condition

Summary of Environment Audit

The air and water quality of the different places of the college campus was measured using the standard instruments, it was observed that the HCOC and TVOC varies from 0.008 (in open air) to 0.058 (Biochemistry lab of Botany) which is considered to be safe and livable condition. When air particulate matter (PM) was measured it was noticed that except open land PM varies from 53 to 88 which is considered to be normal. Whereas PM 2.5 ranged from 76 (Zoology research lab.) to 108 (Chemistry lab.) indicates that air quality is poor and not recommended to stay for a long period. College needs to improve air quality through increasing proper aeration specifically in the laboratories.

When water quality in the college campus was measured it was observed that the TDS level of the TAP water was less acceptable for drinking purpose. College authority should regularly monitor the water quality and need proper service of their filtration system.

In the Bidhannagar college campus most of the ground water was found to be used in bathing and washing purpose (27%) followed by cleaning and gardening purpose (25%). College possesses one rain water harvesting unit in the campus which was found to be present in working state. Moreover, the performance of water management by the college is Medium to low which need more improvement.

When source and management of different type of wastes was traced, it was noticed that maximum degradable as well as non-degradable wastes are generating from canteen followed by laboratories and offices. Above 60% management policy (High) was noticed in case of Plastic and paper waste whereas medium management policy (40 to 60 percent) was recorded in case of Hazardous wastes and other solid wastes. No such effective E-waste management was noted in the college during the audit.



Different environment friendly initiatives which have been taken by the college -

- Bidhannagar College (with the initiative of the Department of Botany) has constructed one rain water harvesting infrastructure which provides supply of water for the purpose of cleaning and gardening in the institution.

Summary of Energy Audit

The energy review adopts a proactive approach aimed at the ongoing improvement of energy efficiency. It supplies vital information as a base for a comprehensive energy-saving plan, primarily involving the assessment of energy usage and the evaluation of energy-conservation solutions while prioritizing the preservation or enhancement of human comfort, health, and safety. Through the enquiry process it is noted that the mostly used energy source is conventional (total 1423864U for three consecutive year 2021-23) but institution has taken notable steps to develop non-conventional energy sources in terms of solar energy module and it is found to be nearly 2% of the total unit consumption. Electrical energy consumption by different appliances is also calculated and is found to be approximately 3071U per day, which almost correlates electricity bill. Carbon footprint calculation is also carried out at different places which confirms the optimal environmental condition of the college campus. During audit it is observed that Inverters, generators, and uninterruptible power supplies are safely housed and marked with warning signs displaying 'Caution' and 'Alert' notices. 'On' and 'Off' indicators are placed strategically in key areas to encourage energy-saving practices among users. Electrical wires, control boards, and voltage regulators are well-insulated to prevent potential hazards to staff and students. Additionally, tips for everyday practices related to common electrical devices are provided, aiming to reduce energy usage without interrupting regular activities.

Signature of the Green Audit Committee -

1.

Principal
Bidhannagar College

Signature EB-2, Sec.- I, Salt Lake, Kol - 64
28.06.2024

2.


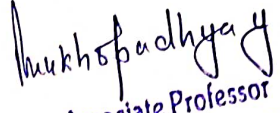
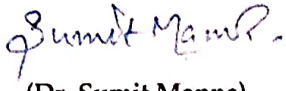
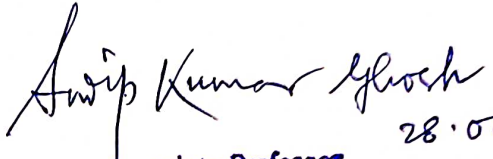
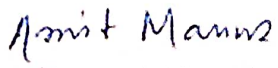
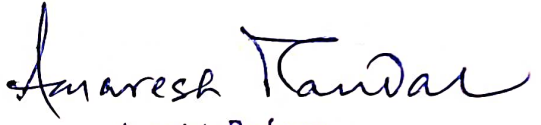
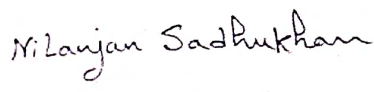
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