

APRIL 12, 2024

GREEN AUDIT REPORT, DARRANG COLLEGE

SUBMITTED TO
THE PRINCIPAL
DARRANG COLLEGE,
TEZPUR, SONITPUR, ASSAM 784001



SUBMITTED BY
TRCATS LLP
REGISTERED OFFICE: BARUAH CHUBURI, MAZGAON,
SONITPUR, ASSAM, 784001



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Acknowledgement

We are sincerely thankful to the Management of Darrang College for giving us the opportunity to conduct Green Audit of the Institute.

We are also grateful to Dr. Palash Moni Saikia, Principal, Darrang College, Tezpur, Assam whose valuable comments / feedback, during various reviews have helped us during the course of the Audit.

We express our sincere gratitude to all other concerned officials for their support and guidance during the conduct of this exercise.

For TRCATS LLP



**(Dr. Dipal Baruah)
Director (R&D and Innovation)
TRCATS LLP**



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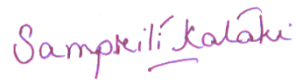
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TO WHOM IT MAY CONCERN

This is to certify that TRCATS LLP having registered office at Baruah Chuburi, Mazgaon, Tezpur, Sonitpur, Assam -784001 has successfully conducted the Green Audit of DARRANG COLLEGE, P.O.: TEZPUR, SONITPUR, ASSAM 784001.

The college has provided necessary data and credential for scrutiny. The activities and measures undertaken by the college has been verified. After collecting and analyzing the required data, the Green Audit report has been prepared and submitted. The efforts taken by the college towards environmental sustainability is appreciated.

(Dr. Dipal Baruah)
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1. INTRODUCTION

Energy is required for the maintenance and sustenance of quality. This energy is primarily derived from fossil fuels. The usage of fossil fuels and deforestation are the fundamental sources of climate change. Green measures must be implemented by all social stakeholders to address these issues, and higher education institutions play a larger role in this. As they prepare the future leaders of the sustainable movement, higher education institutions (HEIs) should pay particular attention to creating a sustainable environment. The campus's environmental impact is essential to creating a healthy and sustainable learning environment for everyone using the facilities.

Darrang College takes steps to contribute towards the reduction in Green House Gas (GHG) from the atmosphere in order to support UN's Sustainable Development Goals. The "Green Audit" of the College campus, which is a component of this effort, is crucial for the institution's self-evaluation and displays the College's commitment for environmental sustainability.

The authorities of Darrang College have undertaken some eco-friendly efforts towards environmental sustainability, which have been identified and evaluated in this Green Audit. A Green Audit is an effective instrument for fostering a sustainable culture since it entails the systematic identification, measurement, documenting, reporting, and monitoring of critical environmental criteria. Another part of the Green Audit is an assessment of the campus's floral and faunal variety. This audit looks at a variety of organizational/institutional activities. It analyses and establishes the best environmental practices within the concerned areas. In short, it has an impact on creating an eco-friendly environment.

2. OBJECTIVE

The idea of the Green Audit is to identify, quantify, describe and prioritize framework of Environmental Sustainability in the College campus. The main objectives of the Green Audit are assessment of the following in the College campus:

- Land use analysis.
- Floral diversity.
- Faunal diversity.

- Weather data.
- Air quality analysis.
- Water quality analysis.
- Noise level.
- Soil Quality analysis.
- Waste disposal practices.
- Transportation practice.
- Electrical power consumption
- Green practices and activities.

3. BENEFITS OF GREEN AUDIT

A Green Audit has multi-faceted benefits in terms of reinforcing the contribution of an institute towards environmental sustainability. Some key points are summarized below.

- Improved environmental practices of the institute.
- More efficient resource management.
- Benchmarking for environmental conservation initiatives.
- Augmenting the creation of a green campus.
- Improved waste management through reduction of waste generation and recycling.
- Enhancing the awareness for environmental conservation guidelines and duties.
- Cost saving methods through better resource management.
- Developing environmental ethics and value systems among the students and other stakeholders.
- Develop a valuable tool to monitor the environmental and sustainable development practices of the College.
- Improvement of overall institutional profile.

4. METHODOLOGY ADOPTED FOR GREEN AUDIT

The methodology adopted to perform the entire Green Audit exercise includes: collection of data, physical inspection of the campus, observation and review of the documentation, data analysis and reporting. The steps of the Audit are detailed below.

Step 1 – Data Collection

Data collection was performed by using different tools such as observation, measurements and communicating with responsible/representative persons of the College.

Following steps were taken for data collection:

- The audit team visited each building and department, library, canteen, open space, gardens of the campus and information were collected by interviewing with the representative person.
- Land use data of the College were collected.
- The energy data such as monthly electricity consumption and fuel consumption were collected from the officials and analyzed.
- Waste management facilities such as dustbins were observed closely. Other waste disposal processes adopted by the College were reviewed.
- All flora and fauna found in the College campus were identified and listed out.
- Water quality, air quality, soil quality and noise level of the campus were evaluated.

Step 2 – Campus tour and physical inspection

The audit team visited the campus on 04th March, 2024 to collect and review necessary data.

Step 3 - Document review and verification

During the visit, available facility documentation was reviewed with facility representatives. This documentation review includes data related to-

- Land use pattern
- Geographical location
- Flora and faunal diversity

- Water analysis
- Air quality analysis
- Soil quality
- Waste management
- Transportation practice
- Energy consumption and conservation measures taken by the College
- Green practices and activities
- Expenditure on green initiatives

Step 4 – Key parameter measurement and testing

- Water quality analysis of the Institute
- Air quality analysis of the Institute
- Soil quality analysis of the Institute
- Noise level of the Institute

Step 5 - Data Analysis

- Analysis of land use land cover data
- Weather data analysis (Average ambient temperature and humidity analysis)
- Air quality analysis (PM 2.5, PM10, CO₂, and HCHO)
- Soil quality analysis
- Analysis of data related to energy consumption (Electricity and fuel consumption)
- Water test report analysis
- Analysis of noise level at different locations of the campus.

Step 6 - Report preparation and recommendation

The findings of the audit are summarized in this report. The report includes a description of the College campus including different facilities available. The environmental and energy conservation initiatives already taken by the College authority have been mentioned in the report.

The report incorporates a summary of all the activities and effort performed in past few years to conserve environment and energy within the campus or outside. The report also includes the activities performed by the College authorities along with the local communities for awareness generation and community participation towards better environmental practices to address the present environmental challenges.

5. DESCRIPTION OF THE COLLEGE CAMPUS

Darrang College was established in 1945. Darrang College is situated on the north bank of the river Brahmaputra in Tezpur (Sonitpur District). It is bounded by Collegiate field and Marabhairab market in north/north east, and Marabhairab temple in the south.

The geographical location of the College is $26^{\circ}38'05''$ N - $26^{\circ}38'20''$ N and $92^{\circ}47'45''$ E - $92^{\circ}47'55''$ E and covering about $70,518.67\text{m}^2$ (Fig. 1). The climatic condition of the College is high humid with moderate temperature. The climate around the College area is subtropical, with pleasantly warm, dry winters from November to February and a long, hot and rainy period from April to mid-October. The monsoon runs roughly from June to early or mid-October, but from March to May (and more rarely in February) showers occur, which gradually become more intense and frequent.



Fig. 1 Google Earth Map of Darrang College

The geographical total area of Darrang College is $70,518.67\text{ m}^2$ out of which holla (trench like area) covers an area of 452.98 m^2 , playground 18162.42 m^2 , built up-area 20782.53 m^2 , and open space and plantation cover an area of 31120.74 m^2 . The College campus area consists of multiple buildings, both single story Assam type and multi-story RCC buildings along with the green vegetation area and trees. The campus is surrounded by road on the southern and western side, residential area on both northern and western side.

At present the College has 27 Departments (16 Arts Departments, 8 Science Departments, 1 Commerce Department, 1 Environmental Science Department and 1 Home Science Department) distributed in different buildings which includes classrooms, laboratories, library, auditorium, office, store and bathrooms. The College also has canteen, playground, hostels and open green space with vegetation and trees. The layout of the College is shown in Fig. 2.

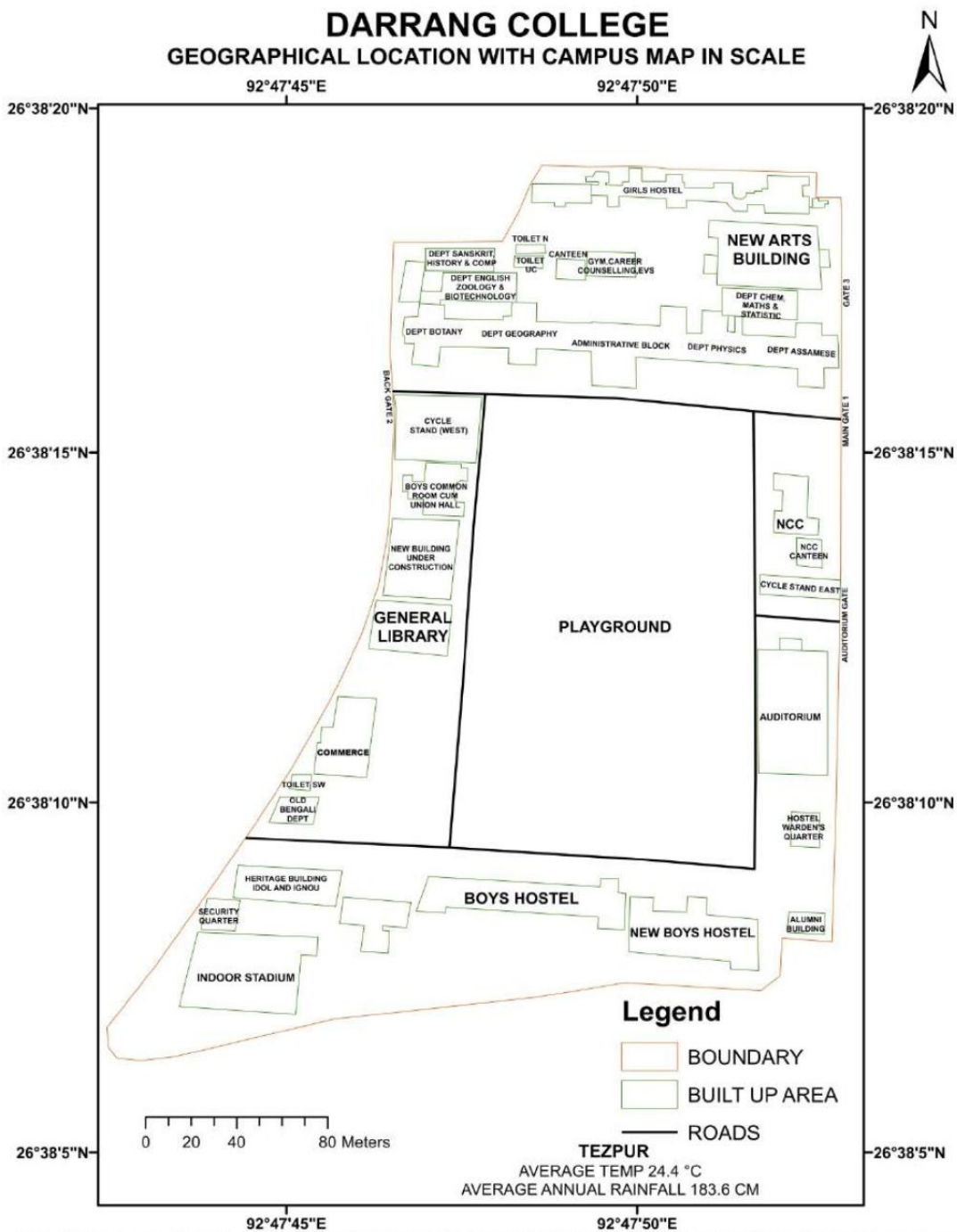


Fig. 2 Layout of Darrang College

6. LAND USE ANALYSIS

The geographical location of the campus is at latitude 26°38'05" N - 26°38'20"N and 92°47'45" E - 92°47'55" E. Total land cover data of the College campus has been collected from the College authority and from Google Earth and represented in Fig. 2. 29% of the land has been used for different construction (Building) purposes. Approximately 26% of the land area is being used as playground of which majority is covered with natural grasses. 1% area of the campus is under holla area. Remaining 44% of land has been kept as open space or planted with varieties of timber, fruit yielding plants, ornamental and medicinal plants.

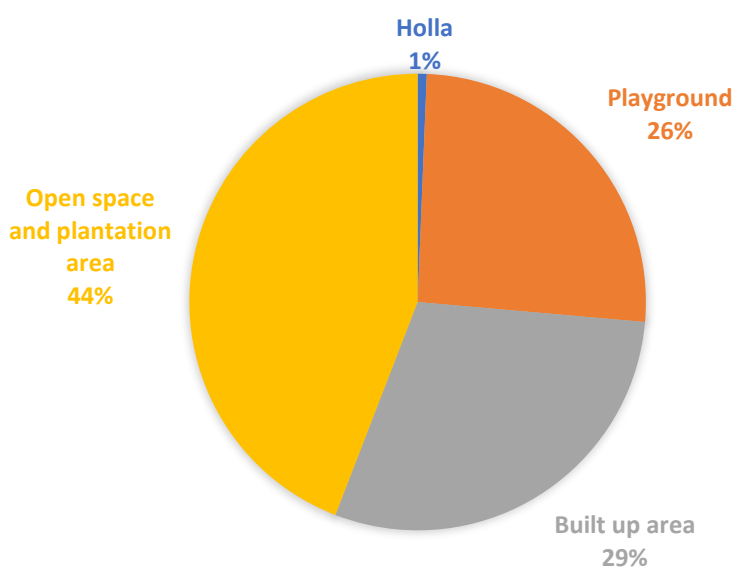


Fig. 3 Land Use pattern of Darrang College

The total built-up area of the campus is occupied by number of buildings and are listed in Table 1.

Table 1: Building details

Sl. No.	Room No.	Area (Sq. ft)
1	Teachers Common Room	870.25
2	R – 24 (Geography)	722.75
3	R – 23 (Geography)	855.50
4	R – 25 (Geography)	594.50
5	R – 6 (Geography)	457.25
6	R – 7 (Geography)	464.00
7	R – 8	464.00
8	R – 9 (Botany)	437.90
9	Botany (Teachers Common Room)	495.00
10	Botany General Lab.	1017.75

Sl. No.	Room No.	Area (Sq. ft)
11	Botany Lab.	826.00
12	Botany Kitchen (R – 11)	219.45
13	Botany Toilet	32.39
14	Chemical and glassware (Botany)	158.25
15	G. Lab -3 (Botany)	781.75
16	Multimedia Class room (Geo)	745.47
17	Staff common room (Geo)	386.10
18	Dept. Bathroom (Geo)	86.10
19	Kitchen (Zoo)	145.50
20	Teachers Common Room (Zoo)	715.77
21	Museum (Zoo)	750.96
22	Adv. Microscopy room (Zoo)	79.8
23	Bioinformatics Lab.	149.72
24	Lab (Zoo)	1101.87
25	Toilet (Zoo)	29.592
26	Mice Room (Zoo)	84
27	R – 5	950.62
28	Teachers Common Room (Eng)	536.679
29	G – III	1105.58
30	Plant Physiology adv. Molecular Biology Lab	315
31	P.G. class room (R – 12)	739.04
32	Plant Pathology and micro biology Lab.	329.84
33	R – 13	486.08
34	Teachers Common Room (Hindi)	302.56
35	R – 14	369.52
36	Teachers Common Room (Bengali)	292.64
37	Toilet (Bengali)	50.4
38	Toilet (Sanskrit)	23
39	Teachers Common Room (Sanskrit)	346.71
40	R – 15	466.83
41	R – 16	606.06
42	R – 17	813.54
43	R – 56	559.54
44	Computer Dept. (Old)	807.12
45	R – 53	198.56
46	NSS Room	329.63
47	R – 54	234.36
48	Teachers Common Room (Nepali)	180.7
49	Toilet (Nepali)	30
50	Teachers Common Room (Boro)	151.51

Sl. No.	Room No.	Area (Sq. ft)
51	Common Toilet (New)	471.6
52	Girls common room	1410.1
53	Lab – 5 (Physics)	728.16
54	Lab – 3 (Physics)	861.36
55	Dark Room (Physics)	441.04
56	Lab Staff Room (Physics)	328.56
57	Lab – 4 (Physics)	703.66
58	R – 27 (Physics)	483.2
59	R – 26 (Physics)	248.05
60	Lab – 1 (Physics)	882.08
61	Lab – 2 (Physics)	739.04
62	Teachers Common Room (Physics)	774.8
63	Kitchen Room (Physics)	104.146
64	Toilet Room (Physics)	62.72
65	G – II / R – 21	1179.09
66	G – I / R – 20	1473.12
67	R – 1	787.36
68	R – 2	876.16
69	R – 3	1024.16
70	Teachers Common Room (Assamese)	674.1
71	Library (Assamese)	433.62
72	Office Toilet (Ground)	104.04
73	Exam Branch	1711.12
74	Medical Room Office	221.48
75	Meeting Room Office	457.47
76	General Branch	426.075
77	Vice Principal Room	189.1
78	Toilet Room (Vice Principal)	63.44
79	Blank Khata Store Room (Vice Principal)	103.85
80	Academic Vice Principal Room)	140.39
81	Accounts Branch	154.85
82	Bearers Room (Chem)	175.72
83	Balance Room (Chem)	91.08
84	Staff Urinal (Chem)	25
85	TDC Gen. Lab – 2 (Chem)	1056.811
86	TDC Gen . Lab – 1 (Chem)	873
87	Store Gen (Chem)	424.41
88	Physics Lab (Chem)	185.367
89	HoD Room (Chem)	96.03
90	I and II sem Major Lab (Chem)	896.98

Sl. No.	Room No.	Area (Sq. ft)
91	Teachers Common Room (Chem)	427.42
92	Digital Class Room (Chem)	352.17
93	R – 30 (Chem)	722.4
94	Toilet (Chem) 1 st floor	28.56
95	Library (Chem)	241.67
96	R – 31, 33	564
97	R – 32	284.82
98	Old Boro Dept. (Chem Building)	288.86
99	R – 34 (Chem)	521.7
100	New Physical Lab (Chem)	349.28
101	Old TTM Dept. (Chem Building)	298.96
102	Staff Urinal (chem.) 2 nd floor)	45.9
103	Principal Room)	319.14
104	Principal Toilet	27.84
105	Principal Kitchen with toilet	247
106	IQAC room (Office)	275.9
107	PM USHA Office	269.5
108	General Kitchen (Office)	272.8
109	Store Room (Office) – I	325.44
110	Store Room (Office) – II	223.74
111	General Toilet (1 st Floor)	89.9
112	Exam control room (Old Library)	2596.88
113	Academic vice principal room	130.68
114	R – 44 (Commerce)	896.94
115	R – 45 (Commerce)	902.98
116	Teacher common room (Com.)	599.278
117	Teacher Common Room Toilet (Com)	102.111
118	Computer Cabin (Commerce)	235.32
119	Girls Common Room With Toilet	578.38
120	Room No – 51 (Commerce)	585.111
121	DCCS Library (Commerce)	344.339
122	DCCS Library Store Room (Com)	72.179
123	DCCS Office (Commerce) / R	103.02
124	Room No – 47 (Commerce)	878.82
125	Room No – 48 (Commerce)	878.82
126	Rom No – 49 (commerce)	100.44
127	Room No – (New Com)	873.3
128	Room No – 46 (Com)	873.3
129	Room No – (Com – 4)	1144.023
130	New Alumni Hall	2921.62

Sl. No.	Room No.	Area (Sq. ft)
131	Assignment Submission Room Unit	721.59
132	Office Room (Co-ordination)	239.19
133	Office Room – 2 (IGNOU)	223.11
134	Office (KKHSOU)	223.11
135	IDOL Class Room - 1	319.59
136	IDOL Office Room	402
137	Indoor Stadium	6545.22
138	Office Room (Indoor Stadium)	181.44
139	Boy's Toilet (Indoor Stadium)	208.74
140	Girl's Toilet (Indoor Stadium)	178.017
141	Change Room (Indoor Stadium)	80.23
142	OBH (Room No-1)	852
143	OBH (Room No-2)	721.14
144	OBH (Room No-3)	709.02
145	OBH (Room No-4)	721.14
146	OBH (Room No-5)	743.36
147	OBH (Room No-6)	719.12
148	Alumni Association Office Room	749.84
149	Auditorium General Toilet	228.26
150	Auditorium	10596.8
151	Boy's Common Room	618.89
152	Central Library (AASU Office)	632.82
153	Boy's Common Room Toilet	50.96
154	Union Hall	611.52
155	Processing Room (Library)	276.52
156	Property Counter (Library)	138.75
157	Assistant Librarian Room	142.74
158	Xerox Room	78.2
159	News Paper Store Room (Library)	89.76
160	Staff Room (Library)	100.74
161	Kitchen Room (Library)	74
162	Server Room (Library)	31.171
163	Journal Section Room (Library)	275.94
164	E- Library (Library)	238.602
165	Reading Room (Arts Section)	1937.52
166	Arts Reference Room	454.31
167	Guest Toilet (Library)	119.88
168	Ladies Toilet (Library)	115.43
169	Librarian Room	205.38
170	Computer Section Room	390.42

Sl. No.	Room No.	Area (Sq. ft)
171	Reading Room (Science Section)	2835.75
172	Reference Room (Science Section)	418.27
173	Teacher's Reading Room (Science Section)	298.2
174	Old Store Room (Library)	304.56
175	1 st Flore Corridor	265
176	Conference Hall	755.04
177	Meeting Tea Room	102.258
178	Bound Volume Section (Library)	399.52
179	Reading Room (Commerce Section)	2018.18
180	Counter (Library)	423.8
181	Dept. of History (NAB)	330.99
182	History - 2	380.16
183	Tissue Culture Bab. (Biotech)	466.56
184	Bioinformatics Facility	267.27
185	BBT – Institutional Biotech Hub	382.32
186	Molecular Biology Lab	378.78
187	Toilet (Biotech)	264.6
188	Dept. of Biotech	384.09
189	Biotech - 1	382.32
190	Female Wash Room (General)	290.28
191	Biotech - 02	412.55
192	Biotech Class room -1 (Assamese PG NAB)	412.55
193	Home Science (Class Room – 2)	387.63
194	Dept. of Home Science	382.32
195	Class Room – 3 (Home Science)	234.08
196	Home Science Laboratory	235.41
197	Library (Home Science)	160.336
198	Biotech Class Room – 2 (Assamese PG NAB)	371.7
199	Male Wash Room (Ground Floor)	267.447
200	Education - 1	382.32
201	Dept. of Education	375.84
202	Education - 2	382.32
203	Education Lab (Lab 1)	382.32
204	Education Lab -2	244.08
205	Library(Education)	257.04
206	History - 1	380.16
207	Dept. of Economics	330.99
208	NAB - 10	382.32
209	NAB - 8	378.78
210	NAB - 9	284.97

Sl. No.	Room No.	Area (Sq. ft)
211	NAB - 4	633.68
212	NAB - 7	382.32
213	Ladies Toilet (1 st Flore)	290.28
214	NAB - 6	382.32
215	NAB - 5	382.32
216	Dept. of Computer Science	237.6
217	Computer Lab	1036.8
218	NAB - 2	1147.52
219	NAB - 3	1060.23
220	Gents Toilet (1 st Flore)	288.64
221	Library of Philosophy	244.26
222	NAB – 11(Philosophy)	548.64
223	Dept. of Philosophy	518.61
224	NAB - 1	1131.84
225	Small Room (NCAR Nab – 1)	155.52
226	Dept. of Pol. Science	457.38
227	Dept. Library (pol. Science)	332.86
228	Psychology - 1	386.26
229	Dept. of Psychology	251.72
230	Counseling Centre (PSY)	260.4
231	Psychology - 3	371.07
232	Statistics - 1	382.32
233	Dept. of Statistics	346.38
234	Statistics - 2	269.04
235	Statistics – 6 (Bearers Room)	260.19
236	Statistics - 3	242.49
237	Library Cum Computer Room	242.49
238	Wash room (Men) 2 nd Flore	288.64
239	Statistics - 4	285.147
240	Dept. of TTM	233.64
241	Sociology - 3	269.04
242	Sociology - 4	233.64
243	Dept. of Sociology	244.64
244	Sociology - 2	568.7
245	Sociology - 1	933.1
246	Dept. Library (Mathematics)	378.78
247	Dept. of Mathematics	378.78
248	Math. Computer Room cum Lab	631.89
249	Wash Room (General) 2 nd Flore	284.97

Sl. No.	Room No.	Area (Sq. ft)
250	Pol. Science - 2	380.55
251	Pol. Science - 1	380.55
252	Math. Room - 1	380.16
253	Math. Room - 2	380.55
254	Pol. Science - 3	284.97
255	CSSC, Office	382.32
256	Reading Room, CSSC	383.06
257	Gents Toilet (3 rd Flore)	270.469
258	Ladies Toilet (3 rd Flore)	210.6
259	Laboratory – Psychology (3 rd Flore)	461.55
260	Conference Hall (3 rd Flore NAB)	909.06
261	Gymnasium	1827.8
262	Change Room (Gymnasium)	38.95
263	Toilet (Gymnasium)	29.45
264	NCC Office Toilet (73 Girls)	42.24
265	NCC Office (Room No – 1)	106.56
266	NCC Office(Room No -2)	184.47
267	NSS Office	372.11
268	Fishery Lab (zoo)	350.46
269	Room No - 19	488.96
270	General Store (zoo)	188.68
271	Library (zoo)	213.061
272	MSC Class Room – 1 (zoo)	324.53
273	MSC Class Room – 2 (zoo)	292.23
274	Microtome Room (zoo)	293.76
275	Room No – 18	491.52
276	Boys General Toilet (Commerce Outside)	162
277	Mushroom Cultivation Room	1391.04
278	Mushroom Cultivation Store room	236.22

7. WEATHER DATA OF THE COLLEGE CAMPUS

The ambient air temperature and relative humidity data were obtained from the NASA website (<https://power.larc.nasa.gov/data-access-viewer/>)

The NASA data are satellite-retrieved; its parameters are computed on a daily average basis using NASA/GEWEX surface radiation Budget model. The model considers the effect of cloud cover and local atmospheric conditions. Compared to BSRN (Baseline Surface Radiation Network) sites the NASA data show high accuracy with Bias (less than 0.12)

and RMSE (Root Mean Square Error) (less than 18%). BSRN sites are the most accurate approved ground sites.

Table 2 Variation of monthly temperature, relative humidity and precipitation in the College campus

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Maximum Temperature (°C)	26.21	27.09	35.37	33.3	35.02	32.49	36.26	35.33	35.57	36.07	29.3	28.06
Minimum Temperature (°C)	8.86	8.36	14.47	19.89	20.38	22.44	24.86	25.06	23.56	15.88	13.09	10.87
Relative Humidity (%)	70.06	69.5	55.5	75.31	76.44	84.38	83	80.31	80.38	80.12	73.12	76.56
Precipitation (mm/day)	0.63	2.13	1.78	8.43	10.5	17.09	5.67	2.97	2.96	5.24	0	0.08

Table 2 shows the monthly average air temperature, relative humidity and precipitation of the College campus for the year of 2022 (January to December). It has been observed that the average air temperature of the campus ranges between 8.86°C to 36.26°C, whereas the average relative humidity of the campus varies from 55.5% to 84.38%. The highest precipitation of 17.09 mm/day was observed for the College campus.

8. WATER QUALITY OF THE COLLEGE CAMPUS

Water quality testing is an important aspect as it identifies contaminants and thus helps to avoid spread of water borne diseases. Darrang College uses ground water for their daily needs. Water is being used in the campus as drinking water, used in bathrooms both in canteen and academic buildings and for gardening and other purposes. Therefore, it is very important to test the water to ensure the quality to use for all purposes.

The indicators tested for water quality include alkalinity; color of water; pH Value; Taste and odor; dissolved metals and salts; presence of microorganisms such as fecal coliform bacteria (*Escherichia coli*), *Cryptosporidium*, and *Giardia lamblia*; dissolved metals and metalloids (lead, mercury, arsenic, etc.); colored dissolved organic matter (CDOM); dissolved organic carbon (DOC), heavy metals.

Water quality test was carried out by the District Level Laboratory (NABL accredited), Public Health Engineering, Sonitpur for the Biotechnology Laboratory, Boys Hostel, Central Water Supply and Girls Hostel Kitchens. The reports of the same are shown below (Fig. 4 – Fig. 8).

LABORATORY NAME:
DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE
ENGINEER (PHE) TEZPUR DIVISION NO.I
RUBBER BAGAN, TEZPUR



ULR No.- 10522 24 00000224 F

Test Report No./ Sample Id : DLL/JAN/DLL /18
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : LABORATORY
 Block : TEZPUR
 Sample Type : DTW (RAW)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Parameter	Protocol Used	Results	IS: 10500:2012(Second Revision)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Taste	IS: 3025 (part 8): 2023	AGGREGABLE	Aggreable	Aggreable	
2	Turbidity	IS: 3025 (Part 10): 2017	0.8	1	5	NTU
3	pH	IS: 3025 (Part 11): 2022	6.32 @26°C	6.5 – 8.5 @25±2°C	No relaxation	pH unit
4	TDS	IS: 3025 (Part 16): 2023	156	500	2000	mg/L
5	Chloride	IS : 3025 (Part 32): 2019	74.44	250	1000	mg/L
6	Total Alkalinity	IS: 3025 (Part 23): 2019	75	200	600	mg/L
7	Total Hardness	IS: 3025 (Part 21): 2019	152	200	600	mg/L
8	Calcium (as Ca)	IS: 3025 (Part 40): 2019	48.09	75	200	mg/L
9	Magnesium	APHA (23rd ed) 3500 Mg B	7.77	30	100	mg/L
10	Total Iron	APHA 3500 (23rd Ed) Fe B	0.32	0.3	No relaxation	mg/L
11	Arsenic	IS: 3025 (Part 37): 2022	0	0.01	0.05	mg/L
12	Fluoride	APHA (23rd Ed) 4500 F F	0.41	1	1.5	mg/L
13	Nitrate	IS : 3025 (Part 34): 2019	0.78	45	No relaxation	mg/L
14	Sulphate	IS 3025 (Part 24/Sec 1): 2022	11.46	200	400	mg/L
15	Odour	IS 3025 (Part 5): 2022	AGGREGABLE	Aggreable	Aggreable	
16	Colour	IS: 3025: (Part 4): 2021	5	5	15	Hazen

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Pritam Modak

*****END OF TEST REPORT*****

Tanuja Baruah
 Quality Manager
 DLL Sonitpur, Tezpur Division No.I
 District Level Laboratory
 Sonitpur

Fig. 4 (i) Water quality report from Academic building

LABORATORY NAME: DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE ENGINEER (PHE) TEZPUR DIVISION NO.I
 Email ID:dll.6tezpur@gmail.com

Test Report No./ Sample Id : DLL/JAN/DLL /18
Issue Date : 08-01-2024
Issued To : DARRANG COLLEGE
Sample Description : SAMPLE BOTTLE PROPERLY
Sample Location : LABORATORY
Block : TEZPUR
Sample Type : DTW (RAW)
Sample Quantity : 1000 ml
Sample Collected on Dated : 02-01-2024
Sample Received on Dated : 02-01-2024
Sample Collected By : DR. DIPAL BARUAH
Date of Analysis Started: 02-01-2024 **Date of Analysis Completed:** 08-01-2024

Test Report

Sr. No.	Bacteriological Parameter	Protocol Used	Results	IS: 10500:2012 (Second)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Coliform	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
2	E-Coli	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
3	Residual Chlorine	Iodometric Method [APHA 4500-Cl B]	0	0.2	1	Mg/l

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Baishali Rajbongshi,

Baishali Rajbongshi
 Quality Manager
 District Level Laboratory
 Sonitpur
 DLL Sonitpur, Tezpur Division No.1

Baishali Rajbongshi
 Microbiologist
 DLL Sonitpur, Tezpur Division No.1
 District Level Laboratory
 Sonitpur

Fig.4 (ii) Water quality report from Academic building

LABORATORY NAME:
DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE
ENGINEER (PHE) TEZPUR DIVISION NO.I
RUBBER BAGAN, TEZPUR



ULR No.- 10522 24 00000222 F

Test Report No./ Sample Id : DLL/JAN/DLL /16
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : BOYS HOSTEL
 Block : TEZPUR
 Sample Type : DTW (FILTER)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Parameter	Protocol Used	Results	IS: 10500:2012(Second Revision)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Taste	IS: 3025 (part 8): 2023	AGGREGABLE	Aggreable	Aggreable	
2	Turbidity	IS: 3025 (Part 10): 2017	0.8	1	5	NTU
3	pH	IS: 3025 (Part 11): 2022	6.30 @26°C	6.5 – 8.5 @25±2°C	No relaxation	pH unit
4	TDS	IS: 3025 (Part 16): 2023	200	500	2000	mg/L
5	Chloride	IS : 3025 (Part 32): 2019	90.75	250	1000	mg/L
6	Total Alkalinity	IS: 3025 (Part 23): 2019	65	200	600	mg/L
7	Total Hardness	IS: 3025 (Part 21): 2019	140	200	600	mg/L
8	Calcium (as Ca)	IS: 3025 (Part 40): 2019	49.69	75	200	mg/L
9	Magnesium	APHA (23rd ed) 3500 Mg B	5.832	30	100	mg/L
10	Total Iron	APHA 3500 (23rd Ed) Fe B	0.04	0.3	No relaxation	mg/L
11	Arsenic	IS: 3025 (Part 37): 2022	0	0.01	0.05	mg/L
12	Fluoride	APHA (23rd Ed) 4500 F F	0.12	1	1.5	mg/L
13	Nitrate	IS : 3025 (Part 34): 2019	0.91	45	No relaxation	mg/L
14	Sulphate	IS 3025 (Part 24/Sec 1): 2022	9.65	200	400	mg/L
15	Odour	IS 3025 (Part 5): 2022	AGGREGABLE	Aggreable	Aggreable	
16	Colour	IS: 3025: (Part 4): 2021	5	5	15	Hazen

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Pritam Modak

*****END OF TEST REPORT*****

Tanuja Baruah
 Quality Manager
 DLL Sonitpur, Tezpur Division No.I
 District Level Laboratory
 Sonitpur

Fig.5 (i) Water quality report from Boys hostel (filtered)

LABORATORY NAME: DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE ENGINEER (PHE) TEZPUR DIVISION NO.1
 Email ID: dll.6tezipur@gmail.com

Test Report No./ Sample Id : DLL/JAN/DLL /16
Issue Date : 08-01-2024
Issued To : DARRANG COLLEGE
Sample Description : SAMPLE BOTTLE PROPERLY
Sample Location : BOYS HOSTEL
Block : TEZPUR
Sample Type : DTW (FILTER)
Sample Quantity : 1000 ml
Sample Collected on Dated : 02-01-2024
Sample Received on Dated : 02-01-2024
Sample Collected By : DR. DIPAL BARUAH
Date of Analysis Started: 02-01-2024 **Date of Analysis Completed:** 08-01-2024

Test Report						
Sr. No.	Bacteriological Parameter	Protocol Used	Results	IS: 10500:2012 (Second)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Coliform	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
2	E-Coli	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
3	Residual Chlorine	Iodometric Method [APHA 4500-Cl B]	0	0.2	1	Mg/l

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Baishali Rajbongshi,

Baishali Rajbongshi
 Quality Manager
 District Level Laboratory
 Sonitpur, Tezpur Division No.1

Baishali Rajbongshi
 Microbiologist
 District Level Laboratory
 Sonitpur, Tezpur Division No.1

Fig.5 (ii) Water quality report from Boys hostel (filtered)

LABORATORY NAME:
DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE
ENGINEER (PHE) TEZPUR DIVISION NO.I
RUBBER BAGAN, TEZPUR



ULR No.- 10522 24 00000221 F

Test Report No./ Sample Id : DLL/JAN/DLL /15
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : BOYS HOSTEL
 Block : TEZPUR
 Sample Type : DTW (RAW)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Parameter	Protocol Used	Results	IS: 10500:2012(Second Revision)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Taste	IS: 3025 (part 8): 2023	AGGREGABLE	Aggreable	Aggreable	
2	Turbidity	IS: 3025 (Part 10): 2017	0.8	1	5	NTU
3	pH	IS: 3025 (Part 11): 2022	6.65 @26°C	6.5 – 8.5 @25±2°C	No relaxation	pH unit
4	TDS	IS: 3025 (Part 16): 2023	210	500	2000	mg/L
5	Chloride	IS : 3025 (Part 32): 2019	92.17	250	1000	mg/L
6	Total Alkalinity	IS: 3025 (Part 23): 2019	65	200	600	mg/L
7	Total Hardness	IS: 3025 (Part 21): 2019	140	200	600	mg/L
8	Calcium (as Ca)	IS: 3025 (Part 40): 2019	49.69	75	200	mg/L
9	Magnesium	APHA (23rd ed) 3500 Mg B	5.832	30	100	mg/L
10	Total Iron	APHA 3500 (23rd Ed) Fe B	0.04	0.3	No relaxation	mg/L
11	Arsenic	IS: 3025 (Part 37): 2022	0	0.01	0.05	mg/L
12	Fluoride	APHA (23rd Ed) 4500 F F	0.24	1	1.5	mg/L
13	Nitrate	IS : 3025 (Part 34): 2019	0.96	45	No relaxation	mg/L
14	Sulphate	IS 3025 (Part 24/Sec 1): 2022	10.11	200	400	mg/L
15	Odour	IS 3025 (Part 5): 2022	AGGREGABLE	Aggreable	Aggreable	
16	Colour	IS: 3025: (Part 4): 2021	5	5	15	Hazen

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Pritam Modak

Tanuja Baruah

Tanuja Baruah
 Quality Manager
 District Level Laboratory
 Sonitpur

DLL Sonitpur, Tezpur Division No.I

*****END OF TEST REPORT*****

Fig.6 (i) Water quality report from Boys hostel (Raw)

LABORATORY NAME: DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE ENGINEER (PHE) TEZPUR DIVISION NO.1
 Email ID:dll.6tezipur@gmail.com

Test Report No./ Sample Id : DLL/JAN/DLL /15
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : BOYS HOSTEL
 Block : TEZPUR
 Sample Type : DTW (RAW)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report						
Sr. No.	Bacteriological Parameter	Protocol Used	Results	IS: 10500:2012 (Second)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Coliform	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
2	E-Coli	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
3	Residual Chlorine	Iodometric Method [APHA 4500-Cl B]	0	0.2	1	Mg/l

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: **Baishali Rajbongshi,**

Mareh
 Quality Manager
 DLL Sonitpur, Tezpur Division No.1
 District Level Laboratory
 Sonitpur

Baishali
 Microbiologist
 DLL Sonitpur, Tezpur Division No.1
 District Level Laboratory
 Tezpur Division No.1

Fig.6 (ii) Water quality report from Boys hostel (Raw)

LABORATORY NAME:
DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE
ENGINEER (PHE) TEZPUR DIVISION NO.1
RUBBER BAGAN, TEZPUR



ULR No.- 10522 24 00000225 F

Test Report No./ Sample Id : DLL/JAN/DLL /19
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : CENTRAL WATER SUPPLY
 Block : TEZPUR
 Sample Type : DTW (RAW)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Parameter	Protocol Used	Results	IS: 10500:2012(Second Revision)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Taste	IS: 3025 (part 8): 2023	AGGREGABLE	Aggreable	Aggreable	
2	Turbidity	IS: 3025 (Part 10): 2017	0.9	1	5	NTU
3	pH	IS: 3025 (Part 11): 2022	6.07 @26°C	6.5 – 8.5 @25±2°C	No relaxation	pH unit
4	TDS	IS: 3025 (Part 16): 2023	144	500	2000	mg/L
5	Chloride	IS : 3025 (Part 32): 2019	62.39	250	1000	mg/L
6	Total Alkalinity	IS: 3025 (Part 23): 2019	50	200	600	mg/L
7	Total Hardness	IS: 3025 (Part 21): 2019	124	200	600	mg/L
8	Calcium (as Ca)	IS: 3025 (Part 40): 2019	100	75	200	mg/L
9	Magnesium	APHA (23rd ed) 3500 Mg B	5.83	30	100	mg/L
10	Total Iron	APHA 3500 (23rd Ed) Fe B	0.12	0.3	No relaxation	mg/L
11	Arsenic	IS: 3025 (Part 37): 2022	0	0.01	0.05	mg/L
12	Fluoride	APHA (23rd Ed) 4500 F F	0.09	1	1.5	mg/L
13	Nitrate	IS : 3025 (Part 34): 2019	1.09	45	No relaxation	mg/L
14	Sulphate	IS 3025 (Part 24/Sec 1): 2022	16.31	200	400	mg/L
15	Odour	IS 3025 (Part 5): 2022	AGGREGABLE	Aggreable	Aggreable	
16	Colour	IS: 3025: (Part 4): 2021	5	5	15	Hazen

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Tanuja Baruah

Tanuja Baruah
 Quality Manager
 District Level Laboratory
 Sonitpur

Sample analyzed by: Pritam Modak

*****END OF TEST REPORT*****

DLL Sonitpur, Tezpur Division No.1

Fig.7 (i) Water quality report of central water supply

LABORATORY NAME: DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE ENGINEER (PHE) TEZPUR DIVISION NO.1

Email ID:dll.6tezpur@gmail.com

Test Report No./ Sample Id : DLL/JAN/DLL /19
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : CENTRAL WATER SUPPLY
 Block : TEZPUR
 Sample Type : DTW (RAW)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Bacteriological Parameter	Protocol Used	Results	IS: 10500:2012 (Second		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Coliform	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
2	E-Coli	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
3	Residual Chlorine	Iodometric Method [APHA 4500-Cl B]	0	0.2	1	Mg/l

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Baishali Rajbongshi,

Manish
 Quality Manager
 DLL Sonitpur, Tezpur Division No.1
 District Level Laboratory
 Sonitpur

Baishali
 Microbiologist
 DLL Sonitpur, Tezpur Division No.1
 Microbiologist
 DLL Sonitpur
 Tezpur Division No.1

Fig.7 (ii) Water quality report of central water supply

LABORATORY NAME:
DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE
ENGINEER (PHE) TEZPUR DIVISION NO.1
RUBBER BAGAN, TEZPUR



ULR No.- 10522 24 00000223 F

Test Report No./ Sample Id : DLL/JAN/DLL /17
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : KITCHEN
 Block : TEZPUR
 Sample Type : DTW (FILTER)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Parameter	Protocol Used	Results	IS: 10500:2012(Second Revision)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Taste	IS: 3025 (part 8): 2023	AGGREGABLE	Aggreable	Aggreable	
2	Turbidity	IS: 3025 (Part 10): 2017	0.9	1	5	NTU
3	pH	IS: 3025 (Part 11): 2022	6.26 @26°C	6.5 – 8.5 @25±2°C	No relaxation	pH unit
4	TDS	IS: 3025 (Part 16): 2023	72	500	2000	mg/L
5	Chloride	IS : 3025 (Part 32): 2019	17.72	250	1000	mg/L
6	Total Alkalinity	IS: 3025 (Part 23): 2019	100	200	600	mg/L
7	Total Hardness	IS: 3025 (Part 21): 2019	80	200	600	mg/L
8	Calcium (as Ca)	IS: 3025 (Part 40): 2019	25.65	75	200	mg/L
9	Magnesium	APHA (23rd ed) 3500 Mg B	1.94	30	100	mg/L
10	Total Iron	APHA 3500 (23rd Ed) Fe B	0.5	0.3	No relaxation	mg/L
11	Arsenic	IS: 3025 (Part 37): 2022	0	0.01	0.05	mg/L
12	Fluoride	APHA (23rd Ed) 4500 F F	0.33	1	1.5	mg/L
13	Nitrate	IS : 3025 (Part 34): 2019	0.66	45	No relaxation	mg/L
14	Sulphate	IS 3025 (Part 24/Sec 1): 2022	10.24	200	400	mg/L
15	Odour	IS 3025 (Part 5): 2022	AGGREGABLE	Aggreable	Aggreable	
16	Colour	IS: 3025: (Part 4): 2021	5	5	15	Hazen

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Pritam Modak

*****END OF TEST REPORT*****

Tanuja Baruah
 Quality Manager
 DLL Sonitpur, Tezpur Division No.1
 District Level Laboratory
 Sonitpur

Fig.8 (i) Water quality report from Girls hostel kitchen (filtered)

LABORATORY NAME: DISTRICT LEVEL LABORATORY (PHED), SONITPUR
Address: OFFICE OF THE EXECUTIVE ENGINEER (PHE) TEZPUR DIVISION NO.1
 Email ID:dll.6tezpur@gmail.com

Test Report No./ Sample Id : DLL/JAN/DLL /17
 Issue Date : 08-01-2024
 Issued To : DARRANG COLLEGE
 Sample Description : SAMPLE BOTTLE PROPERLY
 Sample Location : KITCHEN
 Block : TEZPUR
 Sample Type : DTW (FILTER)
 Sample Quantity : 1000 ml
 Sample Collected on Dated : 02-01-2024
 Sample Received on Dated : 02-01-2024
 Sample Collected By : DR. DIPAL BARUAH
 Date of Analysis Started: 02-01-2024 Date of Analysis Completed: 08-01-2024

Test Report

Sr. No.	Bacteriological Parameter	Protocol Used	Results	IS: 10500:2012 (Second)		Unit
				Desirable limit	Max. Permissible limit (in absence better alternate source)	
1	Coliform	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
2	E-Coli	MF Technic	NOT DETECTED	No relaxation	No relaxation	CFU/100 ml
3	Residual Chlorine	Iodometric Method [APHA 4500-Cl B]	0	0.2	1	Mg/l

Notes:

1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the
2. The test report cannot be regenerated/re-produced in whole or in part without written permission of Laboratory.
3. The test report cannot be used for any publicity or any legal purpose.
4. The test samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until

Sample analyzed by: Baishali Rajbongshi,

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 Quality Manager
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Fig.8 (ii) Water quality report from Girls hostel kitchen (filtered)


The water quality tests were carried out on raw and filtered water extracted through deep tube well. The values of the reported parameters are within permissible limits.

The existing filtration system in the College seems to be effective as far as the results of the reported parameters are concerned. However, it is recommended that filter water should be exclusively used for all purposes.

9. SOIL QUALITY ANALYSIS

Soil quality is the capacity of soil to perform within natural or managed ecosystem bounds, to sustain plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation. Soil quality cannot be directly tested; rather, it must be inferred from a variety of soil quality factors (physical, chemical, and biological) that influence soil's ability to perform successfully. It also varies with time, climate, rainfall, and plants and human factors.

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पूर्वोत्तर क्षेत्रीय जल और भूमि प्रबंधन संस्थान
NORTH EASTERN REGIONAL INSTITUTE OF WATER AND LAND MANAGEMENT
(जल संसाधन, नदी विकास और गंगा काया कल्प विभाग, जल शक्ति मंत्रालय, भारत सरकार के अधीन एक संस्थान)
(An Institute under the Department of Water Resources, River Development and Ganga Rejuvenation,
Ministry of Jal Shakti, Govt. of India)

ANALYSIS REPORT OF SOIL SAMPLES

Ref No: Letter/2024/005

Sl No.	Parameters	Soil Sample Results	
		Darrang College Plantation area (0-15 cm depth)	Darrang College Plantation area (15-30 cm depth)
1	pH	5.39	5.18
2	Organic Carbon(%)	1.6	1.5
3	Av. Nitrogen(kg/ha)	175.61	250.88
4	Av. Phosphorus(kg/ha)	0.57	0.18
5	Av. Potassium(kg/ha)	188.16	99.01

*(The report is only for academic/research use and not for any legal purpose)

Analysed by
Stutipriya Hazarika
20.3.2024
Stutipriya Hazarika
Lab Assistant (Agri.)
NERIWALM

Checked by
Ritu Thakur
20/3/2024
Ritu Thakur
Assistant Professor (Agri.) & O /C S&WT Lab
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Fig. 9 Soil quality report of Darrang College

Different indicators and parameters such as soil texture, bulk density, water holding capacity, pH, electrical conductance, soil organic matter, available nitrogen, available phosphorous, exchangeable potash, and concentrations of macro/micronutrients are appropriate for describing soil quality and agricultural productivity. Soil fertility deterioration is a major constraint for higher crop production in Assam.

The indicators tested for Soil quality are soil pH, organic carbon, available N, P, K. Soil quality test was carried out by North Eastern Regional Institute of Water and Land Management, Darrang. The reports of the same are shown below.

Results (Fig. 9) showed that soil is slightly acidic in nature and it has low soil macronutrients content (available N, available phosphorous, and available potassium). However, organic carbon content of the soil falls under the high category.

10. NOISE LEVEL IN THE CAMPUS

Under the Air (Prevention and Control of Pollution) Act, 1981, noise is considered as a pollutant. Noise mostly occurs in two major situations: community noise and industrial noise. Community noise is also called environmental noise and is defined as the noise emitted from all the sources except the noise from the industrial sources. As per WHO noise quality guidelines, noise level values are summarized with regard to specific environments and effects. For each environment and situation, the guideline values take into consideration the identified health effects and are set, based on the lowest levels of noise that affect health (critical health effect). As far as community noise is concerned, the WHO guidelines recommend less than 35 dB(A) in classrooms which is important for good teaching and learning conditions. The noise level monitoring was carried out to assess the equivalent noise level (L_{eq}) in the Darrang College campus. The test was carried out for 60 sec in each location and the maximum, minimum and the average noise level readings were recorded. The noise monitoring was carried out at different buildings in different locations within the campus. Table 3 shows the average measured noise level in the campus.

From the measured data, as summarized in Table 3, it is observed that the ambient noise levels in certain locations are beyond the prescribed standard limit of 35 dB for classrooms as per WHO guidelines. The exceeding of maximum permissible limits in

these areas can be attributed to the fact that these rooms are kept open to the surroundings through open windows and doors. Along with this, the noise emerging from vehicular movements through nearby roads lead to higher noise levels in some of the buildings. Also, due to the gathering of a large number of stakeholders for official works, the noise level in the administrative building is on the higher side. For maintenance of WHO recommended noise levels in the classrooms following steps may be taken.

- Closing of windows and doors during classes
- Installation of sound and echo insulation in rooms
- Replacing existing fans with silent fans/ air conditioners

Table 3 Noise level test in different locations

Building No./Name	No. of locations of noise measurement	Average noise level (dB)
New Academic Building	15	55
Administrative Block	10	73
Main Building	8	54
Sanskrit Block	5	57
Zoology Block	3	57
Chemistry	3	53
Heritage Block	4	54
Auditorium	4	53
Indoor Stadium	4	57
Boys Common Room	3	49
Union Office	4	54
Aasu Office	5	49
Boys Hostel	3	52
Girls Hostel	4	59
Canteen	4	62
Library	3	54
Nec Building	3	54
Academic Block	14	57
Old Alumni Building	3	58
Old Warden House	2	52

11. AIR QUALITY ASSESSMENT

For air quality monitoring three parameters namely Particulate Matter (PM 2.5 and 10), Carbon dioxide (CO₂), and Formaldehyde (HCHO) were considered for measurement in the College campus. PM stands for particulate matter, often known as particle pollution, which is the word used to describe an airborne mixture of solid and liquid droplets. Dust, dirt, soot, and smoke are examples of particles that are large enough or dark enough to be visible to the unaided eye. Others can only be seen with an electron microscope because they are extremely small.

Inhalable particles with diameters of 10 micrometers or less are referred to as PM10, while fine inhalable particles with diameters of 2.5 micrometers or less are referred to as PM2.5. Particulate matter is made up of microscopic solid or liquid droplets that are so minute that breathing it in can have significant adverse impacts on a person's health. PM10 have the potential to travel deep into the lungs and potentially into the bloodstream. The greatest threat to health comes from fine particles, also known as PM2.5.

CO₂ is not considered as a pollutant as it occurs naturally in the air. However, increased levels of CO₂ have various detrimental effects. Simply put, as the amount of CO₂ in a tight space increases, it substitutes for the oxygen the body needs to survive. The body slows down and performs poorly when it cannot acquire enough oxygen. CO₂ primarily impacts the brain since it is an asphyxiant. Exposure to CO₂ can produce a variety of health effects. These may include headaches, dizziness, restlessness, a tingling or pins or needles feeling, difficulty breathing, sweating, tiredness, increased heart rate, elevated blood pressure, coma, asphyxia, and convulsions.

Volatile organic compounds such as formaldehyde, or HCHO, can contaminate the indoor air in a closed space. Total volatile organic compounds are made up of a variety of chemicals, including formaldehyde. Formaldehyde is produced naturally and expelled during metabolism. This volatile organic chemical is one of the most hazardous ones that can be discovered in the air. Formaldehyde exposure on a regular basis or for an extended amount of time can result in adverse effects on health. Nasal irritation, headaches, eye discomfort, and respiratory tract irritation are a few of the health problems that can result from exposure to formaldehyde. High quantities could possibly cause serious, lifelong health problems. In addition, it's important to be aware that formaldehyde is a toxin that might cause leukaemia, tracheal cancer, and nasal cancer.

The air quality monitoring test was conducted with the help of air quality meter Temtop-M 2000. This instrument is sensitive to the size of particles of aerodynamic diameter of 2.5 µm and 10 µm. All the pollutant concentrations were recorded for 60 seconds in the memory of the instrument, which were further downloaded and analyzed. 5 major locations within the campus were selected and the readings of PM2.5, PM10, CO₂ and HCHO were recorded.


The average particulate matter PM10 was observed to be 39.05 $\mu\text{g}/\text{m}^3$ and PM2.5 was observed to be 19.43 $\mu\text{g}/\text{m}^3$ which is lower than the permissible limits of CPCB Ambient Air Quality Standards of 100 $\mu\text{g}/\text{m}^3$ and 60 $\mu\text{g}/\text{m}^3$, respectively. The average CO₂ level was 367.78 ppm and HCHO level was 0.03 mg/m^3 which are within acceptable standard limits. In the College campus, the major source of PM10 and PM2.5 might be the dust from vehicular traffic and constructio.







12. FLORAL DIVERSITY OF THE COLLEGE CAMPUS






The campus is an example of co-existence of human and environment as it is rich in flora and faunal diversity. The campus area is vastly diverse with a variety of tree species having significant environmental role. These tree species are the integral part of the College. Most of these tree species are planted by the College authority through various tree plantation programs conducted in different periods of time. These trees have increased the quality of life by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, and supporting wildlife. The impact of these trees is not only within the College fraternity but also on the surroundings of the College. They contribute to the environment by moderating the effects of the sun, rain and wind and by absorbing and filtering the sun's radiant energy and keeping the campus cool in summer. Many spices of birds are dependent on these trees mainly for food and shelter. Thus, the College campus has been playing a significant role in maintaining the environment of the surrounding area.






The study reveals that a total 61 numbers of floral species belonging to 39 families are found in the campus. The details of the floral species found in the College campus are given in Table 4.

Table 4 Floral Diversity of College Campus








Sl. No.	Details		Photograph
1	Name	Blue Rat's Tail	
	Local Name	Indian Snakeweed	
	Scientific Name	<i>Stachytarpheta cayennensis</i>	
	Family	Verbenaceae	






Sl. No.	Details		Photograph
2	Name	Flannel weed	
	Local Name	Bor Sonborial	
	Scientific Name	<i>Solanum mauritianum</i>	
	Family	Solanaceae	
3	Name	Lantana	
	Local Name	Gui phul	
	Scientific Name	<i>Lantana camara L</i>	
	Family	Verbenaceae	
4	Name	Jamaican Cherry	
	Local Name	Hagrani Cherry	
	Scientific Name	<i>Muntingia calabura</i>	
	Family	Tiliaceae	
5	Name	Water Lily	
	Local Name	Bhet phul	
	Scientific Name	<i>Nymphaea</i> spp.	
	Family	Nymphaeaceae	
6	Name	Ivy gourd	
	Local Name	Kunduli	
	Scientific Name	<i>Coccinia grandis</i>	
	Family	Cucurbitaceae	
7	Name	Indian prickly ash	
	Local Name	Tez-mui	
	Scientific Name	<i>Zanthoxylum myriacanthum</i>	
	Family	Rutaceae	







Sl. No.	Details		Photograph
8	Name	Brazilian spinach	
	Local Name	Matikaduri	
	Scientific Name	<i>Alternanthera sessilis</i>	
	Family	Amaranthaceae	
9	Name	Pickerel weed	
	Local Name	Bhat meteka	
	Scientific Name	<i>Pontederia plantaginea</i>	
	Family	Pontederiaceae	
10	Name	Indian jujube	
	Local Name	Bogori	
	Scientific Name	<i>Zizyphus jujube</i> Lamk.	
	Family	Rhamnaceae	
11	Name	Indian olive tree	
	Local Name	Jolphai	
	Scientific Name	<i>Elaeocarpus floribundus</i> Blume.	
	Family	Elaeocarpaceae	
12	Name	Litchi	
	Local Name	Lichu gosh	
	Scientific Name	<i>Litchi chinensis</i> Sonn.	
	Family	Sapindaceae	

Sl. No.	Details		Photograph
13	Name	Jack fruit	
	Local Name	Kothal	
	Scientific Name	<i>Artocarpus heterophyllus</i> Lam.	
	Family	Moraceae	
14	Name	The Margosa tree	
	Local Name	Moha neem	
	Scientific Name	<i>Azadirachta indica</i> A. Juss.	
	Family	Meliaceae	
15	Name	Indian timber bamboo	
	Local Name	Bah	
	Scientific Name	<i>Bambusa tulda</i> (Roxb.)	
	Family	Poaceae	
16	Name	Kanchan	
	Local Name	Boga kanchan	
	Scientific Name	<i>Bauhinia racemosa</i> Lam.	
	Family	Fabaceae	
17	Name	Betel nut	
	Local Name	Tamul	
	Scientific Name	<i>Areca catechu</i> Linn.	
	Family	Palemae	

Sl. No.	Details		Photograph
18	Name	The coconut palm	
	Local Name	Naricol	
	Scientific Name	<i>Cocos nucifera</i> Linn.	
	Family	Areaceae	
19	Name	Black plum	
	Local Name	Kolajamu	
	Scientific Name	<i>Eugenia jambolana</i> Lam.	
	Family	Myrtaceae	
20	Name	Pride of India	
	Local Name	Ajar	
	Scientific Name	<i>Lagerstroemia flos-reginae</i> Retz.	
	Family	Lythraceae	
21	Name	The Mango tree	
	Local Name	Aam gosh	
	Scientific Name	<i>Mangifera indica</i> Linn.	
	Family	Anacardiaceae	
22	Name	Indian rose chestnut	
	Local Name	Nahor	
	Scientific Name	<i>Mesua ferrea</i> L.	
	Family	Calophyllaceae	


Sl. No.	Details		Photograph
23	Name	Indian Madlar	
	Local Name	Bokul	
	Scientific Name	<i>Mimusops elengi</i> Linn.	
	Family	Sapotaceae	
24	Name	Mast tree	
	Local Name	Debdaru	
	Scientific Name	<i>Polyalthia longifolia</i> Benth.	
	Family	Anonaceae	
25	Name	English guava	
	Local Name	Modhuri aam	
	Scientific Name	<i>Psidium guajava</i> L.	
	Family	Myrtaceae	
26	Name	Indian curry leaf plant	
	Local Name	Norosingho	
	Scientific Name	<i>Murraya koenigii</i> Spreng.	
	Family	Rutaceae	
28	Name	Emblicmyrobalans	
	Local Name	Amlokhi	
	Scientific Name	<i>Emblica officinalis</i> Geartn.	
	Family	Euphorbiaceae	
30	Name	Hill teak	
	Local Name	Gomari	
	Scientific Name	<i>Gmelina arborea</i> Linn.	
	Family	Verbenaceae	
31	Name	The lemon	
	Local Name	Gol nemoo	
	Scientific Name	<i>Citrus aurantifolia</i>	
	Family	Rutaceae	




Sl. No.	Details		Photograph
32	Name	Champa tree	
	Local Name	Titachopa	
	Scientific Name	<i>Michelia champaca</i>	
	Family	Magnoliaceae	
33	Name	Teak tree	
	Local Name	Segun	
	Scientific Name	<i>Tectona grandis</i>	
	Family	Lamiaceae	
34	Name	Sal tree	
	Local Name	Sal	
	Scientific Name	<i>Shorea robusta</i>	
	Family	Dipterocarpaceae	
35	Name	Indian Rosewood	
	Local Name	Sishu	
	Scientific Name	<i>Dalbergia sisso</i>	
	Family	Fabaceae	
36	Name	Golden shower	
	Local Name	Xunaru	
	Scientific Name	<i>Cassia fistula</i>	
	Family	Fabaceae	

Sl. No.	Details		Photograph
37	Name	Queen's Flower	
	Local Name	Ajar Ejar Jarul	
	Scientific Name	<i>Lagerstromia speciosa</i>	
	Family	Lythraceae	
38	Name	Umbrella Sedge	
	Local Name	Nagarmotha	
	Scientific Name	<i>Cyperus scariosus</i>	
	Family	Poaceae	
39	Name	The Arjun tree	
	Local Name	Arjun gosh	
	Scientific Name	<i>Terminalia arjuna</i> Weight & Arn.	
	Family	Combretaceae	
40	Name	Aloewood	
	Local Name	Agaru, sashi	
	Scientific Name	<i>Aquilaria malaccensis</i>	
	Family	Thymelaeaceae	
41	Name	Wood apple	
	Local Name	Bel	
	Scientific Name	<i>Aegle marmelos</i>	
	Family	Rutaceae	
42	Name	Ficus tree	
	Local Name	Aahat	
	Scientific Name	<i>Ficus religiosa</i>	
	Family	Moraceae	

Sl. No.	Details		Photograph
43	Name	Bonsum	
	Local Name	Bonsum	
	Scientific Name	<i>Phoebe goalparensis</i>	
	Family	Lauraceae	
44	Name	Elephant apple	
	Local Name	Ou-tenga	
	Scientific Name	<i>Dillenia indica</i>	
	Family	Dilleniaceae	
45	Name	Baheda	
	Local Name	Bhumura	
	Scientific Name	<i>Terminalia bellirica</i>	
	Family	Combretaceae	
46	Name	Polash tree/Flame of forest	
	Local Name	Polash	
	Scientific Name	<i>Butea monosperma</i>	
	Family	Fabaceae	
47	Name	Assam rubber tree	
	Local Name	Robor gos	
	Scientific Name	<i>Ficus elastica</i>	
	Family	Moraceae	

Sl. No.	Details		Photograph
48	Name	Star gooseberry	
	Local Name	Pura amlakhi	
	Scientific Name	<i>Phyllanthus acidus</i>	
	Family	Phyllanthaceae	
49	Name	Cinnamon	
	Local Name	Dalseni	
	Scientific Name	<i>Cinamomum zeylanicum</i>	
	Family	Lauraceae	
50	Name	Bay leaf tree	
	Local Name	Tejpat	
	Scientific Name	<i>Cinamomum tamala</i>	
	Family	Lauraceae	
51	Name	Sandalwood tree	
	Local Name	Boga chandan	
	Scientific Name	<i>Santalum album</i>	
	Family	Santalaceae	
52	Name	Star fruit tree	
	Local Name	Kordoi	
	Scientific Name	<i>Averrhoa carambola</i>	
	Family	Oxalidaceae	


Sl. No.	Details		Photograph
53	Name	Burmese Grape	
	Local Name	Leteku	
	Scientific Name	<i>Baccaurea remiflora</i>	
	Family	Phyllanthaceae	
54	Name	Parijat Tree	
	Local Name	Sewali	
	Scientific Name	<i>Nyctanthus arbor-tristis</i>	
	Family	Oleaceae	
55	Name	Henna tree	
	Local Name	Jetuka	
	Scientific Name	<i>Lawsonia intermis</i>	
	Family	Lythraceae	
56	Name	Pomegranate	
	Local Name	Dalim	
	Scientific Name	<i>Punica granatum</i>	
	Family	Punicaceae	
57	Name	Ashoka	
	Local Name	Ashok	
	Scientific Name	<i>Saraca asoca</i>	
	Family	Fabaceae	
58	Name	Peacock flower	
	Local Name	Radhasura	
	Scientific Name	<i>Caesalpinia pulcherrima</i>	
	Family	Fabaceae	






Sl. No.	Details		Photograph
59	Name	Bougainvillea	
	Local Name	Bougainvillea	
	Scientific Name	<i>Bougainvillea spectabilis</i>	
	Family	Nyctaginaceae	
60	Name	Rangoon creeper	
	Local Name	Malati	
	Scientific Name	<i>Combretum indicum</i>	
	Family	Combretaceae	
61	Name	Billygoat-weed	
	Local Name	Gendali-bon	
	Scientific Name	<i>Agaratum conyzoides</i>	
	Family	Asteraceae	






13. FAUNAL DIVERSITY OF THE CAMPUS






Assam is considered as biodiversity “hot spot” in the country. Favorable climate condition, topography and different other factors result in a diversity of ecological habitats such as forests, grasslands and wetlands. The college campus is inhabited by various faunal species. Apart from the migratory birds, various other faunal species are found in the campus as listed in Table 5.






Table 5 Faunal Diversity of College Campus



Sl. No.	Details		Photograph
1	Common Name	Earth worm	
	Scientific Name	<i>Lumbricus terrestris</i>	

Sl. No.	Details		Photograph
2	Common Name	Egret	
	Scientific Name	<i>Ardea alba</i>	
3	Common Name	Parakeet	
	Scientific Name	<i>Psittaciformes</i>	
4	Common Name	Common Mime	
	Scientific Name	<i>Priniceps castor polas</i>	
5	Common Name	Common Mormon	
	Scientific Name	<i>Priniceps polytes</i>	
6	Common Name	Copper headed trinket snake	
	Scientific Name	<i>Agkistron contortrix</i>	

Sl. No.	Details		Photograph
7	Common Name	Little Cormorant	
	Scientific Name	<i>Phalacrocorex Niger</i>	
8	Common Name	Dove	
	Scientific Name	<i>Motacilla Alba</i>	
9	Common Name	Crow	
	Scientific Name	<i>Corvus splendens</i>	
10	Common Name	Myna	
	Scientific Name	<i>Acridotheres trestis</i>	
11	Common Name	Owl	
	Scientific Name	<i>Athene noctua</i>	

Sl. No.	Details		Photograph
12	Common Name	House sparrow	
	Scientific Name	<i>Passer domesticus</i>	
13	Common Name	Bulbul	
	Scientific Name	<i>Pycnonotus barbatus</i>	
14	Common Name	Pond heron	
	Scientific Name	<i>Ardeola</i>	
15	Common Name	Pigeon	
	Scientific Name	<i>Columba</i>	
16	Common Name	Gekko	
	Scientific Name	<i>Gekko gekko</i>	

Sl. No.	Details		Photograph
17	Common Name	Monkey	
	Scientific Name	<i>Barbary macaque</i>	
18	Common Name	Whisky drinker	
	Scientific Name	<i>Cicada spp</i>	
19	Common Name	Tigermoth caterpillar	
	Scientific Name	<i>Pyrrharctia isabella</i>	
20	Common Name	Red cotton Stainer	
	Scientific Name	<i>Dysdercusingulatus</i>	
21	Common Name	Vivid metallic ground beetle	
	Scientific Name	<i>Chlaenius spp.</i>	

Sl. No.	Details		Photograph
22	Common Name	Malaysian cherry red centipede	
	Scientific Name	<i>Scolopendrasubspinipes</i>	
23	Common Name	Blister beetle	
	Scientific Name	<i>Epicautapennsylvanica</i>	

14. WASTE DISPOSAL SYSTEM OF THE COLLEGE

Waste management system comprises of various waste disposal activities including waste collection, transportation, treatment and disposal. The institution also conducts events such as cleanliness drives, seminars, practical works, discussions etc. on waste management. By formulation and proper implementation of the waste management policy, the College tries to cultivate habits and skills among the trainees, students and faculty members about waste management.

At present, solid wastes in the form of wastepaper and fallen tree leaves are the major waste generated in the college, along with minor amounts of laboratory organic and inorganic waste. Also, vegetable and food waste are generated in the Boys and Girls Hostels. The bathroom liquid waste is fed to soak pits. The canteen and hostels produce a mix of organic and inorganic waste.

Some of the waste management measures undertaken by the College are:

- Segregation of solid waste at the source by placing separate dustbins in all strategically important locations throughout the campus for Wet & Dry waste (Fig. 10).



Fig. 10 Waste segregation practices in the campus

- Separate bins are placed throughout the campus for E-waste collection and safe disposal. The idea of urban mining is promoted on campus as well.
- The College has installed two 1m³ capacity biogas units, one each in the Boys and Girls Hostels (Fig. 11). The biogas units are fed with vegetable and biodegradable food waste like leftover rice. The units are fed with 5kg/day of the biodegradable waste. The biogas units are producing biogas equivalent to 1 kg/day of LPG resulting in a fuel saving of around 2 LPG commercial cylinders per month. The biogas is currently used in cooking purposes in the Hostels. The slurry generated from the biogas plants is being used as an organic fertilizer in the plantations around the Hostels.



Fig. 11 Biogas systems installed in the College Campus

- The College has started a vermi-composting unit which aims to produce organic manure from biodegradable waste generated in the campus (Fig. 12). A sizeable fraction of the biodegradable solid waste primarily containing the fallen leaves is recycled by composting in the vermicomposting unit of the college. Compost thus produced is also utilized by the college as organic manure for saplings.



Fig. 12 Vermi-composting units in the College campus

- E-waste (out of order equipment's or obsolete items like laboratory instruments, electronic circuits, computer desktops or different computer components, laptops and accessories, printer and cartridges, charging cables, Wi-fi devices and cables, CCTV components, sound systems, display units, UPS and battery, biometric machine, scientific instruments etc.) is collected and disposed at regular intervals. It is recommended that e-waste disposal should be done through authorized vendors.

It is observed that the College has taken up some initiatives for managing the generated waste. Source segregation of waste should be strictly followed in order to devise a mechanism for safe disposal/recycling of the non-biodegradable fraction of waste.

15. VEHICULAR MOVEMENTS

On an average more than a 200 two wheeler and 50 four wheeler vehicles come to the College campus. Most of the vehicles brought inside the campus are four wheeled type, mostly belonging to the faculty and of other staff members. All the four wheelers inside the campus are non-polluting/ low polluting and conform to at least BS4 emissions. The

two-wheelers present inside the campus were also observed to be complying with emissions standards.

Considering the vehicular movement, the College may adopt a 'Walk to the College' initiative on a specified date of every month on which all members of the College, within the vicinity of the College, come to the campus walking and those staying away use only mass transport to reach the campus. No vehicles (excluding visitor's) shall be allowed in the campus on the designated day of the month. This will be an appreciable initiative marking the commitment of the College towards environmental sustainability.

16. ELECTRICAL POWER CONSUMPTION AND ENERGY CONSERVATION INITIATIVES

The College draws power from the electricity grid of Assam Power Distribution Company Ltd. (APDCL) through a high tension connection with a total connected load of 210 kW. This is supported by a power backup system consisting of 2 nos. of Diesel Generators as detailed in Table 6. The electrical power consumption of Darrang College from April, 2022 to February, 2024 is shown in Table 7.

Table 6 Details of diesel generators

Make of the Generator	Rating (kW)	Annual fuel consumption (2023-2024) (Approx.)		Generator annual maintenance done/not done
		Amount (l)	Cost (Rs.)	
Kirloskar Oil Engines Limited Model: KG254 S0	112	2100	189000	Yes
Kirloskar Oil Engines Limited	110			Yes

Table 7 Energy consumption of College campus

Item	Value
Consumer number	099000001429
Category	HT IV BULK SUPPLY (GOVT. EDUCATION)
Connected load (kW)	210 kW

Month	PF (Power Factor)	Units Consumed	Billed amount (Rs.)
April, 2023	93.300	7831.890	97167.00
May, 2023	97.000	11223.450	131765.00
June, 2023	95.500	10667.790	125925.00
July, 2023	96.300	6956.930	98636.00
August, 2023	97.930	16086.360	179037.00

Month	PF (Power Factor)	Units Consumed	Billed amount (Rs.)
September, 2023	97.900	15546.670	175141.00
October, 2023	93.400	9501.030	123234.00
November, 2023	92.106	8663.490	114587.00
December, 2023	89.020	7471.030	105375.00
January, 2024	77.000	5290.080	86188.00
February, 2024	88.420	6872.580	97552.00

Keeping in view of the available rooftop area, it is suggested that the College Authority may install renewable energy generation systems to substitute a sizeable fraction of their electricity requirement, which in turn will be another green and environmentally benign practice of the institute.

17. ROUTINE GREEN PRACTICES

The college has taken up many green practices to augment its contribution towards environmental sustainability. Some salient points highlighting the routine green practices of the college are summarized below.

1. Solar Lights: Solar Street lights are installed in some locations of the college campus.
2. Plastic free campus: The use of plastic is restricted and discouraged in the college campus. The use of paper in daily functioning of the college office is limited by gradually moving towards a paperless mode.



Fig. 13 Plantation drives carried out on various occasions

3. Green landscaping with trees and plants: The College has been taking plantation drives in all major occasions not only in different parts the College but in different locations of Sonitpur district also. Plantation drives are conducted on major occasions such as World Environment Day, College annual sports, etc. (Fig. 13). The results are very inspiring.
4. Rainwater harvesting systems: To cut down on water usage and encourage sustainable living on campus, the College has introduced rainwater harvesting system. In order to collect rainwater and store it in tanks for later use, the university has built rooftop rainwater harvesting systems in a number of buildings. The institution has also put in place a water recycling system that cleans wastewater and repurposes it for non-potable needs like watering plants and flushing toilets (Fig. 14).



Fig. 14 Rain water harvesting system installed in the College

5. Programmes related to environment awareness: Seminars/workshops are regularly organized by the college for various stakeholders to create awareness regarding environmental sustainability (Fig. 15). The college has introduced some courses in different programmes related to environment to inculcate awareness for the preservation and improvement of environment.



Fig. 15 Environment awareness programmes conducted by the College

6. Extension Activities Conducted on Environment Awareness: Various outreach activities relating to environment promotional are carried out by the college. Some highlights of such activities are detailed below.
- i. Extension Programme conducted on 'Sparrow Day' by the Department of Zoology, on 20th March, 2023 (Fig. 16).



Fig. 16 World Sparrow Day celebration at the College

- ii. Extension programme conducted on 'Parthenium control' in the College campus on World Environment Day, 5th June, 2023 (Fig. 17).



Fig. 17 Programme of Parthenium Control

7. Other activities: A Mushroom cultivation and Training Centre (Fig. 18) has been established in the College Campus where edible varieties of mushrooms are cultivated. The mushrooms are sold and the earnings are used in the maintenance of the unit.

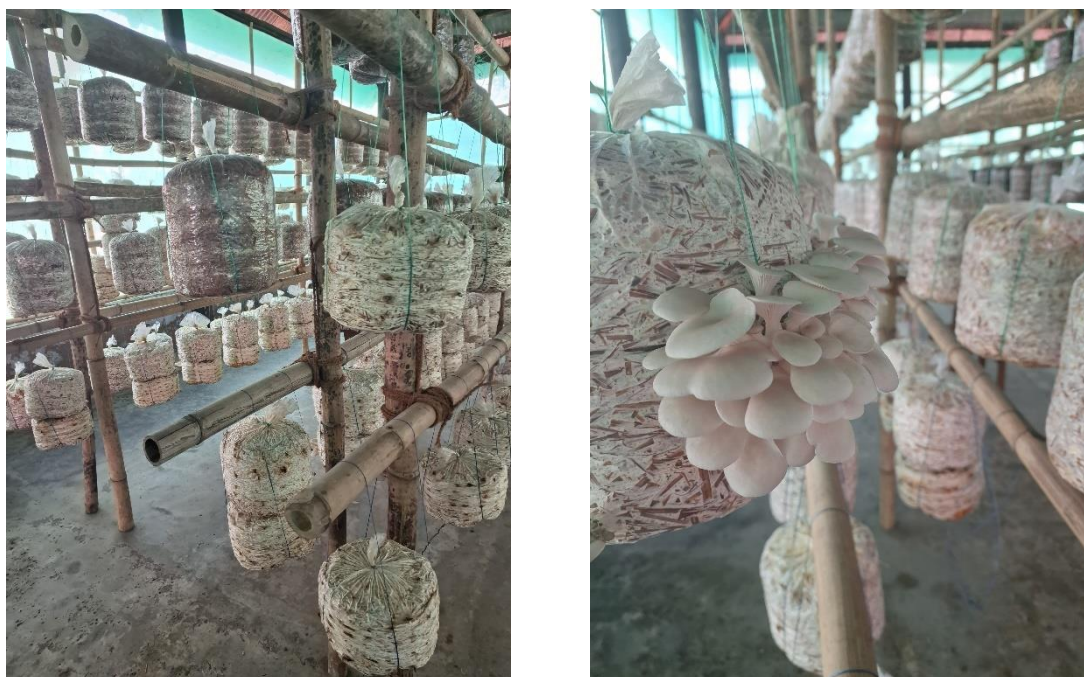


Fig. 18 Mushroom cultivation and Training Centre at Darrang College

18. RECOMMENDATIONS

Green Audit of Darrang College was conducted. The study comprised of data collection and monitoring through personal visits. Overall, it was observed that the College is performing satisfactorily in terms of playing its role in environmental sustainability. As an educational institution of reputation, it is taking several encouraging initiatives that can make significant contributions towards dealing with current environmental challenges, which is promising. We have made the following recommendations so that the College can have more impact in achieving its sustainability goals and thus can be a major player in practicing environmental sustainability.

- The current waste collection and disposal practices have room for improvement. It is recommended that waste segregation be strictly practiced.
- It is suggested that the College Authority install small decentralized renewable energy generation systems in the campus which can supplement their total electricity needs. There is ample scope for utilization of the rooftop space of the buildings, the majority of which are facing South, for solar-based electricity generation. The College can also increase the capacity of the installed solar lighting system.
- E-waste disposal should be done through authorized vendors.
- To maintain the WHO recommended noise levels in the classrooms, College can install sound and echo insulation in rooms and can replace existing fans with silent fans/ air conditioners.