GREEN AUDIT REPORT

(2018-19)

Barrackpore Rastraguru Surendranath College

85, Middle Road & 6, Riverside Road, Barrackpore,

North 24 Parganas, Kolkata – 700120, West Bengal

ExecutiveSummary

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. Barrackpore Rastraguru Surendranath College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote the various projects for the environment protection and sustainability.

The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Contents:

ACKNOWLEDGEMENT

Management System Consultancy would like to thank the management of Barrackpore Rastraguru Surendranath College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.
We would also like to thank the Management for his continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Management System Consultancy details given below:

The auditors of Management system Consultancy are full members of many accredited Institutions like CQI, IRCA, NABET, QCI, NABL, NPC, NSC.
Qualified Lead Auditor in ISO 9001 (in 2008 and 2015 version), Occupational Health and Safety Management in both 2007 and 2018 versions, Environment Management in both 2004 and 2015 versions, Energy Management System in 2018 version, NSC approved Safety Auditor, Risk Assessment auditor from QCI, SA8000 Certified Auditor, Training and Auditing experience in private as well as governmental organizations.

*Membership with National Safety Council (NSC), Auditors are qualified from National Productivity Council (NPC) and with Quality Council of India (QCI).
*Empanelled auditors from IAF Accredited Certification Body.
*Training partner of PECB (International Body).
*ISO 17020:2012 Certified Professional from QCI.
*Waste Management certified from QCI and United Nations Institute for Training and Research.
*Energy Auditor from NPC (National Productivity Council) .
*Certified on Green Economy from United Nations Institute for Training and Research.
*Certified on Gender Equality and Human Rights in Climate Action and Renewable Energy from United Nations Institute for Training and Research.
*Certified on Waste management from United Nations Institute for Training and Research.

INTRODUCTION

Environmental or Green Audit is a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements (EPA, 2003). In other words, it is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable (International Chamber of Commerce, 1989).

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organisations of all kinds now recognise the importance of environmental matters and accept that their environmental performance will be scrutinised by a wide range ofinterested parties. Environmental auditing is used to investigate, understand and identify.

UTILITY OF GREEN AUDITING

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organisation's environmental effects in a systematic and documented manner and will produce an environmental audit report.

Our College and Green Auditing

Barrackpore Rastraguru Surendranath College is one of the leading higher education institutions under West Bengal State University. It has been providing a quality education to the rural and sub-urban students of North 24 Parganas and adjacent districts. The college has two campuses – the Science building at 85, Middle Road, Barrackpore and another Arts and Commerce building at 6, Riverside Road on the bank of the river Ganges.Our college reaccredited (3rd cycle) by NAAC with 'A' Grade and received College with Potential for Excellence (CPE) status from UGC.

Green Audit Working Team (2018-19):

	Name of the Members	Designation
1	PROF.(DR.) MONOJIT RAY,	Principal, BRSN College
2	Dr. Sutapa Ghosh Dastidar,	Coordinator, IQAC
3	Dr. Sujata De Chaudhuri	Assistant Professor, Dept. Of Zoology
4	Dr. Sandip Pal	Assistant Professor, Dept. Of Zoology
5	Dr. Suraj Sk	Assistant Professor, Dept. Of Botany

OBJECTIVESOFTHE STUDY

The main objectives of the green audit are to promote the environment management and conservation in the college campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out green audit are

a. To introduce and make aware students to real concerns of environment and its sustainability
b. To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus
c. To establish a baseline data to assess future sustainability by avoiding the interruptions in environmentthat are more difficult to handle and their corrections requires high cost.
d. To bring out a present status report on environmental compliance

METHODOLOGY FOR GREEN AUDIT:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

(g) Review documentation:

(h) Evaluation and Analysis:

(i) Assess environmental impacts:

(j) Evaluate compliance:

(k) Identify strengths and weaknesses:

(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement

The methodology adopted to conduct the Green Audit of the Institution had the following components.

On-siteVisit :

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

Focus Group Discussion :

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

Energy and waste management Survey:

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

WASTE MANAGEMENT:

Recycling: Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

Composting: The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

Table: Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Store these in a separate tank, and we can start selling them directly after a certain amount of time.
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly.

Solid wastes	Paper waste, Damaged furniture, paper plates, food wastes	Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste.
Chemical wastes	Laboratory waste	Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations.
Wastewater	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers.
Sanitary Napkin	-	Napkin Incinerators

For this purpose, Barrackpore Rastraguru Surendranath College has employed waste bins for proper segregation of solid wastes in the campuses. It includes provision for plastic/glass waste, food waste and metal/e-waste in a single compact system.

	Numberofwastebins
ScienceCampus(85,MiddleRoad)	05
ArtsCampus(6,RiversideRoad)	05
Boy'sHostel	01
Girl'sHostel	01
TOTAL	**12**

WATER USAGE:

Water Fixtures: Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive, water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

WATER MANAGEMENT TABLE:

Water Management Tasks	Frequency	Responsible Party
Routine examination of water supplies	Monthly	Green Audit Working Team
Testing for drinking water quality	Half-yearly	Do
Awareness of water conservation	Half-yearly	Green Audit Working Team & various department
Infrastructure for water distribution that needs upkeep and repair	As needed	Caretaker
Reporting and analysis of water use	Annually	Green Audit Working Team & Caretaker
Learn what causes excessive water consumption.	As needed	Caretaker

Water Quality Assessment, Consumption & Management

Water quality analysis was conducted by Eutech PCS Multi-parameter Tester 35, µC Turbidity Meter 135 and Lutron DO-5509 Meter.

Table – 1 (Average Value of 17-18)

Sample No.	Location from where samples collected	MPN Index (per 100 ml)	Water Quality
1	Teachers' Room Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
2	Teachers' Room Aquaguard (Science Campus)	00	Outstanding (Potable)
3	Students' Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
4	Students' Aquaguard (Science Campus)	00	Outstanding (Potable)
5	Tap water (Science Campus)	07	Good (Non-Potable)
6	Normal tap water	15	Good (Non-Potable)
7	Well water of garden	43	Average (Non-Potable)

Table – 2 (Average Value of 2017-19)

	Location from where samples collected	TDS (ppm)	Conductance (µS)	pH	Salinity (ppm)
1	Science Campus (85, Middle Road)	207	292	7.84	141
2	Arts Campus (6, Riverside Road)	215	301	7.98	146
3	Boy's Hostel	219	309	8.43	149
4	Girl's Hostel	216	305	8.22	148

Table – 3 (Average Value of Ion Content in College Tap Water)

IONS	UNIT (ppm)
Sodium	18.86
Potassium	5.48

Total Number of Taps in 85, Middle Road Campus

Department/Section/Room	Room No.	No. of Taps

Ground floor		
Health	110	1
Toilet	109	5
Computer staff room	108	2
GB room toilet	119	2
Principal's room	103	3+1 = 4
Controller's room		3
Office toilet		3
Account's toilet		3
Outside general toilet		3+1 = 4
Front garden tap		2
Staff canteen	138A	1
Teachers room	138	1+3+4 = 8
Cell		2
Student's basin backyard		3
Backyard garden tap		1
Student's canteen		
Boy's Toilet		11
Microbiology		14+13+4+2+1 = 34
	Floor Total:	**89**
1st floor		
Zoology	222, 223, 224	14
Zoology extended basin, toilet		6
Microbiology		4
Toilet	221	5
Chemistry lab		26
Chemistry lab	240	1
Central instrument room	241	1
Botany	242	4
Toilet	205	7
Toilet	206	6
Economics		2
Virtual classroom complex		3
Electronics		3
	Floor Total:	**82**
2nd floor		
Toilet		5+2 = 7
Food & nutrition		8+4 = 12
Geography		3
Toilet	338	2
Toilet	327	3
Psychology		3
Physics		3+3 = 6

Botany		4
	Floor Total:	**40**

Total Number of Taps in 6, Riverside Road Campus

Department/Section/Room	Block	No. of Taps
Ground floor		
Gents toilet	A	7
Ladies toilet	A	5
Library	B	3
Student aquaguard	B	1
Drinking water	B	3
Student aquaguard	C	1
Language lab	C	3
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
Seminar room	D	2
Sports room	E	2
Drinking water	E	1
Canteen	E	4
Aquaguard	E	1
Flower garden		3
Outside building		5
	Floor Total:	**65**
1st floor		
Guest room	A	5
Ladies toilet	B	3
Gents toilet	**B**	3
Staff room	B	3
Girls toilet	B	5
Boys toilet	B	9
Aquaguard	B	1
Ladies toilet	C	11
Gents toilet	C	8
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
	Floor Total:	**72**
Girls Hostel		93

	25 (showers)
Boy's Hostel	25

Water Storage Profile

	Number & Capacity of Tanks	Total Capacity (Litre)
Science Campus (85, Middle Road)	1500 L x 4 1000 L x 4 1500 L x 2 1000 L x 4 500 L x 4 1000 L x 2 500 L x 2 1000 L x 2 500 L x 1	6000 4000 3000 4000 2000 2000 1000 2000 500
	Sub-total	**24,500**
Arts Campus (6, Riverside Road)	750 L x 4 500 L x 1 1000 L x 1 1000 L x 1 1000 L x 2 500 L x 4 500 L x 2	3000 500 1000 1000 2000 2000 1000
	Sub-total	**10,500**
Boy's Hostel	1000 L x 2	2000
Girl's Hostel	1000 L x 4	4000
	Total	**41,000**

Comments

Approximate per capita average consumption and usage per day is **6.6 L of water.**

TRANSPORTATION:

Public Transport:

The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

Electric Vehicles:

To aid in the switch to electric transport, the college may choose to invest in infrastructure for charging EVs. Additionally, encouraging the use of electric vehicles through awareness programs and incentives can help lower the emissions produced by on-campus transportation.

AIR QUALITY ASSESSMENT AND MANAGEMENT

Air quality of the College campus is monitored by AIRVEDA multi-parameter measuring system.

Months	PM 2.5 (ppm)	PM 10 (ppm)	Humidity (%)	CO_2 (ppm)
May 18	75.5	201.5	49.0	586
June 18	75.6	230.3	51.0	578
July 18	70.6	174.3	55.0	569
August 18	68.6	114.0	55.0	431
September 18	59.2	108.0	56.0	462
October 18	134	169.0	52.0	499
November 18	155	205.0	47.0	525
December 18	176.5	218.5	47.5	578

January 19	164.4	243.4	48.7	611
February 19	113.5	210.6	51.5	582
March 19	68.8	150.1	47.2	550

ELECTRICITY CONSUMPTION (IN UNITS) AND MANAGEMENT

Science Campus (85, Middle Road)	**December 2018- February 2019**	**September 2018- November 2018**	**June 2018- August 2018**	**March 2018- May 2018**
Science Campus (85, Middle Road)	**21377**	**27709**	**46722**	**39852**
Arts Campus (6, Riverside Road)	October 2018- December 2018	July 2018- September 2018	April 2018- June 2018	January 2018- March 2018
Arts Campus (6, Riverside Road)	11349	21207	15515	12185
Boy's Hostel	**December 2018- February 2019**	**September 2018- November 2018**	**June 2018- August 2018**	**March 2018- May 2018**
Boy's Hostel	**728**	**796**	**850**	**697**
Girl's Hostel	November 2018- January 2019	August 2018- October 2018	May 2018- July 2018	February 2018- April 2018
Girl's Hostel	2902	6826	5895	4656

LED Tubes & lights

TOTAL ELECTRICITY CONSUMPTION PER YEAR:

	UNITS
Science Campus (85, Middle Road)	1,35,660
Arts Campus (6, Riverside Road)	60,256
Boy's Hostel	3,071
Girl's Hostel	20,279
GRAND TOTAL	**2,19,266**

Comments

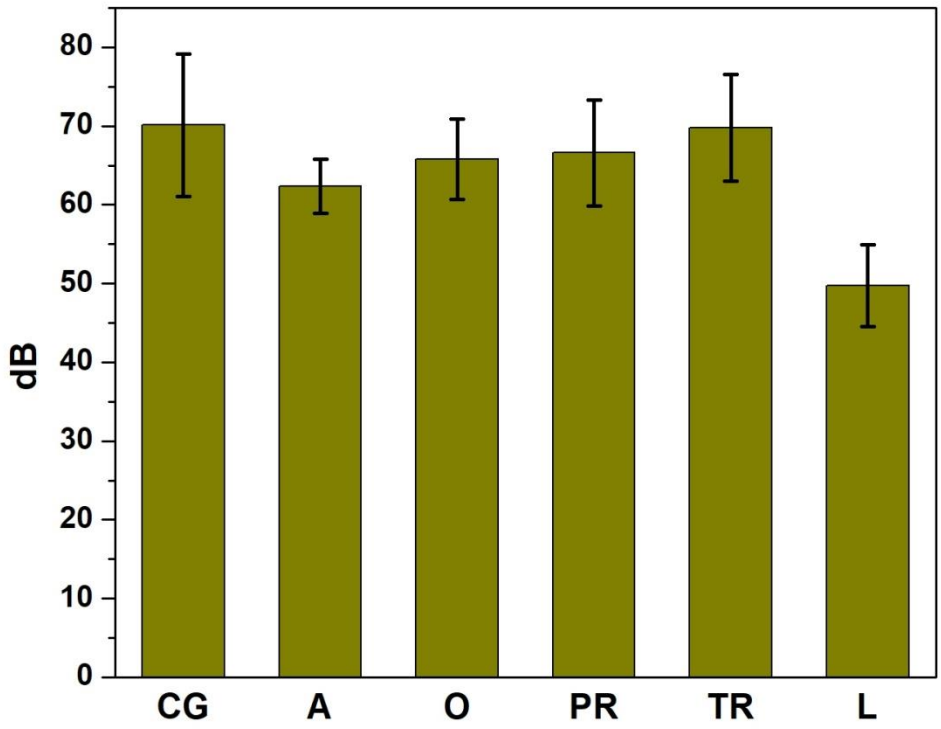
Approximate per capita average consumption per month is 3 units

SOUND POLLUTION MONITORING

Sound pollution is another important parameter that is taken into account for green auditing of the College Campus. Six different sites are chosen for the monitoring purpose namely College gate, accounts section, college office, Principal's room, teachers' room and library. Sound is quantified by the Sound Level Meter (Lutron SL-4030).

Average Values of 2017-18

	Sound Level (dB)
College Gate (CG)	70.1 ± 9.1
Accounts (A)	62.4 ± 3.4
Office (O)	65.8 ± 5.1
Principal's Room (PR)	66.6 ± 6.7
Teachers' Room (TR)	69.8 ± 6.8
Library (L)	49.7 ± 5.2


dB
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BIODIVERSITY STATUS OF THE COLLEGE CAMPUSES

INTRODUCTION

Barrackpore Rastraguru Surendranath College situated beside river Hooghly is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the college premises and their inter-relationship.

OBJECTIVE

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.

Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.

Documentation of the specific interdependence of floral and faunal life.

Survey Team

- **Arjan Basu Roy (PI)**
- **Swapna Biswas (Flora, Dragonflies, Birds)**
- **Sarika Baidya (Butterflies and related Plants)**
- **Tarun Karmakar (Butterfly and other Insects)**
- **Namrata Das (Butterfly and other Insects)**
- **Souparno Roy (Butterfly, Reptiles and Amphibians)**
- **Archan Paul (Butterflies)**
- **Arabinda Narayan Dolai (Mammals, Birds)**

Survey Time:

July, 2017 to April, 2018

Visit	Date	Member
Visit 01	18.07.2017	Swapna, Namrata & Archan
Visit 02	10.08 2017	Swapna, Namrata & Arabinda
Visit 03	16.10.2017	Swapna & Namrata
Visit 04	30.10.2017	Sarika, Tarun, Souparno
Visit 05	19.11.2017	Sarika, Souparno, Archan
Visit 06	24.12.2017	Namrata & Archan
Visit 07	15.01.2018	Swapna & Namrata
Visit 08	13.02.2018	Swapna & Namrata
Visit 09	18.03.2018	Arjan, Namrata & Archan
Visit 10	08.04.2018	Namrata & Archan

Survey Area

Barrackpore Rastraguru Surendranath College premises and its surrounding areas. The two college campuses are situated at 85, Middle Road, Barrackpore which is close the river Hooghly and 6, Riverside Road, Barrackpore.

Map 01: 85, Middle Road Campus
Shows the area of our work.

METHOD OF STUDY

Brief methodology for the floral and faunal survey is given below.

- **Sampling was done mostly in random manner.**
- **The total area was surveyed by walking at day time.**
- **Surveys were conducted for the maximum possible hours in day time.**
- **Tree species were documented through physical verification on foot and photographed each species as much as possible.**
- **For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.**
- **Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, dung deposits and footprints were also observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.**
- **Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species.**
- **Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.**
- **Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.**
- **Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.**
- **The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out**

under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. Slugs and snails are more conspicuous during wet weather and especially at night when they were found using a torch.

- **Digital photography was done for all the species recorded as much as possible.**

NUMBER OF FLORAL SPECIES OBSERVED: 259

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Table 01: Checklist of Floral groups with species number

1.	Trees	70	Table-10
2.	Aquatic Plants	7	Table-11
3.	Bamboos	1	Table-12
4.	Grasses	3	Table-13
5.	Herbs	65	Table-14
6.	Shrubs	60	Table-15
7.	Creepers	26	Table-16
8.	Ornamental Plants	1	Table-17
9.	Palms	10	Table-18
10.	Parasitic	2	Table-19

11.	Fern	4	Table-20
12.	Season Flower	10	Table-20

NUMBER OF FAUNAL SPECIES OBSERVED: 161

The list of Fauna indicates that the college campus is significantly rich in faunal diversity. We have seen a significant number of bird nests at many a places. Mammals' diversity is good. Avian diversity is wonderful. In these 10 visits, we have also photographed and documented 68 species of butterflies which indicates a healthy eco-system as a whole. Odonate population indicates that the health of the water bodies and the riverine ecosystem is quite good. The amphibian population also supports this fact. Reptilian population is also quite significant and presence of Bengal Monitor Lizard indicates that the reptilian population is naturally controlled and managed at the study site. We have not been able to document other insect groups during this survey. The year long survey will add some more fauna in the checklist for sure after the seasonal survey.

Table 02: Checklist of Faunal groups with species number

1.	Mammals	5	Table-1
2.	Birds	53	Table-2
3.	Reptiles	6	Table-3
4.	Amphibians	3	Table-4
5.	Butterflies	68	Table-7
6.	Odonates	26	Table-8

Table 03: Checklist of Mammals

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Five-striped Palm Squirrel	*Funambulus pennantii*	Kathbirali	Sciuridae
2	Common Pipistrelle	*Pipistrellus pipistrellus*	Chamchike	Vespertilionidae
3	Indian Flying Fox	*Pteropus giganteus*	Kola Badur	Pteropodidae
4	Fruit Bat	*Pteropus* sp.	Badur	Pteropodidae
5	Gray Langur	*Semnopithecus* sp.	Hanuman Langur	Cercopithecidae
6	Asian Palm Civet	*Paradoxurus hermaphroditus*	Bham Biral	Viverridae
7	Indian Grey Mongoose	*Herpestes edwardsi*	Neul	Herpestidae

Table 04: Checklist of Birds

Sl. No	Common Name	Scientific Name	Bengali Name	Family
1	Alexandrine Parakeet	*Psittacula eupatria*	Chondona	Psittacidae
2	Asian Koel	*Eudynamys scolopaceus*	Kokil	Cuculidae
3	Asian Openbill	*Anastomus oscitans*	Shamuk Khol	Ciconiidae

4	Asian Palm Swift	*Cypsiurus balasiensis*	Talchonch	Apodidae
5	Asian Pied Starling	*Gracupica contra*	Go-shalik	Sturnidae
6	Black Drongo	*Dicrurus macrocercus*	Finge	Dicruridae
7	Black Kite	*Milvus migrans*	Chil	Accipitridae
8	Black-hooded Oriole	*Oriolus xanthornus*	Benebou	Oriolidae
9	Black-naped Monarch	*Hypothymis azurea*		Monarchidae
10	Black-naped Oriole	*Oriolus chinensis*	Kaloghad Benebou	Oriolidae
11	Blue-throated Barbet	*Megalaima asiatica*	Nilgala Basantabouri	Ramphastidae
12	Cattle Egret	*Bubulcus ibis*	Gobok	Ardeidae
13	Common Hawk Cuckoo	*Hierococcyx varius*	Papia	Cuculidae
14	Common Hoopoe	*Upupa epops*	Mohonchuda, Hupo	Upupidae
15	Common Iora	*Aegithina tiphia*	Fotik Jol	Aegithinidae
16	Common Kingfisher	*Alcedo atthis*	Chhoto Machhranga	Alcedinidae
17	Common Myna	*Acridotheres tristis*	Shalik	Sturnidae
18	Common Pigeon	*Columba livia*	Payra	Columbidae
19	Common Sandpiper	*Actitis hypoleucos*	Sadharon Balubatan	Scolopacidae
20	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae
21	Coppersmith Barbet	*Megalaima haemacephala*	Chhoto basantabouri	Ramphastidae
22	Eastern Jungle Crow	*Corvus (macrorhynchos) levaillantii*	Dandkak	Corvidae
23	Eurasian Collared Dove	*Streptopelia decaocto*	Konthi Ghughu	Columbidae
24	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Jarod Kath Thokra	Picidae
25	Greater Coucal	*Centropus sinensis*	Kubo	Cuculidae
26	Green Bee-Eater	*Merops orientalis*	Banspati	Meropidae
27	House Crow	*Corvus splendens*	Kak	Corvidae
28	House Sparrow	*Passer domesticus*	Chorui	Passeridae
29	Indian Cormorant	*Phalacrocorax fuscicollis*	Majhari Pankoudi	Phalacrocoracidae
30	Indian Pond Heron	*Ardeola grayii*	Konchbok	Ardeidae
31	Jungle Babbler	*Turdoides striatus*	Chhatare	Timaliidae
32	Jungle Myna	*Acridotheres fuscus*	Jhuntshalik	Sturnidae
33	Lesser Goldenback	*Dinopium benghalense*	Chhoto Sonali Kath Thokra	Picidae
34	Lineated Barbet	*Megalaima lineate*	Rekha Basantabouri	Ramphastidae
35	Marsh Sandpiper	*Tringa stagnatilis*	Biler Balubatan, Jolar Chapakhi	Scolopacidae
36	Oriental Magpie Robin	*Copsychus saularis*	Doyel	Muscicapidae
37	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Poragpakhi	Dicaeidae
38	Purple Heron	*Ardea purpurea*	Lalkank, Nilbogola	Ardeidae
39	Purple Sunbird	*Nectarinia asiatica*	Durga Tuntuni	Nectariniidae
40	Purple-rumped Sunbird	*Nectarinia zeylonica*	Moutushi	Nectariniidae
41	Red-vented Bulbul	*Pycnonotus cafer*	Bulbuli	Pycnonotidae
42	Red-whiskered Bulbul	*Pycnonotus jocosus*	Shipai Bulbul	Picnonotidae
43	Rose-ringed Parakeet	*Psittacula krameri*	Tiya	Psittacidae

44	Rufous Treepie	*Dendrocitta vagabunda*	Handichancha	Corvidae
45	Shikra	*Accipiter badius*	Turki baaz	Accipitridae
46	Spotted Dove	*Stigmatopelia chinensis*	Tile Ghughu	Columbidae
47	Spotted Owlet	*Athene brama*	Kuthure Pencha	Strigidae
48	Stork-billed kingfisher	*Pelargopsis capensis*	Gudiyal	Alcedinidae
49	Taiga Flycatcher	*Ficedula albicilla*	Chutki	Muscicapidae
50	White Wagtail	*Motacilla alba*	Sada Khonjon, Khonjona	Motacillidae
51	White-breasted Waterhen	*Amaurornis phoenicurus*	Dahuk	Rallidae
52	White-throated Kingfisher	*Halcyon smyrnensis*	Sadabuk Machhranga	Alcedinidae
53	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Horiyal	Columbidae

Table 05: Checklist of Reptiles

Sl.No.	Common Name	Scientific Name	Bengali Name	Family
1	Checkered Keelback	*Xenochrophis piscator*	Joldhora	Colubridae
2	Buff Striped Keelback	*Amphiesma stolatum*	Hele	Colubridae
3	Rat Snake	*Zamenis longissimus*	Darash	Colubridae
4	Russell's Viper	*Daboia russelii*	Chandrabora	Viperidae
5	Skink	*Lampropholis* sp.	Anjani	Scincidae
6	Oriental Garden Lizard	*Calotes versicolor*	Girgiti	Agamidae
7	Bengal Monitor Lizard	*Varanus bengalensis*	Gosap	Varanidae
7	Common House Gecko	*Hemidactylus frenatus*	Tiktiki	Gekkonidae

Table 06: Checklist of Amphibians

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Indian Toad	*Duttaphrynus melanostictus*	Kuno Byang	Bufonidae
2	Skittering Frog	*Euphlyctis cyanophlyctis*	Katkati Byang	Dicroglossidae
3	Asian Bullfrog	*Hoplobatrachus tigerinus*	Sona Byang	Dicroglossidae

Table 07: Checklist of Butterflies

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Blue Mormon	*Papilio polymnestor*	Barunpakha	Papilionidae
2	Common Jay	*Graphium doson*	Minji	Papilionidae
3	Common Mime	*Papilo clytia*	Khagra	Papilionidae
4	Common Mormon	*Papilo polytes*	Kalim	Papilionidae
5	Common Rose	*Pachliopta aristolochiae*	Alte	Papilionidae
6	Lime Butterfly	*Papilio demolius*	Ruru	Papilionidae
7	Tailed Jay	*Graphium agamemnon*	Choitak	Papilionidae
8	Western Striped Albatross	*Appias libythea*	Dhulkapas	Pieridae
9	Small Grass Yellow	*Eurema brigitta*	Chhoto Holud	Pieridae
10	Common Grass Yellow	*Eurema hecabe*	Holud	Pieridae

11	Common Gull	*Cepora nerissa*	Kuchila	Pieridae
12	Eastern Striped Albatross	*Appias olferna*	Dhulkapas	Pieridae
13	Indian Jezebel (Common Jezebel)	*Delias eucharis*	Hartoni	Pieridae
14	Indian Wanderer	*Pareronia hippia*	Tallar	Pieridae
15	Lemon Emmigrant	*Catopsilia pomona*	Payrachali	Pieridae
16	Mottled Emmigrant	*Catopsilia pyranthe*	Chhitpayra	Pieridae
17	Psyche	*Leptosia nina*	Furus	Pieridae
18	Common Cerulean	*Jamides celeno*	Surul	Lycaenidae
19	Common Lineblue	*Prosotas nora*	ChandandNari	Lycaenidae
20	Tailless Lineblue	*Prosotas dubiosa*	Bigri Danri	Lycaenidae
21	Common Pierrot	*Castalius rosimon*	Tilaia	Lycaenidae
22	Common Quaker	*Neopithecops zalmora*	Kori	Lycaenidae
23	Dark Grass Blue	*Zizeeria karsandra*	Chhoi	Lycaenidae
24	Forget-me-not	*Catochrysops strabo*	Rittam	Lycaenidae
25	Gram Blue	*Euchrysops cnejus*	Joural	Lycaenidae
26	Lesser Grass Blue	*Zizina otis*	Para	Lycaenidae
27	Lime Blue	*Chilades lajus*	Tura	Lycaenidae
28	Pale Grass blue	*Pseudozizeeria maha*	Dhupi	Lycaenidae
29	Pea Blue	*Lampides boeticus*	Khoria	Lycaenidae
30	Plains Cupid	*Chilades pandava*	Rulki	Lycaenidae
31	Tiny Grass Blue	*Zizula hylax*	Tinni	Lycaenidae
32	Zebra Blue	*Leptotes plinius*	Zizi	Lycaenidae
33	Slate Flash	*Rapala manea*	Rimli	Lycaenidae
34	Falcete Oakblue	*Mahathala ameria*	Kaste Rangchiti	Lycaenidae
35	Common Guava Blue	*Virachola isocrates*		Lycaenidae
36	Spotted Pierrot	*Tarucus callinara*	Chhit Tilkushi	Lycaenidae
37	Monkey Puzzle	*Rathinda amor*	Chatul	Lycaenidae
38	Indian Sunbeam	*Curetis thetis*	Jhinukpalash	Lycaenidae
39	Common Silverline	*Spindasis vulcanus*	Riupapatia	Lycaenidae
40	Angled Castor	*Ariadne ariadne*	Kanmorche	Nymphalidae
41	Blue Tiger	*Tirumala limniace*	Himalkuchi	Nymphalidae
42	Chestnut-streaked Sailer	*Neptis jumbah*	Batasi	Nymphalidae
43	Commander	*Moduza procris*	Karanjia	Nymphalidae
44	Common Baron	*Euthalia aconthea*	Bhushanda	Nymphalidae
45	Common Bushbrown	*Mycalesis perseus*	Janglabira	Nymphalidae
46	Common Castor	*Ariadne merione*	Morchepata	Nymphalidae
47	Common Crow	*Euploea core*	Kaoa	Nymphalidae
48	Common Evening Brown	*Melanitis leda*	SaNjhla	Nymphalidae
49	Common Five-ring	*Ypthima baldus*	PaNchbuNdi	Nymphalidae
50	Common Four-ring	*Ypthima huebneri*	CharbuNdi	Nymphalidae
51	Common Leopard	*Phalanta phalantha*	Chita	Nymphalidae
52	Common Palmfly	*Elymnias hypermnestra*	Khayerchak	Nymphalidae

53	Danaid Eggfly	*Hypolimnas misippus*	JamchaNda	Nymphalidae
54	Goudy Baron	*Euthalia lubentina*	KuNchrangi	Nymphalidae
55	Great Eggfly	*Hypolimnas bolina*	Jamui	Nymphalidae
56	Grey Pansy	*Junonia atlites*	ChaNdnori	Nymphalidae
57	Peacock Pansy	*Junonia almana*	Nayan	Nymphalidae
58	Plain Tiger	*Danaus cheysippus*	Tamot	Nymphalidae
59	Striped Tiger	*Danaus genutia*	Baghballa	Nymphalidae
60	Tawny Coster	*Acraea violae*	Horinchhara	Nymphalidae
61	Lemon Pansy	*Junonia lemonias*	Ushum	Nymphalidae
62	Brown Awl	*Badamia exclamationis*	Chile Pakhui	Hesperiidae
63	Common Banded Awl	*Hasora chromus*	Khori Pakhui	Hesperiidae
64	Oriental Palm Bob	*Suastus gremius*	Khoyra	Hesperiidae
65	Pale Palm Dart	*Telicota colon*	Bena Tirap	Hesperiidae
66	Small Banded Swift	*Pelopidas mathias*	Pati Johur	Hesperiidae
67	Swift sp.			Hesperiidae
68	Chestnut Palm Bob	*Iambrix salsala*	Piplai	Hesperiidae

Butterfly Garden, 6, River Side Road Campus Of College



Table 08: Checklist of Odonates

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Green Darner	*Anax junius*	Sobuj Kanta	Aeshnidae
2	Coromandel Marsh Dart	*Ceriagrion coromandelianum*	Holde Baan	Coenagrionidae
3	Orange Tailed Marsh Dart	*Ceriagrion cerinorubellum*	Keshar Baan	Coenagrionidae
4	Pygmy Dartlet	*Agriocnemis pygmaea*	Baman Shar	Coenagrionidae
5	Saffron Faced Blue Dart	*Pseudagrion rubriceps*	Keshari Mukh	Coenagrionidae
6	Senegal Golden Dartlet	*Ischnura senegalensis*	Treebarna Shar	Coenagrionidae
7	Three lined Dart	*Pseudagrion decorum*	troyee Baan	Coenagrionidae
8	Tiny Hooded Dartlet	*Agriocnemis kalinga*	Kshude Shar	Coenagrionidae
9	Black Marsh Trotter	*Tramea limbata*	Krishna Shel	Libellulidae
10	Common Picturewing	*Rhyothemis* variegata	Titli Pakh	Libellulidae
11	Coral Tailed Cloud-wing	*Tholymis* tillarga	Meghla Pakh	Libellulidae
12	Ditch Jewel	*Brachythemis contaminata*	Kamala Baran	Libellulidae

13	Estuarine Skimmer	*Macrodiplax* cora	Nona Baran	Libellulidae
14	Fulvous Forest Skimmer	*Neurothemis fulvia*	Tamra Baran	Libellulidae
15	Green Marsh Hawk	*Orthetrum* sabina	Sabuj Sena	Libellulidae
16	Ground Skimmer	*Diplacodes* trivialis	Bhubaran	Libellulidae
17	Little Blue Marsh Hawk	*Brachydiplax* sobrina	Neelbaman Sena	Libellulidae
18	Ruddy Marsh Skimmer	*Crocothemis* servilia	Rakta Baran	Libellulidae
19	Scarlet Marsh Hawk	*Aethriamanta* brevipennis	Raktim Sena	Libellulidae
20	Wondering Glider	*Pantala* flavescens	Bristi Bahan	Libellulidae
21	Granite Ghost	*Bradinopyga geminata*	Pathuria	Libellulidae
22	Yellow-tailed Ashy Skimmer	*Potamarcha congener*	Dhushar Baran	Libellulidae
23	Rufous Marsh Glider	*Rhudothemis rufa*	Lalbahan	Libellulidae
24	Pied Paddy Skimmer	*Neurothemis tullia*	Fatik Baran	Libellulidae
25	Crimson-tailed Marsh Hawk	*Orthetrum pruinosum*	Chuni Sena	Libellulidae
26	Black Marsh Dart	*Onychargia atrocyana*	Kele Ban	Platycnemididae

Table 09: Checklist of Larval Host Plants found in campus

Sl. No.	Common Name of Butterfly Species	Larval Host Plant (Local Name)	Larval Host Plant (Scientific Name)
1	Tailed Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
2	Common Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
3	Common Castor	Rerhi/ Castor Plant	*Ricinus communis*
4	Plain Tiger	Akanda	*Calotropis gigantea*
5	Angled Castor	Jol Bichhuti/ Lata Bichhuti	*Tragia involucrata*
6	Plains Cupid	Chiruni Palm	*Cycas revoluta*
7	Common Mormon	Lebu, Karipata, Ash Shaora	*Citrus* sp., *Murraya koenigii, Glycosmis pentaphyla*
8	Emmigrant sp.	Minjiri	*Cassia siamea*
9	Lime Blue	Lebu	*Citrus* sp.
10	Common Banded Awl	Karanja	*Pongamia pinnata*

Number of Floral species observed: 271

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Checklist of Floral groups with species number

13.	Trees	70	Table-10
14.	Aquatic Plants	7	Table-11

15.	Bamboos	1	Table-12
16.	Grasses	3	Table-13
17.	Herbs	65	Table-14
18.	Shrubs	60	Table-15
19.	Creepers	26	Table-16
20.	Ornamental Plants	1	Table-17
21.	Palms	10	Table-18
22.	Parasitic	2	Table-19
23.	Bryophyte	2	Table-20
24.	Pteridophytes	14	Table-21
25.	Seasonal Flower	10	Table-22

Table 10: Checklist of Trees

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Kak Dumur	Fig Tree	*Ficus hispida*	Monaceae
2	Aam	Mango	*Mangifera indica*	Anacardiaceae
3	Akashmoni	Golden Shower	*Acacia auriculiformis*	Fabaceae
4	Akashneem	Indian Cork Tree, Tree Jasmine	*Millingtonia hortensis*	Bignoniaceae
5	Allspice Tree	Allspice Tree	*Pimenta dioica*	Myrtaceae
6	Amaltash	Golden Shower	*Cassia fistula*	Caesalpiniaceae
7	Amloki	Amla	*Emblica officinalis*	Euphorbiaceae
8	Amrah	Wild Mango	*Spondias pinnata*	Anacardiaceae
9	Ashfol	Longan	*Euforia longan*	Sapindaceae
10	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
11	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
12	Bahera	Bahera	*Terminalia bellirica*	Combretaceae
13	Bakul	Spanish cherry / Bakul	*Mimusops elengi*	Caesalpiniaceae
14	Batabi Lebu	Pomelo	*Citrus maxima*	Rutaceae
15	Bel	Golden Apple	*Aegle marmelos*	Rutaceae
16	Bhawarmal, Bohar, Biharukh	Bhawarmal, Bohar, Biharukh	*Hymenodictyon orixense*	Rubiaceae
17	Bot	Banyan Tree	*Ficus benghalensis*	Moraceae
18	Buddha Narkel	Buddha Coconut	*Pterygota alata*	Sterculiaceae
19	Chalta	Elephant Apple	*Dillenia indica*	Dilleniaceae
20	Chhatim	Chhatiyan / Devil's Tree	*Alstonia scholaris*	Apocynaceae
21	Chhotopata Mehogini	Small-leaved Mahogany	*Swietenia mahagoni*	Meliaceae
22	Chinese Bot	Ficus	*Ficus Sp.*	Moraceae
23	Christmass Tree	Caledonia Pine/ Christmas Tree	*Araucaria cookii*	Arucariaceae

24	Debdaru	Indian Fir / Cementry Tree	*Polialthia longifolia*	Annonaceae
25	Eucaliptus	Eucalyptus	*Eucalyptus spp.*	Myrtaceae
26	Gandhraj	Gardenia, Cape jasmine	*Gardenia jasminoides*	Rubiaceae
27	Ghora Neem	Indian Lilac Tree	*Melia azedarach*	Meliaceae
28	Golap Jam	Gulab Jamun	*Syzygium jambos*	Myrtaceae
29	Haritaki	Haritaki	*Terminalia chebula*	Combretaceae
30	Indurmari	Gliricidia	*Gliricidia sepium*	Fabaceae
31	Jagga Dumur	Cluster Fig	*Ficus glomerata*	Moraceae
32	Jam	Indian Blackberry	*Syzygium cumini*	Myrtaceae
33	Jamrul	Water Apple	*Syzygium aqueum*	Myrtaceae
34	Jarul	Pride of India	*Lagerstroemia speciosa*	Lythraceae
35	Kadam	Kadam	*Anthocephalus chinensis*	Rubiaceae
36	Kamranga	Star Fruit	*Averrhoa carambola*	Averrhoaceae
37	Kanchan	Butterfly Tree	*Bauhinia purpurea*	Caesalpiniaceae
38	Kanthal	Jack Fruit	*Artocarpus heterophyllus*	Moraceae
39	Karanja	Pongam Tree, Pongame Oil Tree	*Pongamia pinnata*	Fabaceae
40	Kath Badam	Indian Almond	*Terminalia catappa*	Combretaceae
41	Kath Champa	Red Jasmine Tree	*Plumeria rubra*	Apocynaceae
42	Khirish	Rain Tree	*Samanea saman*	Mimosaceae
43	Krishnachura	Gold Mohur / Flame Tree	*Delonix regia*	Caesalpiniaceae
44	Kshude Jam	Indian Blackberry (Small)	*Syzygium sp.*	Myrtaceae
45	Kul(Topa Kul)	Indian Jujube / Ber	*Ziziphus mauritiana*	Rhamnaceae
46	Kurchi	Indrajao	*Holarrhena pubescens*	Apocynaceae
47	Lal Shimul	Red Silk Cotton Tree	*Bombax ceiba*	Malvaceae
48	Lichu	Lichi	*Litchi chinensis*	Sapindaceae
49	Lombu Gachh	Dysoxylum Sp.	*Dysoxylum costulatum Miq.*	Miliaceae
50	Neem	Neem Tree	*Azadirachta indica*	Meliaceae
51	Nepal Tunt	West Indian Elm, Bastard/Bay Cedar	*Guazuma ulmifolia*	Malvaceae
52	Nona	Custard Apple	*Annona reticulata*	Annonaceae
53	Pain	She-Oak / Indian Christmas Tree	*Casuarina equisetifolia*	Casuarinaceae
54	Pakur	White Fig	*Ficus infectoria*	Moraceae
55	Palash	Flame tree	*Butea monosperma*	Faboideae
56	Peyara	Guava	*Psidium guajava*	Myrtaceae
57	Pituli	False White Teak	*Trewia nudiflora*	Euphorbiaceae
58	Putranjeeva	Putranjiva / Lucky Bean Tree	*Putranjiva roxburghii*	Euphorbiaceae
59	Radhachura	Copper Pod Tree	*Peltoforum pterocarpum*	Caesalpiniaceae

60	Rubber	Indian Rubber Tree	*Ficus elastica*	Moraceae
61	Rudrapalash	African Tulip Tree	*Spathodia campanulata*	Bignoniaceae
62	Sabeda	Sabeda	*Manikara sapota*	Sapotaceae
63	Segun	Burma Teak	*Tectona grandis*	Verbenaceae
64	Shaora	Sand Paper Tree	*Streblus asper*	Moraceae
65	Sheuli	Queen of the night	*Nyctanthes arbortristis*	Oleaceae
66	Sojina	Drumstick Tree	*Moringa oleifera*	Moringaceae
67	Subabul	Subabul	*Leucena leucocephela*	Mimosaceae
68	Tentul	Tamarind	*Tamarindus indica*	Caesalpiniaceae
69	Toon	Indian Mehoginy	*Cedrela toona*	Meliaceae
70	Zilipi Babla	Vilayati Babul	*Pithecolobium dulce*	Mimosaceae

Green campus initiatives

Table 11: Checklist of Aquatic Plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baicha, Patajhangi	Tape grass	*Vallineria spiralis*	Hydrocharitaceae
2	Jhangi, Kureli	Waterthyme	*Hydrilla verticillata*	Hydrocharitaceae
3	Parmikalla	Duck lettuce	*Ottelia alismoides*	Hydrocharitaceae
4	Shaluk	Water lily	*Nymphea nouchali*	Nymphaeaceae
5	Kachuri pana, Jarmuni	Water hyacinth	*Eichhornia crassipes*	Pontederiaceae
6	Danta	Alligator weed	*Alternanthera philoxeroides*	Amaranthaceae
7	Kachu, Muchikachu	Taro	*Colocasia esculenta*	Araceae

Table 12: Checklist of Bamboos

Sl. No.	Local Name	Common Name	Scientific Name	Family

1	Baans	Bamboo	*Bambusa* sp.	Poaceae

Table 13: Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Chepti Ghas	Common Carpetgrass	*Axonopus* sp.	Poaceae
2	Durba Ghash	Durba	*Cynodon dactylon*	Graminae
3	Jal Kanthi Ghas			

Table 14: Checklist of Herbs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Alternanthera / Barmi Sak	Alternanthera	*Alternanthera philoxeroides*	Amaranthaceae
2	Alternanthera/Modranga	Alternanthera	*Alternanthera paronychioides*	Amaranthaceae
3	Alternanthera/Sanchi	Alternanthera	*Alternanthera sessilis*	Amaranthaceae
4	Amrul Saak	Yellow Woodsorrel	*Oxalis corniculata*	Oxalidaceae
5	Apang	Achyranthes	*Achyranthes aspera*	Amaranthaceae
6	Ban Dhone / Mitha Pata	Ban Dhone / Mitha Pata	*Scoparia dulcis*	Scrophulariaceae
7	Ban Note Sak	Amaranthus	*Amaranthus viridis*	Amaranthaceae
8	Ban Sarisha / Bilari	Indian Cress	*Nasturtium indicum*	Brassicaceae
9	Ban Tamak	Wild Tobaco	*Nicotiana plumbaginifolia*	Solanaceae
10	Ban Tepari	Bon Tepari	*Physalis minima*	Solanaceae
11	Ban Tulshi / Dakate Pata	Bon Tulshi	*Croton bonplandianum*	Euphorbiaceae
12	Baro Dudhi/ Khirika	khirika	*Euphorbia hirta*	Euphorbiaceae
13	Berela	Sida	*Sida* sp.	Malvaceae
14	Bhringaraj	Bhringaraj	*Wedelia trilobata*	Asteraceae
15	Bhuin Amla	Stonebreaker, Seed-under-leaf	*Phyllanthus niruri*	Phylanthaceae
16	Bhuin Okra	Bhuin Okra	*Phyla nodiflora*	Verbenaceae
17	Boatlily, Rhoeo	Boatlily, Moses-in-the-cradle	*Tradescantia spathacea*	Commelinaceae
18	Boro Calendula	Calendula, Common Marigold	*Calendula officinalis*	Asteraceae
19	Botam Ful	Bachelor Button Flower	*Gomphrena globosa*	Amaranthaceae
20	Chaldhowa	Mountain Knotgrass	*Aerva lanata*	Amaranthaceae
21	Chandra Mallika	Chrysanthemums	*Chrysanthemums sp.*	Asteraceae
22	Dahlia	Dahlia	*Dahlia sp.*	Asteraceae
23	Dumpa / Piparisari	Graceful Pouzalz's Bush	*Pouzalzia indica*	Urticaceae
24	Ganda Ful	Marigold Flower	*Tagetes sp.*	Asteraceae

25	Gerbera	Gerbera	*Gerbera jamesonii*	Asteraceae
26	Ghreetakumari	Aloe Vera	*Aloe barbadensis*	Liliaceae
27	Gopali	American Mint	*Anisomeles indica*	Lamiaceae
28	Heliconia / Bird of paradise	Lobster claw, Hanging heliconia	*Strelitzia reginae*	Musaceae
29	Holud	Turmeric	*Curcuma longa*	Zingiberaceae
30	Holud Basanta	Nettle Leaved Lindenbergia	*Lindenbergia indica*	Scrophulariaceae
31	Hurhuria / Makorful	Asian Spiderflower	*Cleome viscosa*	Cleomaceae
32	Impatiens, Touch-me-not	Impatiens, Touch-me-not	*Impatiens* sp.	Balsaminaceae
33	Kakmachhi	Black Nightshade	*Solanum nigrum*	Solanaceae
34	Kalmegh	Kalmegh, Green chirayta	*Andrographis paniculata*	Acanthaceae
35	Kansira / Kanchhira	Commelina	*Commelina benghalensis*	Commelinaceae
36	Keshut	Keshut	*Eclipta alba*	Asteraceae
37	Kharkon pata / Ghet Kochu	Bengal Arum, Lobed Leaf Typhonium	*Typhonium trilobatum*	Areceae
38	Kola gachh/ Banana tree	Banana Tree	*Musa sp.*	Musaceae
39	Krishna Tulsi	Krishna Tulsi / Kalo Tulasi	*Ocimum tenuiflorum*	Lamiaceae
40	Kshetpapri Shak	Diamond Flower, corymbose hedyotis	*Hedyotis corymbosa*	Rubiaceae
41	Kuddalia / Kodalia	Three-flower Beggarweed	*Desmodium triflorum*	Fabaceae
42	Kukurshoka / Kukursunga	Kukurshoka / Kukursunga	*Blumea laciniata*	Asteraceae
43	Kulekhara	Kulekhara	*Hygrophila schulli*	Acanthaceae
44	Lal Bishalyakarani	Amaranthus	*Aerva javanica*	Amaranthaceae
45	Lata Berela	Heartleaf Fanpetals	*Sida humilis*	Malvaceae
46	Maan Kochu	Alocasia	*Alocasia indica*	Arecaaceae
47	Neel Hurhure	Purple Cleome	*Cleome rutidosperma*	
48	Parthenium	Famine Weed	*Parthenium hysterophorus*	Asteraceae
49	Patharchur	Coleus	*Coleus* Sp.	Lamiaceae
50	Pothika Gaddi	Pothika Gaddi	*Eragrostis tenella*	Poaceae
51	Punarnova	Punarnova	*Boerhavia diffusa*	Nyctaginaceae
52	Radhatulsi	Holy Basil, Tulasi	*Ocimum sanctum*	Lamiaceae
53	Ram Tulshi	Ram Tulshi	*Ocimum gratissimum*	Lamiaceae
54	Ruellia	Bluebell	*Ruellia prostrata*	Acanthaceae
55	Ruellia	Ruellia	*Ruellia tuberosa*	Acanthaceae
56	Ruellia	Ruellia	*Ruellia suffruticosa*	Acanthaceae
57	Sahadebi	Sahadebi	*Vernonia cinerea*	Asteraceae
58	Sansevieria	Snake Tongue, Devill's Tongue	*Sansevieria* sp.	Asparagaceae
59	Sonchus	Sonchus, Field Sowthistle	*Sonchus arvensis*	Asteraceae

60	Synedrella	Synedrella	*Synedrella nodiflora*	Asteraceae
61	Thankuni	Indian Water Navelwort	*Centella asiatica*	Apiaceae
62	Titaliya	Titaliya	*Sonchus oleraceus*	Asteraceae
63	Tridaksha	Coat Buttons / Tridax Daisy	*Tridex procambens*	Asteraceae
64	Tulsi	Tulsi	*Ocimum sp.*	Lamiaceae
65	Uchunti	Ageratum	*Ageratum conyzoides*	Asteraceae

Table 15: Checklist of Shrubs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Agave sp.	Agave sp.	*Agave sp.*	Asparagaceae
2	Akanda	Giant Milkweed	*Calotropis gigantea*	Asclepiadaceae
3	Ansh Shaora	Ban jamir	*Glycosmis pentaphyla*	Ruraceae
4	Ban Karpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
5	Ban nebu / Ban Korpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
6	Beli	Jasmine	*Jusminum pubescens*	Oleaceae
7	Bhant	Clerodendrum	*Clerodendrum viscosum*	Verbenaceae
8	Bhuin Dumur	Ground Fig	*Ficus heterophylla*	Moraceae
9	Bleeding Heart	Bleeding Heart	*Clerodendrum thomsoniae*	Lamiaceae
10	Chakunda	Stinking Cassia, Chinese senna, foetid cassia	*Cassia tora*	Fabaceae
11	Chitra	Chitrak, Plumbago, White leadwort	*Plumbago zeylanica*	Plumbaginaceae
12	Chitrak	Duranta	*Duranta repens*	Verbenaceae
13	Cosmos	Garden Cosmos	*Cosmos bipinnatus*	Asteraceae
14	Dhutura	Devil's Trumpets	*Datura sp.*	Solanaceae
15	Dracaena	Dracaena	*Pleomele reflexa 'Variegata'*	Asparagaceae
16	Furush	Lagerstroemia	*Lagerstroemia indica*	Lythraceae
17	Gandharaj lebu	Citrus/ Citron	*Citrus medica*	Rutaceae
18	Golap	Rose	*Rosa sp. Var.*	Rosaceae
19	Golap Champa	Wild Pmumeria, Bridal Bouquet	*Plumeria pudica*	Apocynaceae
20	Gothbegun	Wild Eggplant, Prickly Nightshade	*Solanum torvum*	Solanaceae
21	Hatisur	Indian heliotrope	*Heliotropium indicum*	Boraginaceae
22	Heliconia / Bird of paradise	Heliconia	*Strelitzia sp.*	Musaceae
23	Holud Berela	Common Wireweed, Morning mallow	*Sida acuta*	Malvaceae
24	Jhaw	Thuja	*Thuja orientalis*	Cupressaceae

25	Joba	Chinese Rose	*Hibiscus rosa-sinensis*	Malvaceae
26	Kagji Lebu	Lime	*Citrus acida*	Rutaceae
27	Kamini	Orange Jasmine	*Murraya paniculata*	Rutaceae
28	Karabi	Oleander	*Nerium oleander*	Apocynaceae
29	Karipata	Karipata	*Murraya koenigii*	Rutaceae
30	Kasunda	Kasunda / Baner	*Cassia sophera*	Fabaceae
31	Kolke Ful(Holud)	Oliender Flower, Trumpet Flower (Yellow)	*Thevetia peruviana (Yellow)*	Apocynaceae
32	Laboni	Ravenia Pink / Lemonia	*Ravenia spectabilis*	Rutaceae
33	Lal Pata	Poinsettia	*Euphorbia pulcherrima*	Euphorbiaceae
34	Lalpata, Poinsettia	Poinsettia	*Euphorbia pulcherima*	Euphorbiaceae
35	Lanka	Green Chili	*Capsicum sp.*	Solanaceae
36	Lantana / Putus	Lantana	*Lantana camara*	Verbenaceae
37	Madhuful	Shooting Star, Star Flower	*Pseuderanthemum* sp.	Acanthaceae
38	Milli	Milli	*Euphorbia milli*	Ericaceae
39	Morogful	Plumed Cockscomb, Woolflower	*Celosia argentea*	Amaranthaceae
40	Muktojhuri	Muktojhuri	*Acalypha indica*	Euphorbiaceae
41	Mussaenda	Musaenda	*Mussaenda sp.*	Rubiaceae
42	Nayantara	Rosy Periwinkle	*Catharanthus roseus*	Apocynaceae
43	Nil Jhanti	Philippine Violet, bluebell barleria	*Barleria strigosa*	Acanthaceae
44	Patabahar	Croton	*Codiaeum sp.var.*	Euphorbiaceae
45	Pati lebu	Citrus	*Citrus acida*	Rutaceae
46	Pora Narenga / Panjuli	Roast Potato Plant	*Phyllanthus reticulatus Poir.*	Euphorbiaceae
47	Powder Puff	Powder Puff	*Calliendra sp.*	Fabaceae
48	Rangan	Ixora	*Ixora sp.*	Rubiaceae
49	Rangchita	Slipper Plant	*Pedilanthus tithymaloides*	Euphorbiaceae
50	Reri	Castor Oil Plant	*Ricinus communis*	Euphorbiaceae
51	Salparni	Salparni	*Desmodium gangeticum*	Fabaceae
52	Scarlet sage, Salvia	Scarlet Sage	*Salvia splendens*	Lamiaceae
53	Sonapati	Tecoma	*Tecoma gaudichaudi*	Bignoniaceae
54	Spicy Jatropha	Spicy Jatropha	*Jatropha panduraefolia*	Euphorbiaceae
55	Tagar (Double)	Milk Flower (Double)	*Tabernaemontana coronaria Flore- pleno*	Apocynaceae
56	Tagar (Dwarf), Chinese Tagar	Milk Flower (Dwarf)	*Tabernaemontana divaricata var. Dwarf*	Apocynaceae
57	Tagar (Plain)	Milk Flower (Plain)	*Tabernaemontana divaricata*	Apocynaceae
58	Tara Ganda	Yellow Cosmos	*Cosmos sulphureus*	Asteraceae

59	Tibragandha	Siam Weed, Bitter bush	*Eupatorium odoratum*	Asteraceae
60	Ulotkambal	Ulotkambal	*Ambroma augusta*	Sterculiaceae

Table 16: Checklist of Creepers

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Aparajita	Aparajita	*Clitoria ternatea*	Fabaceae
2	Baro Gaylalota	Birdfoot Grape-Vine	*Cayratia pedata*	Vitaceae
3	Begam Bahar	Passion Flower	*Passiflora suberosa*	Passifloraceae
4	Chhoto Gaylalota	Cayratia	*Cayratia trifolia / Vitis carnosa*	Vitaceae
5	Corkystem Passionflower	Corkystem Passionflower	*Passiflora suberosa*	Passifloraceae
6	Gayale Lata	Birdfoot Grape-Vine	*Cayratia sp.*	Vitaceae
7	Gulancha lata	Gulanchalata	*Tinospora cordifolia*	Menispermaceae
8	Juktiful/ Titakunja	Titakunja	*Wattakaka volubillis*	Asclepiadaceae
9	Kalilata	Bengal Trumpet Vine, Blue Trumpet Vine	*Thunbergia grandiflora*	Acanthaceae
10	Kolmi Saak	Ipomoea	*Ipomoea aquatica*	Convolvulaceae
11	Lata Bichhuti/ Jol Bichhuti	Indian Stinging Nettle	*Tragia involucrata*	Euphorbiaceae
12	Money Plant	Money Plant, Ivy Arum	*Epipremnum aureum*	Areceae
13	Nimukhi Lata	Snake Vine	*Stephania japonica*	Menispermaceae
14	Philodendron	Philodendron	*Philodendron sp.*	Areceae
15	Rabon Lata	Chinese creeper	*Micania micrantha*	Asteraceae
16	Small White Morning Glory	Small White Morning Glory	*Ipomoea obscura*	Convolvulaceae
17	Telakuchu	Telakuchu	*Coccinia grandis*	Cucurbitaceae
18	Telekera	Tiliacora	*Tiliacora racemosa*	Menispermaceae
19	Bhui Achhor / Ankra	Roundleaf Bindweed	*Evolvulus nummularius*	Convolvulaceae
20	Helakolmoshi	Justicia	*Justicia simplex*	Acanthaceae
21	Idurkani / Buri Guapan	Hemigraphis	*Hemigraphis hirta*	Acanthaceae
22	Akush	Climbing Mallotus	*Mallotus repandus*	Euphorbiaceae
23	Kagaj Ful / Bagan Bilash	Bougainvillea	*Bougainvillea sp.*	Nyctaginaceae
24	Kolke ful(Allamanda)	Allamanda	*Allamanda* sp.	Apocynaceae
25	Madhabi Lata	Rangoon Creeper	*Combretum indicum*	Combretaceae
26	Anantalata/ Coral Creeper	Coral Creeper / Antigonum	*Antigonon leptopus*	Polygonaceae

Table 17: Checklist of Ornamental Plant

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Lal Dracaena	Dracena (Red)	*Dracena mahatma*	Liliaceae

Table 18: Checklist of Palms

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Areca Palm	Areca Palm	*Dypsis lutescens*	Arecaaceae
2	Bottle Palm	Bottle Palm, Champagne Palm	*Hyophorbe lagenicaulis*	Arecaceae
3	Fan Palm	Chinese Fan Palm	*Livistona chinensis*	Arecaceae
4	Fish-tail Palm	Fish-tail Palm	*Caryota urens*	Arecaceae
5	Khejur	Indian Datepalm	*Phoenix sylvestris*	Palmae/ Arecaceae
6	Narkel	Coconut	*Cocos nucifera*	Arecaaceae
7	Palm Tree/ Taal Gachh	Palmyra Palm	*Borassus flabellifer*	Palmae
8	Panthapadap	Traveller's Palm	*Ravenala madagascariensis*	Musaceae
9	Supuri	Areca	*Areca catechu*	Arecaceae
10	Taal	Palmyra Palm	*Borassus flabellifer*	Arecaceae

Table 19: Checklist of Parasitic plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baro manda / Vanda	Honey Suckled Mistletoe	*Dendrophthoe falcata*	Loranthaceae
2	Chhoto Manda	Vanda	*Viscum orientale*	Loranthaceae

Table 20: Checklist of Ferns and Seasonal Flowers

Sl. No.	Local Name	Common Name	Scientific Name	Family	Type
1	Bird-nest Fern	Bird-nest Fern	*Asplenium* sp.	Aspleniaceae	Fern
2	Fern sp.				Fern
3	Fishtail Fern	Fishtail Fern	*Microsorum punctatum*	Polypodiaceae	Fern
4	Oakleaf Fern	Oakleaf Fern	*Drynaria quercifolia*	Polypodiaceae	Fern
5	Dog flower, Snapdragon	Dog flower, Snapdragon	Antirrhinum majus	*Scrophulariaceae*	Season Flower
6	Garden stock, Common stock	Garden stock, Common stock	*Matthiola incana*	*Brassicaceae*	Season Flower
7	Gazania	Gazania	*Gazania* sp.	Asteraceae	Season Flower
8	Gladiolus	Gladiolus	*Gladiolus sp.*	Iridaceae	Season Flower
9	Himsagar	Flaming Katy, Florist	*Kalanchoe*	Crassulaceae	Season Flower

		kalanchoe	*blossfeldiana*		
10	Maiden Pink	Maiden Pink	*Dianthus deltoides*	Carryophyllaceae	Season Flower
11	Mike Ful	Amaryllis	*Hippeastrum* sp.	Amaryllideceae	Season Flower
12	Pansy, Garden Pansy	Pansy, Garden Pansy	*Viola tricolor var.*	Violaceae	Season Flower
13	Petunia	Petunia	*Petunia hybrida*	Solanaceae	Season Flower
14	Verbena	Verbena	*Verbena* sp.	Verbenaceae	Season Flower

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CDG™
CABINET DE GESTION

Certificate

CDG Certification Limited
certifies that

Barrack Pore Rastraguru Surendranath College

85, Middle Road and 6, River Side Road, Barraek Pore, Kolkata-700120, India

Has established and applies an Environmental Management System for following scope of activities:

Imparting Undergraduate & Post Graduate Courses

The Management System of the above organization has been audited and found to be in accordance with the requirements of management system standards detailed below:

ISO 14001: 2015

Certificate Registration No. CCL/EMS/24639/BPRSC

Originally registered: 13/06/2018 Latest Issue: 13/06/2018 Expiry Date: 12/06/2021
Validity of certificate is subjected to the continued satisfactory operation of the organization's Management System.

ANSI American National Standards Institute

CCL ISO 14001:2015 REGISTERED

Managing Director

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SUGGESTIONS AND RECOMMENDATIONS

- **The electricity consumption is really high. In this context, solar energy can be used as alternative energy source of the College campuses.**
- **The use of plastic products should be banned in the College campuses.**
- **The College campuses are nodoudt biodiversed but more plantations specially medicial planntations are required in the campuses. Plantation of fruit plants will attract more birds.**
- **There is urgent need to form a Green Monitoring Team. The priority of this body is to maintain the greenary of the College campuses**
- **The Green Monitoring Team sould consist of members from teaching staffs, non-teaching staffs, students and if possible, try to include some local interested people.**
- **Vermicompost facility may be practiced, the product of which can be used as manure or fertilizer for plantation purpose.**
- **Sustainable use of resources and ecological balance of the College campuses must be maintained throuout the year.**
- **Increse the use of Electrical vehicle to reduce the pollution .**
- **Encourage to reduce dairy and meat in take - No Meat Mondays! Animal products makeup 18% of greenhouse gas emissions. By replacing one or two of weekly meat and dairy meals to a vegetarian option, can help reduce emissions**
- **Encourage use of Bicycles.**
- **Improve garden: To grow healthy plants, you also need healthy soil. Improving soil quality is an ongoing process for a gardener. Good, rich in nutrients, and friable soil will offer the plants everything all on its own. Thus, you would need lesser fertilizers and pesticides.**
- **Improve Water Harvesting:Various passive strategies have been accordingly developed in attempt to improve the water harvesting capability, which can be roughly categorized into three types: (i) engineering new surfaces or materials for condensers to benefit dew generation and removal; (ii) cooling the condensing substrates to facilitate the dewing occurrence; and (iii) concentrating the moisture from air by sorbent-assisted systems to inhibit the environmental influences and raise the water yield.**
- **Promote awarnessbuildup programme on Environmental Issues time to time**

Conclusion:

Focus on Environmental is applicable. The Barrackpore Rastraguru Surendranath College **have proper plan for Future Development on Environmental aspect.**

We have also suggest them how to improve the Environmental aspect in a better way.

AUDIT CONDUCTED BY "MANAGEMENT SYSTEM CONSULTANCY"

Auditor

Amalesh Kr. Mandal

MANAGEMENT SYSTEM CONSULTANCY * Kol- 130

Amalesh Kumar Mandal

(Lead Auditor on Quality, Environment, Energy Management System and ISO 17020:2012 Competance Certified for QCI)

(IRCA Accredited Lead Auditor on Quality, Environment, Energy Management System, Empanelled Auditor from IAF accredited Certification Body, Energy Management System Auditor from National Productivity Council, Environment Management System personnel from National Safety Council, ISO 17020:2012 Competance Certified for Quality Council of India and Carbon Frootprint Calculator Certified from BSI)

MANAGEMENT SYSTEM CONSULTANCY

Service Provided: Legal, Safety, Fire, Environment, Energy Audit and ISO, Information Security, Automotive, NABL, NABH, CSR, Food, Medical Certification and Training services

Govt.Reg.No.200252020048281, MSME Reg.No.UDYAM-WB-14-0014572, GST No. 19FIIPM3803A1ZH

GREEN AUDIT REPORT

(2019-20)

Barrackpore Rastraguru Surendranath College

85, Middle Road & 6, Riverside Road, Barrackpore,

North 24 Parganas, Kolkata – 700120, West Bengal

UMA Apartment, Rishi Arobindo Road, Madhyamgram, Kolkata-700130

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ExecutiveSummary

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. Barrackpore Rastraguru Surendranath College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote the various projects for the environment protection and sustainability.

The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

ACKNOWLEDGEMENT

Management System Consultancy would like to thank the management of Barrackpore Rastraguru Surendranath College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.
We would also like to thank the Management for his continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Management System Consultancy details given below:

The auditors of Management system Consultancy are full members of many accredited Institutions like CQI, IRCA, NABET, QCI, NABL, NPC, NSC.
Qualified Lead Auditor in ISO 9001 (in 2008 and 2015 version), Occupational Health and Safety Management in both 2007 and 2018 versions, Environment Management in both 2004 and 2015 versions, Energy Management System in 2018 version, NSC approved Safety Auditor, Risk Assessment auditor from QCI, SA8000 Certified Auditor, Training and Auditing experience in private as well as governmental organizations.

*Membership with National Safety Council (NSC), Auditors are qualified from National Productivity Council (NPC) and with Quality Council of India (QCI).
*Empanelled auditors from IAF Accredited Certification Body.
*Training partner of PECB (International Body).
*ISO 17020:2012 Certified Professional from QCI.
*Waste Management certified from QCI and United Nations Institute for Training and Research.
*Energy Auditor from NPC (National Productivity Council) .
*Certified on Green Economy from United Nations Institute for Training and Research.
*Certified on Gender Equality and Human Rights in Climate Action and Renewable Energy from United Nations Institute for Training and Research.
*Certified on Waste management from United Nations Institute for Training and Research.

INTRODUCTION

Environmental or Green Audit is a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements (EPA, 2003). In other words, it is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable (International Chamber of Commerce, 1989).
Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organisations of all kinds now recognise the importance of environmental matters and accept that their environmental performance will be scrutinised by a wide range ofinterested parties. Environmental auditing is used to investigate, understand and identify.

UTILITY OF GREEN AUDITING

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organisation's environmental effects in a systematic and documented manner and will produce an environmental audit report.

Our College and Green Auditing

Barrackpore Rastraguru Surendranath College is one of the leading higher education institutions under West Bengal State University. It has been providing a quality education to the rural and sub-urban students of North 24 Parganas and adjacent districts. The college has two campuses – the Science building at 85, Middle Road, Barrackpore and another Arts and Commerce building at 6, Riverside Road on the bank of the river Ganges. Our college got reaccredited (3rd cycle) by NAAC with 'A' Grade and received College with Potential for Excellence (CPE) status from UGC.

Green Audit Working Team (2019-20):

Sl No	Name of the Members	Designation
1	PROF.(DR.) MONOJIT RAY,	Principal, BRSN College
2	Dr. Sutapa Ghosh Dastidar,	Coordinator, IQAC
3	Dr. Sujata De Chaudhuri	Assistant Professor, Dept. Of Zoology
4	Dr. Sandip Pal	Assistant Professor, Dept. Of Zoology
5	Dr. Suraj Sk	Assistant Professor, Dept. Of Botany

Objectives of the Study

The main objectives of the green audit are to promote the environment management and conservation in the college campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out green audit are

a. To introduce and make aware students to real concerns of environment and its sustainability
b. To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus
c. To establish a baseline data to assess future sustainability by avoiding the interruptions in environmentthat are more difficult to handle and their corrections requires high cost.
d. To bring out a present status report on environmental compliance

Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

(g) Review documentation:

(h) Evaluation and Analysis:
(i) Assess environmental impacts:
(j) Evaluate compliance:
(k) Identify strengths and weaknesses
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement

The methodology adopted to conduct the Green Audit of the Institution had the following components.

On-site Visit :
The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

Focus Group Discussion :
The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

Energy and waste management Survey:
The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

WASTE MANAGEMENT:

Recycling: Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

Composting: The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

Table: Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Store these in a separate tank, and we can start selling them directly after a certain amount of time.
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly.

Solid wastes	Paper waste, Damaged furniture, paper plates, food wastes	Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste.
Chemical wastes	Laboratory waste	Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations.
Wastewater	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers.
Sanitary Napkin	-	Napkin Incinerators

For this purpose, Barrackpore Rastraguru Surendranath College has employed waste bins for proper segregation of solid wastes in the campuses. It includes provision for plastic/glass waste, food waste and metal/e-waste in a single compact system.

	Numberofwastebins
ScienceCampus(85,MiddleRoad)	05
ArtsCampus(6,RiversideRoad)	05
Boy'sHostel	01
Girl'sHostel	01
TOTAL	**12**

WATER USAGE:

Water Fixtures: Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

WATER MANAGEMENT TABLE:

Water Management Tasks	Frequency	Responsible Party
Routine examination of water supplies	Monthly	Green Audit Working Team
Testing for drinking water quality	Half-yearly	Do
Awareness of water conservation	Half-yearly	Green Audit Working Team & various department
Infrastructure for water distribution that needs upkeep and repair	As needed	Caretaker
Reporting and analysis of water use	Annually	Green Audit Working Team & Caretaker
Learn what causes excessive water consumption.	As needed	Caretaker

Water Quality Assessment, Consumption & Management

Water quality analysis was conducted by Eutech PCS Multi-parameter Tester 35, µC Turbidity Meter 135 and Lutron DO-5509 Meter.

Table – 1 (Average Value of 17-18)

Sample No.	Location from where samples collected	MPN Index (per 100 ml)	Water Quality
1	Teachers' Room Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
2	Teachers' Room Aquaguard (Science Campus)	00	Outstanding (Potable)
3	Students' Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
4	Students' Aquaguard (Science Campus)	00	Outstanding (Potable)
5	Tap water (Science Campus)	07	Good (Non-Potable)
6	Normal tap water	15	Good (Non-Potable)
7	Well water of garden	43	Average (Non-Potable)

Table – 2 (Average Value of 2020-21)

	Location from where samples collected	TDS (ppm)	Conductance (µS)	pH	Salinity (ppm)
1	Science Campus (85, Middle Road)	205	290	7.73	139
2	Arts Campus (6, Riverside Road)	217	299	8.00	145

3	Boy's Hostel	220	311	8.37	150
4	Girl's Hostel	213	303	8.12	146

Table – 3 (Average Value of Ion Content in College Tap Water)

IONS	UNIT (ppm)
Sodium	18.86
Potassium	5.48

Total Number of Taps in 85, Middle Road Campus

Department/Section/Room	Room No.	No. of Taps
Ground floor		
Health	110	1
Toilet	109	5
Computer staff room	108	2
GB room toilet	119	2
Principal's room	103	3+1 = 4
Controller's room		3
Office toilet		3
Account's toilet		3
Outside general toilet		3+1 = 4
Front garden tap		2
Staff canteen	138A	1
Teachers room	138	1+3+4 = 8

CEL		2
Student's basin backyard		3
Backyard garden tap		1
Student's canteen		
Boy's Toilet		11
Microbiology		14+13+4+2+1 = 34
	Floor Total:	**89**
1st floor		
Zoology	222, 223, 224	14
Zoology extended basin, toilet		6
Microbiology		4
Toilet	221	5
Chemistry lab		26
Chemistry lab	240	1
Central instrument room	241	1
Botany	242	4
Toilet	205	7
Toilet	206	6
Economics		2
Virtual classroom complex		3
Electronics		3
	Floor Total:	**82**
2nd floor		
Toilet		5+2 = 7

Food & nutrition		8+4 = 12
Geography		3
Toilet	338	2
Toilet	327	3
Psychology		3
Physics		3+3 = 6
Botany		4
	Floor Total:	**40**

Total Number of Taps in 6, Riverside Road Campus

Department/Section/Room	Block	No. of Taps
Ground floor		
Gents toilet	A	7
Ladies toilet	A	5
Library	B	3
Student aquaguard	B	1
Drinking water	B	3
Student aquaguard	C	1
Language lab	C	3
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
Seminar room	D	2

Sports room	E	2
Drinking water	E	1
Canteen	E	4
Aquaguard	E	1
Flower garden		3
Outside building		5
	Floor Total:	**65**
1st floor		
Guest room	A	5
Ladies toilet	B	3
Gents toilet	**B**	3
Staff room	B	3
Girls toilet	B	5
Boys toilet	B	9
Aquaguard	B	1
Ladies toilet	C	11
Gents toilet	C	8
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
	Floor Total:	**72**
Girls Hostel		93
		25 (showers)

Boy's Hostel	25

.

Water Storage Profile

	Number & Capacity of Tanks	**Total Capacity (Litre)**
Science Campus (85, Middle Road)	1500 L x 4	6000
	1000 L x 4	4000
	1500 L x 2	3000
	1000 L x 4	4000
	500 L x 4	2000
	1000 L x 2	2000
	500 L x 2	1000
	1000 L x 2	2000
	500 L x 1	500
	Sub-total	**24,500**
Arts Campus (6, Riverside Road)	750 L x 4	3000
	500 L x 1	500
	1000 L x 1	1000
	1000 L x 1	1000
	1000 L x 2	2000
	500 L x 4	2000
	500 L x 2	1000
	Sub-total	**10,500**

Boy's Hostel	1000 L x 2	2000
Girl's Hostel	1000 L x 4	4000
	Total	**41,000**

Comments

Approximate per capita average consumption and usage per day is**6.6 L of water.**

Transportation:

Public Transport: The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

Electric Vehicles: To aid in the switch to electric transport, the college may choose to invest in infrastructure for charging EVs. Additionally, encouraging the use of electric vehicles through awareness programs and incentives can help lower the emissions produced by on-campus transportation.

AIR QUALITY ASSESSMENT AND MANAGEMENT

Air quality of the College campus is monitored by AIRVEDA multi-parameter measuring system.

Months	PM 2.5 (ppm)	PM 10 (ppm)	Humidity (%)	CO_2 (ppm)
January 19	164.4	243.4	48.7	611
February 19	113.5	210.6	51.5	582
March 19	68.8	150.1	47.2	550

2020

Months	PM 2.5 (ppm)	PM 10 (ppm)	Humidity (%)	CO_2 (ppm)
January 2020	138.00	216.00	55.50	738.25
February 2020	81.50	133.40	45.10	660.30
March 2020	80.50	133.50	61.50	678.75
April 2020	44.00	202.00	70.00	469.00
May 2020	38.75	62.00	74.00	656.00
June 2020	39.50	57.50	68.75	672.75
July 2020	32.00	42.80	72.00	672.80
August 2020	09.60	15.60	71.50	684.60
September 2020	32.50	40.00	72.25	725.60
October 2020	41.00	61.00	52.00	826.00
November 2020	22.00	61.00	46.00	768.00
December 2020	153.28	246.57	53.57	744.28

Electricity Consumption (in Units) and Management

2020

Science Campus	**Jan'20- Mar'20**	**Apr'20-Jun'20**	**Jul'20-Sep'20**	**Oct'20-Dec'20**
	18718	13330	-	-
Arts Campus	**Jan'20- Mar'20**	**Apr'20-Jun'20**	**Jul'20-Sep'20**	**Oct'20-Dec'20**
	2617	2877	-	-
Boy's Hostel	**Dec'19-Feb'20**	**Mar'20-May'20**	**Jun'20-Aug'20**	**Sep'20-Nov'20**
	1367	826	-	-
Girl's Hostel	**Dec'20-Feb'21**	**Mar'21-May'21**	**Jun'21-Aug'21**	**Sep'21-Nov'21**
	2987	2365	-	-

LED Tubes & lights

TOTAL ELECTRICITY CONSUMPTION PER YEAR (2020):

	UNITS
Science Campus (85, Middle Road)	32048
Arts Campus (6, Riverside Road)	5494
Boy's Hostel	2193
Girl's Hostel	5352
GRAND TOTAL	**45,087**

SOUND POLLUTION MONITORING

Sound pollution is another important parameter that is taken into account for green auditing of the College Campus. Six different sites are chosen for the monitoring purpose namely College gate, accounts section, college office, Principal's room, teachers' room and library. Sound is quantified by the Sound Level Meter (Lutron SL-4030).

	Sound Level (dB)
College Gate (CG)	70.1 ± 9.1
Accounts (A)	62.4 ± 3.4
Office (O)	65.8 ± 5.1
Principal's Room (PR)	66.6 ± 6.7
Teachers' Room (TR)	69.8 ± 6.8
Library (L)	49.7 ± 5.2

BIODIVERSITY STATUS OF THE COLLEGE CAMPUSES

INTRODUCTION

Barrackpore Rastraguru Surendranath College situated beside river Hooghly is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the college premises and their inter-relationship.

OBJECTIVE

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.

Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.

Documentation of the specific interdependence of floral and faunal life.

Survey Team

- **Arjan Basu Roy (PI)**
- **Swapna Biswas (Flora, Dragonflies, Birds)**
- **Sarika Baidya (Butterflies and related Plants)**
- **Tarun Karmakar (Butterfly and other Insects)**

- **Namrata Das (Butterfly and other Insects)**
- **Souparno Roy (Butterfly, Reptiles and Amphibians)**
- **Archan Paul (Butterflies)**
- **Arabinda Narayan Dolai (Mammals, Birds)**

Survey Time:

July, 2019 to Feb, 2020

Survey Area

Barrackpore Rastraguru Surendranath College premises and its surrounding areas. The two college campuses are situated at 85, Middle Road, Barrackpore which is close the river Hooghly and 6, Riverside Road, Barrackpore.

Map 01: 85, Middle Road Campus
Shows the area of our work.

METHOD OF STUDY

Brief methodology for the floral and faunal survey is given below.

- **Sampling was done mostly in random manner.**
- **The total area was surveyed by walking at day time.**
- **Surveys were conducted for the maximum possible hours in day time.**
- **Tree species were documented through physical verification on foot and photographed each species as much as possible.**
- **For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.**
- **Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, dung deposits and footprints were also observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.**
- **Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species.**
- **Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.**
- **Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.**
- **Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.**

- **The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. Slugs and snails are more conspicuous during wet weather and especially at night when they were found using a torch.**
- **Digital photography was done for all the species recorded as much as possible.**

NUMBER OF FLORAL SPECIES OBSERVED: 259

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Table 01: Checklist of Floral groups with species number

1.	Trees	70	Table-10
2.	Aquatic Plants	7	Table-11
3.	Bamboos	1	Table-12
4.	Grasses	3	Table-13
5.	Herbs	65	Table-14
6.	Shrubs	60	Table-15
7.	Creepers	26	Table-16
8.	Ornamental Plants	1	Table-17
9.	Palms	10	Table-18
10.	Parasitic	2	Table-19
11.	Fern	4	Table-20
12.	Season Flower	10	Table-20

NUMBER OF FAUNAL SPECIES OBSERVED: 161

The list of Fauna indicates that the college campus is significantly rich in faunal diversity. We have seen a significant number of bird nests at many a places. Mammals' diversity is good. Avian diversity is wonderful. In these 10 visits, we have also photographed and documented 68 species of butterflies which indicates a healthy eco-system as a whole. Odonate population indicates that the health of the water bodies and the riverine ecosystem is quite good. The amphibian population

also supports this fact. Reptilian population is also quite significant and presence of Bengal Monitor Lizard indicates that the reptilian population is naturally controlled and managed at the study site. We have not been able to document other insect groups during this survey. The year long survey will add some more fauna in the checklist for sure after the seasonal survey.

Table 02: Checklist of Faunal groups with species number

1.	Mammals	5	Table-1
2.	Birds	53	Table-2
3.	Reptiles	6	Table-3
4.	Amphibians	3	Table-4
5.	Butterflies	68	Table-7
6.	Odonates	26	Table-8

Table 03: Checklist of Mammals

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Five-striped Palm Squirrel	*Funambulus pennantii*	Kathbirali	Sciuridae
2	Common Pipistrelle	*Pipistrellus pipistrellus*	Chamchike	Vespertilionidae

3	Indian Flying Fox	*Pteropus giganteus*	Kola Badur	Pteropodidae
4	Fruit Bat	*Pteropus* sp.	Badur	Pteropodidae
5	Gray Langur	*Semnopithecus* sp.	Hanuman Langur	Cercopithecidae
6	Asian Palm Civet	*Paradoxurus hermaphroditus*	Bham Biral	Viverridae
7	Indian Grey Mongoose	*Herpestes edwardsi*	Neul	Herpestidae

Table 04: Checklist of Birds

Sl. No	Common Name	Scientific Name	Bengali Name	Family
1	Alexandrine Parakeet	*Psittacula eupatria*	Chondona	Psittacidae
2	Asian Koel	*Eudynamys scolopaceus*	Kokil	Cuculidae
3	Asian Openbill	*Anastomus oscitans*	Shamuk Khol	Ciconiidae
4	Asian Palm Swift	*Cypsiurus balasiensis*	Talchonch	Apodidae
5	Asian Pied Starling	*Gracupica contra*	Go-shalik	Sturnidae
6	Black Drongo	*Dicrurus macrocercus*	Finge	Dicruridae
7	Black Kite	*Milvus migrans*	Chil	Accipitridae
8	Black-hooded Oriole	*Oriolus xanthornus*	Benebou	Oriolidae
9	Black-naped Monarch	*Hypothymis azurea*		Monarchidae
10	Black-naped Oriole	*Oriolus chinensis*	Kaloghad Benebou	Oriolidae
11	Blue-throated Barbet	*Megalaima asiatica*	Nilgala Basantabouri	Ramphastidae
12	Cattle Egret	*Bubulcus ibis*	Gobok	Ardeidae
13	Common Hawk Cuckoo	*Hierococcyx varius*	Papia	Cuculidae
14	Common Hoopoe	*Upupa epops*	Mohonchuda, Hupo	Upupidae
15	Common Iora	*Aegithina tiphia*	Fotik Jol	Aegithinidae
16	Common Kingfisher	*Alcedo atthis*	Chhoto Machhranga	Alcedinidae
17	Common Myna	*Acridotheres tristis*	Shalik	Sturnidae

18	Common Pigeon	*Columba livia*	Payra	Columbidae
19	Common Sandpiper	*Actitis hypoleucos*	Sadharon Balubatan	Scolopacidae
20	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae
21	Coppersmith Barbet	*Megalaima haemacephala*	Chhoto basantabouri	Ramphastidae
22	Eastern Jungle Crow	*Corvus (macrorhynchos) levaillantii*	Dandkak	Corvidae
23	Eurasian Collared Dove	*Streptopelia decaocto*	Konthi Ghughu	Columbidae
24	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Jarod Kath Thokra	Picidae
25	Greater Coucal	*Centropus sinensis*	Kubo	Cuculidae
26	Green Bee-Eater	*Merops orientalis*	Banspati	Meropidae
27	House Crow	*Corvus splendens*	Kak	Corvidae
28	House Sparrow	*Passer domesticus*	Chorui	Passeridae
29	Indian Cormorant	*Phalacrocorax fuscicollis*	Majhari Pankoudi	Phalacrocoracidae
30	Indian Pond Heron	*Ardeola grayii*	Konchbok	Ardeidae
31	Jungle Babbler	*Turdoides striatus*	Chhatare	Timaliidae
32	Jungle Myna	*Acridotheres fuscus*	Jhuntshalik	Sturnidae
33	Lesser Goldenback	*Dinopium benghalense*	Chhoto Sonali Kath Thokra	Picidae
34	Lineated Barbet	*Megalaima lineata*	Rekha Basantabouri	Ramphastidae
35	Marsh Sandpiper	*Tringa stagnatilis*	Biler Balubatan, Jolar Chapakhi	Scolopacidae
36	Oriental Magpie Robin	*Copsychus saularis*	Doyel	Muscicapidae
37	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Poragpakhi	Dicaeidae
38	Purple Heron	*Ardea purpurea*	Lalkank, Nilbogola	Ardeidae
39	Purple Sunbird	*Nectarinia asiatica*	Durga Tuntuni	Nectariniidae

40	Purple-rumped Sunbird	*Nectarinia zeylonica*	Moutushi	Nectariniidae
41	Red-vented Bulbul	*Pycnonotus cafer*	Bulbuli	Pycnonotidae
42	Red-whiskered Bulbul	*Pycnonotus jocosus*	Shipai Bulbul	Picnonotidae
43	Rose-ringed Parakeet	*Psittacula krameri*	Tiya	Psittacidae
44	Rufous Treepie	*Dendrocitta vagabunda*	Handichancha	Corvidae
45	Shikra	*Accipiter badius*	Turki baaz	Accipitridae
46	Spotted Dove	*Stigmatopelia chinensis*	Tile Ghughu	Columbidae
47	Spotted Owlet	*Athene brama*	Kuthure Pencha	Strigidae
48	Stork-billed kingfisher	*Pelargopsis capensis*	Gudiyal	Alcedinidae
49	Taiga Flycatcher	*Ficedula albicilla*	Chutki	Muscicapidae
50	White Wagtail	*Motacilla alba*	Sada Khonjon, Khonjona	Motacillidae
51	White-breasted Waterhen	*Amaurornis phoenicurus*	Dahuk	Rallidae
52	White-throated Kingfisher	*Halcyon smyrnensis*	Sadabuk Machhranga	Alcedinidae
53	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Horiyal	Columbidae

Table 05: Checklist of Reptiles

Sl.No.	Common Name	Scientific Name	Bengali Name	Family
1	Checkered Keelback	*Xenochrophis piscator*	Joldhora	Colubridae
2	Buff Striped Keelback	*Amphiesma stolatum*	Hele	Colubridae
3	Rat Snake	*Zamenis longissimus*	Darash	Colubridae
4	Russell's Viper	*Daboia russelii*	Chandrabora	Viperidae
5	Skink	*Lampropholis* sp.	Anjani	Scincidae
6	Oriental Garden Lizard	*Calotes versicolor*	Girgiti	Agamidae
7	Bengal Monitor Lizard	*Varanus bengalensis*	Gosap	Varanidae
7	Common House Gecko	*Hemidactylus frenatus*	Tiktiki	Gekkonidae

Table 06: Checklist of Amphibians

Sl. No.	Common	Scientific Name	Bangali Name	Family

	Name			
1	Indian Toad	*Duttaphrynus melanostictus*	Kuno Byang	Bufonidae
2	Skittering Frog	*Euphlyctis cyanophlyctis*	Katkati Byang	Dicroglossidae
3	Asian Bullfrog	*Hoplobatrachus tigerinus*	Sona Byang	Dicroglossidae

Table 07: Checklist of Butterflies

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Blue Mormon	*Papilio polymnestor*	Barunpakha	Papilionidae
2	Common Jay	*Graphium doson*	Minji	Papilionidae
3	Common Mime	*Papilo clytia*	Khagra	Papilionidae
4	Common Mormon	*Papilo polytes*	Kalim	Papilionidae
5	Common Rose	*Pachliopta aristolochiae*	Alte	Papilionidae
6	Lime Butterfly	*Papilio demolius*	Ruru	Papilionidae
7	Tailed Jay	*Graphium agamemnon*	Choitak	Papilionidae
8	Western Striped Albatross	*Appias libythea*	Dhulkapas	Pieridae
9	Small Grass Yellow	*Eurema brigitta*	Chhoto Holud	Pieridae
10	Common Grass Yellow	*Eurema hecabe*	Holud	Pieridae
11	Common Gull	*Cepora nerissa*	Kuchila	Pieridae
12	Eastern Striped Albatross	*Appias olferna*	Dhulkapas	Pieridae
13	Indian Jezebel (Common Jezebel)	*Delias eucharis*	Hartoni	Pieridae
14	Indian Wanderer	*Pareronia hippia*	Tallar	Pieridae
15	Lemon Emmigrant	*Catopsilia pomona*	Payrachali	Pieridae
16	Mottled Emmigrant	*Catopsilia pyranthe*	Chhitpayra	Pieridae
17	Psyche	*Leptosia nina*	Furus	Pieridae
18	Common Cerulean	*Jamides celeno*	Surul	Lycaenidae
19	Common Lineblue	*Prosotas nora*	ChandandNari	Lycaenidae
20	Tailless Lineblue	*Prosotas dubiosa*	Bigri Danri	Lycaenidae
21	Common Pierrot	*Castalius rosimon*	Tilaia	Lycaenidae
22	Common Quaker	*Neopithecops zalmora*	Kori	Lycaenidae
23	Dark Grass Blue	*Zizeeria karsandra*	Chhoi	Lycaenidae
24	Forget-me-not	*Catochrysops strabo*	Rittam	Lycaenidae
25	Gram Blue	*Euchrysops cnejus*	Joural	Lycaenidae
26	Lesser Grass Blue	*Zizina otis*	Para	Lycaenidae
27	Lime Blue	*Chilades lajus*	Tura	Lycaenidae
28	Pale Grass blue	*Pseudozizeeria maha*	Dhupi	Lycaenidae
29	Pea Blue	*Lampides boeticus*	Khoria	Lycaenidae

30	Plains Cupid	*Chilades pandava*	Rulki	Lycaenidae
31	Tiny Grass Blue	*Zizula hylax*	Tinni	Lycaenidae
32	Zebra Blue	*Leptotes plinius*	Zizi	Lycaenidae
33	Slate Flash	*Rapala manea*	Rimli	Lycaenidae
34	Falcete Oakblue	*Mahathala ameria*	Kaste Rangchiti	Lycaenidae
35	Common Guava Blue	*Virachola isocrates*		Lycaenidae
36	Spotted Pierrot	*Tarucus callinara*	Chhit Tilkushi	Lycaenidae
37	Monkey Puzzle	*Rathinda amor*	Chatul	Lycaenidae
38	Indian Sunbeam	*Curetis thetis*	Jhinukpalash	Lycaenidae
39	Common Silverline	*Spindasis vulcanus*	Riupapatia	Lycaenidae
40	Angled Castor	*Ariadne ariadne*	Kanmorche	Nymphalidae
41	Blue Tiger	*Tirumala limniace*	Himalkuchi	Nymphalidae
42	Chestnut-streaked Sailer	*Neptis jumbah*	Batasi	Nymphalidae
43	Commander	*Moduza procris*	Karanjia	Nymphalidae
44	Common Baron	*Euthalia aconthea*	Bhushanda	Nymphalidae
45	Common Bushbrown	*Mycalesis perseus*	Janglabira	Nymphalidae
46	Common Castor	*Ariadne merione*	Morchepata	Nymphalidae
47	Common Crow	*Euploea core*	Kaoa	Nymphalidae
48	Common Evening Brown	*Melanitis leda*	SaNjhla	Nymphalidae
49	Common Five-ring	*Ypthima baldus*	PaNchbuNdi	Nymphalidae
50	Common Four-ring	*Ypthima huebneri*	CharbuNdi	Nymphalidae
51	Common Leopard	*Phalanta phalantha*	Chita	Nymphalidae
52	Common Palmfly	*Elymnias hypermnestra*	Khayerchak	Nymphalidae
53	Danaid Eggfly	*Hypolimnas misippus*	JamchaNda	Nymphalidae
54	Goudy Baron	*Euthalia lubentina*	KuNchrangi	Nymphalidae
55	Great Eggfly	*Hypolimnas bolina*	Jamui	Nymphalidae
56	Grey Pansy	*Junonia atlites*	ChaNdnori	Nymphalidae
57	Peacock Pansy	*Junonia almana*	Nayan	Nymphalidae
58	Plain Tiger	*Danaus cheysippus*	Tamot	Nymphalidae
59	Striped Tiger	*Danaus genutia*	Baghballa	Nymphalidae
60	Tawny Coster	*Acraea violae*	Horinchhara	Nymphalidae
61	Lemon Pansy	*Junonia lemonias*	Ushum	Nymphalidae
62	Brown Awl	*Badamia exclamationis*	Chile Pakhui	Hesperiidae
63	Common Banded Awl	*Hasora chromus*	Khori Pakhui	Hesperiidae
64	Oriental Palm Bob	*Suastus gremius*	Khoyra	Hesperiidae
65	Pale Palm Dart	*Telicota colon*	Bena Tirap	Hesperiidae
66	Small Banded Swift	*Pelopidas mathias*	Pati Johur	Hesperiidae
67	Swift sp.			Hesperiidae
68	Chestnut Palm Bob	*Iambrix salsala*	Piplai	Hesperiidae

Butterfly Garden, 6, River Side Road Campus Of College

Table 08: Checklist of Odonates

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Green Darner	*Anax junius*	Sobuj Kanta	Aeshnidae
2	Coromandel Marsh Dart	*Ceriagrion coromandelianum*	Holde Baan	Coenagrionidae
3	Orange Tailed Marsh Dart	*Ceriagrion cerinorubellum*	Keshar Baan	Coenagrionidae
4	Pygmy Dartlet	*Agriocnemis pygmaea*	Baman Shar	Coenagrionidae
5	Saffron Faced Blue Dart	*Pseudagrion rubriceps*	Keshari Mukh	Coenagrionidae
6	Senegal Golden Dartlet	*Ischnura senegalensis*	Treebarna Shar	Coenagrionidae
7	Three lined Dart	*Pseudagrion decorum*	troyee Baan	Coenagrionidae
8	Tiny Hooded Dartlet	*Agriocnemis kalinga*	Kshude Shar	Coenagrionidae
9	Black Marsh Trotter	*Tramea limbata*	Krishna Shel	Libellulidae
10	Common Picturewing	*Rhyothemis* variegata	Titli Pakh	Libellulidae
11	Coral Tailed Cloud-wing	*Tholymis* tillarga	Meghla Pakh	Libellulidae
12	Ditch Jewel	*Brachythemis contaminata*	Kamala Baran	Libellulidae
13	Estuarine Skimmer	*Macrodiplax* cora	Nona Baran	Libellulidae
14	Fulvous Forest Skimmer	*Neurothemis fulvia*	Tamra Baran	Libellulidae
15	Green Marsh Hawk	*Orthetrum* sabina	Sabuj Sena	Libellulidae
16	Ground Skimmer	*Diplacodes* trivialis	Bhubaran	Libellulidae
17	Little Blue Marsh Hawk	*Brachydiplax* sobrina	Neelbaman Sena	Libellulidae
18	Ruddy Marsh Skimmer	*Crocothemis* servilia	Rakta Baran	Libellulidae
19	Scarlet Marsh Hawk	*Aethriamanta* brevipennis	Raktim Sena	Libellulidae
20	Wondering Glider	*Pantala* flavescens	Bristi Bahan	Libellulidae

21	Granite Ghost	*Bradinopyga geminata*	Pathuria	Libellulidae
22	Yellow-tailed Ashy Skimmer	*Potamarcha congener*	Dhushar Baran	Libellulidae
23	Rufous Marsh Glider	*Rhudothemis rufa*	Lalbahan	Libellulidae
24	Pied Paddy Skimmer	*Neurothemis tullia*	Fatik Baran	Libellulidae
25	Crimson-tailed Marsh Hawk	*Orthetrum pruinosum*	Chuni Sena	Libellulidae
26	Black Marsh Dart	*Onychargia atrocyana*	Kele Ban	Platycnemididae

Table 09: Checklist of Larval Host Plants found in campus

Sl. No.	Common Name of Butterfly Species	Larval Host Plant (Local Name)	Larval Host Plant (Scientific Name)
1	Tailed Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
2	Common Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
3	Common Castor	Rerhi/ Castor Plant	*Ricinus communis*
4	Plain Tiger	Akanda	*Calotropis gigantean*
5	Angled Castor	Jol Bichhuti/ Lata Bichhuti	*Tragia involucrate*
6	Plains Cupid	Chiruni Palm	*Cycas revolute*
7	Common Mormon	Lebu, Karipata, Ash Shaora	*Citrus* sp., *Murraya koenigii*, *Glycosmis pentaphyla*
8	Emmigrant sp.	Minjiri	*Cassia siamea*
9	Lime Blue	Lebu	*Citrus* sp.
10	Common Banded Awl	Karanja	*Pongamia pinnata*

Number of Floral species observed: 271

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Checklist of Floral groups with species number

13.	Trees	70	Table-10
14.	Aquatic Plants	7	Table-11
15.	Bamboos	1	Table-12
16.	Grasses	3	Table-13
17.	Herbs	65	Table-14
18.	Shrubs	60	Table-15
19.	Creepers	26	Table-16
20.	Ornamental Plants	1	Table-17
21.	Palms	10	Table-18
22.	Parasitic	2	Table-19
23.	Bryophyte	2	Table-20
24.	Pteridophytes	14	Table-21
25.	Seasonal Flower	10	Table-22

Table 10: Checklist of Trees

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Kak Dumur	Fig Tree	*Ficus hispida*	Monaceae
2	Aam	Mango	*Mangifera indica*	Anacardiaceae
3	Akashmoni	Golden Shower	*Acacia auriculiformis*	Fabaceae
4	Akashneem	Indian Cork Tree, Tree Jasmine	*Millingtonia hortensis*	Bignoniaceae

5	Allspice Tree	Allspice Tree	*Pimenta dioica*	Myrtaceae
6	Amaltash	Golden Shower	*Cassia fistula*	Caesalpiniaceae
7	Amloki	Amla	*Emblica officinalis*	Euphorbiaceae
8	Amrah	Wild Mango	*Spondias pinnata*	Anacardiaceae
9	Ashfol	Longan	*Euforia longan*	Sapindaceae
10	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
11	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
12	Bahera	Bahera	*Terminalia bellirica*	Combretaceae
13	Bakul	Spanish cherry / Bakul	*Mimusops elengi*	Caesalpiniaceae
14	Batabi Lebu	Pomelo	*Citrus maxima*	Rutaceae
15	Bel	Golden Apple	*Aegle marmelos*	Rutaceae
16	Bhawarmal, Bohar, Biharukh	Bhawarmal, Bohar, Biharukh	*Hymenodictyon orixense*	Rubiaceae
17	Bot	Banyan Tree	*Ficus benghalensis*	Moraceae
18	Buddha Narkel	Buddha Coconut	*Pterygota alata*	Sterculiaceae
19	Chalta	Elephant Apple	*Dillenia indica*	Dilleniaceae
20	Chhatim	Chhatiyan / Devil's Tree	*Alstonia scholaris*	Apocynaceae
21	Chhotopata Mehogini	Small-leaved Mahogany	*Swietenia mahagoni*	Meliaceae
22	Chinese Bot	Ficus	*Ficus Sp.*	Moraceae
23	Christmass Tree	Caledonia Pine/ Christmas Tree	*Araucaria cookii*	Arucariaceae
24	Debdaru	Indian Fir / Cementry Tree	*Polialthia longifolia*	Annonaceae
25	Eucaliptus	Eucalyptus	*Eucalyptus spp.*	Myrtaceae

26	Gandhraj	Gardenia, Cape jasmine	*Gardenia jasminoides*	Rubiaceae
27	Ghora Neem	Indian Lilac Tree	*Melia azedarach*	Meliaceae
28	Golap Jam	Gulab Jamun	*Syzygium jambos*	Myrtaceae
29	Haritaki	Haritaki	*Terminalia chebula*	Combretaceae
30	Indurmari	Gliricidia	*Gliricidia sepium*	Fabaceae
31	Jagga Dumur	Cluster Fig	*Ficus glomerata*	Moraceae
32	Jam	Indian Blackberry	*Syzygium cumini*	Myrtaceae
33	Jamrul	Water Apple	*Syzygium aqueum*	Myrtaceae
34	Jarul	Pride of India	*Lagerstroemia speciosa*	Lythraceae
35	Kadam	Kadam	*Anthocephalus chinensis*	Rubiaceae
36	Kamranga	Star Fruit	*Averrhoa carambola*	Averrhoaceae
37	Kanchan	Butterfly Tree	*Bauhinia purpurea*	Caesalpiniaceae
38	Kanthal	Jack Fruit	*Artocarpus heterophyllus*	Moraceae
39	Karanja	Pongam Tree, Pongame Oil Tree	*Pongamia pinnata*	Fabaceae
40	Kath Badam	Indian Almond	*Terminalia catappa*	Combretaceae
41	Kath Champa	Red Jasmine Tree	*Plumeria rubra*	Apocynaceae
42	Khirish	Rain Tree	*Samanea saman*	Mimosaceae
43	Krishnachura	Gold Mohur / Flame Tree	*Delonix regia*	Caesalpiniaceae
44	Kshude Jam	Indian Blackberry (Small)	*Syzygium sp.*	Myrtaceae
45	Kul(Topa Kul)	Indian Jujube / Ber	*Ziziphus mauritiana*	Rhamnaceae
46	Kurchi	Indrajao	*Holarrhena pubescens*	Apocynaceae
47	Lal Shimul	Red Silk Cotton Tree	*Bombax ceiba*	Malvaceae

48	Lichu	Lichi	*Litchi chinensis*	Sapindaceae
49	Lombu Gachh	Dysoxylum Sp.	*Dysoxylum costulatum Miq.*	Miliaceae
50	Neem	Neem Tree	*Azadirachta indica*	Meliaceae
51	Nepal Tunt	West Indian Elm, Bastard/Bay Cedar	*Guazuma ulmifolia*	Malvaceae
52	Nona	Custard Apple	*Annona reticulata*	Annonaceae
53	Pain	She-Oak / Indian Christmas Tree	*Casuarina equisetifolia*	Casuarinaceae
54	Pakur	White Fig	*Ficus infectoria*	Moraceae
55	Palash	Flame tree	*Butea monosperma*	Faboideae
56	Peyara	Guava	*Psidium guajava*	Myrtaceae
57	Pituli	False White Teak	*Trewia nudiflora*	Euphorbiaceae
58	Putranjeeva	Putranjiva / Lucky Bean Tree	*Putranjiva roxburghii*	Euphorbiaceae
59	Radhachura	Copper Pod Tree	*Peltoforum pterocarpum*	Caesalpiniaceae
60	Rubber	Indian Rubber Tree	*Ficus elastica*	Moraceae
61	Rudrapalash	African Tulip Tree	*Spathodia campanulata*	Bignoniaceae
62	Sabeda	Sabeda	*Manikara sapota*	Sapotaceae
63	Segun	Burma Teak	*Tectona grandis*	Verbenaceae
64	Shaora	Sand Paper Tree	*Streblus asper*	Moraceae
65	Sheuli	Queen of the night	*Nyctanthes arbortristis*	Oleaceae
66	Sojina	Drumstick Tree	*Moringa oleifera*	Moringaceae
67	Subabul	Subabul	*Leucena leucocephela*	Mimosaceae
68	Tentul	Tamarind	*Tamarindus indica*	Caesalpiniaceae

69	Toon	Indian Mehoginy	*Cedrela toona*	Meliaceae
70	Zilipi Babla	Vilayati Babul	*Pithecolobium dulce*	Mimosaceae

Green campus initiatives

Table 11: Checklist of Aquatic Plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baicha, Patajhangi	Tape grass	*Vallineria spiralis*	Hydrocharitaceae
2	Jhangi, Kureli	Waterthyme	*Hydrilla verticillata*	Hydrocharitaceae
3	Parmikalla	Duck lettuce	*Ottelia alismoides*	Hydrocharitaceae
4	Shaluk	Water lily	*Nymphea nouchali*	Nymphaeaceae
5	Kachuri pana, Jarmuni	Water hyacinth	*Eichhornia crassipes*	Pontederiaceae
6	Danta	Alligator weed	*Alternanthera philoxeroides*	Amaranthaceae
7	Kachu, Muchikachu	Taro	*Colocasia esculenta*	Araceae

Table 12: Checklist of Bamboos

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baans	Bamboo	*Bambusa* sp.	Poaceae

Table 13: Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Chepti Ghas	Common Carpetgrass	*Axonopus* sp.	Poaceae
2	Durba Ghash	Durba	*Cynodon dactylon*	Graminae
3	Jal Kanthi Ghas			

Table 14: Checklist of Herbs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Alternanthera / Barmi Sak	Alternanthera	*Alternanthera philoxeroides*	Amaranthaceae
2	Alternanthera/Modranga	Alternanthera	*Alternanthera paronychioides*	Amaranthaceae
3	Alternanthera/Sanchi	Alternanthera	*Alternanthera sessilis*	Amaranthaceae
4	Amrul Saak	Yellow Woodsorrel	*Oxalis corniculata*	Oxalidaceae
5	Apang	Achyranthes	*Achyranthes aspera*	Amaranthaceae
6	Ban Dhone / Mitha Pata	Ban Dhone / Mitha Pata	*Scoparia dulcis*	Scrophulariaceae
7	Ban Note Sak	Amaranthus	*Amaranthus viridis*	Amaranthaceae
8	Ban Sarisha / Bilari	Indian Cress	*Nasturtium indicum*	Brassicaceae
9	Ban Tamak	Wild Tobaco	*Nicotiana plumbaginifolia*	Solanaceae
10	Ban Tepari	Bon Tepari	*Physalis minima*	Solanaceae
11	Ban Tulshi / Dakate Pata	Bon Tulshi	*Croton bonplandianum*	Euphorbiaceae

12	Baro Dudhi/ Khirika	khirika	*Euphorbia hirta*	Euphorbiaceae
13	Berela	Sida	*Sida* sp.	Malvaceae
14	Bhringaraj	Bhringaraj	*Wedelia trilobata*	Asteraceae
15	Bhuin Amla	Stonebreaker, Seed-under-leaf	*Phyllanthus niruri*	Phylanthaceae
16	Bhuin Okra	Bhuin Okra	*Phyla nodiflora*	Verbenaceae
17	Boatlily, Rhoeo	Boatlily, Moses-in-the-cradle	*Tradescantia spathacea*	Commelinaceae
18	Boro Calendula	Calendula, Common Marigold	*Calendula officinalis*	Asteraceae
19	Botam Ful	Bachelor Button Flower	*Gomphrena globosa*	Amaranthaceae
20	Chaldhowa	Mountain Knotgrass	*Aerva lanata*	Amaranthaceae
21	Chandra Mallika	Chrysanthemums	*Chrysanthemums sp.*	Asteraceae
22	Dahlia	Dahlia	*Dahlia sp.*	Asteraceae
23	Dumpa / Piparisari	Graceful Pouzalz's Bush	*Pouzalzia indica*	Urticaceae
24	Ganda Ful	Marigold Flower	*Tagetes sp.*	Asteraceae
25	Gerbera	Gerbera	*Gerbera jamesonii*	Asteraceae
26	Ghreetakumari	Aloe Vera	*Aloe barbadensis*	Liliaceae
27	Gopali	American Mint	*Anisomeles indica*	Lamiaceae
28	Heliconia / Bird of paradise	Lobster claw, Hanging heliconia	*Strelitzia reginae*	Musaceae
29	Holud	Turmeric	*Curcuma longa*	Zingiberaceae
30	Holud Basanta	Nettle Leaved Lindenbergia	*Lindenbergia indica*	Scrophulariaceae
31	Hurhuria / Makorful	Asian Spiderflower	*Cleome viscosa*	Cleomaceae
32	Impatiens, Touch-me-not	Impatiens, Touch-me-not	*Impatiens* sp.	Balsaminaceae

33	Kakmachhi	Black Nightshade	*Solanum nigrum*	Solanaceae
34	Kalmegh	Kalmegh, Green chirayta	*Andrographis paniculata*	Acanthaceae
35	Kansira / Kanchhira	Commelina	*Commelina benghalensis*	Commelinaceae
36	Keshut	Keshut	*Eclipta alba*	Asteraceae
37	Kharkon pata / Ghet Kochu	Bengal Arum, Lobed Leaf Typhonium	*Typhonium trilobatum*	Areceae
38	Kola gachh/ Banana tree	Banana Tree	*Musa sp.*	Musaceae
39	Krishna Tulsi	Krishna Tulsi / Kalo Tulasi	*Ocimum tenuiflorum*	Lamiaceae
40	Kshetpapri Shak	Diamond Flower, corymbose hedyotis	*Hedyotis corymbosa*	Rubiaceae
41	Kuddalia / Kodalia	Three-flower Beggarweed	*Desmodium triflorum*	Fabaceae
42	Kukurshoka / Kukursunga	Kukurshoka / Kukursunga	*Blumea laciniata*	Asteraceae
43	Kulekhara	Kulekhara	*Hygrophila schulli*	Acanthaceae
44	Lal Bishalyakarani	Amaranthus	*Aerva javanica*	Amaranthaceae
45	Lata Berela	Heartleaf Fanpetals	*Sida humilis*	Malvaceae
46	Maan Kochu	Alocasia	*Alocasia indica*	Arecaaceae
47	Neel Hurhure	Purple Cleome	*Cleome rutidosperma*	
48	Parthenium	Famine Weed	*Parthenium hysterophorus*	Asteraceae
49	Patharchur	Coleus	*Coleus* Sp.	Lamiaceae
50	Pothika Gaddi	Pothika Gaddi	*Eragrostis tenella*	Poaceae
51	Punarnova	Punarnova	*Boerhavia diffusa*	Nyctaginaceae
52	Radhatulsi	Holy Basil, Tulasi	*Ocimum sanctum*	Lamiaceae
53	Ram Tulshi	Ram Tulshi	*Ocimum gratissimum*	Lamiaceae

54	Ruellia	Bluebell	*Ruellia prostrata*	Acanthaceae
55	Ruellia	Ruellia	*Ruellia tuberosa*	Acanthaceae
56	Ruellia	Ruellia	*Ruellia suffruticosa*	Acanthaceae
57	Sahadebi	Sahadebi	*Vernonia cinerea*	Asteraceae
58	Sansevieria	Snake Tongue, Devill's Tongue	*Sansevieria* sp.	Asparagaceae
59	Sonchus	Sonchus, Field Sowthistle	*Sonchus arvensis*	Asteraceae
60	Synedrella	Synedrella	*Synedrella nodiflora*	Asteraceae
61	Thankuni	Indian Water Navelwort	*Centella asiatica*	Apiaceae
62	Titaliya	Titaliya	*Sonchus oleraceus*	Asteraceae
63	Tridaksha	Coat Buttons / Tridax Daisy	*Tridex procambens*	Asteraceae
64	Tulsi	Tulsi	*Ocimum sp.*	Lamiaceae
65	Uchunti	Ageratum	*Ageratum conyzoides*	Asteraceae

Table 15: Checklist of Shrubs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Agave sp.	Agave sp.	*Agave sp.*	Asparagaceae
2	Akanda	Giant Milkweed	*Calotropis gigantea*	Asclepiadaceae
3	Ansh Shaora	Ban jamir	*Glycosmis pentaphyla*	Ruraceae
4	Ban Karpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
5	Ban nebu / Ban Korpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
6	Beli	Jasmine	*Jusminum pubescens*	Oleaceae
7	Bhant	Clerodendrum	*Clerodendrum viscosum*	Verbenaceae

8	Bhuin Dumur	Ground Fig	*Ficus heterophylla*	Moraceae
9	Bleeding Heart	Bleeding Heart	*Clerodendrum thomsoniae*	Lamiaceae
10	Chakunda	Stinking Cassia, Chinese senna, foetid cassia	*Cassia tora*	Fabaceae
11	Chitra	Chitrak, Plumbago, White leadwort	*Plumbago zeylanica*	Plumbaginaceae
12	Chitrak	Duranta	*Duranta repens*	Verbenaceae
13	Cosmos	Garden Cosmos	*Cosmos bipinnatus*	Asteraceae
14	Dhutura	Devil's Trumpets	*Datura sp.*	Solanaceae
15	Dracaena	Dracaena	*Pleomele reflexa 'Variegata'*	Asparagaceae
16	Furush	Lagerstroemia	*Lagerstroemia indica*	Lythraceae
17	Gandharaj lebu	Citrus/ Citron	*Citrus medica*	Rutaceae
18	Golap	Rose	*Rosa sp. Var.*	Rosaceae
19	Golap Champa	Wild Pmumeria, Bridal Bouquet	*Plumeria pudica*	Apocynaceae
20	Gothbegun	Wild Eggplant, Prickly Nightshade	*Solanum torvum*	Solanaceae
21	Hatisur	Indian heliotrope	*Heliotropium indicum*	Boraginaceae
22	Heliconia / Bird of paradise	Heliconia	*Strelitzia sp.*	Musaceae
23	Holud Berela	Common Wireweed, Morning mallow	*Sida acuta*	Malvaceae
24	Jhaw	Thuja	*Thuja orientalis*	Cupressaceae
25	Joba	Chinese Rose	*Hibiscus rosa-sinensis*	Malvaceae
26	Kagji Lebu	Lime	*Citrus acida*	Rutaceae

27	Kamini	Orange Jasmine	*Murraya paniculata*	Rutaceae
28	Karabi	Oleander	*Nerium oleander*	Apocynaceae
29	Karipata	Karipata	*Murraya koenigii*	Rutaceae
30	Kasunda	Kasunda / Baner	*Cassia sophera*	Fabaceae
31	Kolke Ful(Holud)	Oliender Flower, Trumpet Flower (Yellow)	*Thevetia peruviana (Yellow)*	Apocynaceae
32	Laboni	Ravenia Pink / Lemonia	*Ravenia spectabilis*	Rutaceae
33	Lal Pata	Poinsettia	*Euphorbia pulcherrima*	Euphorbiaceae
34	Lalpata, Poinsettia	Poinsettia	*Euphorbia pulcherima*	Euphorbiaceae
35	Lanka	Green Chili	*Capsicum sp.*	Solanaceae
36	Lantana / Putus	Lantana	*Lantana camara*	Verbenaceae
37	Madhuful	Shooting Star, Star Flower	*Pseuderanthemum* sp.	Acanthaceae
38	Milli	Milli	*Euphorbia milli*	Ericaceae
39	Morogful	Plumed Cockscomb, Woolflower	*Celosia argentea*	Amaranthaceae
40	Muktojhuri	Muktojhuri	*Acalypha indica*	Euphorbiaceae
41	Mussaenda	Musaenda	*Mussaenda sp.*	Rubiaceae
42	Nayantara	Rosy Periwinkle	*Catharanthus roseus*	Apocynaceae
43	Nil Jhanti	Philippine Violet, bluebell barleria	*Barleria strigosa*	Acanthaceae
44	Patabahar	Croton	*Codiaeum sp.var.*	Euphorbiaceae
45	Pati lebu	Citrus	*Citrus acida*	Rutaceae
46	Pora Narenga / Panjuli	Roast Potato Plant	*Phyllanthus reticulatus Poir.*	Euphorbiaceae
47	Powder Puff	Powder Puff	*Calliendra sp.*	Fabaceae

48	Rangan	Ixora	*Ixora sp.*	Rubiaceae
49	Rangchita	Slipper Plant	*Pedilanthus tithymaloides*	Euphorbiaceae
50	Reri	Castor Oil Plant	*Ricinus communis*	Euphorbiaceae
51	Salparni	Salparni	*Desmodium gangeticum*	Fabaceae
52	Scarlet sage, Salvia	Scarlet Sage	*Salvia splendens*	Lamiaceae
53	Sonapati	Tecoma	*Tecoma gaudichaudi*	Bignoniaceae
54	Spicy Jatropha	Spicy Jatropha	*Jatropha panduraefolia*	Euphorbiaceae
55	Tagar (Double)	Milk Flower (Double)	*Tabernaemontana coronaria Flore- pleno*	Apocynaceae
56	Tagar (Dwarf), Chinese Tagar	Milk Flower (Dwarf)	*Tabernaemontana divaricata var. Dwarf*	Apocynaceae
57	Tagar (Plain)	Milk Flower (Plain)	*Tabernaemontana divaricata*	Apocynaceae
58	Tara Ganda	Yellow Cosmos	*Cosmos sulphureus*	Asteraceae
59	Tibragandha	Siam Weed, Bitter bush	*Eupatorium odoratum*	Asteraceae
60	Ulotkambal	Ulotkambal	*Ambroma augusta*	Sterculiaceae

Table 16: Checklist of Creepers

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Aparajita	Aparajita	*Clitoria ternatea*	Fabaceae
2	Baro Gaylalota	Birdfoot Grape-Vine	*Cayratia pedata*	Vitaceae
3	Begam Bahar	Passion Flower	*Passiflora suberosa*	Passifloraceae
4	Chhoto Gaylalota	Cayratia	*Cayratia trifolia / Vitis carnosa*	Vitaceae

5	Corkystem Passionflower	Corkystem Passionflower	*Passiflora suberosa*	Passifloraceae
6	Gayale Lata	Birdfoot Grape-Vine	*Cayratia sp.*	Vitaceae
7	Gulancha lata	Gulanchalata	*Tinospora cordifolia*	Menispermaceae
8	Juktiful/ Titakunja	Titakunja	*Wattakaka volubillis*	Asclepiadaceae
9	Kalilata	Bengal Trumpet Vine, Blue Trumpet Vine	*Thunbergia grandiflora*	Acanthaceae
10	Kolmi Saak	Ipomoea	*Ipomoea aquatica*	Convolvulaceae
11	Lata Bichhuti/ Jol Bichhuti	Indian Stinging Nettle	*Tragia involucrata*	Euphorbiaceae
12	Money Plant	Money Plant, Ivy Arum	*Epipremnum aureum*	Areceae
13	Nimukhi Lata	Snake Vine	*Stephania japonica*	Menispermaceae
14	Philodendron	Philodendron	*Philodendron sp.*	Areceae
15	Rabon Lata	Chinese creeper	*Micania micrantha*	Asteraceae
16	Small White Morning Glory	Small White Morning Glory	*Ipomoea obscura*	Convolvulaceae
17	Telakuchu	Telakuchu	*Coccinia grandis*	Cucurbitaceae
18	Telekera	Tiliacora	*Tiliacora racemosa*	Menispermaceae
19	Bhui Achhor / Ankra	Roundleaf Bindweed	*Evolvulus nummularius*	Convolvulaceae
20	Helakolmoshi	Justicia	*Justicia simplex*	Acanthaceae
21	Idurkani / Buri Guapan	Hemigraphis	*Hemigraphis hirta*	Acanthaceae
22	Akush	Climbing Mallotus	*Mallotus repandus*	Euphorbiaceae
23	Kagaj Ful / Bagan Bilash	Bougainvillea	*Bougainvillea sp.*	Nyctaginaceae
24	Kolke ful(Allamanda)	Allamanda	*Allamanda* sp.	Apocynaceae

25	Madhabi Lata	Rangoon Creeper	*Combretum indicum*	Combretaceae
26	Anantalata/ Coral Creeper	Coral Creeper / Antigonum	*Antigonon leptopus*	Polygonaceae

Table 17: Checklist of Ornamental Plant

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Lal Dracaena	Dracena (Red)	*Dracena mahatma*	Liliaceae

Table 18: Checklist of Palms

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Areca Palm	Areca Palm	*Dypsis lutescens*	Arecaaceae
2	Bottle Palm	Bottle Palm, Champagne Palm	*Hyophorbe lagenicaulis*	Arecaceae
3	Fan Palm	Chinese Fan Palm	*Livistona chinensis*	Arecaceae
4	Fish-tail Palm	Fish-tail Palm	*Caryota urens*	Arecaceae
5	Khejur	Indian Datepalm	*Phoenix sylvestris*	Palmae/ Arecaceae
6	Narkel	Coconut	*Cocos nucifera*	Arecaaceae
7	Palm Tree/ Taal Gachh	Palmyra Palm	*Borassus flabellifer*	Palmae
8	Panthapadap	Traveller's Palm	*Ravenala madagascariensis*	Musaceae
9	Supuri	Areca	*Areca catechu*	Arecaceae
10	Taal	Palmyra Palm	*Borassus flabellifer*	Arecaceae

Table 19: Checklist of Parasitic plants

Sl.	Local Name	Common Name	Scientific Name	Family

No.				
1	Baro manda / Vanda	Honey Suckled Mistletoe	*Dendrophthoe falcata*	Loranthaceae
2	Chhoto Manda	Vanda	*Viscum orientale*	Loranthaceae

Table 20: Checklist of Ferns and Seasonal Flowers

Sl. No.	Local Name	Common Name	Scientific Name	Family	Type
1	Bird-nest Fern	Bird-nest Fern	*Asplenium* sp.	Aspleniaceae	Fern
2	Fern sp.				Fern
3	Fishtail Fern	Fishtail Fern	*Microsorum punctatum*	Polypodiaceae	Fern
4	Oakleaf Fern	Oakleaf Fern	*Drynaria quercifolia*	Polypodiaceae	Fern
5	Dog flower, Snapdragon	Dog flower, Snapdragon	Antirrhinum majus	*Scrophulariaceae*	Season Flower
6	Garden stock, Common stock	Garden stock, Common stock	*Matthiola incana*	*Brassicaceae*	Season Flower
7	Gazania	Gazania	*Gazania* sp.	Asteraceae	Season Flower
8	Gladiolus	Gladiolus	*Gladiolus sp.*	Iridaceae	Season Flower
9	Himsagar	Flaming Katy, Florist kalanchoe	*Kalanchoe blossfeldiana*	Crassulaceae	Season Flower
10	Maiden Pink	Maiden Pink	*Dianthus deltoides*	Carryophyllaceae	Season Flower
11	Mike Ful	Amaryllis	*Hippeastrum* sp.	Amaryllideceae	Season Flower
12	Pansy, Garden Pansy	Pansy, Garden Pansy	*Viola tricolor var.*	Violaceae	Season Flower
13	Petunia	Petunia	*Petunia hybrida*	Solanaceae	Season Flower
14	Verbena	Verbena	*Verbena* sp.	Verbenaceae	Season Flower

CERTIFICATE • СЕРТИФИКАТ • 証明書 • SERTIFIKA • شهادة

CDG™
CABINET DE GESTION

Certificate

CDG Certification Limited
certifies that

Barrack Pore Rastraguru Surendranath College

85, Middle Road and 6, River Side Road, Barraek Pore, Kolkata-700120, India

Has established and applies an Environmental Management System for following scope of activities:

Imparting Undergraduate & Post Graduate Courses

The Management System of the above organization has been audited and found to be in accordance with the requirements of management system standards detailed below:

ISO 14001: 2015

Certificate Registration No. CCL/EMS/24639/BPRSC

Originally registered: 13/06/2018 Latest Issue: 13/06/2018 Expiry Date: 12/06/2021

Validity of certificate is subjected to the continued satisfactory operation of the organization's Management System.

Managing Director

ANSI American National Standards Institute

CCL ISO 14001:2015 REGISTERED

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SUGGESTIONS AND RECOMMENDATIONS

- **The electricity consumption is really high. In this context, solar energy can be used as alternative energy source of the College campuses.**
- **The use of plastic products should be banned in the College campuses.**
- **The College campuses are nodoudt biodiversed but more plantations specially medicial planntations are required in the campuses. Plantation of fruit plants will attract more birds.**
- **There is urgent need to form a Green Monitoring Team. The priority of this body is to maintain the greenary of the College campuses**
- **The Green Monitoring Team sould consist of members from teaching staffs, non-teaching staffs, students and if possible, try to include some local interested people.**
- **Vermicompost facility may be practiced, the product of which can be used as manure or fertilizer for plantation purpose.**
- **Sustainable use of resources and ecological balance of the College campuses must be maintained throuout the year.**
- **Increse the use of Electrical vehicle to reduce the pollution .**
- **Encourage to reduce dairy and meat in take - No Meat Mondays! Animal products makeup 18% of greenhouse gas emissions. By replacing one or two of weekly meat and dairy meals to a vegetarian option, can help reduce emissions**
- **Encourage use of Bicycles.**
- **Improve garden: To grow healthy plants, you also need healthy soil. Improving soil quality is an ongoing process for a gardener. Good, rich in nutrients, and friable soil will offer the plants everything all on its own. Thus, you would need lesser fertilizers and pesticides.**
- **Improve Water Harvesting:Various passive strategies have been accordingly developed in attempt to improve the water harvesting capability, which can be roughly categorized into three types: (i) engineering new surfaces or materials for condensers to benefit dew generation and removal; (ii) cooling the condensing substrates to facilitate the dewing occurrence; and (iii) concentrating the moisture from air by sorbent-assisted systems to inhibit the environmental influences and raise the water yield.**
- **Promote awarnessbuildup programme on Environmental Issues time to time**

Conclusion:

Focus on Environmental is applicable. The Barrackpore Rastraguru Surendranath College **have proper plan for Future Development on Environmental expect.**

We have also suggest them how to improve the Environmental expect in a better way.

AUDIT CONDUCTED BY "MANAGEMENT SYSTEM CONSULTANCY"

Auditor

Amalesh Kr. Mandal

MANAGEMENT SYSTEM CONSULTANCY Kol- 130

Amalesh Kumar Mandal

(Lead Auditor on Quality, Environment, Energy Management System and ISO 17020:2012 Competance Certified for QCI)

(IRCA Accredited Lead Auditor on Quality, Environment, Energy Management System, Empanelled Auditor from IAF accredited Certification Body, Energy Management System Auditor from National Productivity Council, Environment Management System personnel from National Safety Council, ISO 17020:2012 Competance Certified for Quality Council of India and Carbon Frootprint Calculator Certified from BSI)

GREEN AUDIT REPORT

(2020-21)

Barrackpore Rastraguru Surendranath College

85, Middle Road & 6, Riverside Road, Barrackpore,

North 24 Parganas, Kolkata – 700120, West Bengal

UMA Apartment, Rishi Arobindo Road, Madhyamgram, Kolkata-700130
Email ID: managementsystemconsultancy@gmail.com
Website: www.msystemcon.com

ExecutiveSummary

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. Barrackpore Rastraguru Surendranath College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote the various projects for the environment protection and sustainability.

The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Contents:

ACKNOWLEDGEMENT

Management System Consultancy would like to thank the management of Barrackpore Rastraguru Surendranath College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.
We would also like to thank the Management for his continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Management System Consultancy details given below:

The auditors of Management system Consultancy are full members of many accredited Institutions like CQI, IRCA, NABET, QCI, NABL, NPC, NSC.
Qualified Lead Auditor in ISO 9001 (in 2008 and 2015 version), Occupational Health and Safety Management in both 2007 and 2018 versions, Environment Management in both 2004 and 2015 versions, Energy Management System in 2018 version, NSC approved Safety Auditor, Risk Assessment auditor from QCI, SA8000 Certified Auditor, Training and Auditing experience in private as well as governmental organizations.

*Membership with National Safety Council (NSC), Auditors are qualified from National Productivity Council (NPC) and with Quality Council of India (QCI).
*Empanelled auditors from IAF Accredited Certification Body.
*Training partner of PECB (International Body).
*ISO 17020:2012 Certified Professional from QCI.
*Waste Management certified from QCI and United Nations Institute for Training and Research.
*Energy Auditor from NPC (National Productivity Council) .
*Certified on Green Economy from United Nations Institute for Training and Research.
*Certified on Gender Equality and Human Rights in Climate Action and Renewable Energy from United Nations Institute for Training and Research.
*Certified on Waste management from United Nations Institute for Training and Research.

Introduction

Environmental or Green Audit is a systematic, documented, periodic and onjective review by regulated entities of facility operations and practices related to meeting environmental requirements (EPA, 2003). In other words, it is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable (International Chamber of Commerce, 1989).

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organisations of all kinds now recognise the importance of environmental matters and accept that their environmental performance will be scrutinised by a wide range of interested parties. Environmental auditing is used to investigate, understand and identify.

Utility of Green Auditing

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organisation's environmental effects in a systematic and documented manner and will produce an environmental audit report.

Our College and Green Auditing

Barrackpore Rastraguru Surendranath College is one of the leading higher education institutions under West Bengal State University. It has been providing a quality education to the rural and sub-urban students of North 24 Parganas and adjacent districts. The college has two campuses – the Science building at 85, Middle Road, Barrackpore and another Arts and Commerce building at 6, Riverside Road on the bank of the river Ganges.Our college reaccredited (4th cycle) by NAAC with 'B++' Grade and received College with Potential for Excellence (CPE) status from UGC.

Green Audit Working Team (2021-22):

Sl No	Name of the Members	Designation
1	PROF.(DR.) MONOJIT RAY,	Principal, BRSN College
2	Dr. Sutapa Ghosh Dastidar,	Coordinator, IQAC
3	Dr. Sujata De Chaudhuri	Assistant Professor, Dept. Of Zoology
4	Dr. Sandip Pal	Assistant Professor, Dept. Of Zoology
5	Dr. Suraj Sk	Assistant Professor, Dept. Of Botany

Objectives of the Study

The main objectives of the green audit are to promote the environment management and conservation in the college campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out green audit are

a. To introduce and make aware students to real concerns of environment and its sustainability
b. To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus
c. To establish a baseline data to assess future sustainability by avoiding the

interruptions in environment that are more difficult to handle and their corrections requires high cost.

d. To bring out a present status report on environmental compliance

Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

(g) Review documentation:

(h) Evaluation and Analysis:

(i) Assess environmental impacts:

(j) Evaluate compliance:

(k) Identify strengths and weaknesses:

(l) Quantify results:

(m) Reporting:

(n) Prepare an audit report:

(o) Communicate results:

(p) Follow-up and Improvement:

(q) Develop an action plan:

(r) Monitor progress:

(s) Continuous improvement:

The methodology adoptedto conduct the Green Audit of the Institution had the followingcomponents.

On-site Visit :

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

Focus Group Discussion :

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

Energy and waste management Survey:

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

Waste Management:

Recycling:

Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

Composting:

The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

Table: Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Store these in a separate tank, and we can start selling them directly after a certain amount of time.

Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly.
Solid wastes	Paper waste, Damaged furniture, paper plates, food wastes	Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste.
Chemical wastes	Laboratory waste	Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations.
Wastewater	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers.

Sanitary Napkin	-	Napkin Incinerators

For this purpose, Barrackpore Rastraguru Surendranath College has employed waste bins for proper segregation of solid wastes in the campuses. It includes provision for plastic/glass waste, food waste and metal/e-waste in a single compact system.

	Number of waste bins
Science Campus (85, Middle Road)	05
Arts Campus (6, Riverside Road)	05
Boy's Hostel	01
Girl's Hostel	01
TOTAL	**12**

Water Usage:

Water Fixtures: Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by

swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

Water management table:

Water Management Tasks	Frequency	Responsible Party
Routine examination of water supplies	Monthly	Green Audit Working Team
Testing for drinking water quality	Half-yearly	Do
Awareness of water conservation	Half-yearly	Green Audit Working Team & various department
Infrastructure for water distribution that needs upkeep and repair	As needed	Caretaker
Reporting and analysis of water use	Annually	Green Audit Working Team & Caretaker
Learn what causes excessive water consumption.	As needed	Caretaker

Water Quality Assessment, Consumption & Management

Water quality analysis was conducted by Eutech PCS Multi-parameter Tester 35, µC Turbidity Meter 135 and Lutron DO-5509 Meter.

Table – 1 (Average Value of 2020-21)

Sample No.	Location from where samples collected	MPN Index (per 100 ml)	Water Quality
1	Teachers' Room Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)

2	Teachers' Room Aquaguard (Science Campus)	00	Outstanding (Potable)
3	Students' Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
4	Students' Aquaguard (Science Campus)	00	Outstanding (Potable)
5	Tap water (Science Campus)	08	Good (Non-Potable)
6	Normal tap water	14	Good (Non-Potable)
7	Well water of garden	45	Average (Non-Potable)

Table – 2 (Average Value of 2020-21)

	Location from where samples collected	**TDS (ppm)**	**Conductance (µS)**	**pH**	**Salinity (ppm)**
1	Science Campus (85, Middle Road)	205	290	7.73	139
2	Arts Campus (6, Riverside Road)	217	299	8.00	145
3	Boy's Hostel	220	311	8.37	150
4	Girl's Hostel	213	303	8.12	146

Table – 3 (Average Value of Ion Content in College Tap Water)

IONS	**UNIT (ppm)**
Sodium	17.50
Potassium	6.02

Total Number of Taps in 85, Middle Road Campus

Department/Section/Room	**Room No.**	**No. of Taps**
Ground floor		
Health	110	1

Toilet	109	5
Computer staff room	108	2
GB room toilet	119	2
Principal's room	103	3+1 = 4
Controller's room		3
Office toilet		3
Account's toilet		3
Outside general toilet		3+1 = 4
Front garden tap		2
Staff canteen	138A	1
Teachers room	138	1+3+4 = 8
CEL		2
Student's basin backyard		3
Backyard garden tap		1
Student's canteen		
Boy's Toilet		11
Microbiology		14+13+4+2+1 = 34
	Floor Total:	**89**
1st floor		
Zoology	222, 223, 224	14
Zoology extended basin, toilet		6
Microbiology		4
Toilet	221	5
Chemistry lab		26
Chemistry lab	240	1
Central instrument room	241	1

Botany	242	4
Toilet	205	7
Toilet	206	6
Economics		2
Virtual classroom complex		3
Electronics		3
	Floor Total:	**82**
2nd floor		
Toilet		5+2 = 7
Food & nutrition		8+4 = 12
Geography		3
Toilet	338	2
Toilet	327	3
Psychology		3
Physics		3+3 = 6
Botany		4
	Floor Total:	**40**

Total Number of Taps in 6, Riverside Road Campus

Department/Section/Room	Block	No. of Taps
Ground floor		
Gents toilet	A	7
Ladies toilet	A	5
Library	B	3
Student aquaguard	B	1
Drinking water	B	3
Student aquaguard	C	1

Language lab	C	3
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
Seminar room	D	2
Sports room	E	2
Drinking water	E	1
Canteen	E	4
Aquaguard	E	1
Flower garden		3
Outside building		5
	Floor Total:	**65**
1st floor		
Guest room	A	5
Ladies toilet	B	3
Gents toilet	**B**	3
Staff room	B	3
Girls toilet	B	5
Boys toilet	B	9
Aquaguard	B	1
Ladies toilet	C	11
Gents toilet	C	8
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8

Drinking water	C	6
	Floor Total:	**72**
Girls Hostel		93
		25 (showers)
Boy's Hostel		25

Water Storage Profile

	Number & Capacity of Tanks	**Total Capacity (Litre)**
Science Campus (85, Middle Road)	1500 L x 4	6000
	1000 L x 4	4000
	1500 L x 2	3000
	1000 L x 4	4000
	500 L x 4	2000
	1000 L x 2	2000
	500 L x 2	1000
	1000 L x 2	2000
	500 L x 1	500
	Sub-total	**24,500**
Arts Campus (6, Riverside Road)	750 L x 4	3000
	500 L x 1	500
	1000 L x 1	1000
	1000 L x 1	1000
	1000 L x 2	2000
	500 L x 4	2000
	500 L x 2	1000

	Sub-total	**10,500**
Boy's Hostel	1000 L x 2	2000
Girl's Hostel	1000 L x 4	4000
	Total	**41,000**

Comments

Approximate per capita average consumption per month can not be calculated as the college and hostels were closed in this time period due to pandemic restrictions.

Transportation:

Public Transport: The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

Electric Vehicles: To aid in the switch to electric transport, the college may choose to invest in infrastructure for charging EVs. Additionally, encouraging the use of electric vehicles through awareness programs and incentives can help lower the emissions produced by on-campus transportation.

Air Quality Assessment and Management

Air quality of the College campus is monitored by AIRVEDA multi-parameter measuring system.

2020

Months	PM 2.5 (ppm)	PM 10 (ppm)	Humidity (%)	CO_2 (ppm)
January 2020	138.00	216.00	55.50	738.25
February 2020	81.50	133.40	45.10	660.30

March 2020	80.50	133.50	61.50	678.75
April 2020	44.00	202.00	70.00	469.00
May 2020	38.75	62.00	74.00	656.00
June 2020	39.50	57.50	68.75	672.75
July 2020	32.00	42.80	72.00	672.80
August 2020	09.60	15.60	71.50	684.60
September 2020	32.50	40.00	72.25	725.60
October 2020	41.00	61.00	52.00	826.00
November 2020	22.00	61.00	46.00	768.00
December 2020	153.28	246.57	53.57	744.28

2021

Months	PM 2.5 (ppm)	PM 10 (ppm)	Humidity (%)	CO_2 (ppm)
January 2021	143.90	239.63	60.00	749.63
February 2021	130.15	201.15	59.23	818.38
March 2021	81.88	148.94	52.41	688.29
April 2021	46.00	72.25	54.66	657.58
May 2021	35.84	55.07	60.92	741.15
June 2021	42.07	68.46	76.23	611.38

Electricity Consumption (in Units) and Management

2020

Science Campus	**Jan'20- Mar'20**	**Apr'20-Jun'20**	**Jul'20-Sep'20**	**Oct'20-Dec'20**
	18718	13330	-	-
Arts Campus	**Jan'20- Mar'20**	**Apr'20-Jun'20**	**Jul'20-Sep'20**	**Oct'20-Dec'20**

	2617	2877	-	-
Boy's Hostel	**Dec'19-Feb'20**	**Mar'20-May'20**	**Jun'20-Aug'20**	**Sep'20-Nov'20**
	1367	826	-	-
Girl's Hostel	**Dec'19-Feb'20**	**Mar'20-May'20**	**Jun'20-Aug'20**	**Sep'20-Nov'20**
	2987	2365	-	-

LED Tubes & lights


TOTAL ELECTRICITY CONSUMPTION PER YEAR (2020):

	UNITS
Science Campus (85, Middle Road)	32048
Arts Campus (6, Riverside Road)	5494
Boy's Hostel	2193
Girl's Hostel	5352
GRAND TOTAL	**45,087**

2021

Science Campus	**Jan'21- Mar'21**	**Apr'21-Jun'21**	**Jul'21-Sep'21**	**Oct'21-Dec'21**
	18895	16595		
Arts Campus	**Jan'21- Mar'21**	**Apr'21-Jun'21**	**Jul'21-Sep'21**	**Oct'21-Dec'21**
	2625	3489		
Boy's Hostel	**Dec'19-Feb'20**	**Mar'20-May'20**	**Jun'20-Aug'20**	**Sep'20-Nov'20**
	1050	883		
Girl's Hostel	**Dec'20-Feb'21**	**Mar'21-May'21**	**Jun'21-Aug'21**	**Sep'21-Nov'21**
	875	760		

TOTAL ELECTRICITY CONSUMPTION PER YEAR (2021):

	UNITS
Science Campus (85, Middle Road)	35490
Arts Campus (6, Riverside Road)	6114
Boy's Hostel	1933
Girl's Hostel	1635
GRAND TOTAL	45,172

Comments

Drastic drop in electricity consumption in 2020 and 2021 is the obvious effect of lockdown. Approximate per capita average consumption per month can not be calculated as the college and hostels were closed in this time period due to pandemic restrictions.

Sound Pollution Monitoring:

Sound pollution is another important parameter that is taken into account for green auditing of the College Campus. Six different sites are chosen for the monitoring purpose namely College gate, accounts section, college office, Principal's room,

teachers' room and library. Sound is quantified by the Sound Level Meter (Lutron SL-4030).

Average Values of 2020-21

	Sound Level (dB)
College Gate (CG)	68.4 ± 8.3
Accounts (A)	50.5 ± 3.4
Office (O)	61.7 ± 4.5
Principal's Room (PR)	60.4 ± 6.1
Teachers' Room (TR)	47.8 ± 5.2
Library (L)	45.5 ± 4.1

Biodiversity Status of the College Campuses

INTRODUCTION

Barrackpore Rastraguru Surendranath College situated beside river Hooghly is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the college premises and their inter-relationship.

OBJECTIVE

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

1. Documentation of the floral diversity of the area: its trees, herbs, shrubs, climbers and aquatic vegetations.
2. Documentation of the major faunal groups like mammals, reptiles, amphibians, birds and among the insects, butterflies and dragonflies.
3. Documentation of the specific interdependence of floral and faunal life.

Survey Team

- Arjan Basu Roy (PI)
- Swapna Biswas (Flora, Dragonflies, Birds)
- Sarika Baidya (Butterflies and related Plants)
- Tarun Karmakar (Butterfly and other Insects)
- Namrata Das (Butterfly and other Insects)
- Souparno Roy (Butterfly, Reptiles and Amphibians)
- Archan Paul (Butterflies)
- ArabindaNarayan Dolai (Mammals, Birds)

Survey Time:

July, 2020 to December, 2021

Survey Area

Barrackpore Rastraguru Surendranath College premises and its surrounding areas. The two college campuses are situated at 85, Middle Road, Barrackpore which is close the river Hooghly and 6, Riverside Road, Barrackpore.

Map 01: 85, Middle Road Campus
(★ shows the area of our work.

Method of Study

Brief methodology for the floral and faunal survey is given below.

1. Sampling was done mostly in random manner.
2. The total area was surveyed by walking at day time.
3. Surveys were conducted for the maximum possible hours in day time.
4. Tree species were documented through physical verification on foot and photographed each species as much as possible.
5. For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.
6. Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, dung deposits and footprints were also observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.

7. Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species.
8. Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.
9. Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.
10. Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.
11. The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. Slugs and snails are more conspicuous during wet weather and especially at night when they were found using a torch.
12. Digital photography was done for all the species recorded as much as possible.

Number of Faunal species observed: 161

The list of Fauna indicates that the college campus is significantly rich in faunal diversity. We have seen a significant number of bird nests at many a places. Mammals' diversity is good. Avian diversity is wonderful. In these 10 visits, we have also photographed and documented 68 species of butterflies which indicates a healthy eco-system as a whole. Odonate population indicates that the health of the water bodies and the riverine ecosystem is quite good. The amphibian population also supports this fact. Reptilian population is also quite significant and presence of Bengal Monitor Lizard indicates that the reptilian population is naturally controlled and managed at the study site. We have not been able to document other insect groups during this survey. The yearlong survey will add some more fauna in the checklist for sure after the seasonal survey.

Checklist of Faunal groups with species number

1.	Mammals	5	Table-1
2.	Birds	53	Table-2
3.	Reptiles	6	Table-3
4.	Amphibians	3	Table-4
5.	Butterflies	68	Table-7
6.	Odonates	26	Table-8

Table 03: Checklist of Mammals

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Five-striped Palm Squirrel	*Funambulus pennantii*	Kathbirali	Sciuridae
2	Common Pipistrelle	*Pipistrellus pipistrellus*	Chamchike	Vespertilionidae
3	Indian Flying Fox	*Pteropus giganteus*	Kola Badur	Pteropodidae
4	Fruit Bat	*Pteropus* sp.	Badur	Pteropodidae
5	Gray Langur	*Semnopithecus* sp.	Hanuman Langur	Cercopithecidae
6	Asian Palm Civet	*Paradoxurus hermaphroditus*	Bham Biral	Viverridae
7	Indian Grey Mongoose	*Herpestes edwardsi*	Neul	Herpestidae

Table 04: Checklist of Birds

Sl. No	Common Name	Scientific Name	Bengali Name	Family
1	Alexandrine Parakeet	*Psittacula eupatria*	Chondona	Psittacidae
2	Asian Koel	*Eudynamys scolopaceus*	Kokil	Cuculidae
3	Asian Openbill	*Anastomus oscitans*	Shamuk Khol	Ciconiidae
4	Asian Palm Swift	*Cypsiurus balasiensis*	Talchonch	Apodidae
5	Asian Pied Starling	*Gracupica contra*	Go-shalik	Sturnidae
6	Black Drongo	*Dicrurus macrocercus*	Finge	Dicruridae
7	Black Kite	*Milvus migrans*	Chil	Accipitridae
8	Black-hooded Oriole	*Oriolus xanthornus*	Benebou	Oriolidae
9	Black-naped Monarch	*Hypothymis azurea*		Monarchidae
10	Black-naped Oriole	*Oriolus chinensis*	Kaloghad Benebou	Oriolidae
11	Blue-throated Barbet	*Megalaima asiatica*	Nilgala Basantabouri	Ramphastidae
12	Cattle Egret	*Bubulcus ibis*	Gobok	Ardeidae
13	Common Hawk Cuckoo	*Hierococcyx varius*	Papia	Cuculidae
14	Common Hoopoe	*Upupa epops*	Mohonchuda, Hupo	Upupidae
15	Common Iora	*Aegithina tiphia*	Fotik Jol	Aegithinidae
16	Common Kingfisher	*Alcedo atthis*	Chhoto Machhranga	Alcedinidae
17	Common Myna	*Acridotheres tristis*	Shalik	Sturnidae
18	Common Pigeon	*Columba livia*	Payra	Columbidae

19	Common Sandpiper	*Actitis hypoleucos*	Sadharon Balubatan	Scolopacidae
20	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae
21	Coppersmith Barbet	*Megalaima haemacephala*	Chhoto basantabouri	Ramphastidae
22	Eastern Jungle Crow	*Corvus(macrorhynchos) levaillantii*	Dandkak	Corvidae
23	Eurasian Collared Dove	*Streptopelia decaocto*	Konthi Ghughu	Columbidae
24	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Jarod Kath Thokra	Picidae
25	Greater Coucal	*Centropus sinensis*	Kubo	Cuculidae
26	Green Bee-Eater	*Merops orientalis*	Banspati	Meropidae
27	House Crow	*Corvus splendens*	Kak	Corvidae
28	House Sparrow	*Passer domesticus*	Chorui	Passeridae
29	Indian Cormorant	*Phalacrocorax fuscicollis*	Majhari Pankoudi	Phalacrocoracidae
30	Indian Pond Heron	*Ardeola grayii*	Konchbok	Ardeidae
31	Jungle Babbler	*Turdoides striatus*	Chhatare	Timaliidae
32	Jungle Myna	*Acridotheres fuscus*	Jhuntshalik	Sturnidae
33	Lesser Goldenback	*Dinopium benghalense*	Chhoto Sonali Kath Thokra	Picidae
34	Lineated Barbet	*Megalaima lineata*	Rekha Basantabouri	Ramphastidae
35	Marsh Sandpiper	*Tringa stagnatilis*	Biler Balubatan, Jolar Chapakhi	Scolopacidae
36	Oriental Magpie Robin	*Copsychus saularis*	Doyel	Muscicapidae
37	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Poragpakhi	Dicaeidae
38	Purple Heron	*Ardea purpurea*	Lalkank, Nilbogola	Ardeidae
39	Purple Sunbird	*Nectarinia asiatica*	Durga Tuntuni	Nectariniidae
40	Purple-rumped Sunbird	*Nectarinia zeylonica*	Moutushi	Nectariniidae
41	Red-vented Bulbul	*Pycnonotus cafer*	Bulbuli	Pycnonotidae
42	Red-whiskered Bulbul	*Pycnonotus jocosus*	Shipai Bulbul	Picnonotidae
43	Rose-ringed Parakeet	*Psittacula krameri*	Tiya	Psittacidae

44	Rufous Treepie	*Dendrocitta vagabunda*	Handichancha	Corvidae
45	Shikra	*Accipiter badius*	Turki baaz	Accipitridae
46	Spotted Dove	*Stigmatopelia chinensis*	Tile Ghughu	Columbidae
47	Spotted Owlet	*Athene brama*	Kuthure Pencha	Strigidae
48	Stork-billed kingfisher	*Pelargopsis capensis*	Gudiyal	Alcedinidae
49	Taiga Flycatcher	*Ficedula albicilla*	Chutki	Muscicapidae
50	White Wagtail	*Motacilla alba*	Sada Khonjon, Khonjona	Motacillidae
51	White-breasted Waterhen	*Amaurornis phoenicurus*	Dahuk	Rallidae
52	White-throated Kingfisher	*Halcyon smyrnensis*	Sadabuk Machhranga	Alcedinidae
53	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Horiyal	Columbidae

Table 05: Checklist of Reptiles

Sl.No.	Common Name	Scientific Name	Bengali Name	Family
1	Checkered Keelback	*Xenochrophis piscator*	Joldhora	Colubridae
2	Buff Striped Keelback	*Amphiesma stolatum*	Hele	Colubridae
3	Rat Snake	*Zamenis longissimus*	Darash	Colubridae
4	Russell's Viper	*Daboia russelii*	Chandrabora	Viperidae
5	Skink	*Lampropholis* sp.	Anjani	Scincidae
6	Oriental Garden Lizard	*Calotes versicolor*	Girgiti	Agamidae
7	Bengal Monitor Lizard	*Varanus bengalensis*	Gosap	Varanidae
7	Common House Gecko	*Hemidactylus frenatus*	Tiktiki	Gekkonidae

Table 06: Checklist of Amphibians

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Indian Toad	*Duttaphrynus melanostictus*	Kuno Byang	Bufonidae
2	Skittering Frog	*Euphlyctis cyanophlyctis*	Katkati Byang	Dicroglossidae
3	Asian Bullfrog	*Hoplobatrachus tigerinus*	Sona Byang	Dicroglossidae

Table 07: Checklist of Butterflies

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Blue Mormon	*Papilio polymnestor*	Barunpakha	Papilionidae
2	Common Jay	*Graphium doson*	Minji	Papilionidae
3	Common Mime	*Papilo clytia*	Khagra	Papilionidae
4	Common Mormon	*Papilo polytes*	Kalim	Papilionidae

5	Common Rose	*Pachliopta aristolochiae*	Alte	Papilionidae
6	Lime Butterfly	*Papilio demolius*	Ruru	Papilionidae
7	Tailed Jay	*Graphium agamemnon*	Choitak	Papilionidae
8	Western Striped Albatross	*Appias libythea*	Dhulkapas	Pieridae
9	Small Grass Yellow	*Eurema brigitta*	Chhoto Holud	Pieridae
10	Common Grass Yellow	*Eurema hecabe*	Holud	Pieridae
11	Common Gull	*Cepora nerissa*	Kuchila	Pieridae
12	Eastern Striped Albatross	*Appias olferna*	Dhulkapas	Pieridae
13	Indian Jezebel (Common Jezebel)	*Delias eucharis*	Hartoni	Pieridae
14	Indian Wanderer	*Pareronia hippia*	Tallar	Pieridae
15	Lemon Emmigrant	*Catopsilia pomona*	Payrachali	Pieridae
16	Mottled Emmigrant	*Catopsilia pyranthe*	Chhitpayra	Pieridae
17	Psyche	*Leptosia nina*	Furus	Pieridae
18	Common Cerulean	*Jamides celeno*	Surul	Lycaenidae
19	Common Lineblue	*Prosotas nora*	ChandandNari	Lycaenidae
20	Tailless Lineblue	*Prosotas dubiosa*	Bigri Danri	Lycaenidae
21	Common Pierrot	*Castalius rosimon*	Tilaia	Lycaenidae
22	Common Quaker	*Neopithecops zalmora*	Kori	Lycaenidae
23	Dark Grass Blue	*Zizeeria karsandra*	Chhoi	Lycaenidae
24	Forget-me-not	*Catochrysops strabo*	Rittam	Lycaenidae
25	Gram Blue	*Euchrysops cnejus*	Joural	Lycaenidae
26	Lesser Grass Blue	*Zizina otis*	Para	Lycaenidae
27	Lime Blue	*Chilades lajus*	Tura	Lycaenidae
28	Pale Grass blue	*Pseudozizeeria maha*	Dhupi	Lycaenidae
29	Pea Blue	*Lampides boeticus*	Khoria	Lycaenidae
30	Plains Cupid	*Chilades pandava*	Rulki	Lycaenidae
31	Tiny Grass Blue	*Zizula hylax*	Tinni	Lycaenidae
32	Zebra Blue	*Leptotes plinius*	Zizi	Lycaenidae
33	Slate Flash	*Rapala manea*	Rimli	Lycaenidae
34	Falcete Oakblue	*Mahathala ameria*	Kaste Rangchiti	Lycaenidae
35	Common Guava Blue	*Virachola isocrates*		Lycaenidae
36	Spotted Pierrot	*Tarucus callinara*	Chhit Tilkushi	Lycaenidae
37	Monkey Puzzle	*Rathinda amor*	Chatul	Lycaenidae
38	Indian Sunbeam	*Curetis thetis*	Jhinukpalash	Lycaenidae
39	Common Silverline	*Spindasis vulcanus*	Riupapatia	Lycaenidae
40	Angled Castor	*Ariadne ariadne*	Kanmorche	Nymphalidae
41	Blue Tiger	*Tirumala limniace*	Himalkuchi	Nymphalidae
42	Chestnut-streaked Sailer	*Neptis jumbah*	Batasi	Nymphalidae
43	Commander	*Moduza procris*	Karanjia	Nymphalidae
44	Common Baron	*Euthalia aconthea*	Bhushanda	Nymphalidae
45	Common Bushbrown	*Mycalesis perseus*	Janglabira	Nymphalidae
46	Common Castor	*Ariadne merione*	Morchepata	Nymphalidae

47	Common Crow	*Euploea core*	Kaoa	Nymphalidae
48	Common Evening Brown	*Melanitis leda*	SaNjhla	Nymphalidae
49	Common Five-ring	*Ypthima baldus*	PaNchbuNdi	Nymphalidae
50	Common Four-ring	*Ypthima huebneri*	CharbuNdi	Nymphalidae
51	Common Leopard	*Phalanta phalantha*	Chita	Nymphalidae
52	Common Palmfly	*Elymnias hypermnestra*	Khayerchak	Nymphalidae
53	Danaid Eggfly	*Hypolimnas misippus*	JamchaNda	Nymphalidae
54	Goudy Baron	*Euthalia lubentina*	KuNchrangi	Nymphalidae
55	Great Eggfly	*Hypolimnas bolina*	Jamui	Nymphalidae
56	Grey Pansy	*Junonia atlites*	ChaNdnori	Nymphalidae
57	Peacock Pansy	*Junonia almana*	Nayan	Nymphalidae
58	Plain Tiger	*Danaus cheysippus*	Tamot	Nymphalidae
59	Striped Tiger	*Danaus genutia*	Baghballa	Nymphalidae
60	Tawny Coster	*Acraea violae*	Horinchhara	Nymphalidae
61	Lemon Pansy	*Junonia lemonias*	Ushum	Nymphalidae
62	Brown Awl	*Badamia exclamationis*	Chile Pakhui	Hesperiidae
63	Common Banded Awl	*Hasora chromus*	Khori Pakhui	Hesperiidae
64	Oriental Palm Bob	*Suastus gremius*	Khoyra	Hesperiidae
65	Pale Palm Dart	*Telicota colon*	Bena Tirap	Hesperiidae
66	Small Banded Swift	*Pelopidas mathias*	Pati Johur	Hesperiidae
67	Swift sp.			Hesperiidae
68	Chestnut Palm Bob	*Iambrix salsala*	Piplai	Hesperiidae

Butterfly Garden, 6, River Side Road Campus Of College

Table 08: Checklist of Odonates

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Green Darner	*Anax junius*	Sobuj Kanta	Aeshnidae
2	Coromandel Marsh Dart	*Ceriagrion coromandelianum*	Holde Baan	Coenagrionidae
3	Orange Tailed Marsh Dart	*Ceriagrion cerinorubellum*	Keshar Baan	Coenagrionidae
4	Pygmy Dartlet	*Agriocnemis pygmaea*	Baman Shar	Coenagrionidae
5	Saffron Faced Blue Dart	*Pseudagrion rubriceps*	Keshari Mukh	Coenagrionidae
6	Senegal Golden Dartlet	*Ischnura senegalensis*	Treebarna Shar	Coenagrionidae

7	Three lined Dart	*Pseudagrion decorum*	troyee Baan	Coenagrionidae
8	Tiny Hooded Dartlet	*Agriocnemis kalinga*	Kshude Shar	Coenagrionidae
9	Black Marsh Trotter	*Tramea limbata*	Krishna Shel	Libellulidae
10	Common Picturewing	*Rhyothemis* variegata	Titli Pakh	Libellulidae
11	Coral Tailed Cloud-wing	*Tholymis* tillarga	Meghla Pakh	Libellulidae
12	Ditch Jewel	*Brachythemis contaminata*	Kamala Baran	Libellulidae
13	Estuarine Skimmer	*Macrodiplax* cora	Nona Baran	Libellulidae
14	Fulvous Forest Skimmer	*Neurothemis fulvia*	Tamra Baran	Libellulidae
15	Green Marsh Hawk	*Orthetrum* sabina	Sabuj Sena	Libellulidae
16	Ground Skimmer	*Diplacodes* trivialis	Bhubaran	Libellulidae
17	Little Blue Marsh Hawk	*Brachydiplax* sobrina	Neelbaman Sena	Libellulidae
18	Ruddy Marsh Skimmer	*Crocothemis* servilia	Rakta Baran	Libellulidae
19	Scarlet Marsh Hawk	*Aethriamanta* brevipennis	Raktim Sena	Libellulidae
20	Wondering Glider	*Pantala* flavescens	Bristi Bahan	Libellulidae
21	Granite Ghost	*Bradinopyga geminata*	Pathuria	Libellulidae
22	Yellow-tailed Ashy Skimmer	*Potamarcha congener*	Dhushar Baran	Libellulidae
23	Rufous Marsh Glider	*Rhudothemis rufa*	Lalbahan	Libellulidae
24	Pied Paddy Skimmer	*Neurothemis tullia*	Fatik Baran	Libellulidae
25	Crimson-tailed Marsh Hawk	*Orthetrum pruinosum*	Chuni Sena	Libellulidae
26	Black Marsh Dart	*Onychargia atrocyana*	Kele Ban	Platycnemididae

Table 09: Checklist of Larval Host Plants found in campus

Sl. No.	Common Name of Butterfly Species	Larval Host Plant (Local Name)	Larval Host Plant (Scientific Name)
1	Tailed Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
2	Common Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
3	Common Castor	Rerhi/ Castor Plant	*Ricinus communis*
4	Plain Tiger	Akanda	*Calotropis gigantean*
5	Angled Castor	Jol Bichhuti/ Lata Bichhuti	*Tragia involucrate*
6	Plains Cupid	Chiruni Palm	*Cycas revolute*
7	Common Mormon	Lebu, Karipata, Ash Shaora	*Citrus* sp., *Murraya koenigii*, *Glycosmis pentaphyla*
8	Emmigrant sp.	Minjiri	*Cassia siamea*
9	Lime Blue	Lebu	*Citrus* sp.
10	Common Banded Awl	Karanja	*Pongamia pinnata*

Number of Floral species observed: 271

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Checklist of Floral groups with species number

1.	Trees	70	Table-10
2.	Aquatic Plants	7	Table-11
3.	Bamboos	1	Table-12
4.	Grasses	3	Table-13
5.	Herbs	65	Table-14
6.	Shrubs	60	Table-15
7.	Creepers	26	Table-16
8.	Ornamental Plants	1	Table-17
9.	Palms	10	Table-18
10.	Parasitic	2	Table-19
11.	Bryophyte	2	Table-20
12.	Pteridophytes	14	Table-21
13.	Seasonal Flower	10	Table-22

Table 10: Checklist of Trees

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Kak Dumur	Fig Tree	*Ficus hispida*	Monaceae
2	Aam	Mango	*Mangifera indica*	Anacardiaceae
3	Akashmoni	Golden Shower	*Acacia auriculiformis*	Fabaceae
4	Akashneem	Indian Cork Tree, Tree Jasmine	*Millingtonia hortensis*	Bignoniaceae

5	Allspice Tree	Allspice Tree	*Pimenta dioica*	Myrtaceae
6	Amaltash	Golden Shower	*Cassia fistula*	Caesalpiniaceae
7	Amloki	Amla	*Emblica officinalis*	Euphorbiaceae
8	Amrah	Wild Mango	*Spondias pinnata*	Anacardiaceae
9	Ashfol	Longan	*Euforia longan*	Sapindaceae
10	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
11	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
12	Bahera	Bahera	*Terminalia bellirica*	Combretaceae
13	Bakul	Spanish cherry / Bakul	*Mimusops elengi*	Caesalpiniaceae
14	Batabi Lebu	Pomelo	*Citrus maxima*	Rutaceae
15	Bel	Golden Apple	*Aegle marmelos*	Rutaceae
16	Bhawarmal, Bohar, Biharukh	Bhawarmal, Bohar, Biharukh	*Hymenodictyon orixense*	Rubiaceae
17	Bot	Banyan Tree	*Ficus benghalensis*	Moraceae
18	Buddha Narkel	Buddha Coconut	*Pterygota alata*	Sterculiaceae
19	Chalta	Elephant Apple	*Dillenia indica*	Dilleniaceae
20	Chhatim	Chhatiyan / Devil's Tree	*Alstonia scholaris*	Apocynaceae
21	Chhotopata Mehogini	Small-leaved Mahogany	*Swietenia mahagoni*	Meliaceae
22	Chinese Bot	Ficus	*Ficus Sp.*	Moraceae
23	Christmass Tree	Caledonia Pine/ Christmas Tree	*Araucaria cookii*	Arucariaceae
24	Debdaru	Indian Fir / Cementry Tree	*Polialthia longifolia*	Annonaceae
25	Eucaliptus	Eucalyptus	*Eucalyptus spp.*	Myrtaceae
26	Gandhraj	Gardenia, Cape jasmine	*Gardenia jasminoides*	Rubiaceae
27	Ghora Neem	Indian Lilac Tree	*Melia azedarach*	Meliaceae

28	Golap Jam	Gulab Jamun	*Syzygium jambos*	Myrtaceae
29	Haritaki	Haritaki	*Terminalia chebula*	Combretaceae
30	Indurmari	Gliricidia	*Gliricidia sepium*	Fabaceae
31	Jagga Dumur	Cluster Fig	*Ficus glomerata*	Moraceae
32	Jam	Indian Blackberry	*Syzygium cumini*	Myrtaceae
33	Jamrul	Water Apple	*Syzygium aqueum*	Myrtaceae
34	Jarul	Pride of India	*Lagerstroemia speciosa*	Lythraceae
35	Kadam	Kadam	*Anthocephalus chinensis*	Rubiaceae
36	Kamranga	Star Fruit	*Averrhoa carambola*	Averrhoaceae
37	Kanchan	Butterfly Tree	*Bauhinia purpurea*	Caesalpiniaceae
38	Kanthal	Jack Fruit	*Artocarpus heterophyllus*	Moraceae
39	Karanja	Pongam Tree, Pongame Oil Tree	*Pongamia pinnata*	Fabaceae
40	Kath Badam	Indian Almond	*Terminalia catappa*	Combretaceae
41	Kath Champa	Red Jasmine Tree	*Plumeria rubra*	Apocynaceae
42	Khirish	Rain Tree	*Samanea saman*	Mimosaceae
43	Krishnachura	Gold Mohur / Flame Tree	*Delonix regia*	Caesalpiniaceae
44	Kshude Jam	Indian Blackberry (Small)	*Syzygium sp.*	Myrtaceae
45	Kul(Topa Kul)	Indian Jujube / Ber	*Ziziphus mauritiana*	Rhamnaceae
46	Kurchi	Indrajao	*Holarrhena pubescens*	Apocynaceae
47	Lal Shimul	Red Silk Cotton Tree	*Bombax ceiba*	Malvaceae
48	Lichu	Lichi	*Litchi chinensis*	Sapindaceae
49	Lombu Gachh	Dysoxylum Sp.	*Dysoxylum costulatum Miq.*	Miliaceae
50	Neem	Neem Tree	*Azadirachta indica*	Meliaceae
51	Nepal Tunt	West Indian Elm,	*Guazuma ulmifolia*	Malvaceae

		Bastard/Bay Cedar		
52	Nona	Custard Apple	*Annona reticulata*	Annonaceae
53	Pain	She-Oak / Indian Christmas Tree	*Casuarina equisetifolia*	Casuarinaceae
54	Pakur	White Fig	*Ficus infectoria*	Moraceae
55	Palash	Flame tree	*Butea monosperma*	Faboideae
56	Peyara	Guava	*Psidium guajava*	Myrtaceae
57	Pituli	False White Teak	*Trewia nudiflora*	Euphorbiaceae
58	Putranjeeva	Putranjiva / Lucky Bean Tree	*Putranjiva roxburghii*	Euphorbiaceae
59	Radhachura	Copper Pod Tree	*Peltoforum pterocarpum*	Caesalpiniaceae
60	Rubber	Indian Rubber Tree	*Ficus elastica*	Moraceae
61	Rudrapalash	African Tulip Tree	*Spathodia campanulata*	Bignoniaceae
62	Sabeda	Sabeda	*Manikara sapota*	Sapotaceae
63	Segun	Burma Teak	*Tectona grandis*	Verbenaceae
64	Shaora	Sand Paper Tree	*Streblus asper*	Moraceae
65	Sheuli	Queen of the night	*Nyctanthes arbortristis*	Oleaceae
66	Sojina	Drumstick Tree	*Moringa oleifera*	Moringaceae
67	Subabul	Subabul	*Leucena leucocephela*	Mimosaceae
68	Tentul	Tamarind	*Tamarindus indica*	Caesalpiniaceae
69	Toon	Indian Mehoginy	*Cedrela toona*	Meliaceae
70	Zilipi Babla	Vilayati Babul	*Pithecolobium dulce*	Mimosaceae

Green campus initiatives

Table 11: Checklist of Aquatic Plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baicha, Patajhangi	Tape grass	*Vallineria spiralis*	Hydrocharitaceae
2	Jhangi, Kureli	Waterthyme	*Hydrilla verticillata*	Hydrocharitaceae
3	Parmikalla	Duck lettuce	*Ottelia alismoides*	Hydrocharitaceae
4	Shaluk	Water lily	*Nymphea nouchali*	Nymphaeaceae
5	Kachuri pana, Jarmuni	Water hyacinth	*Eichhornia crassipes*	Pontederiaceae
6	Danta	Alligator weed	*Alternanthera philoxeroides*	Amaranthaceae
7	Kachu, Muchikachu	Taro	*Colocasia esculenta*	Araceae

Table 12: Checklist of Bamboos

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baans	Bamboo	*Bambusa* sp.	Poaceae

Table 13: Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Chepti Ghas	Common Carpetgrass	*Axonopus* sp.	Poaceae

2	Durba Ghash	Durba	*Cynodon dactylon*	Graminae
3	Jal Kanthi Ghas			

Table 14: Checklist of Herbs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Alternanthera / Barmi Sak	Alternanthera	*Alternanthera philoxeroides*	Amaranthaceae
2	Alternanthera/Modranga	Alternanthera	*Alternanthera paronychioides*	Amaranthaceae
3	Alternanthera/Sanchi	Alternanthera	*Alternanthera sessilis*	Amaranthaceae
4	Amrul Saak	Yellow Woodsorrel	*Oxalis corniculata*	Oxalidaceae
5	Apang	Achyranthes	*Achyranthes aspera*	Amaranthaceae
6	Ban Dhone / Mitha Pata	Ban Dhone / Mitha Pata	*Scoparia dulcis*	Scrophulariaceae
7	Ban Note Sak	Amaranthus	*Amaranthus viridis*	Amaranthaceae
8	Ban Sarisha / Bilari	Indian Cress	*Nasturtium indicum*	Brassicaceae
9	Ban Tamak	Wild Tobaco	*Nicotiana plumbaginifolia*	Solanaceae
10	Ban Tepari	Bon Tepari	*Physalis minima*	Solanaceae
11	Ban Tulshi / Dakate Pata	Bon Tulshi	*Croton bonplandianum*	Euphorbiaceae
12	Baro Dudhi/ Khirika	khirika	*Euphorbia hirta*	Euphorbiaceae
13	Berela	Sida	*Sida* sp.	Malvaceae
14	Bhringaraj	Bhringaraj	*Wedelia trilobata*	Asteraceae
15	Bhuin Amla	Stonebreaker, Seed-under-leaf	*Phyllanthus niruri*	Phylanthaceae
16	Bhuin Okra	Bhuin Okra	*Phyla nodiflora*	Verbenaceae
17	Boatlily, Rhoeo	Boatlily, Moses-in-the-cradle	*Tradescantia spathacea*	Commelinaceae

18	Boro Calendula	Calendula, Common Marigold	*Calendula officinalis*	Asteraceae
19	Botam Ful	Bachelor Button Flower	*Gomphrena globosa*	Amaranthaceae
20	Chaldhowa	Mountain Knotgrass	*Aerva lanata*	Amaranthaceae
21	Chandra Mallika	Chrysanthemums	*Chrysanthemums sp.*	Asteraceae
22	Dahlia	Dahlia	*Dahlia sp.*	Asteraceae
23	Dumpa / Piparisari	Graceful Pouzalz's Bush	*Pouzalzia indica*	Urticaceae
24	Ganda Ful	Marigold Flower	*Tagetes sp.*	Asteraceae
25	Gerbera	Gerbera	*Gerbera jamesonii*	Asteraceae
26	Ghreetakumari	Aloe Vera	*Aloe barbadensis*	Liliaceae
27	Gopali	American Mint	*Anisomeles indica*	Lamiaceae
28	Heliconia / Bird of paradise	Lobster claw, Hanging heliconia	*Strelitzia reginae*	Musaceae
29	Holud	Turmeric	*Curcuma longa*	Zingiberaceae
30	Holud Basanta	Nettle Leaved Lindenbergia	*Lindenbergia indica*	Scrophulariaceae
31	Hurhuria / Makorful	Asian Spiderflower	*Cleome viscosa*	Cleomaceae
32	Impatiens, Touch-me-not	Impatiens, Touch-me-not	*Impatiens* sp.	Balsaminaceae
33	Kakmachhi	Black Nightshade	*Solanum nigrum*	Solanaceae
34	Kalmegh	Kalmegh, Green chirayta	*Andrographis paniculata*	Acanthaceae
35	Kansira / Kanchhira	Commelina	*Commelina benghalensis*	Commelinaceae
36	Keshut	Keshut	*Eclipta alba*	Asteraceae
37	Kharkon pata / Ghet Kochu	Bengal Arum, Lobed Leaf Typhonium	*Typhonium trilobatum*	Areceae
38	Kola gachh/ Banana tree	Banana Tree	*Musa sp.*	Musaceae

39	Krishna Tulsi	Krishna Tulsi / Kalo Tulasi	*Ocimum tenuiflorum*	Lamiaceae
40	Kshetpapri Shak	Diamond Flower, corymbose hedyotis	*Hedyotis corymbosa*	Rubiaceae
41	Kuddalia / Kodalia	Three-flower Beggarweed	*Desmodium triflorum*	Fabaceae
42	Kukurshoka / Kukursunga	Kukurshoka / Kukursunga	*Blumea laciniata*	Asteraceae
43	Kulekhara	Kulekhara	*Hygrophila schulli*	Acanthaceae
44	Lal Bishalyakarani	Amaranthus	*Aerva javanica*	Amaranthaceae
45	Lata Berela	Heartleaf Fanpetals	*Sida humilis*	Malvaceae
46	Maan Kochu	Alocasia	*Alocasia indica*	Arecaaceae
47	Neel Hurhure	Purple Cleome	*Cleome rutidosperma*	
48	Parthenium	Famine Weed	*Parthenium hysterophorus*	Asteraceae
49	Patharchur	Coleus	*Coleus* Sp.	Lamiaceae
50	Pothika Gaddi	Pothika Gaddi	*Eragrostis tenella*	Poaceae
51	Punarnova	Punarnova	*Boerhavia diffusa*	Nyctaginaceae
52	Radhatulsi	Holy Basil, Tulasi	*Ocimum sanctum*	Lamiaceae
53	Ram Tulshi	Ram Tulshi	*Ocimum gratissimum*	Lamiaceae
54	Ruellia	Bluebell	*Ruellia prostrata*	Acanthaceae
55	Ruellia	Ruellia	*Ruellia tuberosa*	Acanthaceae
56	Ruellia	Ruellia	*Ruellia suffruticosa*	Acanthaceae
57	Sahadebi	Sahadebi	*Vernonia cinerea*	Asteraceae
58	Sansevieria	Snake Tongue, Devill's Tongue	*Sansevieria* sp.	Asparagaceae
59	Sonchus	Sonchus, Field Sowthistle	*Sonchus arvensis*	Asteraceae
60	Synedrella	Synedrella	*Synedrella nodiflora*	Asteraceae

61	Thankuni	Indian Water Navelwort	*Centella asiatica*	Apiaceae
62	Titaliya	Titaliya	*Sonchus oleraceus*	Asteraceae
63	Tridaksha	Coat Buttons / Tridax Daisy	*Tridex procambens*	Asteraceae
64	Tulsi	Tulsi	*Ocimum sp.*	Lamiaceae
65	Uchunti	Ageratum	*Ageratum conyzoides*	Asteraceae

Table 15: Checklist of Shrubs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Agave sp.	Agave sp.	*Agave sp.*	Asparagaceae
2	Akanda	Giant Milkweed	*Calotropis gigantea*	Asclepiadaceae
3	Ansh Shaora	Ban jamir	*Glycosmis pentaphyla*	Ruraceae
4	Ban Karpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
5	Ban nebu / Ban Korpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
6	Beli	Jasmine	*Jusminum pubescens*	Oleaceae
7	Bhant	Clerodendrum	*Clerodendrum viscosum*	Verbenaceae
8	Bhuin Dumur	Ground Fig	*Ficus heterophylla*	Moraceae
9	Bleeding Heart	Bleeding Heart	*Clerodendrum thomsoniae*	Lamiaceae
10	Chakunda	Stinking Cassia, Chinese senna, foetid cassia	*Cassia tora*	Fabaceae
11	Chitra	Chitrak, Plumbago, White leadwort	*Plumbago zeylanica*	Plumbaginaceae
12	Chitrak	Duranta	*Duranta repens*	Verbenaceae
13	Cosmos	Garden Cosmos	*Cosmos bipinnatus*	Asteraceae
14	Dhutura	Devil's Trumpets	*Datura sp.*	Solanaceae

15	Dracaena	Dracaena	*Pleomele reflexa 'Variegata'*	Asparagaceae
16	Furush	Lagerstroemia	*Lagerstroemia indica*	Lythraceae
17	Gandharaj lebu	Citrus/ Citron	*Citrus medica*	Rutaceae
18	Golap	Rose	*Rosa sp. Var.*	Rosaceae
19	Golap Champa	Wild Pmumeria, Bridal Bouquet	*Plumeria pudica*	Apocynaceae
20	Gothbegun	Wild Eggplant, Prickly Nightshade	*Solanum torvum*	Solanaceae
21	Hatisur	Indian heliotrope	*Heliotropium indicum*	Boraginaceae
22	Heliconia / Bird of paradise	Heliconia	*Strelitzia sp.*	Musaceae
23	Holud Berela	Common Wireweed, Morning mallow	*Sida acuta*	Malvaceae
24	Jhaw	Thuja	*Thuja orientalis*	Cupressaceae
25	Joba	Chinese Rose	*Hibiscus rosa-sinensis*	Malvaceae
26	Kagji Lebu	Lime	*Citrus acida*	Rutaceae
27	Kamini	Orange Jasmine	*Murraya paniculata*	Rutaceae
28	Karabi	Oleander	*Nerium oleander*	Apocynaceae
29	Karipata	Karipata	*Murraya koenigii*	Rutaceae
30	Kasunda	Kasunda / Baner	*Cassia sophera*	Fabaceae
31	Kolke Ful(Holud)	Oliender Flower, Trumpet Flower (Yellow)	*Thevetia peruviana (Yellow)*	Apocynaceae
32	Laboni	Ravenia Pink / Lemonia	*Ravenia spectabilis*	Rutaceae
33	Lal Pata	Poinsettia	*Euphorbia pulcherrima*	Euphorbiaceae
34	Lalpata, Poinsettia	Poinsettia	*Euphorbia pulcherima*	Euphorbiaceae
35	Lanka	Green Chili	*Capsicum sp.*	Solanaceae

36	Lantana / Putus	Lantana	*Lantana camara*	Verbenaceae
37	Madhuful	Shooting Star, Star Flower	*Pseuderanthemum* sp.	Acanthaceae
38	Milli	Milli	*Euphorbia milli*	Ericaceae
39	Morogful	Plumed Cockscomb, Woolflower	*Celosia argentea*	Amaranthaceae
40	Muktojhuri	Muktojhuri	*Acalypha indica*	Euphorbiaceae
41	Mussaenda	Musaenda	*Mussaenda sp.*	Rubiaceae
42	Nayantara	Rosy Periwinkle	*Catharanthus roseus*	Apocynaceae
43	Nil Jhanti	Philippine Violet, bluebell barleria	*Barleria strigosa*	Acanthaceae
44	Patabahar	Croton	*Codiaeum sp.var.*	Euphorbiaceae
45	Pati lebu	Citrus	*Citrus acida*	Rutaceae
46	Pora Narenga / Panjuli	Roast Potato Plant	*Phyllanthus reticulatus Poir.*	Euphorbiaceae
47	Powder Puff	Powder Puff	*Calliendra sp.*	Fabaceae
48	Rangan	Ixora	*Ixora sp.*	Rubiaceae
49	Rangchita	Slipper Plant	*Pedilanthus tithymaloides*	Euphorbiaceae
50	Reri	Castor Oil Plant	*Ricinus communis*	Euphorbiaceae
51	Salparni	Salparni	*Desmodium gangeticum*	Fabaceae
52	Scarlet sage, Salvia	Scarlet Sage	*Salvia splendens*	Lamiaceae
53	Sonapati	Tecoma	*Tecoma gaudichaudi*	Bignoniaceae
54	Spicy Jatropha	Spicy Jatropha	*Jatropha panduraefolia*	Euphorbiaceae
55	Tagar (Double)	Milk Flower (Double)	*Tabernaemontana coronaria Flore- pleno*	Apocynaceae
56	Tagar (Dwarf), Chinese Tagar	Milk Flower (Dwarf)	*Tabernaemontana divaricata var. Dwarf*	Apocynaceae

57	Tagar (Plain)	Milk Flower (Plain)	*Tabernaemontana divaricata*	Apocynaceae
58	Tara Ganda	Yellow Cosmos	*Cosmos sulphureus*	Asteraceae
59	Tibragandha	Siam Weed, Bitter bush	*Eupatorium odoratum*	Asteraceae
60	Ulotkambal	Ulotkambal	*Ambroma augusta*	Sterculiaceae

Table 16: Checklist of Creepers

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Aparajita	Aparajita	*Clitoria ternatea*	Fabaceae
2	Baro Gaylalota	Birdfoot Grape-Vine	*Cayratia pedata*	Vitaceae
3	Begam Bahar	Passion Flower	*Passiflora suberosa*	Passifloraceae
4	Chhoto Gaylalota	Cayratia	*Cayratia trifolia / Vitis carnosa*	Vitaceae
5	Corkystem Passionflower	Corkystem Passionflower	*Passiflora suberosa*	Passifloraceae
6	Gayale Lata	Birdfoot Grape-Vine	*Cayratia sp.*	Vitaceae
7	Gulancha lata	Gulanchalata	*Tinospora cordifolia*	Menispermaceae
8	Juktiful/ Titakunja	Titakunja	*Wattakaka volubillis*	Asclepiadaceae
9	Kalilata	Bengal Trumpet Vine, Blue Trumpet Vine	*Thunbergia grandiflora*	Acanthaceae
10	Kolmi Saak	Ipomoea	*Ipomoea aquatica*	Convolvulaceae
11	Lata Bichhuti/ Jol Bichhuti	Indian Stinging Nettle	*Tragia involucrata*	Euphorbiaceae
12	Money Plant	Money Plant, Ivy Arum	*Epipremnum aureum*	Areceae
13	Nimukhi Lata	Snake Vine	*Stephania japonica*	Menispermaceae
14	Philodendron	Philodendron	*Philodendron sp.*	Areceae

15	Rabon Lata	Chinese creeper	*Micania micrantha*	Asteraceae
16	Small White Morning Glory	Small White Morning Glory	*Ipomoea obscura*	Convolvulaceae
17	Telakuchu	Telakuchu	*Coccinia grandis*	Cucurbitaceae
18	Telekera	Tiliacora	*Tiliacora racemosa*	Menispermaceae
19	Bhui Achhor / Ankra	Roundleaf Bindweed	*Evolvulus nummularius*	Convolvulaceae
20	Helakolmoshi	Justicia	*Justicia simplex*	Acanthaceae
21	Idurkani / Buri Guapan	Hemigraphis	*Hemigraphis hirta*	Acanthaceae
22	Akush	Climbing Mallotus	*Mallotus repandus*	Euphorbiaceae
23	Kagaj Ful / Bagan Bilash	Bougainvillea	*Bougainvillea sp.*	Nyctaginaceae
24	Kolke ful(Allamanda)	Allamanda	*Allamanda* sp.	Apocynaceae
25	Madhabi Lata	Rangoon Creeper	*Combretum indicum*	Combretaceae
26	Anantalata/ Coral Creeper	Coral Creeper / Antigonum	*Antigonon leptopus*	Polygonaceae

Table 17: Checklist of Ornamental Plant

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Lal Dracaena	Dracena (Red)	*Dracena mahatma*	Liliaceae

Table 18: Checklist of Palms

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Areca Palm	Areca Palm	*Dypsis lutescens*	Arecaaceae
2	Bottle Palm	Bottle Palm, Champagne Palm	*Hyophorbe lagenicaulis*	Arecaceae
3	Fan Palm	Chinese Fan Palm	*Livistona chinensis*	Arecaceae
4	Fish-tail Palm	Fish-tail Palm	*Caryota urens*	Arecaceae

5	Khejur	Indian Datepalm	*Phoenix sylvestris*	Palmae/ Arecaceae
6	Narkel	Coconut	*Cocos nucifera*	Arecaaceae
7	Palm Tree/ Taal Gachh	Palmyra Palm	*Borassus flabellifer*	Palmae
8	Panthapadap	Traveller's Palm	*Ravenala madagascariensis*	Musaceae
9	Supuri	Areca	*Areca catechu*	Arecaceae
10	Taal	Palmyra Palm	*Borassus flabellifer*	Arecaceae

Table 19: Checklist of Parasitic plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baro manda / Vanda	Honey Suckled Mistletoe	*Dendrophthoe falcata*	Loranthaceae
2	Chhoto Manda	Vanda	*Viscum orientale*	Loranthaceae

Table 20: Checklist of Bryophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Liverworts	Liverworts	*Riccia sp.*	Ricciaceae
2	Moss	Moss	*Semibarbula orientalis* (F.Weber)Wilk & Margad	Pottiaceae

Table 21: Checklist of Pteridophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Maidenhair fern	Maidenhair fern	*Adiantum capillus-veneris* L.	Pteridaceae
2	Maidenhair fern	Maidenhair fern	*Adiantum caudatum* Klotzsch.	Pteridaceae
3	Maidenhair fern	Maidenhair fern	*Adiantum lunulatum* Brum.f.	Pteridaceae
4	Oakleaf fern	Oakleaf fern	*Aglaomorpha (Drynaria) qiuercifolia* (L) Hovenkamp and S. Linds.	Polypodiaceae

5	Ampelopteris	Ampelopteris	*Ampelopteris prolifera* (Retz.) Copel	Thelypteridaceae
6	Water sprite	Water sprite	*Ceratopteris sp.*	Pteridaceae
7	Christella	Christella	*Christella dentata* (Forssk.)Brownsey and Jermy	Thelypteridaceae
8	Vine-like fern and Japanese climbing fern	Vine-like fern and Japanese climbing fern	*Lygodium flexuosum*(L.)Sw.	Lygodiaceae
9	Water clover	Water clover	*Marsilea quadrifolia* L.	Marsileaceae
10	Fishtail fern	Fishtail fern	*Microsorum punctatum* (L.) Copel.	Polypodiaceae
11	Addre's tongue ferns	Addre's tongue ferns	*Ophioglossum sp.*	Ophioglassaceae
12	Spider brake	Spider brake	*Pteris multifida* Poir.	Pteridaceae
13	Chinese brake or Ladder braka	Chinese brake or Ladder braka	*Pteris vittata* L.	Pteridaceae
14	Pyrrosia	Pyrrosia	*Pyrrosia lanceolata* (L.) Farw.	Polypodiaceae

Table 22: Checklist of Seasonal flower

Sl. No.	Local Name	Common Name	Scientific Name	Family	Type
1	Dog flower, Snapdragon	Dog flower, Snapdragon	Antirrhinum majus	*Scrophulariaceae*	Season Flower
2	Garden stock, Common stock	Garden stock, Common stock	*Matthiola incana*	*Brassicaceae*	Season Flower
3	Gazania	Gazania	*Gazania* sp.	Asteraceae	Season Flower
4	Gladiolus	Gladiolus	*Gladiolus sp.*	Iridaceae	Season Flower
5	Himsagar	Flaming Katy, Florist kalanchoe	*Kalanchoe blossfeldiana*	Crassulaceae	Season Flower
6	Maiden Pink	Maiden Pink	*Dianthus deltoides*	Carryophyllaceae	Season Flower
7	Mike Ful	Amaryllis	*Hippeastrum* sp.	Amaryllideceae	Season Flower

8	Pansy, Garden Pansy	Pansy, Garden Pansy	*Viola tricolor var.*	Violaceae	Season Flower
9	Petunia	Petunia	*Petunia hybrida*	Solanaceae	Season Flower
10	Verbena	Verbena	*Verbena* sp.	Verbenaceae	Season Flower

CDG™
CABINET DE GESTION

CERTIFICATE

CDG Certification Limited
certifies that

BARRACKPORE RASTRAGURU SURENDRANATH COLLEGE

Middle Road & 6 Riverside Road, Barrackpore, Kolkata – 700120, West Bengal, India

The Management System of the above organization has been audited and found to be in accordance with the requirements of management system standards detailed below:

ISO 14001:2015

Has established and applied Environment Management System for following scope of activities:

Imparting Undergraduate and Post Graduate Courses

Certificate No. CCL/QMS/71707/BRSC *Issue No. 01*
Validity of certificate is subjected to the continued satisfactory operation of the organization's Management System

Originally Issue Date: 26/06/2021
Current Issue Date: 26/06/2021
Certificate Expiry Date: 25/06/2022
Recertification Due Date: 25/06/2024

Managing Director

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SUGGESTIONS AND RECOMMENDATIONS

- **The electricity consumption is really high. In this context, solar energy can be used as alternative energy source of the College campuses.**
- **The use of plastic products should be banned in the College campuses.**
- **The College campuses are nodoudt biodiversed but more plantations specially medicial planntations are required in the campuses. Plantation of fruit plants will attract more birds.**
- **There is urgent need to form a Green Monitoring Team. The priority of this body is to maintain the greenary of the College campuses**
- **The Green Monitoring Team sould consist of members from teaching staffs, non-teaching staffs, students and if possible, try to include some local interested people.**
- **Vermicompost facility may be practiced, the product of which can be used as manure or fertilizer for plantation purpose.**
- **Sustainable use of resources and ecological balance of the College campuses must be maintained throuout the year.**
- **Increse the use of Electrical vehicle to reduce the pollution .**
- **Encourage to reduce dairy and meat in take - No Meat Mondays! Animal products makeup 18% of greenhouse gas emissions. By replacing one or two of weekly meat and dairy meals to a vegetarian option, can help reduce emissions**
- **Encourage use of Bicycles.**
- **Improve garden: To grow healthy plants, you also need healthy soil. Improving soil quality is an ongoing process for a gardener. Good, rich in nutrients, and friable soil will offer the plants everything all on its own. Thus, you would need lesser fertilizers and pesticides.**
- **Improve Water Harvesting:Various passive strategies have been accordingly developed in attempt to improve the water harvesting capability, which can be roughly categorized into three types: (i) engineering new surfaces or materials for condensers to benefit dew generation and removal; (ii) cooling the condensing substrates to facilitate the dewing occurrence; and (iii) concentrating the moisture from air by sorbent-assisted systems to inhibit the environmental influences and raise the water yield.**
- **Promote awarnessbuildup programme on Environmental Issues time to time**

Conclusion:

Focus on Environmental is applicable. The Barrackpore Rastraguru Surendranath College **have proper plan for Future Development on Environmental expect. We have also suggest them how to improve the Environmental expect in a better way.**

AUDIT CONDUCTED BY "MANAGEMENT SYSTEM CONSULTANCY"

Auditor

Amalesh Kr. Mandal

MANAGEMENT SYSTEM CONSULTANCY * Kol- 130

Amalesh Kumar Mandal

(Lead Auditor on Quality, Environment, Energy Management System and ISO 17020:2012 Competance Certified for QCI)

(IRCA Accredited Lead Auditor on Quality, Environment, Energy Management System, Empanelled Auditor from IAF accredited Certification Body, Energy Management System Auditor from National Productivity Council, Environment Management System personnel from National Safety Council, ISO 17020:2012 Competance Certified for Quality Council of India and Carbon Frootprint Calculator Certified from BSI)

GREEN AUDIT REPORT

(2021-22)

Barrackpore Rastraguru Surendranath College

85, Middle Road & 6, Riverside Road, Barrackpore,

North 24 Parganas, Kolkata – 700120, West Bengal

ExecutiveSummary

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. Barrackpore Rastraguru Surendranath College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote the various projects for the environment protection and sustainability.

The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Contents:

ACKNOWLEDGEMENT

Management System Consultancy would like to thank the management of Barrackpore Rastraguru Surendranath College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.
We would also like to thank the Management for his continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Management System Consultancy details given below:

The auditors of Management system Consultancy are full members of many accredited Institutions like CQI, IRCA, NABET, QCI, NABL, NPC, NSC.
Qualified Lead Auditor in ISO 9001 (in 2008 and 2015 version), Occupational Health and Safety Management in both 2007 and 2018 versions, Environment Management in both 2004 and 2015 versions, Energy Management System in 2018 version, NSC approved Safety Auditor, Risk Assessment auditor from QCI, SA8000 Certified Auditor, Training and Auditing experience in private as well as governmental organizations.

*Membership with National Safety Council (NSC), Auditors are qualified from National Productivity Council (NPC) and with Quality Council of India (QCI).
*Empanelled auditors from IAF Accredited Certification Body.
*Training partner of PECB (International Body).
*ISO 17020:2012 Certified Professional from QCI.
*Waste Management certified from QCI and United Nations Institute for Training and Research.
*Energy Auditor from NPC (National Productivity Council) .
*Certified on Green Economy from United Nations Institute for Training and Research.
*Certified on Gender Equality and Human Rights in Climate Action and Renewable Energy from United Nations Institute for Training and Research.
*Certified on Waste management from United Nations Institute for Training and Research.

Introduction

Environmental or Green Audit is a systematic, documented, periodic and onjective review by regulated entities of facility operations and practices related to meeting environmental requirements (EPA, 2003). In other words, it is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable (International Chamber of Commerce, 1989).
Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organisations of all kinds now recognise the importance of environmental matters and accept that their environmental performance will be scrutinised by a wide range of interested parties. Environmental auditing is used to investigate, understand and identify.

Utility of Green Auditing

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organisation's environmental effects in a systematic and documented manner and will produce an environmental audit report.

Our College and Green Auditing

Barrackpore Rastraguru Surendranath College is one of the leading higher education institutions under West Bengal State University. It has been providing a quality education to the rural and sub-urban students of North 24 Parganas and adjacent districts. The college has two campuses – the Science building at 85, Middle Road, Barrackpore and another Arts and Commerce building at 6, Riverside Road on the bank of the river Ganges.Our college is reaccredited (4th cycle) by NAAC with 'B++' Grade and received College with Potential for Excellence (CPE) status from UGC.

Green Audit Working Team (2021-22):

Sl No	Name of the Members	Designation
1	PROF.(DR.) MONOJIT RAY,	Principal, BRSN College
2	Dr. Sutapa Ghosh Dastidar,	Coordinator, IQAC
3	Dr. Sujata De Chaudhuri	Assistant Professor, Dept. Of Zoology
4	Dr. Sandip Pal	Assistant Professor, Dept. Of Zoology
5	Dr. Suraj Sk	Assistant Professor, Dept. Of Botany

Objectives of the Study

The main objectives of the green audit are to promote the environment management and conservation in the college campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out green audit are

a) To introduce and make aware students to real concerns of environment and its sustainability
b) To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus
c) To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
d) To bring out a present status report on environmental compliance

Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:
(b) Identify audit team and resources:
(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.
(d) Data Collection:
(e) Gather information:
(f) Conduct site visits and interviews:
(g) Review documentation:
(h) Evaluation and Analysis:
(i) Assess environmental impacts:
(j) Evaluate compliance:
(k) Identify strengths and weaknesses:
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:

(r) Monitor progress:

(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components.

On-siteVisit :

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

Focus Group Discussion :

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

Energy and waste management Survey:

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

Waste Management:

Recycling: Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

Composting: The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

Table: Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method

E-Waste	Computers, electrical and electronic parts	Store these in a separate tank, and we can start selling them directly after a certain amount of time.
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly.
Solid wastes	Paper waste, Damaged furniture, paper plates, food wastes	Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste.
Chemical wastes	Laboratory waste	Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations.
Wastewater	Washing, urinals, bathrooms	Soak pits

Glass waste	Broken glass wares from the labs	Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers.
Sanitary Napkin	-	Napkin Incinerators

For this purpose, Barrackpore Rastraguru Surendranath College has employed waste bins for proper segregation of solid wastes in the campuses. It includes provision for plastic/glass waste, food waste and metal/e-waste in a single compact system.

	Number of waste bins
Science Campus (85, Middle Road)	05

Arts Campus (6, Riverside Road)	05
Boy's Hostel	01
Girl's Hostel	01
TOTAL	**12**

Water Usage:

Water Fixtures: Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

Water management table:

Water Management Tasks	Frequency	Responsible Party
Routine examination of water supplies	Monthly	Green Audit Working Team
Testing for drinking water quality	Half-yearly	Do
Awareness of water conservation	Half-yearly	Green Audit Working Team & various department
Infrastructure for water distribution that needs upkeep and repair	As needed	Caretaker

Reporting and analysis of water use	Annually	Green Audit Working Team & Caretaker
Learn what causes excessive water consumption.	As needed	Caretaker

Water Quality Assessment, Consumption & Management

Water quality analysis was conducted by Eutech PCS Multi-parameter Tester 35, µC Turbidity Meter 135 and Lutron DO-5509 Meter.

Table – 1 (Average Value of 2020-21)

Sample No.	Location from where samples collected	MPN Index (per 100 ml)	Water Quality
1	Teachers' Room Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
2	Teachers' Room Aquaguard (Science Campus)	00	Outstanding (Potable)
3	Students' Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
4	Students' Aquaguard (Science Campus)	00	Outstanding (Potable)
5	Tap water (Science Campus)	10	Good (Non-Potable)
6	Normal tap water	15	Good (Non-Potable)
7	Well water of garden	47	Average (Non-Potable)

Table – 2 (Average Value of 2020-21)

	Location from where samples collected	TDS (ppm)	Conductance (µS)	pH	Salinity (ppm)

1	Science Campus (85, Middle Road)	209	291	7.67	140
2	Arts Campus (6, Riverside Road)	212	289	8.10	147
3	Boy's Hostel	215	308	8.27	146
4	Girl's Hostel	207	305	7.99	139

Table – 3 (Average Value of Ion Content in College Tap Water)

IONS	UNIT (ppm)
Sodium	17.85
Potassium	6.13

Total Number of Taps in 85, Middle Road Campus

Department/Section/Room	Room No.	No. of Taps
Ground floor		
Health	110	1
Toilet	109	5
Computer staff room	108	2
GB room toilet	119	2
Principal's room	103	3+1 = 4
Controller's room		3
Office toilet		3
Account's toilet		3
Outside general toilet		3+1 = 4

Front garden tap		2
Staff canteen	138A	1
Teachers room	138	1+3+4 = 8
CEL		2
Student's basin backyard		3
Backyard garden tap		1
Student's canteen		
Boy's Toilet		11
Microbiology		14+13+4+2+1 = 34
	Floor Total:	**89**
1st floor		
Zoology	222, 223, 224	14
Zoology extended basin, toilet		6
Microbiology		4
Toilet	221	5
Chemistry lab		26
Chemistry lab	240	1
Central instrument room	241	1
Botany	242	4
Toilet	205	7
Toilet	206	6
Economics		2
Virtual classroom complex		3
Electronics		3

	Floor Total:	**82**
2nd floor		
Toilet		5+2 = 7
Food & nutrition		8+4 = 12
Geography		3
Toilet	338	2
Toilet	327	3
Psychology		3
Physics		3+3 = 6
Botany		4
	Floor Total:	**40**

Total Number of Taps in 6, Riverside Road Campus

Department/Section/Room	Block	No. of Taps
Ground floor		
Gents toilet	A	7
Ladies toilet	A	5
Library	B	3
Student aquaguard	B	1
Drinking water	B	3
Student aquaguard	C	1
Language lab	C	3
Office	C	4
Ladies toilet	C	6

Gents toilet	C	8
Drinking water	C	6
Seminar room	D	2
Sports room	E	2
Drinking water	E	1
Canteen	E	4
Aquaguard	E	1
Flower garden		3
Outside building		5
	Floor Total:	**65**
1st floor		
Guest room	A	5
Ladies toilet	B	3
Gents toilet	**B**	3
Staff room	B	3
Girls toilet	B	5
Boys toilet	B	9
Aquaguard	B	1
Ladies toilet	C	11
Gents toilet	C	8
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6

Floor Total:	**72**
Girls Hostel	93
	25 (showers)
Boy's Hostel	25

Water Storage Profile

	Number & Capacity of Tanks	**Total Capacity (Litre)**
Science Campus (85, Middle Road)	1500 L x 4	6000
	1000 L x 4	4000
	1500 L x 2	3000
	1000 L x 4	4000
	500 L x 4	2000
	1000 L x 2	2000
	500 L x 2	1000
	1000 L x 2	2000
	500 L x 1	500
	Sub-total	**24,500**
Arts Campus (6, Riverside Road)	750 L x 4	3000
	500 L x 1	500
	1000 L x 1	1000
	1000 L x 1	1000
	1000 L x 2	2000
	500 L x 4	2000
	500 L x 2	1000

	Sub-total	**10,500**
Boy's Hostel	1000 L x 2	2000
Girl's Hostel	1000 L x 4	4000
	Total	**41,000**

Comments

Approximate per capita average consumption per month can not be calculated as the college and hostels were closed in this time period due to pandemic restrictions.

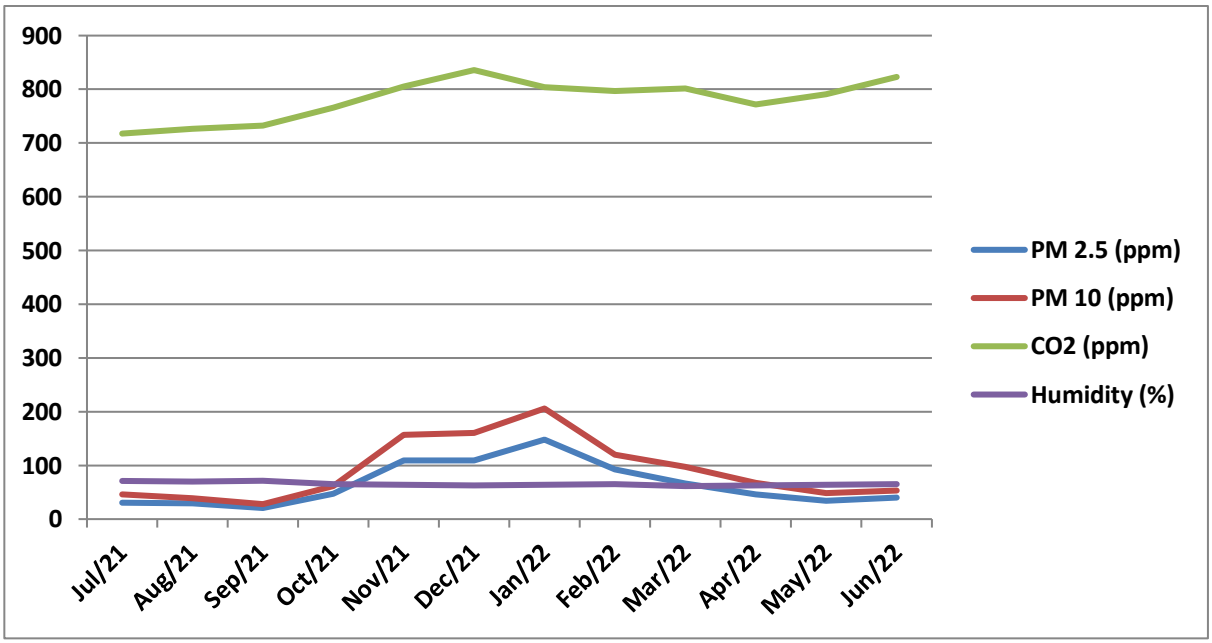
Air Quality Assessment and Management

Air quality of the College campus is monitored by AIRVEDA multi-parameter measuring system.

2021-22

Months	PM 2.5 (ppm)	PM 10 (ppm)	CO_2 (ppm)	Humidity (%)
July 2021	30.63	45.63	717.63	71.00
August 2021	29.37	39.18	726.06	69.43
September 2021	20.66	27.86	732.2	71.4
October 2021	47.16	61.83	765.91	65.25
November 2021	108.75	156.83	805.00	63.83
December 2021	109.21	159.89	835.78	62.10
January 2022	147.93	205.87	804.37	63.68
February 2022	92.12	120.00	797.31	65.62
March 2022	66.00	97.28	801.33	61.38

April 2022	46.10	67.84	771.94	62.26
May 2022	33.87	48.56	790.43	64.18
June 2022	40.00	53.53	823.26	64.93



Electricity Consumption (in Units) and Management

2021-22

Science Campus	**Jul'21- Sep'21**	**Oct'21-Dec'21**	**Jan'22-Mar'22**	**Apr'22-Jun'22**
	35722	18325	25854	45096
Arts Campus	**Jul'21- Sep'21**	**Oct'21-Dec'21**	**Jan'22-Mar'22**	**Apr'22-Jun'22**
	19356	8234	11394	22713
Boy's Hostel	**Jul'21- Sep'21**	**Oct'21-Dec'21**	**Jan'22-Mar'22**	**Apr'22-Jun'22**
	2978	1253	2555	3021

Girl's Hostel	Jul'21- Sep'21	Oct'21-Dec'21	Jan'22-Mar'22	Apr'22-Jun'22
	2864	1357	3529	3066

LED Tubes & lights


TOTAL ELECTRICITY CONSUMPTION PER YEAR (July'21 to June'22):

	UNITS
Science Campus (85, Middle Road)	1,24,997
Arts Campus (6, Riverside Road)	61,697
Boy's Hostel	9,807
Girl's Hostel	10,816
GRAND TOTAL	**2,07,317**

Comments

Approximate per capita average consumption per month is

(total units / 12 months / total students) = 2.88 units

*considering total number of students 6000 approx.

Sound Pollution Monitoring

Sound pollution is another important parameter that is taken into account for green auditing of the College Campus. Six different sites are chosen for the monitoring purpose namely College gate, accounts section, college office, Principal's room, teachers' room and library. Sound is quantified by the Sound Level Meter (Lutron SL-4030).

Average Values of 2021-22

	Sound Level (dB)
College Gate (CG)	70.2 ± 6.1
Accounts (A)	53.7 ± 3.8
Office (O)	55.0 ± 2.9
Principal's Room (PR)	58.0 ± 5.2
Teachers' Room (TR)	56.2 ± 4.8
Library (L)	42.5 ± 3.0

Biodiversity Status of the College Campuses

INTRODUCTION

Barrackpore Rastraguru Surendranath College situated beside river Hooghly is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the college premises and their inter-relationship.

OBJECTIVE

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

1. Documentation of the floral diversity of the area:its trees, herbs, shrubs, climbers and aquatic vegetations.
2. Documentation of the major faunal groups like mammals, reptiles, amphibians, birdsand among the insects, butterflies and dragonflies.
3. Documentation of the specific interdependence of floral and faunal life.

Survey Team

- Arjan Basu Roy (PI)
- Swapna Biswas (Flora, Dragonflies, Birds)
- Sarika Baidya (Butterflies and related Plants)
- Tarun Karmakar (Butterfly and other Insects)
- Namrata Das (Butterfly and other Insects)
- Souparno Roy (Butterfly, Reptiles and Amphibians)
- Archan Paul (Butterflies)
- Arabinda Narayan Dolai (Mammals, Birds)

Survey Time:

July, 2020 to December, 2021

Survey Area

Barrackpore Rastraguru Surendranath College premises and its surrounding areas.The two college campuses are situated at 85, Middle Road, Barrackpore which is close the river Hooghly and 6, Riverside Road, Barrackpore.

Map 01: 85, Middle Road Campus
(Shows the area of our work.

Method of Study

Brief methodology for the floral and faunal survey is given below.

- Sampling was done mostly in random manner.
- The total area was surveyed by walking at day time.
- Surveys were conducted for the maximum possible hours in day time.
- Tree species were documented through physical verification on foot and photographed each species as much as possible.
- For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.
- Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, dung deposits and footprints were also

observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.

1. Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species.
2. Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.
3. Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.
4. Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.
5. The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. Slugs and snails are more conspicuous during wet weather and especially at night when they were found using a torch.
6. Digital photography was done for all the species recorded as much as possible.

Number of Faunal species observed: 161

The list of Fauna indicates that the college campus is significantly rich in faunal diversity. We have seen a significant number of bird nests at many a places. Mammals' diversity is good. Avian diversity is wonderful. In these 10 visits, we have also photographed and documented 68 species of butterflies which indicates a healthy eco-system as a whole. Odonate population indicates that the health of the water bodies and the riverine ecosystem is quite good. The amphibian population also supports this fact. Reptilian population is also quite significant and presence of Bengal Monitor Lizard indicates that the reptilian population is naturally controlled and managed at the study site. We have not been able to document other insect groups during this survey. The yearlong survey will add some more fauna in the checklist for sure after the seasonal survey.

Checklist of Faunal groups with species number

1.	Mammals	5	Table-1
2.	Birds	53	Table-2
3.	Reptiles	6	Table-3

4.	Amphibians	3	Table-4
5.	Butterflies	68	Table-7
6.	Odonates	26	Table-8

Table 03: Checklist of Mammals

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Five-striped Palm Squirrel	*Funambulus pennantii*	Kathbirali	Sciuridae
2	Common Pipistrelle	*Pipistrellus pipistrellus*	Chamchike	Vespertilionidae
3	Indian Flying Fox	*Pteropus giganteus*	Kola Badur	Pteropodidae
4	Fruit Bat	*Pteropus* sp.	Badur	Pteropodidae
5	Gray Langur	*Semnopithecus* sp.	Hanuman Langur	Cercopithecidae
6	Asian Palm Civet	*Paradoxurus hermaphroditus*	Bham Biral	Viverridae
7	Indian Grey Mongoose	*Herpestes edwardsi*	Neul	Herpestidae

Table 04: Checklist of Birds

Sl. No	Common Name	Scientific Name	Bengali Name	Family
1	Alexandrine Parakeet	*Psittacula eupatria*	Chondona	Psittacidae
2	Asian Koel	*Eudynamys scolopaceus*	Kokil	Cuculidae

3	Asian Openbill	*Anastomus oscitans*	Shamuk Khol	Ciconiidae
4	Asian Palm Swift	*Cypsiurus balasiensis*	Talchonch	Apodidae
5	Asian Pied Starling	*Gracupica contra*	Go-shalik	Sturnidae
6	Black Drongo	*Dicrurus macrocercus*	Finge	Dicruridae
7	Black Kite	*Milvus migrans*	Chil	Accipitridae
8	Black-hooded Oriole	*Oriolus xanthornus*	Benebou	Oriolidae
9	Black-naped Monarch	*Hypothymis azurea*		Monarchidae
10	Black-naped Oriole	*Oriolus chinensis*	Kaloghad Benebou	Oriolidae
11	Blue-throated Barbet	*Megalaima asiatica*	Nilgala Basantabouri	Ramphastidae
12	Cattle Egret	*Bubulcus ibis*	Gobok	Ardeidae
13	Common Hawk Cuckoo	*Hierococcyx varius*	Papia	Cuculidae
14	Common Hoopoe	*Upupa epops*	Mohonchuda, Hupo	Upupidae
15	Common Iora	*Aegithina tiphia*	Fotik Jol	Aegithinidae
16	Common Kingfisher	*Alcedo atthis*	Chhoto Machhranga	Alcedinidae
17	Common Myna	*Acridotheres tristis*	Shalik	Sturnidae
18	Common Pigeon	*Columba livia*	Payra	Columbidae
19	Common Sandpiper	*Actitis hypoleucos*	Sadharon Balubatan	Scolopacidae
20	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae
21	Coppersmith Barbet	*Megalaima haemacephala*	Chhoto basantabouri	Ramphastidae
22	Eastern Jungle Crow	*Corvus(macrorhynchos) levaillantii*	Dandkak	Corvidae
23	Eurasian Collared Dove	*Streptopelia decaocto*	Konthi Ghughu	Columbidae
24	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Jarod Kath Thokra	Picidae
25	Greater Coucal	*Centropus sinensis*	Kubo	Cuculidae
26	Green Bee-Eater	*Merops orientalis*	Banspati	Meropidae

27	House Crow	*Corvus splendens*	Kak	Corvidae
28	House Sparrow	*Passer domesticus*	Chorui	Passeridae
29	Indian Cormorant	*Phalacrocorax fuscicollis*	Majhari Pankoudi	Phalacrocoracidae
30	Indian Pond Heron	*Ardeola grayii*	Konchbok	Ardeidae
31	Jungle Babbler	*Turdoides striatus*	Chhatare	Timaliidae
32	Jungle Myna	*Acridotheres fuscus*	Jhuntshalik	Sturnidae
33	Lesser Goldenback	*Dinopium benghalense*	Chhoto Sonali Kath Thokra	Picidae
34	Lineated Barbet	*Megalaima lineata*	Rekha Basantabouri	Ramphastidae
35	Marsh Sandpiper	*Tringa stagnatilis*	Biler Balubatan, Jolar Chapakhi	Scolopacidae
36	Oriental Magpie Robin	*Copsychus saularis*	Doyel	Muscicapidae
37	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Poragpakhi	Dicaeidae
38	Purple Heron	*Ardea purpurea*	Lalkank, Nilbogola	Ardeidae
39	Purple Sunbird	*Nectarinia asiatica*	Durga Tuntuni	Nectariniidae
40	Purple-rumped Sunbird	*Nectarinia zeylonica*	Moutushi	Nectariniidae
41	Red-vented Bulbul	*Pycnonotus cafer*	Bulbuli	Pycnonotidae
42	Red-whiskered Bulbul	*Pycnonotus jocosus*	Shipai Bulbul	Picnonotidae
43	Rose-ringed Parakeet	*Psittacula krameri*	Tiya	Psittacidae
44	Rufous Treepie	*Dendrocitta vagabunda*	Handichancha	Corvidae
45	Shikra	*Accipiter badius*	Turki baaz	Accipitridae
46	Spotted Dove	*Stigmatopelia chinensis*	Tile Ghughu	Columbidae
47	Spotted Owlet	*Athene brama*	Kuthure Pencha	Strigidae
48	Stork-billed kingfisher	*Pelargopsis capensis*	Gudiyal	Alcedinidae
49	Taiga Flycatcher	*Ficedula albicilla*	Chutki	Muscicapidae

50	White Wagtail	*Motacilla alba*	Sada Khonjon, Khonjona	Motacillidae
51	White-breasted Waterhen	*Amaurornis phoenicurus*	Dahuk	Rallidae
52	White-throated Kingfisher	*Halcyon smyrnensis*	Sadabuk Machhranga	Alcedinidae
53	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Horiyal	Columbidae

Table 05: Checklist of Reptiles

Sl.No.	Common Name	Scientific Name	Bengali Name	Family
1	Checkered Keelback	*Xenochrophis piscator*	Joldhora	Colubridae
2	Buff Striped Keelback	*Amphiesma stolatum*	Hele	Colubridae
3	Rat Snake	*Zamenis longissimus*	Darash	Colubridae
4	Russell's Viper	*Daboia russelii*	Chandrabora	Viperidae
5	Skink	*Lampropholis* sp.	Anjani	Scincidae
6	Oriental Garden Lizard	*Calotes versicolor*	Girgiti	Agamidae
7	Bengal Monitor Lizard	*Varanus bengalensis*	Gosap	Varanidae
7	Common House Gecko	*Hemidactylus frenatus*	Tiktiki	Gekkonidae

Table 06: Checklist of Amphibians

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Indian Toad	*Duttaphrynus melanostictus*	Kuno Byang	Bufonidae
2	Skittering Frog	*Euphlyctis cyanophlyctis*	Katkati Byang	Dicroglossidae
3	Asian Bullfrog	*Hoplobatrachus tigerinus*	Sona Byang	Dicroglossidae

Table 07: Checklist of Butterflies

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Blue Mormon	*Papilio polymnestor*	Barunpakha	Papilionidae
2	Common Jay	*Graphium doson*	Minji	Papilionidae
3	Common Mime	*Papilo clytia*	Khagra	Papilionidae
4	Common Mormon	*Papilo polytes*	Kalim	Papilionidae
5	Common Rose	*Pachliopta aristolochiae*	Alte	Papilionidae
6	Lime Butterfly	*Papilio demolius*	Ruru	Papilionidae
7	Tailed Jay	*Graphium agamemnon*	Choitak	Papilionidae
8	Western Striped Albatross	*Appias libythea*	Dhulkapas	Pieridae
9	Small Grass Yellow	*Eurema brigitta*	Chhoto Holud	Pieridae

10	Common Grass Yellow	*Eurema hecabe*	Holud	Pieridae
11	Common Gull	*Cepora nerissa*	Kuchila	Pieridae
12	Eastern Striped Albatross	*Appias olferna*	Dhulkapas	Pieridae
13	Indian Jezebel (Common Jezebel)	*Delias eucharis*	Hartoni	Pieridae
14	Indian Wanderer	*Pareronia hippia*	Tallar	Pieridae
15	Lemon Emmigrant	*Catopsilia pomona*	Payrachali	Pieridae
16	Mottled Emmigrant	*Catopsilia pyranthe*	Chhitpayra	Pieridae
17	Psyche	*Leptosia nina*	Furus	Pieridae
18	Common Cerulean	*Jamides celeno*	Surul	Lycaenidae
19	Common Lineblue	*Prosotas nora*	ChandandNari	Lycaenidae
20	Tailless Lineblue	*Prosotas dubiosa*	Bigri Danri	Lycaenidae
21	Common Pierrot	*Castalius rosimon*	Tilaia	Lycaenidae
22	Common Quaker	*Neopithecops zalmora*	Kori	Lycaenidae
23	Dark Grass Blue	*Zizeeria karsandra*	Chhoi	Lycaenidae
24	Forget-me-not	*Catochrysops strabo*	Rittam	Lycaenidae
25	Gram Blue	*Euchrysops cnejus*	Joural	Lycaenidae
26	Lesser Grass Blue	*Zizina otis*	Para	Lycaenidae
27	Lime Blue	*Chilades lajus*	Tura	Lycaenidae
28	Pale Grass blue	*Pseudozizeeria maha*	Dhupi	Lycaenidae
29	Pea Blue	*Lampides boeticus*	Khoria	Lycaenidae
30	Plains Cupid	*Chilades pandava*	Rulki	Lycaenidae
31	Tiny Grass Blue	*Zizula hylax*	Tinni	Lycaenidae
32	Zebra Blue	*Leptotes plinius*	Zizi	Lycaenidae
33	Slate Flash	*Rapala manea*	Rimli	Lycaenidae
34	Falcete Oakblue	*Mahathala ameria*	Kaste Rangchiti	Lycaenidae
35	Common Guava Blue	*Virachola isocrates*		Lycaenidae
36	Spotted Pierrot	*Tarucus callinara*	Chhit Tilkushi	Lycaenidae
37	Monkey Puzzle	*Rathinda amor*	Chatul	Lycaenidae
38	Indian Sunbeam	*Curetis thetis*	Jhinukpalash	Lycaenidae
39	Common Silverline	*Spindasis vulcanus*	Riupapatia	Lycaenidae
40	Angled Castor	*Ariadne ariadne*	Kanmorche	Nymphalidae
41	Blue Tiger	*Tirumala limniace*	Himalkuchi	Nymphalidae
42	Chestnut-streaked Sailer	*Neptis jumbah*	Batasi	Nymphalidae
43	Commander	*Moduza procris*	Karanjia	Nymphalidae
44	Common Baron	*Euthalia aconthea*	Bhushanda	Nymphalidae
45	Common Bushbrown	*Mycalesis perseus*	Janglabira	Nymphalidae
46	Common Castor	*Ariadne merione*	Morchepata	Nymphalidae
47	Common Crow	*Euploea core*	Kaoa	Nymphalidae

48	Common Evening Brown	*Melanitis leda*	SaNjhla	Nymphalidae
49	Common Five-ring	*Ypthima baldus*	PaNchbuNdi	Nymphalidae
50	Common Four-ring	*Ypthima huebneri*	CharbuNdi	Nymphalidae
51	Common Leopard	*Phalanta phalantha*	Chita	Nymphalidae
52	Common Palmfly	*Elymnias hypermnestra*	Khayerchak	Nymphalidae
53	Danaid Eggfly	*Hypolimnas misippus*	JamchaNda	Nymphalidae
54	Goudy Baron	*Euthalia lubentina*	KuNchrangi	Nymphalidae
55	Great Eggfly	*Hypolimnas bolina*	Jamui	Nymphalidae
56	Grey Pansy	*Junonia atlites*	ChaNdnori	Nymphalidae
57	Peacock Pansy	*Junonia almana*	Nayan	Nymphalidae
58	Plain Tiger	*Danaus cheysippus*	Tamot	Nymphalidae
59	Striped Tiger	*Danaus genutia*	Baghballa	Nymphalidae
60	Tawny Coster	*Acraea violae*	Horinchhara	Nymphalidae
61	Lemon Pansy	*Junonia lemonias*	Ushum	Nymphalidae
62	Brown Awl	*Badamia exclamationis*	Chile Pakhui	Hesperiidae
63	Common Banded Awl	*Hasora chromus*	Khori Pakhui	Hesperiidae
64	Oriental Palm Bob	*Suastus gremius*	Khoyra	Hesperiidae
65	Pale Palm Dart	*Telicota colon*	Bena Tirap	Hesperiidae
66	Small Banded Swift	*Pelopidas mathias*	Pati Johur	Hesperiidae
67	Swift sp.			Hesperiidae
68	Chestnut Palm Bob	*Iambrix salsala*	Piplai	Hesperiidae

Butterfly Garden, 6, River Side Road Campus Of College

Table 08: Checklist of Odonates

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Green Darner	*Anax junius*	Sobuj Kanta	Aeshnidae
2	Coromandel Marsh Dart	*Ceriagrion coromandelianum*	Holde Baan	Coenagrionidae
3	Orange Tailed Marsh Dart	*Ceriagrion cerinorubellum*	Keshar Baan	Coenagrionidae

4	Pygmy Dartlet	*Agriocnemis pygmaea*	Baman Shar	Coenagrionidae
5	Saffron Faced Blue Dart	*Pseudagrion rubriceps*	Keshari Mukh	Coenagrionidae
6	Senegal Golden Dartlet	*Ischnura senegalensis*	Treebarna Shar	Coenagrionidae
7	Three lined Dart	*Pseudagrion decorum*	troyee Baan	Coenagrionidae
8	Tiny Hooded Dartlet	*Agriocnemis kalinga*	Kshude Shar	Coenagrionidae
9	Black Marsh Trotter	*Tramea limbata*	Krishna Shel	Libellulidae
10	Common Picturewing	*Rhyothemis* variegata	Titli Pakh	Libellulidae
11	Coral Tailed Cloud-wing	*Tholymis* tillarga	Meghla Pakh	Libellulidae
12	Ditch Jewel	*Brachythemis contaminata*	Kamala Baran	Libellulidae
13	Estuarine Skimmer	*Macrodiplax* cora	Nona Baran	Libellulidae
14	Fulvous Forest Skimmer	*Neurothemis fulvia*	Tamra Baran	Libellulidae
15	Green Marsh Hawk	*Orthetrum* sabina	Sabuj Sena	Libellulidae
16	Ground Skimmer	*Diplacodes* trivialis	Bhubaran	Libellulidae
17	Little Blue Marsh Hawk	*Brachydiplax* sobrina	Neelbaman Sena	Libellulidae
18	Ruddy Marsh Skimmer	*Crocothemis* servilia	Rakta Baran	Libellulidae
19	Scarlet Marsh Hawk	*Aethriamanta* brevipennis	Raktim Sena	Libellulidae
20	Wondering Glider	*Pantala* flavescens	Bristi Bahan	Libellulidae
21	Granite Ghost	*Bradinopyga geminata*	Pathuria	Libellulidae
22	Yellow-tailed Ashy Skimmer	*Potamarcha congener*	Dhushar Baran	Libellulidae
23	Rufous Marsh Glider	*Rhudothemis rufa*	Lalbahan	Libellulidae
24	Pied Paddy Skimmer	*Neurothemis tullia*	Fatik Baran	Libellulidae
25	Crimson-tailed Marsh Hawk	*Orthetrum pruinosum*	Chuni Sena	Libellulidae
26	Black Marsh Dart	*Onychargia atrocyana*	Kele Ban	Platycnemididae

Table 09: Checklist of Larval Host Plants found in campus

Sl. No.	Common Name of Butterfly Species	Larval Host Plant (Local Name)	Larval Host Plant (Scientific Name)
1	Tailed Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
2	Common Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
3	Common Castor	Rerhi/ Castor Plant	*Ricinus communis*
4	Plain Tiger	Akanda	*Calotropis gigantean*
5	Angled Castor	Jol Bichhuti/ Lata Bichhuti	*Tragia involucrate*
6	Plains Cupid	Chiruni Palm	*Cycas revolute*

7	Common Mormon	Lebu, Karipata, Ash Shaora	*Citrus* sp., *Murraya koenigii*, *Glycosmis pentaphyla*
8	Emmigrant sp.	Minjiri	*Cassia siamea*
9	Lime Blue	Lebu	*Citrus* sp.
10	Common Banded Awl	Karanja	*Pongamia pinnata*

Number of Floral species observed: 271

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Checklist of Floral groups with species number

1.	Trees	70	Table-10
2.	Aquatic Plants	7	Table-11
3.	Bamboos	1	Table-12
4.	Grasses	3	Table-13
5.	Herbs	65	Table-14
6.	Shrubs	60	Table-15
7.	Creepers	26	Table-16
8.	Ornamental Plants	1	Table-17
9.	Palms	10	Table-18
10.	Parasitic	2	Table-19
11.	Bryophyte	2	Table-20
12.	Pteridophytes	14	Table-21
13.	Seasonal Flower	10	Table-22

Table 10: Checklist of Trees

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Kak Dumur	Fig Tree	*Ficus hispida*	Monaceae
2	Aam	Mango	*Mangifera indica*	Anacardiaceae
3	Akashmoni	Golden Shower	*Acacia auriculiformis*	Fabaceae
4	Akashneem	Indian Cork Tree, Tree Jasmine	*Millingtonia hortensis*	Bignoniaceae
5	Allspice Tree	Allspice Tree	*Pimenta dioica*	Myrtaceae
6	Amaltash	Golden Shower	*Cassia fistula*	Caesalpiniaceae
7	Amloki	Amla	*Emblica officinalis*	Euphorbiaceae
8	Amrah	Wild Mango	*Spondias pinnata*	Anacardiaceae
9	Ashfol	Longan	*Euforia longan*	Sapindaceae
10	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
11	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
12	Bahera	Bahera	*Terminalia bellirica*	Combretaceae
13	Bakul	Spanish cherry / Bakul	*Mimusops elengi*	Caesalpiniaceae
14	Batabi Lebu	Pomelo	*Citrus maxima*	Rutaceae
15	Bel	Golden Apple	*Aegle marmelos*	Rutaceae
16	Bhawarmal, Bohar, Biharukh	Bhawarmal, Bohar, Biharukh	*Hymenodictyon orixense*	Rubiaceae
17	Bot	Banyan Tree	*Ficus benghalensis*	Moraceae
18	Buddha Narkel	Buddha Coconut	*Pterygota alata*	Sterculiaceae
19	Chalta	Elephant Apple	*Dillenia indica*	Dilleniaceae

20	Chhatim	Chhatiyan / Devil's Tree	*Alstonia scholaris*	Apocynaceae
21	Chhotopata Mehogini	Small-leaved Mahogany	*Swietenia mahagoni*	Meliaceae
22	Chinese Bot	Ficus	*Ficus Sp.*	Moraceae
23	Christmass Tree	Caledonia Pine/ Christmas Tree	*Araucaria cookii*	Arucariaceae
24	Debdaru	Indian Fir / Cementry Tree	*Polialthia longifolia*	Annonaceae
25	Eucaliptus	Eucalyptus	*Eucalyptus spp.*	Myrtaceae
26	Gandhraj	Gardenia, Cape jasmine	*Gardenia jasminoides*	Rubiaceae
27	Ghora Neem	Indian Lilac Tree	*Melia azedarach*	Meliaceae
28	Golap Jam	Gulab Jamun	*Syzygium jambos*	Myrtaceae
29	Haritaki	Haritaki	*Terminalia chebula*	Combretaceae
30	Indurmari	Gliricidia	*Gliricidia sepium*	Fabaceae
31	Jagga Dumur	Cluster Fig	*Ficus glomerata*	Moraceae
32	Jam	Indian Blackberry	*Syzygium cumini*	Myrtaceae
33	Jamrul	Water Apple	*Syzygium aqueum*	Myrtaceae
34	Jarul	Pride of India	*Lagerstroemia speciosa*	Lythraceae
35	Kadam	Kadam	*Anthocephalus chinensis*	Rubiaceae
36	Kamranga	Star Fruit	*Averrhoa carambola*	Averrhoaceae
37	Kanchan	Butterfly Tree	*Bauhinia purpurea*	Caesalpiniaceae
38	Kanthal	Jack Fruit	*Artocarpus heterophyllus*	Moraceae
39	Karanja	Pongam Tree, Pongame Oil Tree	*Pongamia pinnata*	Fabaceae
40	Kath Badam	Indian Almond	*Terminalia catappa*	Combretaceae

41	Kath Champa	Red Jasmine Tree	*Plumeria rubra*	Apocynaceae
42	Khirish	Rain Tree	*Samanea saman*	Mimosaceae
43	Krishnachura	Gold Mohur / Flame Tree	*Delonix regia*	Caesalpiniaceae
44	Kshude Jam	Indian Blackberry (Small)	*Syzygium sp.*	Myrtaceae
45	Kul(Topa Kul)	Indian Jujube / Ber	*Ziziphus mauritiana*	Rhamnaceae
46	Kurchi	Indrajao	*Holarrhena pubescens*	Apocynaceae
47	Lal Shimul	Red Silk Cotton Tree	*Bombax ceiba*	Malvaceae
48	Lichu	Lichi	*Litchi chinensis*	Sapindaceae
49	Lombu Gachh	Dysoxylum Sp.	*Dysoxylum costulatum Miq.*	Miliaceae
50	Neem	Neem Tree	*Azadirachta indica*	Meliaceae
51	Nepal Tunt	West Indian Elm, Bastard/Bay Cedar	*Guazuma ulmifolia*	Malvaceae
52	Nona	Custard Apple	*Annona reticulata*	Annonaceae
53	Pain	She-Oak / Indian Christmas Tree	*Casuarina equisetifolia*	Casuarinaceae
54	Pakur	White Fig	*Ficus infectoria*	Moraceae
55	Palash	Flame tree	*Butea monosperma*	Faboideae
56	Peyara	Guava	*Psidium guajava*	Myrtaceae
57	Pituli	False White Teak	*Trewia nudiflora*	Euphorbiaceae
58	Putranjeeva	Putranjiva / Lucky Bean Tree	*Putranjiva roxburghii*	Euphorbiaceae
59	Radhachura	Copper Pod Tree	*Peltoforum pterocarpum*	Caesalpiniaceae
60	Rubber	Indian Rubber Tree	*Ficus elastica*	Moraceae

61	Rudrapalash	African Tulip Tree	*Spathodia campanulata*	Bignoniaceae
62	Sabeda	Sabeda	*Manikara sapota*	Sapotaceae
63	Segun	Burma Teak	*Tectona grandis*	Verbenaceae
64	Shaora	Sand Paper Tree	*Streblus asper*	Moraceae
65	Sheuli	Queen of the night	*Nyctanthes arbortristis*	Oleaceae
66	Sojina	Drumstick Tree	*Moringa oleifera*	Moringaceae
67	Subabul	Subabul	*Leucena leucocephela*	Mimosaceae
68	Tentul	Tamarind	*Tamarindus indica*	Caesalpiniaceae
69	Toon	Indian Mehoginy	*Cedrela toona*	Meliaceae
70	Zilipi Babla	Vilayati Babul	*Pithecolobium dulce*	Mimosaceae

Green campus initiatives

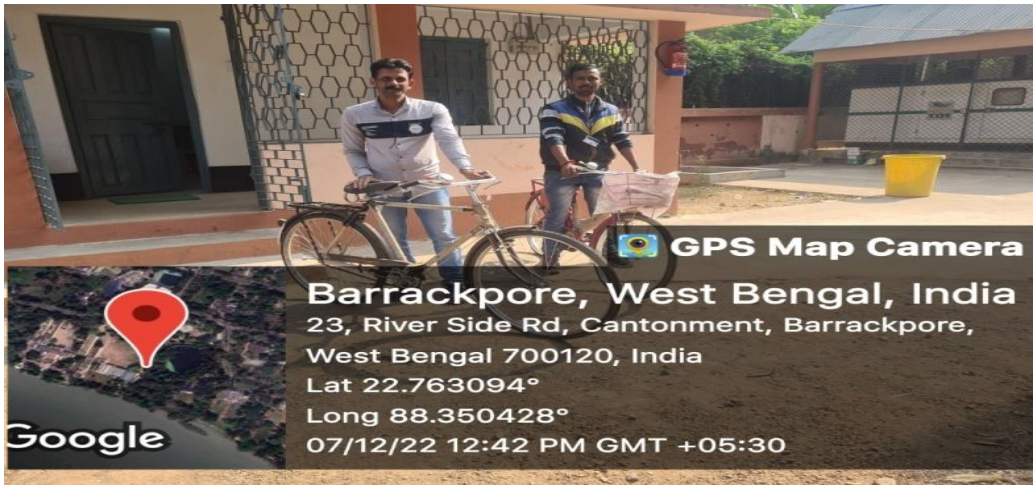


Table 11: Checklist of Aquatic Plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baicha, Patajhangi	Tape grass	*Vallineria spiralis*	Hydrocharitaceae

2	Jhangi, Kureli	Waterthyme	*Hydrilla verticillata*	Hydrocharitaceae
3	Parmikalla	Duck lettuce	*Ottelia alismoides*	Hydrocharitaceae
4	Shaluk	Water lily	*Nymphea nouchali*	Nymphaeaceae
5	Kachuri pana, Jarmuni	Water hyacinth	*Eichhornia crassipes*	Pontederiaceae
6	Danta	Alligator weed	*Alternanthera philoxeroides*	Amaranthaceae
7	Kachu, Muchikachu	Taro	*Colocasia esculenta*	Araceae

Table 12: Checklist of Bamboos

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baans	Bamboo	*Bambusa* sp.	Poaceae

Table 13: Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Chepti Ghas	Common Carpetgrass	*Axonopus* sp.	Poaceae
2	Durba Ghash	Durba	*Cynodon dactylon*	Graminae
3	Jal Kanthi Ghas			

Table 14: Checklist of Herbs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Alternanthera / Barmi Sak	Alternanthera	*Alternanthera philoxeroides*	Amaranthaceae
2	Alternanthera/Modranga	Alternanthera	*Alternanthera paronychioides*	Amaranthaceae
3	Alternanthera/Sanchi	Alternanthera	*Alternanthera sessilis*	Amaranthaceae

4	Amrul Saak	Yellow Woodsorrel	*Oxalis corniculata*	Oxalidaceae
5	Apang	Achyranthes	*Achyranthes aspera*	Amaranthaceae
6	Ban Dhone / Mitha Pata	Ban Dhone / Mitha Pata	*Scoparia dulcis*	Scrophulariaceae
7	Ban Note Sak	Amaranthus	*Amaranthus viridis*	Amaranthaceae
8	Ban Sarisha / Bilari	Indian Cress	*Nasturtium indicum*	Brassicaceae
9	Ban Tamak	Wild Tobaco	*Nicotiana plumbaginifolia*	Solanaceae
10	Ban Tepari	Bon Tepari	*Physalis minima*	Solanaceae
11	Ban Tulshi / Dakate Pata	Bon Tulshi	*Croton bonplandianum*	Euphorbiaceae
12	Baro Dudhi/ Khirika	khirika	*Euphorbia hirta*	Euphorbiaceae
13	Berela	Sida	*Sida* sp.	Malvaceae
14	Bhringaraj	Bhringaraj	*Wedelia trilobata*	Asteraceae
15	Bhuin Amla	Stonebreaker, Seed-under-leaf	*Phyllanthus niruri*	Phylanthaceae
16	Bhuin Okra	Bhuin Okra	*Phyla nodiflora*	Verbenaceae
17	Boatlily, Rhoeo	Boatlily, Moses-in-the-cradle	*Tradescantia spathacea*	Commelinaceae
18	Boro Calendula	Calendula, Common Marigold	*Calendula officinalis*	Asteraceae
19	Botam Ful	Bachelor Button Flower	*Gomphrena globosa*	Amaranthaceae
20	Chaldhowa	Mountain Knotgrass	*Aerva lanata*	Amaranthaceae
21	Chandra Mallika	Chrysanthemums	*Chrysanthemums sp.*	Asteraceae
22	Dahlia	Dahlia	*Dahlia sp.*	Asteraceae
23	Dumpa / Piparisari	Graceful Pouzalz's Bush	*Pouzalzia indica*	Urticaceae

24	Ganda Ful	Marigold Flower	*Tagetes sp.*	Asteraceae
25	Gerbera	Gerbera	*Gerbera jamesonii*	Asteraceae
26	Ghreetakumari	Aloe Vera	*Aloe barbadensis*	Liliaceae
27	Gopali	American Mint	*Anisomeles indica*	Lamiaceae
28	Heliconia / Bird of paradise	Lobster claw, Hanging heliconia	*Strelitzia reginae*	Musaceae
29	Holud	Turmeric	*Curcuma longa*	Zingiberaceae
30	Holud Basanta	Nettle Leaved Lindenbergia	*Lindenbergia indica*	Scrophulariaceae
31	Hurhuria / Makorful	Asian Spiderflower	*Cleome viscosa*	Cleomaceae
32	Impatiens, Touch-me-not	Impatiens, Touch-me-not	*Impatiens* sp.	Balsaminaceae
33	Kakmachhi	Black Nightshade	*Solanum nigrum*	Solanaceae
34	Kalmegh	Kalmegh, Green chirayta	*Andrographis paniculata*	Acanthaceae
35	Kansira / Kanchhira	Commelina	*Commelina benghalensis*	Commelinaceae
36	Keshut	Keshut	*Eclipta alba*	Asteraceae
37	Kharkon pata / Ghet Kochu	Bengal Arum, Lobed Leaf Typhonium	*Typhonium trilobatum*	Areceae
38	Kola gachh/ Banana tree	Banana Tree	*Musa sp.*	Musaceae
39	Krishna Tulsi	Krishna Tulsi / Kalo Tulasi	*Ocimum tenuiflorum*	Lamiaceae
40	Kshetpapri Shak	Diamond Flower, corymbose hedyotis	*Hedyotis corymbosa*	Rubiaceae
41	Kuddalia / Kodalia	Three-flower Beggarweed	*Desmodium triflorum*	Fabaceae

42	Kukurshoka / Kukursunga	Kukurshoka / Kukursunga	*Blumea laciniata*	Asteraceae
43	Kulekhara	Kulekhara	*Hygrophila schulli*	Acanthaceae
44	Lal Bishalyakarani	Amaranthus	*Aerva javanica*	Amaranthaceae
45	Lata Berela	Heartleaf Fanpetals	*Sida humilis*	Malvaceae
46	Maan Kochu	Alocasia	*Alocasia indica*	Arecaaceae
47	Neel Hurhure	Purple Cleome	*Cleome rutidosperma*	
48	Parthenium	Famine Weed	*Parthenium hysterophorus*	Asteraceae
49	Patharchur	Coleus	*Coleus* Sp.	Lamiaceae
50	Pothika Gaddi	Pothika Gaddi	*Eragrostis tenella*	Poaceae
51	Punarnova	Punarnova	*Boerhavia diffusa*	Nyctaginaceae
52	Radhatulsi	Holy Basil, Tulasi	*Ocimum sanctum*	Lamiaceae
53	Ram Tulshi	Ram Tulshi	*Ocimum gratissimum*	Lamiaceae
54	Ruellia	Bluebell	*Ruellia prostrata*	Acanthaceae
55	Ruellia	Ruellia	*Ruellia tuberosa*	Acanthaceae
56	Ruellia	Ruellia	*Ruellia suffruticosa*	Acanthaceae
57	Sahadebi	Sahadebi	*Vernonia cinerea*	Asteraceae
58	Sansevieria	Snake Tongue, Devill's Tongue	*Sansevieria* sp.	Asparagaceae
59	Sonchus	Sonchus, Field Sowthistle	*Sonchus arvensis*	Asteraceae
60	Synedrella	Synedrella	*Synedrella nodiflora*	Asteraceae
61	Thankuni	Indian Water Navelwort	*Centella asiatica*	Apiaceae
62	Titaliya	Titaliya	*Sonchus oleraceus*	Asteraceae

63	Tridaksha	Coat Buttons / Tridax Daisy	*Tridex procambens*	Asteraceae
64	Tulsi	Tulsi	*Ocimum sp.*	Lamiaceae
65	Uchunti	Ageratum	*Ageratum conyzoides*	Asteraceae

Table 15: Checklist of Shrubs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Agave sp.	Agave sp.	*Agave sp.*	Asparagaceae
2	Akanda	Giant Milkweed	*Calotropis gigantea*	Asclepiadaceae
3	Ansh Shaora	Ban jamir	*Glycosmis pentaphyla*	Ruraceae
4	Ban Karpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
5	Ban nebu / Ban Korpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
6	Beli	Jasmine	*Jusminum pubescens*	Oleaceae
7	Bhant	Clerodendrum	*Clerodendrum viscosum*	Verbenaceae
8	Bhuin Dumur	Ground Fig	*Ficus heterophylla*	Moraceae
9	Bleeding Heart	Bleeding Heart	*Clerodendrum thomsoniae*	Lamiaceae
10	Chakunda	Stinking Cassia, Chinese senna, foetid cassia	*Cassia tora*	Fabaceae
11	Chitra	Chitrak, Plumbago, White leadwort	*Plumbago zeylanica*	Plumbaginaceae
12	Chitrak	Duranta	*Duranta repens*	Verbenaceae
13	Cosmos	Garden Cosmos	*Cosmos bipinnatus*	Asteraceae
14	Dhutura	Devil's Trumpets	*Datura sp.*	Solanaceae

15	Dracaena	Dracaena	*Pleomele reflexa 'Variegata'*	Asparagaceae
16	Furush	Lagerstroemia	*Lagerstroemia indica*	Lythraceae
17	Gandharaj lebu	Citrus/ Citron	*Citrus medica*	Rutaceae
18	Golap	Rose	*Rosa sp. Var.*	Rosaceae
19	Golap Champa	Wild Pmumeria, Bridal Bouquet	*Plumeria pudica*	Apocynaceae
20	Gothbegun	Wild Eggplant, Prickly Nightshade	*Solanum torvum*	Solanaceae
21	Hatisur	Indian heliotrope	*Heliotropium indicum*	Boraginaceae
22	Heliconia / Bird of paradise	Heliconia	*Strelitzia sp.*	Musaceae
23	Holud Berela	Common Wireweed, Morning mallow	*Sida acuta*	Malvaceae
24	Jhaw	Thuja	*Thuja orientalis*	Cupressaceae
25	Joba	Chinese Rose	*Hibiscus rosa-sinensis*	Malvaceae
26	Kagji Lebu	Lime	*Citrus acida*	Rutaceae
27	Kamini	Orange Jasmine	*Murraya paniculata*	Rutaceae
28	Karabi	Oleander	*Nerium oleander*	Apocynaceae
29	Karipata	Karipata	*Murraya koenigii*	Rutaceae
30	Kasunda	Kasunda / Baner	*Cassia sophera*	Fabaceae
31	Kolke Ful(Holud)	Oliender Flower, Trumpet Flower (Yellow)	*Thevetia peruviana (Yellow)*	Apocynaceae
32	Laboni	Ravenia Pink / Lemonia	*Ravenia spectabilis*	Rutaceae
33	Lal Pata	Poinsettia	*Euphorbia pulcherrima*	Euphorbiaceae

34	Lalpata, Poinsettia	Poinsettia	*Euphorbia pulcherima*	Euphorbiaceae
35	Lanka	Green Chili	*Capsicum sp.*	Solanaceae
36	Lantana / Putus	Lantana	*Lantana camara*	Verbenaceae
37	Madhuful	Shooting Star, Star Flower	*Pseuderanthemum* sp.	Acanthaceae
38	Milli	Milli	*Euphorbia milli*	Ericaceae
39	Morogful	Plumed Cockscomb, Woolflower	*Celosia argentea*	Amaranthaceae
40	Muktojhuri	Muktojhuri	*Acalypha indica*	Euphorbiaceae
41	Mussaenda	Musaenda	*Mussaenda sp.*	Rubiaceae
42	Nayantara	Rosy Periwinkle	*Catharanthus roseus*	Apocynaceae
43	Nil Jhanti	Philippine Violet, bluebell barleria	*Barleria strigosa*	Acanthaceae
44	Patabahar	Croton	*Codiaeum sp.var.*	Euphorbiaceae
45	Pati lebu	Citrus	*Citrus acida*	Rutaceae
46	Pora Narenga / Panjuli	Roast Potato Plant	*Phyllanthus reticulatus Poir.*	Euphorbiaceae
47	Powder Puff	Powder Puff	*Calliendra sp.*	Fabaceae
48	Rangan	Ixora	*Ixora sp.*	Rubiaceae
49	Rangchita	Slipper Plant	*Pedilanthus tithymaloides*	Euphorbiaceae
50	Reri	Castor Oil Plant	*Ricinus communis*	Euphorbiaceae
51	Salparni	Salparni	*Desmodium gangeticum*	Fabaceae
52	Scarlet sage, Salvia	Scarlet Sage	*Salvia splendens*	Lamiaceae
53	Sonapati	Tecoma	*Tecoma gaudichaudi*	Bignoniaceae

54	Spicy Jatropha	Spicy Jatropha	*Jatropha panduraefolia*	Euphorbiaceae
55	Tagar (Double)	Milk Flower (Double)	*Tabernaemontana coronaria Flore- pleno*	Apocynaceae
56	Tagar (Dwarf), Chinese Tagar	Milk Flower (Dwarf)	*Tabernaemontana divaricata var. Dwarf*	Apocynaceae
57	Tagar (Plain)	Milk Flower (Plain)	*Tabernaemontana divaricata*	Apocynaceae
58	Tara Ganda	Yellow Cosmos	*Cosmos sulphureus*	Asteraceae
59	Tibragandha	Siam Weed, Bitter bush	*Eupatorium odoratum*	Asteraceae
60	Ulotkambal	Ulotkambal	*Ambroma augusta*	Sterculiaceae

Table 16: Checklist of Creepers

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Aparajita	Aparajita	*Clitoria ternatea*	Fabaceae
2	Baro Gaylalota	Birdfoot Grape-Vine	*Cayratia pedata*	Vitaceae
3	Begam Bahar	Passion Flower	*Passiflora suberosa*	Passifloraceae
4	Chhoto Gaylalota	Cayratia	*Cayratia trifolia / Vitis carnosa*	Vitaceae
5	Corkystem Passionflower	Corkystem Passionflower	*Passiflora suberosa*	Passifloraceae
6	Gayale Lata	Birdfoot Grape-Vine	*Cayratia sp.*	Vitaceae
7	Gulancha lata	Gulanchalata	*Tinospora cordifolia*	Menispermaceae
8	Juktiful/ Titakunja	Titakunja	*Wattakaka volubillis*	Asclepiadaceae
9	Kalilata	Bengal Trumpet Vine, Blue Trumpet Vine	*Thunbergia grandiflora*	Acanthaceae

10	Kolmi Saak	Ipomoea	*Ipomoea aquatica*	Convolvulaceae
11	Lata Bichhuti/ Jol Bichhuti	Indian Stinging Nettle	*Tragia involucrata*	Euphorbiaceae
12	Money Plant	Money Plant, Ivy Arum	*Epipremnum aureum*	Areceae
13	Nimukhi Lata	Snake Vine	*Stephania japonica*	Menispermaceae
14	Philodendron	Philodendron	*Philodendron sp.*	Areceae
15	Rabon Lata	Chinese creeper	*Micania micrantha*	Asteraceae
16	Small White Morning Glory	Small White Morning Glory	*Ipomoea obscura*	Convolvulaceae
17	Telakuchu	Telakuchu	*Coccinia grandis*	Cucurbitaceae
18	Telekera	Tiliacora	*Tiliacora racemosa*	Menispermaceae
19	Bhui Achhor / Ankra	Roundleaf Bindweed	*Evolvulus nummularius*	Convolvulaceae
20	Helakolmoshi	Justicia	*Justicia simplex*	Acanthaceae
21	Idurkani / Buri Guapan	Hemigraphis	*Hemigraphis hirta*	Acanthaceae
22	Akush	Climbing Mallotus	*Mallotus repandus*	Euphorbiaceae
23	Kagaj Ful / Bagan Bilash	Bougainvillea	*Bougainvillea sp.*	Nyctaginaceae
24	Kolke ful(Allamanda)	Allamanda	*Allamanda* sp.	Apocynaceae
25	Madhabi Lata	Rangoon Creeper	*Combretum indicum*	Combretaceae
26	Anantalata/ Coral Creeper	Coral Creeper / Antigonum	*Antigonon leptopus*	Polygonaceae

Table 17: Checklist of Ornamental Plant

Sl. No.	Local Name	Common Name	Scientific Name	Family

1	Lal Dracaena	Dracena (Red)	*Dracena mahatma*	Liliaceae

Table 18: Checklist of Palms

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Areca Palm	Areca Palm	*Dypsis lutescens*	Arecaaceae
2	Bottle Palm	Bottle Palm, Champagne Palm	*Hyophorbe lagenicaulis*	Arecaceae
3	Fan Palm	Chinese Fan Palm	*Livistona chinensis*	Arecaceae
4	Fish-tail Palm	Fish-tail Palm	*Caryota urens*	Arecaceae
5	Khejur	Indian Datepalm	*Phoenix sylvestris*	Palmae/ Arecaceae
6	Narkel	Coconut	*Cocos nucifera*	Arecaaceae
7	Palm Tree/ Taal Gachh	Palmyra Palm	*Borassus flabellifer*	Palmae
8	Panthapadap	Traveller's Palm	*Ravenala madagascariensis*	Musaceae
9	Supuri	Areca	*Areca catechu*	Arecaceae
10	Taal	Palmyra Palm	*Borassus flabellifer*	Arecaceae

Table 19: Checklist of Parasitic plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baro manda / Vanda	Honey Suckled Mistletoe	*Dendrophthoe falcata*	Loranthaceae
2	Chhoto Manda	Vanda	*Viscum orientale*	Loranthaceae

Table 20: Checklist of Bryophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Liverworts	Liverworts	*Riccia sp.*	Ricciaceae
2	Moss	Moss	*Semibarbula orientalis* (F.Weber)Wilk & Margad	Pottiaceae

Table 21: Checklist of Pteridophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Maidenhair fern	Maidenhair fern	*Adiantum capillus-veneris* L.	Pteridaceae
2	Maidenhair fern	Maidenhair fern	*Adiantum caudatum* Klotzsch.	Pteridaceae
3	Maidenhair fern	Maidenhair fern	*Adiantum lunulatum* Brum.f.	Pteridaceae
4	Oakleaf fern	Oakleaf fern	*Aglaomorpha (Drynaria) qiuercifolia* (L) Hovenkamp and S. Linds.	Polypodiaceae
5	Ampelopteris	Ampelopteris	*Ampelopteris prolifera* (Retz.) Copel	Thelypteridaceae
6	Water sprite	Water sprite	*Ceratopteris sp.*	Pteridaceae
7	Christella	Christella	*Christella dentata* (Forssk.)Brownsey and Jermy	Thelypteridaceae
8	Vine-like fern and Japanese climbing fern	Vine-like fern and Japanese climbing fern	*Lygodium flexuosum*(L.)Sw.	Lygodiaceae
9	Water clover	Water clover	*Marsilea quadrifolia* L.	Marsileaceae
10	Fishtail fern	Fishtail fern	*Microsorum punctatum* (L.) Copel.	Polypodiaceae
11	Addre's tongue ferns	Addre's tongue ferns	*Ophioglossum sp.*	Ophioglassaceae
12	Spider brake	Spider brake	*Pteris multifida* Poir.	Pteridaceae
13	Chinese brake or	Chinese brake or Ladder	*Pteris vittata* L.	Pteridaceae

	Ladder braka	braka		
14	Pyrrosia	Pyrrosia	*Pyrrosia lanceolata* (L.) Farw.	Polypodiaceae

Table 22: Checklist of Seasonal flower

Sl. No.	Local Name	Common Name	Scientific Name	Family	Type
1	Dog flower, Snapdragon	Dog flower, Snapdragon	Antirrhinum majus	*Scrophulariaceae*	Season Flower
2	Garden stock, Common stock	Garden stock, Common stock	*Matthiola incana*	*Brassicaceae*	Season Flower
3	Gazania	Gazania	*Gazania* sp.	Asteraceae	Season Flower
4	Gladiolus	Gladiolus	*Gladiolus sp.*	Iridaceae	Season Flower
5	Himsagar	Flaming Katy, Florist kalanchoe	*Kalanchoe blossfeldiana*	Crassulaceae	Season Flower
6	Maiden Pink	Maiden Pink	*Dianthus deltoides*	Carryophyllaceae	Season Flower
7	Mike Ful	Amaryllis	*Hippeastrum* sp.	Amaryllideceae	Season Flower
8	Pansy, Garden Pansy	Pansy, Garden Pansy	*Viola tricolor var.*	Violaceae	Season Flower
9	Petunia	Petunia	*Petunia hybrida*	Solanaceae	Season Flower
10	Verbena	Verbena	*Verbena* sp.	Verbenaceae	Season Flower

PRESTIGIOUS AWARDS FOR CLEAN & GREEN CAMPUS

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CERTIFICATE

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certifies that

BARRACKPORE RASTRAGURU SURENDRANATH COLLEGE

Middle Road & 6 Riverside Road, Barrackpore, Kolkata – 700120, West Bengal, India

The Management System of the above organization has been audited and found to be in accordance with the requirements of management system standards detailed below:

ISO 14001:2015

Has established and applied Environment Management System for following scope of activities:

Imparting Undergraduate and Post Graduate Courses

Certificate No. CCL/QMS/71707/BRSC *Issue No. 01*
Validity of certificate is subjected to the continued satisfactory operation of the organization's Management System

Originally Issue Date: 26/06/2021
Current Issue Date: 26/06/2021
Certificate Expiry Date: 25/06/2022
Recertification Due Date: 25/06/2024

Managing Director

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SUGGESTIONS AND RECOMMENDATIONS

- **The electricity consumption is really high. In this context, solar energy can be used as alternative energy source of the College campuses.**
- **The use of plastic products should be banned in the College campuses.**
- **The College campuses are nodoudt biodiversed but more plantations specially medicial planntations are required in the campuses. Plantation of fruit plants will attract more birds.**
- **There is urgent need to form a Green Monitoring Team. The priority of this body is to maintain the greenary of the College campuses**
- **The Green Monitoring Team sould consist of members from teaching staffs, non-teaching staffs, students and if possible, try to include some local interested people.**
- **Vermicompost facility may be practiced, the product of which can be used as manure or fertilizer for plantation purpose.**
- **Sustainable use of resources and ecological balance of the College campuses must be maintained throuout the year.**
- **Increse the use of Electrical vehicle to reduce the pollution .**
- **Encourage to reduce dairy and meat in take - No Meat Mondays! Animal products makeup 18% of greenhouse gas emissions. By replacing one or two of weekly meat and dairy meals to a vegetarian option, can help reduce emissions**
- **Encourage use of Bicycles.**
- **Improve garden: To grow healthy plants, you also need healthy soil. Improving soil quality is an ongoing process for a gardener. Good, rich in nutrients, and friable soil will offer the plants everything all on its own. Thus, you would need lesser fertilizers and pesticides.**
- **Improve Water Harvesting:Various passive strategies have been accordingly developed in attempt to improve the water harvesting capability, which can be roughly categorized into three types: (i) engineering new surfaces or materials for condensers to benefit dew generation and removal; (ii) cooling the condensing substrates to facilitate the dewing occurrence; and (iii) concentrating the moisture from air by sorbent-assisted systems to inhibit the environmental influences and raise the water yield.**
- **Promote awarnessbuildup programme on Environmental Issues time to time**

Conclusion:

Focus on Environmental is applicable. The Barrackpore Rastraguru Surendranath College **have proper plan for Future Development on Environmental expect.**

We have also suggest them how to improve the Environmental expect in a better way.

AUDIT CONDUCTED BY "MANAGEMENT SYSTEM CONSULTANCY"

Auditor

Amalesh Kr. Mandal

MANAGEMENT SYSTEM CONSULTANCY Kol- 130

Amalesh Kumar Mandal

(Lead Auditor on Quality, Environment, Energy Management System and ISO 17020:2012 Competance Certified for QCI)

(IRCA Accredited Lead Auditor on Quality, Environment, Energy Management System, Empanelled Auditor from IAF accredited Certification Body, Energy Management System Auditor from National Productivity Council, Environment Management System personnel from National Safety Council, ISO 17020:2012 Competance Certified for Quality Council of India and Carbon Frootprint Calculator Certified from BSI)

GREEN AUDIT REPORT

(2022-23)

Barrackpore Rastraguru Surendranath College

85, Middle Road & 6, Riverside Road, Barrackpore,

North 24 Parganas, Kolkata – 700120, West Bengal

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ExecutiveSummary

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. Barrackpore Rastraguru Surendranath College is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher studies, the college has initiated 'The Green Campus' programme few years back that actively promote the various projects for the environment protection and sustainability.

The purpose of this audit was to ensure that the practices followed in the campuses are in accordance with the green policy adopted by the institution, it works on several facets of Green Campus including water conservation, electricity conservation, tree plantation, waste management, paperless work, mapping of biodiversity. With this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on students' health and learning, college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

Contents:

ACKNOWLEDGEMENT

Management System Consultancy would like to thank the management of Barrackpore Rastraguru Surendranath College for assigning this important work of Green Audit. We appreciate the co-operation to the teams for completion of assessment.
We would also like to thank the Management for his continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Management System Consultancy Accreditation and Auditors details given below:

The auditors of Management system Consultancy are full members of many accredited Institutions like CQI, IRCA, NABET, QCI, NABL, NPC, NSC.
Qualified Lead Auditor in ISO 9001 (in 2008 and 2015 version), Occupational Health and Safety Management in both 2007 and 2018 versions, Environment Management in both 2004 and 2015 versions, Energy Management System in 2018 version, NSC approved Safety Auditor, Risk Assessment auditor from QCI, SA8000 Certified Auditor, Training and Auditing experience in private as well as governmental organizations.

*Membership with National Safety Council (NSC), Auditors are qualified from National Productivity Council (NPC) and with Quality Council of India (QCI).
*Empanelled auditors from IAF Accredited Certification Body.
*Training partner of PECB (International Body).
*ISO 17020:2012 Certified Professional from QCI.
*Waste Management certified from QCI and United Nations Institute for Training and Research.
*Energy Auditor from NPC (National Productivity Council).
*Certified on Green Economy from United Nations Institute for Training and Research.
*Certified on Gender Equality and Human Rights in Climate Action and Renewable Energy from United Nations Institute for Training and Research.
*Certified on Waste management from United Nations Institute for Training and Research.

Introduction

Environmental or Green Audit is a systematic, documented, periodic and onjective review by regulated entities of facility operations and practices related to meeting environmental requirements (EPA, 2003). In other words, it is a management tool comprising systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable (International Chamber of Commerce, 1989).

Environmental auditing is essentially an environmental management tool for measuring the effects of certain activities on the environment against set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Organisations of all kinds now recognise the importance of environmental matters and accept that their environmental performance will be scrutinised by a wide range of interested parties. Environmental auditing is used to investigate, understand and identify.

Utility of Green Auditing

These are used to help improve existing human activities, with the aim of reducing the adverse effects of these activities on the environment. An environmental auditor will study an organisation's environmental effects in a systematic and documented manner and will produce an environmental audit report.

Our College and Green Auditing

Barrackpore Rastraguru Surendranath College is one of the leading higher education institutions under West Bengal State University. It has been providing a quality education to the rural and sub-urban students of North 24 Parganas and adjacent districts. The college has two campuses – the Science building at 85, Middle Road, Barrackpore and another Arts and Commerce building at 6, Riverside Road on the bank of the river Ganges.Our college reaccredited (4th cycle) by NAAC with ‘B++’ Grade and received College with Potential for Excellence (CPE) status from UGC.

Green Audit Working Team (2022-23):

Sl No	Name of the Members	Designation
1	Prof.(Dr.) Monojit Ray	Principal, BRSN College
2	Dr. Sutapa Ghosh Dastidar	Coordinator, IQAC
3	Dr. Sujata De Chaudhuri	Assistant Professor, Dept. Of Zoology
4	Dr. Sandip Pal	Assistant Professor, Dept. Of Zoology
5	Dr. Suraj Sk	Assistant Professor, Dept. Of Botany

Objectives of the Study

The main objectives of the green audit are to promote the environment management and conservation in the college campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out green audit are

- To introduce and make aware students to real concerns of environment and its sustainability
- To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a present status report on environmental compliance

Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to

environmental legislation. Here is a procedure for carrying out a green audit:
(a) Planning:
(b) Identify audit team and resources:
(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.
(d) Data Collection:
(e) Gather information:
(f) Conduct site visits and interviews:
(g) Review documentation:
(h) Evaluation and Analysis:
(i) Assess environmental impacts:
(j) Evaluate compliance:
(k) Identify strengths and weaknesses:
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components :

On-siteVisit :

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

Focus Group Discussion :

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

Energy and waste management Survey:

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

Waste Management:

Recycling: Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

Composting: The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

Table: Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Store these in a separate tank, and we can start selling them directly after a certain amount of time.
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly.

Solid wastes	Paper waste, Damaged furniture, paper plates, food wastes	Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste.
Chemical wastes	Laboratory waste	Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations.
Wastewater	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers.
Sanitary Napkin	-	Napkin Incinerators

For this purpose, Barrackpore Rastraguru Surendranath College has employed waste bins for proper segregation of solid wastes in the campuses. It includes provision for plastic/glass waste, food waste and metal/e-waste in a single compact system.

	Number of waste bins
Science Campus (85, Middle Road)	05
Arts Campus (6, Riverside Road)	05
Boy's Hostel	01
Girl's Hostel	01
TOTAL	**12**

Water Usage:

Water Fixtures: Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

Water management table:

Water Management Tasks	Frequency	Responsible Party
Routine examination of water supplies	Monthly	Green Audit Working Team
Testing for drinking water quality	Half-yearly	Do
Awareness of water conservation	Half-yearly	Green Audit Working Team & various department
Infrastructure for water distribution that needs upkeep and repair	As needed	Caretaker
Reporting and analysis of water use	Annually	Green Audit Working Team & Caretaker
Learn what causes excessive water consumption.	As needed	Caretaker

Water Quality Assessment, Consumption & Management

Water quality analysis was conducted by Eutech PCS Multi-parameter Tester 35, µC Turbidity Meter 135 and Lutron DO-5509 Meter.

Table – 1 (Average Value of 2022-23)

Sample No.	Location from where samples collected	MPN Index (per 100 ml)	Water Quality
1	Teachers' Room Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
2	Teachers' Room Aquaguard (Science Campus)	00	Outstanding (Potable)
3	Students' Aquaguard (Arts & Commerce Campus)	00	Outstanding (Potable)
4	Students' Aquaguard (Science Campus)	00	Outstanding (Potable)
5	Tap water (Science Campus)	07	Good (Non-Potable)
6	Normal tap water	18	Good (Non-Potable)
7	Well water of garden	51	Average (Non-Potable)

Table – 2 (Average Value of 2022-23)

	Location from where samples collected	TDS (ppm)	Conductance (µS)	pH	Salinity (ppm)
1	Science Campus (85, Middle Road)	211	287	7.70	131
2	Arts Campus (6, Riverside Road)	209	301	7.98	140
3	Boy's Hostel	218	315	8.30	148
4	Girl's Hostel	210	298	8.15	143

Table – 3 (Average Value of Ion Content in College Tap Water)

IONS	UNIT (ppm)
Sodium	16.87
Potassium	5.99

Total Number of Taps in 85, Middle Road Campus

Department/Section/Room	Room No.	No. of Taps
Ground floor		
Health	110	1
Toilet	109	5
Computer staff room	108	2
GB room toilet	119	2
Principal's room	103	3+1 = 4
Controller's room		3
Office toilet		3
Account's toilet		3
Outside general toilet		3+1 = 4
Front garden tap		2
Staff canteen	138A	1
Teachers room	138	1+3+4 = 8
CEL		2
Student's basin backyard		3
Backyard garden tap		1
Student's canteen		
Boy's Toilet		11

Microbiology		14+13+4+2+1 = 34
	Floor Total:	**89**
1st floor		
Zoology	222, 223, 224	14
Zoology extended basin, toilet		6
Microbiology		4
Toilet	221	5
Chemistry lab		26
Chemistry lab	240	1
Central instrument room	241	1
Botany	242	4
Toilet	205	7
Toilet	206	6
Economics		2
Virtual classroom complex		3
Electronics		3
	Floor Total:	**82**
2nd floor		
Toilet		5+2 = 7
Food & nutrition		8+4 = 12
Geography		3
Toilet	338	2
Toilet	327	3
Psychology		3
Physics		3+3 = 6

Botany		4
	Floor Total:	**40**

Total Number of Taps in 6, Riverside Road Campus

Department/Section/Room	Block	No. of Taps
Ground floor		
Gents toilet	A	7
Ladies toilet	A	5
Library	B	3
Student aquaguard	B	1
Drinking water	B	3
Student aquaguard	C	1
Language lab	C	3
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
Seminar room	D	2
Sports room	E	2
Drinking water	E	1
Canteen	E	4
Aquaguard	E	1
Flower garden		3
Outside building		5
	Floor Total:	**65**

1st floor		
Guest room	A	5
Ladies toilet	B	3
Gents toilet	**B**	3
Staff room	B	3
Girls toilet	B	5
Boys toilet	B	9
Aquaguard	B	1
Ladies toilet	C	11
Gents toilet	C	8
Office	C	4
Ladies toilet	C	6
Gents toilet	C	8
Drinking water	C	6
	Floor Total:	**72**
Girls Hostel		93
		25 (showers)
Boy's Hostel		25

Water Storage Profile

	Number & Capacity of Tanks	Total Capacity (Litre)
Science Campus (85, Middle Road)	1500 L x 4	6000
	1000 L x 4	4000
	1500 L x 2	3000
	1000 L x 4	4000

	500 L x 4 1000 L x 2 500 L x 2 1000 L x 2 500 L x 1	2000 2000 1000 2000 500
	Sub-total	**24,500**
Arts Campus (6, Riverside Road)	750 L x 4 500 L x 1 1000 L x 1 1000 L x 1 1000 L x 2 500 L x 4 500 L x 2	3000 500 1000 1000 2000 2000 1000
	Sub-total	**10,500**
Boy's Hostel	1000 L x 2	2000
Girl's Hostel	1000 L x 4	4000
	Total	**41,000**

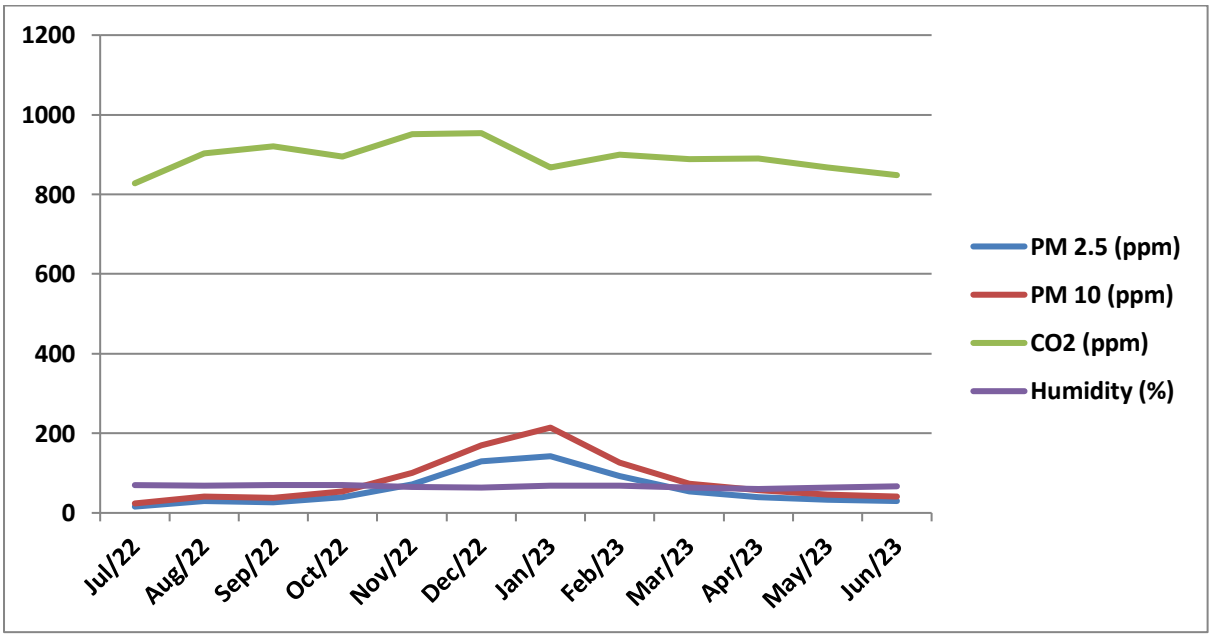
Air Quality Assessment and Management

Air quality of the College campus is monitored by AIRVEDA multi-parameter measuring system.

2022-23

Months	PM 2.5 (ppm)	PM 10 (ppm)	CO_2 (ppm)	Humidity (%)
July 2022	15.78	23.78	827.78	69.78

August 2022	29.55	41.05	902.20	68.70
September 2022	25.90	38.09	919.90	69.47
October 2022	38.8	53.8	894.20	69.60
November 2022	71.77	100.22	950.63	65.72
December 2022	129.54	170.45	953.86	63.13
January 2023	142.33	214.19	868.19	67.61
February 2023	92.68	126.36	899.52	69.10
March 2023	54.29	72.54	888.75	63.12
April 2023	40.00	57.78	890.14	60.00
May 2023	33.68	45.57	867.47	63.21
June 2023	30.43	41.37	848.25	67.56



Electricity Consumption (in Units) and Management

2022-23

Science Campus	**Jul'22- Sep'22**	**Oct'22-Dec'22**	**Jan'23-Mar'23**	**Apr'23-Jun'23**
	17850+15444+16937 = 50231	5521+8103+6627 = 20251	6324+7199+11759 = 25282	13917+17132+10070 = 41119
Arts Campus	**Jul'22- Sep'22**	**Oct'22-Dec'22**	**Jan'23-Mar'23**	**Apr'23-Jun'23**
	24783	14832	18391	23425
Boy's Hostel	**Jul'22- Sep'22**	**Oct'22-Dec'22**	**Jan'23-Mar'23**	**Apr'23-Jun'23**
	3022	1495	2714	3115
Girl's Hostel	**Jul'22- Sep'22**	**Oct'22-Dec'22**	**Jan'23-Mar'23**	**Apr'23-Jun'23**
	3967	1834	3845	3268

LED Tubes & lights

TOTAL ELECTRICITY CONSUMPTION PER YEAR (July'22 to June'23):

	UNITS
Science Campus (85, Middle Road)	1,36,883
Arts Campus (6, Riverside Road)	81,431
Boy's Hostel	10,346
Girl's Hostel	12,914
GRAND TOTAL	**2,41,574**

Comments

Approximate per capita average consumption per month is

(total units / 12 months / total students*) = 3.36 units

*considering total number of students 6000 approx.

Sound Pollution Monitoring

Sound pollution is another important parameter that is taken into account for green auditing of the College Campus. Six different sites are chosen for the monitoring purpose namely College gate, accounts section, college office, Principal's room, teachers' room and library. Sound is quantified by the Sound Level Meter (Lutron SL-4030).

Average Values of 2022-23

	Sound Level (dB)
College Gate (CG)	79.0 ± 5.2
Accounts (A)	68.2 ± 5.8
Office (O)	71.7 ± 4.1
Principal's Room (PR)	60.4 ± 6.1

Teachers' Room (TR)	63.6 ± 7.8
Library (L)	49.7 ± 3.1

Biodiversity Status of the College Campuses

INTRODUCTION

Barrackpore Rastraguru Surendranath College situated beside river Hooghly is very rich in biodiversity. To conserve this biodiversity, our first need is to learn about the existing diversity of the place. Unless we know whom to conserve we will not be able to plan proper conservation initiatives. Also, it is important to have an understanding of the bio-diversity of an area so that the local people can be aware of the richness of bio-diversity of the place they are living in and their responsibility to maintain that richness.

In today's world, among the popular conservation measures which are taken to spread wildlife and environmental awareness, butterfly gardens can be placed in a significant position. To create butterfly garden we need to know which associate plants and other fauna are present in the surrounding. This study allows us to understand the faunal and floral diversity of the surrounding areas of the college premises and their inter-relationship. **OBJECTIVE**

The main objective of this study is to get a baseline data of bio-diversity of the area which will include:

Documentation of the floral diversity of the area:its trees, herbs, shrubs, climbers and aquatic vegetations.

Documentation of the major faunal groups like mammals, reptiles, amphibians, birdsand among the insects, butterflies and dragonflies.

Documentation of the specific intersdependence of floral and faunal life.

Survey Team

- Arjan Basu Roy (PI)
- Swapna Biswas (Flora, Dragonflies, Birds)
- Sarika Baidya (Butterflies and related Plants)
- Tarun Karmakar (Butterfly and other Insects)
- Namrata Das (Butterfly and other Insects)
- Souparno Roy (Butterfly, Reptiles and Amphibians)
- Archan Paul (Butterflies)
- Arabinda Narayan Dolai (Mammals, Birds)

Survey Time:
July, 2022 to December, 2023

Survey Area

Barrackpore Rastraguru Surendranath College premises and its surrounding areas.The two college campuses are situated at 85, Middle Road, Barrackpore which is close the river Hooghly and 6, Riverside Road, Barrackpore.

Map 01: 85, Middle Road Campus
Shows the area of our work.

Method of Study

Brief methodology for the floral and faunal survey is given below.

1. Sampling was done mostly in random manner.
2. The total area was surveyed by walking at day time.
3. Surveys were conducted for the maximum possible hours in day time.
4. Tree species were documented through physical verification on foot and photographed each species as much as possible.
5. For faunal species we emphasized mainly on the direct sighting. Also call of various birds and amphibians and nesting of some faunal species were considered as direct evidences.
6. Observing mammals depend critically on the size of the species and its natural history. Diurnal species are common and highly visible. Nocturnal species, however, are rare and difficult to detect. Small mammals like the field rats were found near their burrows, particularly during their entry or exit times in or out from their burrows respectively. In some cases, dung deposits and footprints were also observed that served as a potential clue for the presence and absence of the concerned species. These secondary evidences were all noted with time and space co-ordinates.
7. Birds are often brightly coloured, highly vocal at certain times of the year and relatively easy to see. Sampling was done on the basis of direct sighting, call determination and from the nests of some bird species.
8. Reptiles were found mostly by looking in potential shelter sites like the under surface of rocks, logs, tree hollows and leaf litter and also among and underneath the hedges. Sometimes some species, particularly the garden lizards were also observed in open spaces (on twigs and branches and even on brick constructions) while they were basking under direct and bright sunlight.
9. Amphibians act as potential ecological indicators. However, most of them are highly secretive in their habits and may spend the greater part of their lives underground or otherwise inaccessible to biologists. These animals do venture out but typically only at night. They were searched near pond, road beside wetland and in other possible areas. Diurnal search operations are also successful.
10. Active invertebrates like the insects require more active search. For larger winged insects like butterflies, dragonflies and damselflies, random samplings were carried and point sampling was also done.
11. The easiest way to observe many of the invertebrates is simply looking for them in the suitable habitat or microhabitat. Searching was carried out under stones, logs, bark, in crevices in the walls and rocks and also in leaf litter, dung etc. Slugs and snails are more conspicuous during wet weather and especially at night when they were found using a torch.
12. Digital photography was done for all the species recorded as much as possible.

Number of Faunal species observed: 161

The list of Fauna indicates that the college campus is significantly rich in faunal diversity. We have seen a significant number of bird nests at many a places. Mammals' diversity is good. Avian diversity is wonderful. In these 10 visits, we have also photographed and documented 68 species of butterflies which indicates a healthy eco-system as a whole. Odonate population indicates that the health of the water bodies and the riverine ecosystem is quite good. The amphibian population also supports this fact. Reptilian population is also quite significant and presence of Bengal Monitor Lizard indicates that the reptilian population is naturally controlled and managed at the study site. We have not been able to document other insect groups during this survey. The yearlong survey will add some more fauna in the checklist for sure after the seasonal survey.

Checklist of Faunal groups with species number

1.	Mammals	5	Table-1
2.	Birds	53	Table-2
3.	Reptiles	6	Table-3
4.	Amphibians	3	Table-4
5.	Butterflies	68	Table-7

6. Odonates	26	Table-8

Table 03: Checklist of Mammals

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Five-striped Palm Squirrel	*Funambulus pennantii*	Kathbirali	Sciuridae
2	Common Pipistrelle	*Pipistrellus pipistrellus*	Chamchike	Vespertilionidae
3	Indian Flying Fox	*Pteropus giganteus*	Kola Badur	Pteropodidae
4	Fruit Bat	*Pteropus* sp.	Badur	Pteropodidae
5	Gray Langur	*Semnopithecus* sp.	Hanuman Langur	Cercopithecidae
6	Asian Palm Civet	*Paradoxurus hermaphroditus*	Bham Biral	Viverridae
7	Indian Grey Mongoose	*Herpestes edwardsi*	Neul	Herpestidae

Table 04: Checklist of Birds

Sl. No	Common Name	Scientific Name	Bengali Name	Family
1	Alexandrine Parakeet	*Psittacula eupatria*	Chondona	Psittacidae
2	Asian Koel	*Eudynamys scolopaceus*	Kokil	Cuculidae
3	Asian Openbill	*Anastomus oscitans*	Shamuk Khol	Ciconiidae
4	Asian Palm Swift	*Cypsiurus balasiensis*	Talchonch	Apodidae
5	Asian Pied Starling	*Gracupica contra*	Go-shalik	Sturnidae
6	Black Drongo	*Dicrurus macrocercus*	Finge	Dicruridae
7	Black Kite	*Milvus migrans*	Chil	Accipitridae

8	Black-hooded Oriole	*Oriolus xanthornus*	Benebou	Oriolidae
9	Black-naped Monarch	*Hypothymis azurea*		Monarchidae
10	Black-naped Oriole	*Oriolus chinensis*	Kaloghad Benebou	Oriolidae
11	Blue-throated Barbet	*Megalaima asiatica*	Nilgala Basantabouri	Ramphastidae
12	Cattle Egret	*Bubulcus ibis*	Gobok	Ardeidae
13	Common Hawk Cuckoo	*Hierococcyx varius*	Papia	Cuculidae
14	Common Hoopoe	*Upupa epops*	Mohonchuda, Hupo	Upupidae
15	Common Iora	*Aegithina tiphia*	Fotik Jol	Aegithinidae
16	Common Kingfisher	*Alcedo atthis*	Chhoto Machhranga	Alcedinidae
17	Common Myna	*Acridotheres tristis*	Shalik	Sturnidae
18	Common Pigeon	*Columba livia*	Payra	Columbidae
19	Common Sandpiper	*Actitis hypoleucos*	Sadharon Balubatan	Scolopacidae
20	Common Tailorbird	*Orthotomus sutorius*	Tuntuni	Cisticolidae
21	Coppersmith Barbet	*Megalaima haemacephala*	Chhoto basantabouri	Ramphastidae
22	Eastern Jungle Crow	*Corvus(macrorhynchos) levaillantii*	Dandkak	Corvidae
23	Eurasian Collared Dove	*Streptopelia decaocto*	Konthi Ghughu	Columbidae
24	Fulvous-breasted Woodpecker	*Dendrocopos macei*	Jarod Kath Thokra	Picidae
25	Greater Coucal	*Centropus sinensis*	Kubo	Cuculidae
26	Green Bee-Eater	*Merops orientalis*	Banspati	Meropidae
27	House Crow	*Corvus splendens*	Kak	Corvidae
28	House Sparrow	*Passer domesticus*	Chorui	Passeridae
29	Indian Cormorant	*Phalacrocorax fuscicollis*	Majhari Pankoudi	Phalacrocoracidae
30	Indian Pond Heron	*Ardeola grayii*	Konchbok	Ardeidae
31	Jungle Babbler	*Turdoides striatus*	Chhatare	Timaliidae
32	Jungle Myna	*Acridotheres fuscus*	Jhuntshalik	Sturnidae

33	Lesser Goldenback	*Dinopium benghalense*	Chhoto Sonali Kath Thokra	Picidae
34	Lineated Barbet	*Megalaima lineata*	Rekha Basantabouri	Ramphastidae
35	Marsh Sandpiper	*Tringa stagnatilis*	Biler Balubatan, Jolar Chapakhi	Scolopacidae
36	Oriental Magpie Robin	*Copsychus saularis*	Doyel	Muscicapidae
37	Pale-billed Flowerpecker	*Dicaeum erythrorynchos*	Poragpakhi	Dicaeidae
38	Purple Heron	*Ardea purpurea*	Lalkank, Nilbogola	Ardeidae
39	Purple Sunbird	*Nectarinia asiatica*	Durga Tuntuni	Nectariniidae
40	Purple-rumped Sunbird	*Nectarinia zeylonica*	Moutushi	Nectariniidae
41	Red-vented Bulbul	*Pycnonotus cafer*	Bulbuli	Pycnonotidae
42	Red-whiskered Bulbul	*Pycnonotus jocosus*	Shipai Bulbul	Picnonotidae
43	Rose-ringed Parakeet	*Psittacula krameri*	Tiya	Psittacidae
44	Rufous Treepie	*Dendrocitta vagabunda*	Handichancha	Corvidae
45	Shikra	*Accipiter badius*	Turki baaz	Accipitridae
46	Spotted Dove	*Stigmatopelia chinensis*	Tile Ghughu	Columbidae
47	Spotted Owlet	*Athene brama*	Kuthure Pencha	Strigidae
48	Stork-billed kingfisher	*Pelargopsis capensis*	Gudiyal	Alcedinidae
49	Taiga Flycatcher	*Ficedula albicilla*	Chutki	Muscicapidae
50	White Wagtail	*Motacilla alba*	Sada Khonjon, Khonjona	Motacillidae
51	White-breasted Waterhen	*Amaurornis phoenicurus*	Dahuk	Rallidae
52	White-throated Kingfisher	*Halcyon smyrnensis*	Sadabuk Machhranga	Alcedinidae
53	Yellow-footed Green Pigeon	*Treron phoenicoptera*	Horiyal	Columbidae

Table 05: Checklist of Reptiles

Sl.No.	Common Name	Scientific Name	Bengali Name	Family

1	Checkered Keelback	*Xenochrophis piscator*	Joldhora	Colubridae
2	Buff Striped Keelback	*Amphiesma stolatum*	Hele	Colubridae
3	Rat Snake	*Zamenis longissimus*	Darash	Colubridae
4	Russell's Viper	*Daboia russelii*	Chandrabora	Viperidae
5	Skink	*Lampropholis* sp.	Anjani	Scincidae
6	Oriental Garden Lizard	*Calotes versicolor*	Girgiti	Agamidae
7	Bengal Monitor Lizard	*Varanus bengalensis*	Gosap	Varanidae
7	Common House Gecko	*Hemidactylus frenatus*	Tiktiki	Gekkonidae

Table 06: Checklist of Amphibians

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Indian Toad	*Duttaphrynus melanostictus*	Kuno Byang	Bufonidae
2	Skittering Frog	*Euphlyctis cyanophlyctis*	Katkati Byang	Dicroglossidae
3	Asian Bullfrog	*Hoplobatrachus tigerinus*	Sona Byang	Dicroglossidae

Table 07: Checklist of Butterflies

Sl. No.	Common Name	Scientific Name	Bengali Name	Family
1	Blue Mormon	*Papilio polymnestor*	Barunpakha	Papilionidae
2	Common Jay	*Graphium doson*	Minji	Papilionidae
3	Common Mime	*Papilo clytia*	Khagra	Papilionidae
4	Common Mormon	*Papilo polytes*	Kalim	Papilionidae
5	Common Rose	*Pachliopta aristolochiae*	Alte	Papilionidae
6	Lime Butterfly	*Papilio demolius*	Ruru	Papilionidae
7	Tailed Jay	*Graphium agamemnon*	Choitak	Papilionidae
8	Western Striped Albatross	*Appias libythea*	Dhulkapas	Pieridae
9	Small Grass Yellow	*Eurema brigitta*	Chhoto Holud	Pieridae
10	Common Grass Yellow	*Eurema hecabe*	Holud	Pieridae
11	Common Gull	*Cepora nerissa*	Kuchila	Pieridae
12	Eastern Striped Albatross	*Appias olferna*	Dhulkapas	Pieridae
13	Indian Jezebel (Common Jezebel)	*Delias eucharis*	Hartoni	Pieridae
14	Indian Wanderer	*Pareronia hippia*	Tallar	Pieridae
15	Lemon Emmigrant	*Catopsilia pomona*	Payrachali	Pieridae
16	Mottled Emmigrant	*Catopsilia pyranthe*	Chhitpayra	Pieridae
17	Psyche	*Leptosia nina*	Furus	Pieridae
18	Common Cerulean	*Jamides celeno*	Surul	Lycaenidae
19	Common Lineblue	*Prosotas nora*	ChandandNari	Lycaenidae
20	Tailless Lineblue	*Prosotas dubiosa*	Bigri Danri	Lycaenidae
21	Common Pierrot	*Castalius rosimon*	Tilaia	Lycaenidae
22	Common Quaker	*Neopithecops zalmora*	Kori	Lycaenidae
23	Dark Grass Blue	*Zizeeria karsandra*	Chhoi	Lycaenidae

24	Forget-me-not	*Catochrysops strabo*	Rittam	Lycaenidae
25	Gram Blue	*Euchrysops cnejus*	Joural	Lycaenidae
26	Lesser Grass Blue	*Zizina otis*	Para	Lycaenidae
27	Lime Blue	*Chilades lajus*	Tura	Lycaenidae
28	Pale Grass blue	*Pseudozizeeria maha*	Dhupi	Lycaenidae
29	Pea Blue	*Lampides boeticus*	Khoria	Lycaenidae
30	Plains Cupid	*Chilades pandava*	Rulki	Lycaenidae
31	Tiny Grass Blue	*Zizula hylax*	Tinni	Lycaenidae
32	Zebra Blue	*Leptotes plinius*	Zizi	Lycaenidae
33	Slate Flash	*Rapala manea*	Rimli	Lycaenidae
34	Falcete Oakblue	*Mahathala ameria*	Kaste Rangchiti	Lycaenidae
35	Common Guava Blue	*Virachola isocrates*		Lycaenidae
36	Spotted Pierrot	*Tarucus callinara*	Chhit Tilkushi	Lycaenidae
37	Monkey Puzzle	*Rathinda amor*	Chatul	Lycaenidae
38	Indian Sunbeam	*Curetis thetis*	Jhinukpalash	Lycaenidae
39	Common Silverline	*Spindasis vulcanus*	Riupapatia	Lycaenidae
40	Angled Castor	*Ariadne ariadne*	Kanmorche	Nymphalidae
41	Blue Tiger	*Tirumala limniace*	Himalkuchi	Nymphalidae
42	Chestnut-streaked Sailer	*Neptis jumbah*	Batasi	Nymphalidae
43	Commander	*Moduza procris*	Karanjia	Nymphalidae
44	Common Baron	*Euthalia aconthea*	Bhushanda	Nymphalidae
45	Common Bushbrown	*Mycalesis perseus*	Janglabira	Nymphalidae
46	Common Castor	*Ariadne merione*	Morchepata	Nymphalidae
47	Common Crow	*Euploea core*	Kaoa	Nymphalidae
48	Common Evening Brown	*Melanitis leda*	SaNjhla	Nymphalidae
49	Common Five-ring	*Ypthima baldus*	PaNchbuNdi	Nymphalidae
50	Common Four-ring	*Ypthima huebneri*	CharbuNdi	Nymphalidae
51	Common Leopard	*Phalanta phalantha*	Chita	Nymphalidae
52	Common Palmfly	*Elymnias hypermnestra*	Khayerchak	Nymphalidae
53	Danaid Eggfly	*Hypolimnas misippus*	JamchaNda	Nymphalidae
54	Goudy Baron	*Euthalia lubentina*	KuNchrangi	Nymphalidae
55	Great Eggfly	*Hypolimnas bolina*	Jamui	Nymphalidae
56	Grey Pansy	*Junonia atlites*	ChaNdnori	Nymphalidae
57	Peacock Pansy	*Junonia almana*	Nayan	Nymphalidae
58	Plain Tiger	*Danaus cheysippus*	Tamot	Nymphalidae
59	Striped Tiger	*Danaus genutia*	Baghballa	Nymphalidae
60	Tawny Coster	*Acraea violae*	Horinchhara	Nymphalidae
61	Lemon Pansy	*Junonia lemonias*	Ushum	Nymphalidae
62	Brown Awl	*Badamia exclamationis*	Chile Pakhui	Hesperiidae
63	Common Banded Awl	*Hasora chromus*	Khori Pakhui	Hesperiidae
64	Oriental Palm Bob	*Suastus gremius*	Khoyra	Hesperiidae

65	Pale Palm Dart	*Telicota colon*	Bena Tirap	Hesperiidae
66	Small Banded Swift	*Pelopidas mathias*	Pati Johur	Hesperiidae
67	Swift sp.			Hesperiidae
68	Chestnut Palm Bob	*Iambrix salsala*	Piplai	Hesperiidae

Butterfly Garden, 6, River Side Road Campus of College



Table 08: Checklist of Odonates

Sl. No.	Common Name	Scientific Name	Bangali Name	Family
1	Green Darner	*Anax junius*	Sobuj Kanta	Aeshnidae
2	Coromandel Marsh Dart	*Ceriagrion coromandelianum*	Holde Baan	Coenagrionidae
3	Orange Tailed Marsh Dart	*Ceriagrion cerinorubellum*	Keshar Baan	Coenagrionidae
4	Pygmy Dartlet	*Agriocnemis pygmaea*	Baman Shar	Coenagrionidae
5	Saffron Faced Blue Dart	*Pseudagrion rubriceps*	Keshari Mukh	Coenagrionidae
6	Senegal Golden Dartlet	*Ischnura senegalensis*	Treebarna Shar	Coenagrionidae
7	Three lined Dart	*Pseudagrion decorum*	troyee Baan	Coenagrionidae
8	Tiny Hooded Dartlet	*Agriocnemis kalinga*	Kshude Shar	Coenagrionidae
9	Black Marsh Trotter	*Tramea limbata*	Krishna Shel	Libellulidae
10	Common Picturewing	*Rhyothemis* variegata	Titli Pakh	Libellulidae
11	Coral Tailed Cloud-wing	*Tholymis* tillarga	Meghla Pakh	Libellulidae
12	Ditch Jewel	*Brachythemis contaminata*	Kamala Baran	Libellulidae
13	Estuarine Skimmer	*Macrodiplax* cora	Nona Baran	Libellulidae
14	Fulvous Forest Skimmer	*Neurothemis fulvia*	Tamra Baran	Libellulidae
15	Green Marsh Hawk	*Orthetrum* sabina	Sabuj Sena	Libellulidae
16	Ground Skimmer	*Diplacodes* trivialis	Bhubaran	Libellulidae
17	Little Blue Marsh Hawk	*Brachydiplax* sobrina	Neelbaman Sena	Libellulidae
18	Ruddy Marsh Skimmer	*Crocothemis* servilia	Rakta Baran	Libellulidae
19	Scarlet Marsh Hawk	*Aethriamanta* brevipennis	Raktim Sena	Libellulidae
20	Wondering Glider	*Pantala* flavescens	Bristi Bahan	Libellulidae
21	Granite Ghost	*Bradinopyga geminata*	Pathuria	Libellulidae
22	Yellow-tailed Ashy Skimmer	*Potamarcha congener*	Dhushar Baran	Libellulidae

23	Rufous Marsh Glider	*Rhudothemis rufa*	Lalbahan	Libellulidae
24	Pied Paddy Skimmer	*Neurothemis tullia*	Fatik Baran	Libellulidae
25	Crimson-tailed Marsh Hawk	*Orthetrum pruinosum*	Chuni Sena	Libellulidae
26	Black Marsh Dart	*Onychargia atrocyana*	Kele Ban	Platycnemididae

Table 09: Checklist of Larval Host Plants found in campus

Sl. No.	Common Name of Butterfly Species	Larval Host Plant (Local Name)	Larval Host Plant (Scientific Name)
1	Tailed Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
2	Common Jay	Debdaru, Swarna Champa	*Polyalthia longifolia, Michelia champaca*
3	Common Castor	Rerhi/ Castor Plant	*Ricinus communis*
4	Plain Tiger	Akanda	*Calotropis gigantean*
5	Angled Castor	Jol Bichhuti/ Lata Bichhuti	*Tragia involucrate*
6	Plains Cupid	Chiruni Palm	*Cycas revolute*
7	Common Mormon	Lebu, Karipata, Ash Shaora	*Citrus* sp., *Murraya koenigii*, *Glycosmis pentaphyla*
8	Emmigrant sp.	Minjiri	*Cassia siamea*
9	Lime Blue	Lebu	*Citrus* sp.
10	Common Banded Awl	Karanja	*Pongamia pinnata*

Number of Floral species observed: 271

The list of Flora indicates a significant diversity of plants which indicates the overall richness of the place. We have classified the overall flora in 12 groups. The most diverse group is the tree whereas there are 1 species of bamboos and ornamental plant which shows the least diversity.

Checklist of Floral groups with species number

1.	Trees	70	Table-10
2.	Aquatic Plants	7	Table-11
3.	Bamboos	1	Table-12
4.	Grasses	3	Table-13

5.	Herbs	65	Table-14
6.	Shrubs	60	Table-15
7.	Creepers	26	Table-16
8.	Ornamental Plants	1	Table-17
9.	Palms	10	Table-18
10.	Parasitic	2	Table-19
11.	Bryophyte	2	Table-20
12.	Pteridophytes	14	Table-21
13.	Seasonal Flower	10	Table-22

Table 10: Checklist of Trees

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Kak Dumur	Fig Tree	*Ficus hispida*	Monaceae
2	Aam	Mango	*Mangifera indica*	Anacardiaceae
3	Akashmoni	Golden Shower	*Acacia auriculiformis*	Fabaceae
4	Akashneem	Indian Cork Tree, Tree Jasmine	*Millingtonia hortensis*	Bignoniaceae
5	Allspice Tree	Allspice Tree	*Pimenta dioica*	Myrtaceae
6	Amaltash	Golden Shower	*Cassia fistula*	Caesalpiniaceae
7	Amloki	Amla	*Emblica officinalis*	Euphorbiaceae
8	Amrah	Wild Mango	*Spondias pinnata*	Anacardiaceae
9	Ashfol	Longan	*Euforia longan*	Sapindaceae
10	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
11	Ashok	Ashoka Tree	*Saraca asoka*	Fabeceae
12	Bahera	Bahera	*Terminalia bellirica*	Combretaceae

13	Bakul	Spanish cherry / Bakul	*Mimusops elengi*	Caesalpiniaceae
14	Batabi Lebu	Pomelo	*Citrus maxima*	Rutaceae
15	Bel	Golden Apple	*Aegle marmelos*	Rutaceae
16	Bhawarmal, Bohar, Biharukh	Bhawarmal, Bohar, Biharukh	*Hymenodictyon orixense*	Rubiaceae
17	Bot	Banyan Tree	*Ficus benghalensis*	Moraceae
18	Buddha Narkel	Buddha Coconut	*Pterygota alata*	Sterculiaceae
19	Chalta	Elephant Apple	*Dillenia indica*	Dilleniaceae
20	Chhatim	Chhatiyan / Devil's Tree	*Alstonia scholaris*	Apocynaceae
21	Chhotopata Mehogini	Small-leaved Mahogany	*Swietenia mahagoni*	Meliaceae
22	Chinese Bot	Ficus	*Ficus Sp.*	Moraceae
23	Christmass Tree	Caledonia Pine/ Christmas Tree	*Araucaria cookii*	Arucariaceae
24	Debdaru	Indian Fir / Cementry Tree	*Polialthia longifolia*	Annonaceae
25	Eucaliptus	Eucalyptus	*Eucalyptus spp.*	Myrtaceae
26	Gandhraj	Gardenia, Cape jasmine	*Gardenia jasminoides*	Rubiaceae
27	Ghora Neem	Indian Lilac Tree	*Melia azedarach*	Meliaceae
28	Golap Jam	Gulab Jamun	*Syzygium jambos*	Myrtaceae
29	Haritaki	Haritaki	*Terminalia chebula*	Combretaceae
30	Indurmari	Gliricidia	*Gliricidia sepium*	Fabaceae
31	Jagga Dumur	Cluster Fig	*Ficus glomerata*	Moraceae
32	Jam	Indian Blackberry	*Syzygium cumini*	Myrtaceae
33	Jamrul	Water Apple	*Syzygium aqueum*	Myrtaceae
34	Jarul	Pride of India	*Lagerstroemia speciosa*	Lythraceae

35	Kadam	Kadam	*Anthocephalus chinensis*	Rubiaceae
36	Kamranga	Star Fruit	*Averrhoa carambola*	Averrhoaceae
37	Kanchan	Butterfly Tree	*Bauhinia purpurea*	Caesalpiniaceae
38	Kanthal	Jack Fruit	*Artocarpus heterophyllus*	Moraceae
39	Karanja	Pongam Tree, Pongame Oil Tree	*Pongamia pinnata*	Fabaceae
40	Kath Badam	Indian Almond	*Terminalia catappa*	Combretaceae
41	Kath Champa	Red Jasmine Tree	*Plumeria rubra*	Apocynaceae
42	Khirish	Rain Tree	*Samanea saman*	Mimosaceae
43	Krishnachura	Gold Mohur / Flame Tree	*Delonix regia*	Caesalpiniaceae
44	Kshude Jam	Indian Blackberry (Small)	*Syzygium sp.*	Myrtaceae
45	Kul(Topa Kul)	Indian Jujube / Ber	*Ziziphus mauritiana*	Rhamnaceae
46	Kurchi	Indrajao	*Holarrhena pubescens*	Apocynaceae
47	Lal Shimul	Red Silk Cotton Tree	*Bombax ceiba*	Malvaceae
48	Lichu	Lichi	*Litchi chinensis*	Sapindaceae
49	Lombu Gachh	Dysoxylum Sp.	*Dysoxylum costulatum Miq.*	Miliaceae
50	Neem	Neem Tree	*Azadirachta indica*	Meliaceae
51	Nepal Tunt	West Indian Elm, Bastard/Bay Cedar	*Guazuma ulmifolia*	Malvaceae
52	Nona	Custard Apple	*Annona reticulata*	Annonaceae
53	Pain	She-Oak / Indian Christmas Tree	*Casuarina equisetifolia*	Casuarinaceae
54	Pakur	White Fig	*Ficus infectoria*	Moraceae
55	Palash	Flame tree	*Butea monosperma*	Faboideae

56	Peyara	Guava	*Psidium guajava*	Myrtaceae
57	Pituli	False White Teak	*Trewia nudiflora*	Euphorbiaceae
58	Putranjeeva	Putranjiva / Lucky Bean Tree	*Putranjiva roxburghii*	Euphorbiaceae
59	Radhachura	Copper Pod Tree	*Peltoforum pterocarpum*	Caesalpiniaceae
60	Rubber	Indian Rubber Tree	*Ficus elastica*	Moraceae
61	Rudrapalash	African Tulip Tree	*Spathodia campanulata*	Bignoniaceae
62	Sabeda	Sabeda	*Manikara sapota*	Sapotaceae
63	Segun	Burma Teak	*Tectona grandis*	Verbenaceae
64	Shaora	Sand Paper Tree	*Streblus asper*	Moraceae
65	Sheuli	Queen of the night	*Nyctanthes arbortristis*	Oleaceae
66	Sojina	Drumstick Tree	*Moringa oleifera*	Moringaceae
67	Subabul	Subabul	*Leucena leucocephela*	Mimosaceae
68	Tentul	Tamarind	*Tamarindus indica*	Caesalpiniaceae
69	Toon	Indian Mehoginy	*Cedrela toona*	Meliaceae
70	Zilipi Babla	Vilayati Babul	*Pithecolobium dulce*	Mimosaceae

Green campus initiatives

Table 11: Checklist of Aquatic Plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baicha, Patajhangi	Tape grass	*Vallineria spiralis*	Hydrocharitaceae
2	Jhangi, Kureli	Waterthyme	*Hydrilla verticillata*	Hydrocharitaceae
3	Parmikalla	Duck lettuce	*Ottelia alismoides*	Hydrocharitaceae
4	Shaluk	Water lily	*Nymphea nouchali*	Nymphaeaceae
5	Kachuri pana, Jarmuni	Water hyacinth	*Eichhornia crassipes*	Pontederiaceae
6	Danta	Alligator weed	*Alternanthera philoxeroides*	Amaranthaceae
7	Kachu, Muchikachu	Taro	*Colocasia esculenta*	Araceae

Table 12: Checklist of Bamboos

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baans	Bamboo	*Bambusa* sp.	Poaceae

Table 13: Checklist of Grasses

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Chepti Ghas	Common Carpetgrass	*Axonopus* sp.	Poaceae
2	Durba Ghash	Durba	*Cynodon dactylon*	Graminae
3	Jal Kanthi Ghas			

Table 14: Checklist of Herbs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Alternanthera / Barmi Sak	Alternanthera	*Alternanthera philoxeroides*	Amaranthaceae
2	Alternanthera/Modranga	Alternanthera	*Alternanthera paronychioides*	Amaranthaceae

3	Alternanthera/Sanchi	Alternanthera	*Alternanthera sessilis*	Amaranthaceae
4	Amrul Saak	Yellow Woodsorrel	*Oxalis corniculata*	Oxalidaceae
5	Apang	Achyranthes	*Achyranthes aspera*	Amaranthaceae
6	Ban Dhone / Mitha Pata	Ban Dhone / Mitha Pata	*Scoparia dulcis*	Scrophulariaceae
7	Ban Note Sak	Amaranthus	*Amaranthus viridis*	Amaranthaceae
8	Ban Sarisha / Bilari	Indian Cress	*Nasturtium indicum*	Brassicaceae
9	Ban Tamak	Wild Tobaco	*Nicotiana plumbaginifolia*	Solanaceae
10	Ban Tepari	Bon Tepari	*Physalis minima*	Solanaceae
11	Ban Tulshi / Dakate Pata	Bon Tulshi	*Croton bonplandianum*	Euphorbiaceae
12	Baro Dudhi/ Khirika	khirika	*Euphorbia hirta*	Euphorbiaceae
13	Berela	Sida	*Sida* sp.	Malvaceae
14	Bhringaraj	Bhringaraj	*Wedelia trilobata*	Asteraceae
15	Bhuin Amla	Stonebreaker, Seed-under-leaf	*Phyllanthus niruri*	Phylanthaceae
16	Bhuin Okra	Bhuin Okra	*Phyla nodiflora*	Verbenaceae
17	Boatlily, Rhoeo	Boatlily, Moses-in-the-cradle	*Tradescantia spathacea*	Commelinaceae
18	Boro Calendula	Calendula, Common Marigold	*Calendula officinalis*	Asteraceae
19	Botam Ful	Bachelor Button Flower	*Gomphrena globosa*	Amaranthaceae
20	Chaldhowa	Mountain Knotgrass	*Aerva lanata*	Amaranthaceae
21	Chandra Mallika	Chrysanthemums	*Chrysanthemums sp.*	Asteraceae
22	Dahlia	Dahlia	*Dahlia sp.*	Asteraceae
23	Dumpa / Piparisari	Graceful Pouzalz's Bush	*Pouzalzia indica*	Urticaceae

24	Ganda Ful	Marigold Flower	*Tagetes sp.*	Asteraceae
25	Gerbera	Gerbera	*Gerbera jamesonii*	Asteraceae
26	Ghreetakumari	Aloe Vera	*Aloe barbadensis*	Liliaceae
27	Gopali	American Mint	*Anisomeles indica*	Lamiaceae
28	Heliconia / Bird of paradise	Lobster claw, Hanging heliconia	*Strelitzia reginae*	Musaceae
29	Holud	Turmeric	*Curcuma longa*	Zingiberaceae
30	Holud Basanta	Nettle Leaved Lindenbergia	*Lindenbergia indica*	Scrophulariaceae
31	Hurhuria / Makorful	Asian Spiderflower	*Cleome viscosa*	Cleomaceae
32	Impatiens, Touch-me-not	Impatiens, Touch-me-not	*Impatiens* sp.	Balsaminaceae
33	Kakmachhi	Black Nightshade	*Solanum nigrum*	Solanaceae
34	Kalmegh	Kalmegh, Green chirayta	*Andrographis paniculata*	Acanthaceae
35	Kansira / Kanchhira	Commelina	*Commelina benghalensis*	Commelinaceae
36	Keshut	Keshut	*Eclipta alba*	Asteraceae
37	Kharkon pata / Ghet Kochu	Bengal Arum, Lobed Leaf Typhonium	*Typhonium trilobatum*	Areceae
38	Kola gachh/ Banana tree	Banana Tree	*Musa sp.*	Musaceae
39	Krishna Tulsi	Krishna Tulsi / Kalo Tulasi	*Ocimum tenuiflorum*	Lamiaceae
40	Kshetpapri Shak	Diamond Flower, corymbose hedyotis	*Hedyotis corymbosa*	Rubiaceae
41	Kuddalia / Kodalia	Three-flower Beggarweed	*Desmodium triflorum*	Fabaceae
42	Kukurshoka / Kukursunga	Kukurshoka / Kukursunga	*Blumea laciniata*	Asteraceae

43	Kulekhara	Kulekhara	*Hygrophila schulli*	Acanthaceae
44	Lal Bishalyakarani	Amaranthus	*Aerva javanica*	Amaranthaceae
45	Lata Berela	Heartleaf Fanpetals	*Sida humilis*	Malvaceae
46	Maan Kochu	Alocasia	*Alocasia indica*	Arecaaceae
47	Neel Hurhure	Purple Cleome	*Cleome rutidosperma*	
48	Parthenium	Famine Weed	*Parthenium hysterophorus*	Asteraceae
49	Patharchur	Coleus	*Coleus* Sp.	Lamiaceae
50	Pothika Gaddi	Pothika Gaddi	*Eragrostis tenella*	Poaceae
51	Punarnova	Punarnova	*Boerhavia diffusa*	Nyctaginaceae
52	Radhatulsi	Holy Basil, Tulasi	*Ocimum sanctum*	Lamiaceae
53	Ram Tulshi	Ram Tulshi	*Ocimum gratissimum*	Lamiaceae
54	Ruellia	Bluebell	*Ruellia prostrata*	Acanthaceae
55	Ruellia	Ruellia	*Ruellia tuberosa*	Acanthaceae
56	Ruellia	Ruellia	*Ruellia suffruticosa*	Acanthaceae
57	Sahadebi	Sahadebi	*Vernonia cinerea*	Asteraceae
58	Sansevieria	Snake Tongue, Devill's Tongue	*Sansevieria* sp.	Asparagaceae
59	Sonchus	Sonchus, Field Sowthistle	*Sonchus arvensis*	Asteraceae
60	Synedrella	Synedrella	*Synedrella nodiflora*	Asteraceae
61	Thankuni	Indian Water Navelwort	*Centella asiatica*	Apiaceae
62	Titaliya	Titaliya	*Sonchus oleraceus*	Asteraceae
63	Tridaksha	Coat Buttons / Tridax Daisy	*Tridex procambens*	Asteraceae
64	Tulsi	Tulsi	*Ocimum sp.*	Lamiaceae

65	Uchunti	Ageratum	*Ageratum conyzoides*	Asteraceae

Table 15: Checklist of Shrubs

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Agave sp.	Agave sp.	*Agave sp.*	Asparagaceae
2	Akanda	Giant Milkweed	*Calotropis gigantea*	Asclepiadaceae
3	Ansh Shaora	Ban jamir	*Glycosmis pentaphyla*	Ruraceae
4	Ban Karpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
5	Ban nebu / Ban Korpur	Fever tea/ Lemon Bush	*Lippia javanica*	Verbenaceae
6	Beli	Jasmine	*Jusminum pubescens*	Oleaceae
7	Bhant	Clerodendrum	*Clerodendrum viscosum*	Verbenaceae
8	Bhuin Dumur	Ground Fig	*Ficus heterophylla*	Moraceae
9	Bleeding Heart	Bleeding Heart	*Clerodendrum thomsoniae*	Lamiaceae
10	Chakunda	Stinking Cassia, Chinese senna, foetid cassia	*Cassia tora*	Fabaceae
11	Chitra	Chitrak, Plumbago, White leadwort	*Plumbago zeylanica*	Plumbaginaceae
12	Chitrak	Duranta	*Duranta repens*	Verbenaceae
13	Cosmos	Garden Cosmos	*Cosmos bipinnatus*	Asteraceae
14	Dhutura	Devil's Trumpets	*Datura sp.*	Solanaceae
15	Dracaena	Dracaena	*Pleomele reflexa 'Variegata'*	Asparagaceae
16	Furush	Lagerstroemia	*Lagerstroemia indica*	Lythraceae
17	Gandharaj lebu	Citrus/ Citron	*Citrus medica*	Rutaceae

18	Golap	Rose	*Rosa sp. Var.*	Rosaceae
19	Golap Champa	Wild Pmumeria, Bridal Bouquet	*Plumeria pudica*	Apocynaceae
20	Gothbegun	Wild Eggplant, Prickly Nightshade	*Solanum torvum*	Solanaceae
21	Hatisur	Indian heliotrope	*Heliotropium indicum*	Boraginaceae
22	Heliconia / Bird of paradise	Heliconia	*Strelitzia sp.*	Musaceae
23	Holud Berela	Common Wireweed, Morning mallow	*Sida acuta*	Malvaceae
24	Jhaw	Thuja	*Thuja orientalis*	Cupressaceae
25	Joba	Chinese Rose	*Hibiscus rosa-sinensis*	Malvaceae
26	Kagji Lebu	Lime	*Citrus acida*	Rutaceae
27	Kamini	Orange Jasmine	*Murraya paniculata*	Rutaceae
28	Karabi	Oleander	*Nerium oleander*	Apocynaceae
29	Karipata	Karipata	*Murraya koenigii*	Rutaceae
30	Kasunda	Kasunda / Baner	*Cassia sophera*	Fabaceae
31	Kolke Ful(Holud)	Oliender Flower, Trumpet Flower (Yellow)	*Thevetia peruviana (Yellow)*	Apocynaceae
32	Laboni	Ravenia Pink / Lemonia	*Ravenia spectabilis*	Rutaceae
33	Lal Pata	Poinsettia	*Euphorbia pulcherrima*	Euphorbiaceae
34	Lalpata, Poinsettia	Poinsettia	*Euphorbia pulcherima*	Euphorbiaceae
35	Lanka	Green Chili	*Capsicum sp.*	Solanaceae
36	Lantana / Putus	Lantana	*Lantana camara*	Verbenaceae
37	Madhuful	Shooting Star, Star Flower	*Pseuderanthemum* sp.	Acanthaceae
38	Milli	Milli	*Euphorbia milli*	Ericaceae

39	Morogful	Plumed Cockscomb, Woolflower	*Celosia argentea*	Amaranthaceae
40	Muktojhuri	Muktojhuri	*Acalypha indica*	Euphorbiaceae
41	Mussaenda	Musaenda	*Mussaenda sp.*	Rubiaceae
42	Nayantara	Rosy Periwinkle	*Catharanthus roseus*	Apocynaceae
43	Nil Jhanti	Philippine Violet, bluebell barleria	*Barleria strigosa*	Acanthaceae
44	Patabahar	Croton	*Codiaeum sp.var.*	Euphorbiaceae
45	Pati lebu	Citrus	*Citrus acida*	Rutaceae
46	Pora Narenga / Panjuli	Roast Potato Plant	*Phyllanthus reticulatus Poir.*	Euphorbiaceae
47	Powder Puff	Powder Puff	*Calliendra sp.*	Fabaceae
48	Rangan	Ixora	*Ixora sp.*	Rubiaceae
49	Rangchita	Slipper Plant	*Pedilanthus tithymaloides*	Euphorbiaceae
50	Reri	Castor Oil Plant	*Ricinus communis*	Euphorbiaceae
51	Salparni	Salparni	*Desmodium gangeticum*	Fabaceae
52	Scarlet sage, Salvia	Scarlet Sage	*Salvia splendens*	Lamiaceae
53	Sonapati	Tecoma	*Tecoma gaudichaudi*	Bignoniaceae
54	Spicy Jatropha	Spicy Jatropha	*Jatropha panduraefolia*	Euphorbiaceae
55	Tagar (Double)	Milk Flower (Double)	*Tabernaemontana coronaria Flore- pleno*	Apocynaceae
56	Tagar (Dwarf), Chinese Tagar	Milk Flower (Dwarf)	*Tabernaemontana divaricata var. Dwarf*	Apocynaceae
57	Tagar (Plain)	Milk Flower (Plain)	*Tabernaemontana divaricata*	Apocynaceae
58	Tara Ganda	Yellow Cosmos	*Cosmos sulphureus*	Asteraceae

59	Tibragandha	Siam Weed, Bitter bush	*Eupatorium odoratum*	Asteraceae
60	Ulotkambal	Ulotkambal	*Ambroma augusta*	Sterculiaceae

Table 16: Checklist of Creepers

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Aparajita	Aparajita	*Clitoria ternatea*	Fabaceae
2	Baro Gaylalota	Birdfoot Grape-Vine	*Cayratia pedata*	Vitaceae
3	Begam Bahar	Passion Flower	*Passiflora suberosa*	Passifloraceae
4	Chhoto Gaylalota	Cayratia	*Cayratia trifolia / Vitis carnosa*	Vitaceae
5	Corkystem Passionflower	Corkystem Passionflower	*Passiflora suberosa*	Passifloraceae
6	Gayale Lata	Birdfoot Grape-Vine	*Cayratia sp.*	Vitaceae
7	Gulancha lata	Gulanchalata	*Tinospora cordifolia*	Menispermaceae
8	Juktiful/ Titakunja	Titakunja	*Wattakaka volubillis*	Asclepiadaceae
9	Kalilata	Bengal Trumpet Vine, Blue Trumpet Vine	*Thunbergia grandiflora*	Acanthaceae
10	Kolmi Saak	Ipomoea	*Ipomoea aquatica*	Convolvulaceae
11	Lata Bichhuti/ Jol Bichhuti	Indian Stinging Nettle	*Tragia involucrata*	Euphorbiaceae
12	Money Plant	Money Plant, Ivy Arum	*Epipremnum aureum*	Areceae
13	Nimukhi Lata	Snake Vine	*Stephania japonica*	Menispermaceae
14	Philodendron	Philodendron	*Philodendron sp.*	Areceae
15	Rabon Lata	Chinese creeper	*Micania micrantha*	Asteraceae
16	Small White Morning	Small White Morning	*Ipomoea obscura*	Convolvulaceae

	Glory	Glory		
17	Telakuchu	Telakuchu	*Coccinia grandis*	Cucurbitaceae
18	Telekera	Tiliacora	*Tiliacora racemosa*	Menispermaceae
19	Bhui Achhor / Ankra	Roundleaf Bindweed	*Evolvulus nummularius*	Convolvulaceae
20	Helakolmoshi	Justicia	*Justicia simplex*	Acanthaceae
21	Idurkani / Buri Guapan	Hemigraphis	*Hemigraphis hirta*	Acanthaceae
22	Akush	Climbing Mallotus	*Mallotus repandus*	Euphorbiaceae
23	Kagaj Ful / Bagan Bilash	Bougainvillea	*Bougainvillea sp.*	Nyctaginaceae
24	Kolke ful(Allamanda)	Allamanda	*Allamanda* sp.	Apocynaceae
25	Madhabi Lata	Rangoon Creeper	*Combretum indicum*	Combretaceae
26	Anantalata/ Coral Creeper	Coral Creeper / Antigonum	*Antigonon leptopus*	Polygonaceae

Table 17: Checklist of Ornamental Plant

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Lal Dracaena	Dracena (Red)	*Dracena mahatma*	Liliaceae

Table 18: Checklist of Palms

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Areca Palm	Areca Palm	*Dypsis lutescens*	Arecaaceae
2	Bottle Palm	Bottle Palm, Champagne Palm	*Hyophorbe lagenicaulis*	Arecaceae
3	Fan Palm	Chinese Fan Palm	*Livistona chinensis*	Arecaceae
4	Fish-tail Palm	Fish-tail Palm	*Caryota urens*	Arecaceae

5	Khejur	Indian Datepalm	*Phoenix sylvestris*	Palmae/ Arecaceae
6	Narkel	Coconut	*Cocos nucifera*	Arecaaceae
7	Palm Tree/ Taal Gachh	Palmyra Palm	*Borassus flabellifer*	Palmae
8	Panthapadap	Traveller's Palm	*Ravenala madagascariensis*	Musaceae
9	Supuri	Areca	*Areca catechu*	Arecaceae
10	Taal	Palmyra Palm	*Borassus flabellifer*	Arecaceae

Table 19: Checklist of Parasitic plants

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Baro manda / Vanda	Honey Suckled Mistletoe	*Dendrophthoe falcata*	Loranthaceae
2	Chhoto Manda	Vanda	*Viscum orientale*	Loranthaceae

Table 20: Checklist of Bryophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Liverworts	Liverworts	*Riccia sp.*	Ricciaceae
2	Moss	Moss	*Semibarbula orientalis* (F.Weber)Wilk & Margad	Pottiaceae

Table 21: Checklist of Pteridophytes

Sl. No.	Local Name	Common Name	Scientific Name	Family
1	Maidenhair fern	Maidenhair fern	*Adiantum capillus-veneris* L.	Pteridaceae
2	Maidenhair fern	Maidenhair fern	*Adiantum caudatum* Klotzsch.	Pteridaceae
3	Maidenhair fern	Maidenhair fern	*Adiantum lunulatum* Brum.f.	Pteridaceae
4	Oakleaf fern	Oakleaf fern	*Aglaomorpha (Drynaria) qiuercifolia* (L) Hovenkamp and S. Linds.	Polypodiaceae

5	Ampelopteris	Ampelopteris	*Ampelopteris prolifera* (Retz.) Copel	Thelypteridaceae
6	Water sprite	Water sprite	*Ceratopteris sp.*	Pteridaceae
7	Christella	Christella	*Christella dentata* (Forssk.)Brownsey and Jermy	Thelypteridaceae
8	Vine-like fern and Japanese climbing fern	Vine-like fern and Japanese climbing fern	*Lygodium flexuosum*(L.)Sw.	Lygodiaceae
9	Water clover	Water clover	*Marsilea quadrifolia* L.	Marsileaceae
10	Fishtail fern	Fishtail fern	*Microsorum punctatum* (L.) Copel.	Polypodiaceae
11	Addre's tongue ferns	Addre's tongue ferns	*Ophioglossum sp.*	Ophioglassaceae
12	Spider brake	Spider brake	*Pteris multifida* Poir.	Pteridaceae
13	Chinese brake or Ladder braka	Chinese brake or Ladder braka	*Pteris vittata* L.	Pteridaceae
14	Pyrrosia	Pyrrosia	*Pyrrosia lanceolata* (L.) Farw.	Polypodiaceae

Table 22: Checklist of Seasonal flower

Sl. No.	Local Name	Common Name	Scientific Name	Family	Type
1	Dog flower, Snapdragon	Dog flower, Snapdragon	Antirrhinum majus	*Scrophulariaceae*	Season Flower
2	Garden stock, Common stock	Garden stock, Common stock	*Matthiola incana*	*Brassicaceae*	Season Flower
3	Gazania	Gazania	*Gazania* sp.	Asteraceae	Season Flower
4	Gladiolus	Gladiolus	*Gladiolus sp.*	Iridaceae	Season Flower
5	Himsagar	Flaming Katy, Florist kalanchoe	*Kalanchoe blossfeldiana*	Crassulaceae	Season Flower
6	Maiden Pink	Maiden Pink	*Dianthus deltoides*	Carryophyllaceae	Season Flower
7	Mike Ful	Amaryllis	*Hippeastrum* sp.	Amaryllideceae	Season Flower
8	Pansy, Garden Pansy	Pansy, Garden Pansy	*Viola tricolor var.*	Violaceae	Season Flower
9	Petunia	Petunia	*Petunia hybrida*	Solanaceae	Season Flower

10	Verbena	Verbena	*Verbena* sp.	Verbenaceae	Season Flower

PRESTIGIOUS AWARDS FOR CLEAN & GREEN CAMPUS

CARBON FOOT PRINT ASSESSMENT

ABOUT:

Carbon Footprint is a measure of total quantity of green house gases being emitted by an individual or an Institution as a result of its daily activities. Carbon Footprint tells the impact on the environment due to various activities inside the campus and quantifies the same in the form of total greenhouse gases being emitted. The most common greenhouse gases are carbon dioxide, water vapor, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. There lease of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. The question is

what should be done to reduce carbon emissions. Many colleges want to reduce their carbon dioxide (CO2) emissions but it is a difficult task, given a range of factors determine carbon emissions, including mobility, waste, and energy consumption. So, gaining insight into CO2 emissions is extremely important. An important aspect of doing a carbon foot print audit is to account the carbon foot print of the campus by determining the net amount of greenhouse gas emitted from various activities in the campus so that the can adopt better ways to reduce its carbon foot print. One aspect is to consider the d travelled and mode of travel used to commute between home and students and staffs. So the carbon foot print auditing determine the total carbon foot print of the campus and analyzes whether the campus is eco- friendly and follows environmentally sustainable practices. It is therefore essential that any environmentally responsive Institution shall examine its carbon footprint.

KEY METHODOLOGIES ADOPTED FOR CARBON FOOTPRINT AUDIT

1. **A walk through survey was conducted in the entire campus to observe various greenhouse gas emission points.**
2. **Base Line data was collected by face to face/distributing online question through Google form. To the students and staff also by conducting interviews among staff.**
3. **Walk through survey and base line data collection was done between was done between 2022-23 secssion.**
4. **Based on the data collected, the Green House Gas Emission as CO2 Eq from the various sources was calculated.**
5. **Observation was done to see whether if the authorities have implementedany Carbon Footprint Reduction Strategy.**

CARBON FOOTPRINT AUDITING-KEY FINDINGS

Feasible emission inventories were selected to analyze the carbon footprint of the campus. The inventory survey was done for one academic year. The selected inventories are Human Factor, Transportation, Electricity, Solid Waste, Production and Consumption of Food, LPG & Natural Gas.

Data keepers are identified and the primary details were collected. Parameter wise and zone wisedetails were also collected. The received data were assembled and the missing gaps were recognized.

HUMANFACTOR

Carbon dioxide emitted by a person per day is not negligible. It is equivalent to the mission of a car in a 5 km stretch. Humans emit 26 giga tons of carbon dioxide per year while CO2 in the atmosphere is rising by only 15 giga tones per year. Just for breathing, humans emit per person each day 1140 grams of CO2,assuming that they eat normally and follow a mean diet of 2800 kcal.The population details of each zone include the total number of teaching faculty; non-teaching staff and students were collected. The carbon dioxide emissions will be larger in the Zone having highest population. As the College Campus is concerned its limit is upto mark.

TRANSPORTATION

Fossil fuels are used for transportation. The carbon dioxide emitted by different fuels is indifferent amounts. The engineof the vehicle burns fuel and creates a certain amount of CO2, depending upon its fuel type, fuel consumption and the driving distances. One liter of petrol and diesel emits 2.3 kg and 2.7 kg of carbon dioxide, respectively. Travelling by car for1000km can produce abou t200-230 kg of carbon dioxide in to the atmosphere. If a person travels by a bus for 1000 km, it can add 1075 kg of CO2 to his/her Carbon foot print. Worldwide, the fossil fuels used for transportation contribute over 13% of GHG emissions.

The approximate transportation details for the Institution campus like the type of vehicle, No. of vehicles and the fuel used were collected. The carbon dioxide emitted from petrol is less compared to that of diesel. The Carbon footprint by the emission inventory transportation will be quite high.

It was noted that the there was no direct transportation under the control of institution but institution encourage Staffs and others to use Electronic Vehicle.

ELECTRICITY

Electricity is one emission inventory which contributes much to the Carbon footprint of the Institution. On an average, electricity sources emit 1.297 lbs CO2 per kwh i.e. 0.0005883 metrictons of CO2 perk Wh. The emission factor given by GRID 2010 version 1.1 for hydro electricity is 6.8956x 10-4 metrictons CO2/k Wh. 50 grams of CO2 is emitted from 1unit of solar power.

The details of the consumption of electricity and the use of generators in different zones were surveyed. If the number of classrooms and labs are more in a zone, consumption of electricity in that zone is more.

It was noted that the Institution uses a lot of Renewable power especially Solar Model as a supplement to convenational power there by reducing emission of GHG to the atmosphere also contributing to the INDC `commitment pledged by Government of India.

SOLID WASTE

Generally,1kg of solid waste is generated percapita per day. For high income countries, the solid waste generation is 1.1 – 5 kg percapita per day.For middle income countries, it is 0.52-1 kg and for low income countries the value is 0.450.89 kg/ capita/ day. One kilogram of solid waste can emit about 0.125 kg of carbon. The details regarding the solid waste generated in each zone is collected including the waste produced in canteen and hostels.

The solid waste generated in the canteen and hostel which is taken out of the campus comes under other indirect emissions. Solid Waste emits less amount of carbon dioxide compared toother emission inventories considered.

Their Solid waste disposal process found ok, so exposure is less.

LPG AND NATURAL GAS

The consumption of 1L of LPG can release 1.5kg of CO2 to the atmosphere. Also, burning ofwood (250kg) can add 33kg of CO2 to the Carbon footprint. The consumption details of LPG and Natural Gas in canteen and hostels were surveyed. It was noted that the Institution uses normal limit of LPG as required.

CARBONFOOTPRINTANALYSIS

Carbon footprint analysis can be done by suitably combining data collected with

respective emission factor of the selected emission inventories. Table represents emission factors of the selected inventories.

BEST PRACTICES OBSERVED IN THE INSTITUTION–CARBON FOOTPRINT REDUCTION

- **Restriction of personal vehicle inside the campus enhancing reduction of carbon footprints.**
- **Use of battery operated Vehicles/cycles to commute inside the campus.**
- **Blending of Conventional fuel with biodiesel generated from Waste Cooking Oil thereby reducing the carbon footprint.**
- **Use of Solar system power the Instutution thereby reducing dependence on Conventional power.**
- **Use of Solar Lamps to light the Walk ways**
- **Use of limited LPG to Run the Kitchen**
- **Use of Walk ways to commute short distances**
- **All over the Campus the Green Area much more then the Working area.**

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CERTIFICATE

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certifies that

BARRACKPORE RASTRAGURU SURENDRANATH COLLEGE

Middle Road & 6 Riverside Road, Barrackpore, Kolkata – 700120, West Bengal, India

The Management System of the above organization has been audited and found to be in accordance with the requirements of management system standards detailed below:

ISO 14001:2015

Has established and applied Environment Management System for following scope of activities:

Imparting Undergraduate and Post Graduate Courses

Certificate No. CCL/QMS/71707/BRSC *Issue No. 01*
Validity of certificate is subjected to the continued satisfactory operation of the organization's Management System

Originally Issue Date: 26/06/2021
Current Issue Date: 26/06/2021
Certificate Expiry Date: 25/06/2022
Recertification Due Date: 25/06/2024

Managing Director

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SUGGESTIONS AND RECOMMENDATIONS

- **The primary power electricity used by the Institution also they have installed Secondary power Solar panel, in this context, solar energy also used as alternative energy source in the College campuses to reduce the dependency and Carbon emission**
- **The use of plastic products should be banned in the College campuses.**
- **The College campuses are nodoudt biodiversed but more plantations specially medicial planntations are required in the campuses. Plantation of fruit plants will attract more birds.**
- **There is urgent need to form a Green Monitoring Team. The priority of this body is to maintain the greenary of the College campuses**
- **The Green Monitoring Team sould consist of members from teaching staffs, non-teaching staffs, students and if possible, try to include some local interested people.**
- **Vermicompost facility may be practiced, the product of which can be used as manure or fertilizer for plantation purpose.**
- **Sustainable use of resources and ecological balance of the College campuses must be maintained throuout the year.**
- **Increse the use of Electrical vehicle to reduce the pollution.**
- **Encourage to reduce dairy and meat in take - No Meat Mondays! Animal products makeup 18% of greenhouse gas emissions. By replacing one or two of weekly meat and dairy meals to a vegetarian option, can help reduce emissions**
- **Encourage use of Bicycles.**
- **Improve garden: To grow healthy plants, you also need healthy soil. Improving soil quality is an ongoing process for a gardener. Good, rich in nutrients, and friable soil will offer the plants everything all on its own. Thus, you would need lesser fertilizers and pesticides.**
- **Improve Water Harvesting:Various passive strategies have been accordingly developed in attempt to improve the water harvesting capability, which can be roughly categorized into three types: (i) engineering new surfaces or materials for condensers to benefit dew generation and removal; (ii) cooling the condensing substrates to facilitate the dewing occurrence; and (iii) concentrating the moisture from air by sorbent-assisted systems to inhibit the environmental influences and raise the water yield.**
- **Promote awarnessbuildup programme on Environmental Issues time to time**

Conclusion:

Focus on Environmental is applicable. The Barrackpore Rastraguru Surendranath College have proper plan for Future Development on Environmental expect.

We have also suggest them how to improve the Environmental expect in a better way.

AUDIT CONDUCTED BY "MANAGEMENT SYSTEM CONSULTANCY"

Auditor

Amalesh Kr. Mandal

MANAGEMENT SYSTEM CONSULTANCY Kol- 130

Amalesh Kumar Mandal

(IRCA Accredited Lead Auditor on Quality, Environment, Energy Management System, Empanelled Auditor from IAF accredited Certification Body, Energy Management System Auditor from National Productivity Council, Environment Management System personnel from National Safety Council, ISO 17020:2012 Competance Certified for Quality Council of India and Carbon Frootprint Calculator Certified from BSI)