GREEN AND ENVIRONMENT AUDIT REPORT

MANGALDAI COLLEGE

PREPARED BY

GREEN AUDIT TEAM
MANGALDAI COLLEGE
MANGALDAI, ASSAM
2023

Principal
Mangaldai College
Mangaldai

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Foreword

The global natural environment is undergoing rapid changes due to intense anthropogenic pressures. Issues such as climate change, deforestation, sea level rise, and glacier melting are escalating at an alarming rate, posing significant threats to biodiversity, climate stability, and overall environmental sustainability. With the global human population surpassing 8 billion, there is a corresponding increase in the exploitation of natural resources, exerting immense pressure on the environment. The Indian sub-continent, experiencing alarming population growth, is also witnessing severe environmental impacts.

In this context, higher educational institutions play a crucial role in conserving the natural environment through practical and effective measures. Mangaldai College, situated in the Darrang district and established in 1951, stands as a premier higher education institute in Assam. Since its inception, the college has been actively involved in nature and natural resource conservation. Initiatives such as extensive plantation drives, utilization of solar energy, provision of clean drinking water, maintaining a tobacco-free and plastic-free campus, and implementing waste management practices reflect the college's commitment to environmental preservation.

Moreover, the college has undertaken awareness campaigns to educate students and other stakeholders about the importance of nature conservation and sustainable development. Recognizing the significance of a green audit—a systematic and scientific approach to understanding the relationship between resource utilization and waste generation—the Mangaldai College has initiated a green audit to assess eco-friendly and non-eco-friendly practices within the campus. This report aims to provide insights that will motivate and guide all stakeholders in moving towards a sustainable and environmentally conscious future.

Kamala Kanta Borah

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1. Introduction:

Mangaldai College, situated on the northern bank of the formidable Brahmaputra River in central Assam, stands as a distinguished Higher Educational Institute in the Darrang District. Affiliated to Gauhati University, the college offers a comprehensive educational experience encompassing Science, Arts, and a skill-based Bachelor of Vocational (B.Voc.) Programme.

Established in 1951 by forward-thinking citizens, Mangaldai College has evolved into a prominent higher education institution within the district. Its growth is attributed to the dedicated efforts of the administration, faculty, students, and various stakeholders. The college, with an annual enrolment exceeding 3000 students, hosts twenty departments providing twenty-two undergraduate degree programs, including self-sustaining options, and a postgraduate program in Assamese. Additionally, the institution offers several certificate courses for academic enrichment.

Covering 33.33 acres, the college boasts a lush green environment, with over 50% of the area under green cover. Striving for academic excellence and character integrity, the institution aims to provide the best academic, sporting, and cultural facilities for the holistic development of its students. Embracing a decentralized governance model, Mangaldai College encourages the active participation of all stakeholders to foster an environment conducive to knowledge, research, skill development, and humanitarian values.

Accredited by NAAC in September 2018 for the second cycle, the college continually works towards enhancing its quality. It remains committed to inclusivity by providing higher education access to economically and socially disadvantaged sections of society. Mangaldai College engages in various events, observes important days, conducts awareness programs, and contributes to community service in areas such as sanitation, environment, sustainability, and literacy.

The college's NSS, NCC (Boys & Girls), Youth Red Cross, and other cells actively participate in extension activities, leaving a visible impact on society. Faculty members contribute to research activities, with publications in reputable international journals indexed in global databases. With a vision of building a caring and sharing

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society, Mangaldai College persists in its mission to foster academic growth, community engagement, and overall societal betterment.

2. Concept and Need of Green Audit in Higher Educational Institutions:

A green audit, also known as an environmental audit, in higher educational institutions serves several purposes. Its primary goal is to assess and improve the environmental sustainability practices and policies within the institution. Here's a breakdown of its need and concept:

a. **Environmental Responsibility**: Higher educational institutions have a significant environmental impact due to their size, energy consumption, waste generation, and transportation needs. Conducting a green audit helps these institutions fulfill their responsibility towards the environment by identifying areas where they can reduce their ecological footprint.

b. **Resource Efficiency**: Green audits evaluate the efficiency of resource utilization, such as energy, water, and materials, within the institution. By identifying inefficiencies and implementing measures to optimize resource use, institutions can reduce costs and minimize waste.

c. **Compliance and Regulation**: Green audits ensure that institutions comply with environmental regulations and standards set by governmental bodies. This helps institutions avoid legal penalties and reputational damage associated with non-compliance.

d. **Educational Opportunity**: Green audits provide educational opportunities for students, faculty, and staff by raising awareness about environmental issues and sustainable practices. It encourages the integration of sustainability principles into academic curricula and campus operations.

e. **Stakeholder Engagement**: Conducting a green audit involves engaging various stakeholders, including students, faculty, staff, administrators, and the local community. It fosters collaboration and dialogue on sustainability initiatives and encourages participation in implementing green solutions.

f. **Benchmarking and Improvement**: Green audits establish baseline data on environmental performance, which allows institutions to track their progress over time and benchmark against peer institutions. It enables continuous improvement by identifying areas for enhancement and setting targets for sustainability goals.

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The concept of a green audit typically involves several key steps:

a. **Planning and Preparation**: This phase involves defining the scope and objectives of the audit, assembling a multidisciplinary audit team, and developing an audit plan outlining methodologies, data collection techniques, and timelines.
b. **Data Collection and Analysis**: The audit team collects data on various environmental aspects, including energy consumption, water usage, waste generation, transportation patterns, and procurement practices. Data analysis helps identify trends, patterns, and areas for improvement.
c. **Evaluation and Assessment**: The collected data is evaluated against relevant environmental criteria, such as regulatory requirements, industry standards, and best practices. The audit team assesses the institution's environmental performance and identifies strengths, weaknesses, and opportunities for improvement.
d. **Recommendations and Action Plan**: Based on the findings of the audit, the team develops recommendations and an action plan to address identified areas for improvement. These recommendations may include implementing energy-efficient technologies, adopting renewable energy sources, reducing waste generation, promoting recycling and composting, enhancing transportation alternatives, and integrating sustainability into campus policies and practices.
e. **Implementation and Monitoring**: The institution implements the recommended actions and monitors progress towards achieving sustainability goals. Continuous monitoring and periodic audits ensure that improvements are sustained over time and that new opportunities for enhancement are identified.

Overall, green audits in higher educational institutions play a crucial role in promoting environmental sustainability, fostering campus-wide engagement, and advancing the institution's commitment to responsible stewardship of resources. Considering its importance Mangaldai College has conducted in the green and environmental audit in the campus for the year 2023.

3. Criteria 7 of NAAC Assessment and Importance of Green Audit:

Criterion 7 of the National Assessment and Accreditation Council (NAAC) focuses on "Institutional Values and Best Practices," which includes environmental sustainability as one of the key components. The criterion assesses the institution's commitment to promoting values such as ethical practices, social responsibility, and

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sustainable development. Green audits can play a significant role in meeting the requirements of Criterion 7 by demonstrating the institution's efforts towards environmental stewardship and sustainable practices. Here's how green audits align with NAAC Criterion 7:

a. **Environmental Management Systems (EMS)**: Green audits showcase the institution's establishment and implementation of an Environmental Management System, which includes policies, procedures, and practices aimed at minimizing environmental impact. NAAC evaluates the effectiveness of the institution's EMS in promoting sustainable development and mitigating environmental risks.
b. **Compliance with Environmental Regulations**: Green audits demonstrate the institution's compliance with environmental regulations and standards set by regulatory authorities. NAAC assesses the institution's adherence to relevant environmental laws and regulations as part of its evaluation under Criterion 7.
c. **Integration of Sustainability into Curriculum**: Green audits highlight the integration of sustainability principles and environmental education into the academic curriculum. NAAC evaluates the institution's efforts to incorporate sustainability-related topics, research, and projects across disciplines to promote awareness and understanding of environmental issues.
d. **Promotion of Sustainable Practices**: Green audits showcase the institution's promotion of sustainable practices among students, faculty, staff, and the broader community. NAAC assesses the effectiveness of the institution's initiatives in promoting energy conservation, waste reduction, water management, green transportation, and other sustainable behaviors.
e. **Engagement with Stakeholders**: Green audits demonstrate the institution's engagement with various stakeholders, including students, faculty, staff, administrators, and the local community, to promote environmental sustainability. NAAC evaluates the institution's efforts to foster collaboration, participation, and dialogue on sustainability initiatives as part of its assessment under Criterion 7.
f. **Continuous Improvement**: Green audits highlight the institution's commitment to continuous improvement in environmental performance and sustainability practices. NAAC assesses the institution's mechanisms for monitoring, evaluating, and enhancing its environmental initiatives to achieve sustainability goals over time.

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In summary, green audits contribute to meeting the requirements of NAAC Criterion 7 by providing evidence of the institution's commitment to environmental sustainability, ethical practices, and best practices in line with institutional values. They demonstrate the institution's efforts to integrate sustainability into its operations, curriculum, and engagement with stakeholders, thereby enhancing its overall accreditation process.

4. Vision of the college:

Promotion of higher education, social upliftment and development of scientific temperament among the masses in the socially and educationally backward area where the college is situated.

5. Mission of the college:

i) To promote higher education among the people irrespective of Caste, creed, religion and gender.

ii) To create a scientifically tempered society which will exclude superstition and other evil practices which thrive because of ignorance.

6. Environmental Policy of Mangaldai College:

Mangaldai College, situated in the Darrang district of Assam, stands as a leading educational institution in the region. Established in 1951, the college has consistently fostered a high-quality academic environment for both students and faculty members since its inception. Demonstrating a commitment to environmental consciousness, the college has undertaken green initiatives aimed at preserving the natural surroundings and ensuring a pollution-free campus. The collective effort of the college administration, students, staff, faculty members, and other stakeholders reflects a shared responsibility to uphold, safeguard, and conserve the college's green environment.

7. Environmental Policy Statement of Mangaldai College:

The environmental policy of Mangaldai College is to conserve natural environment, develop sustainable solutions, promote rural and traditional technologies and control energy consumption in order

- To build awareness among students about conservation of natural resources and development of sustainable environment and maintain the green environment of the college.

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- To promote plantation of endemic species to maintain ecological balance in the campus.
- To conduct green audit on regular basis to maintain and monitor the green initiatives taken by the college.
- To promote rain water harvesting in the campus using rural traditional methods.
- To make the campus pollution (air, water, soil and sound) free.
- To sensitize the stakeholders about the proper utilization of drinking water without any wastage.
- To promote and install bio-friendly dry and wet dustbins in the campus for waste collection and management.
- To minimize the use of paper and paper waste to promote paperless office environment.

8. Policy Objectives:

The objectives of this environmental policy of Mangaldai College are as follows.

- To educate and engage students and employees on environmental concerns and sustainability.
- To promote and appreciate traditional rural technologies for conservation of natural environment.

9. Objectives of Green Audit:

The prime objective of this green audit is to assess the environmental quality and make strategic planning to make the campus more environment friendly. The specific objectives of this green audit are

a. To assess the land use pattern and green cover in the campus.
b. To assess the quality of drinking water in the campus.
c. To assess the sound pollution level in the campus.
d. To assess the soil composition and its properties.
e. To assess the flora and fauna diversity in the campus.
f. To assess the safety and security of the campus.
g. To monitor waste generation and management.
h. To make people aware about the environmental condition of the campus.

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The above mentioned objectives were achieved through multiple approaches with scientific analysis.

a. Land Use Pattern and Green Cover:

A comprehensive analysis of Mangaldai College campus was conducted using a satellite image from Digital Globe captured on March 18, 2022, alongside ground-based surveys. The assessment focused on evaluating the campus's land use pattern and green coverage. Employing Global Positioning System (GPS) technology and advanced satellite image processing, diverse land use categories were identified and meticulously mapped. The findings reveal that the green cover of the campus extends over 50% of the total geographical area of Mangaldai College. The detailed breakdown of various land use categories and their corresponding area coverage is presented in Table 1.

Table: 1: Land use pattern of Mangaldai College campus

Sl No	Categories	Area in Hectares	Area in sq. meter	Percentage of area cover
1	Green Area	6.76	67600	50.07
2	Building	1.8	18000	13.33
3	Roads	0.26	2600	1.93
4	Open Area	4.48	44800	34.67
5	Total Campus Area	13.5	133000	100.00

The figure 1and 2 shows the distribution of land use pattern and green cover in the campus.

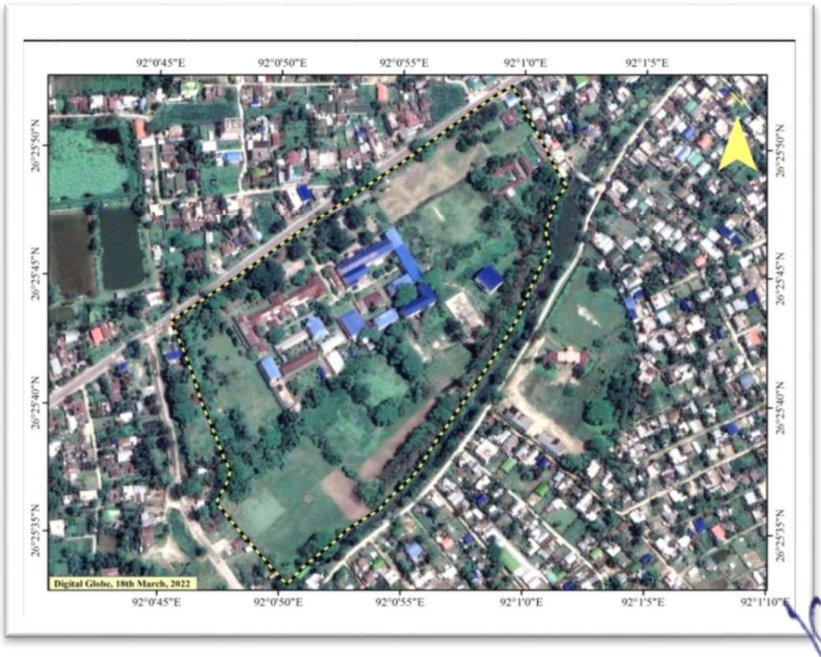

Fig. 1. Birdeye view of Mangaldai College campus

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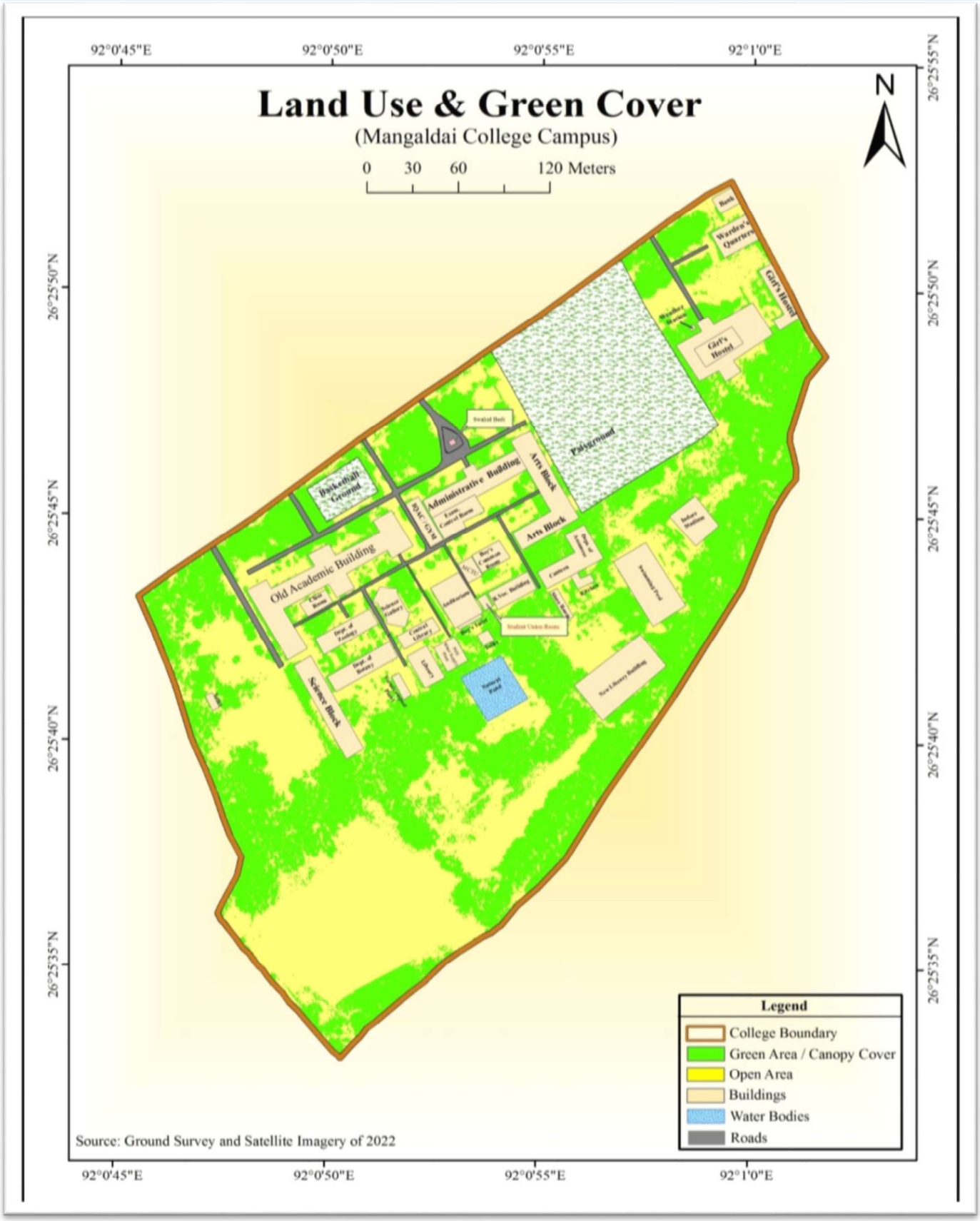

Fig. 2: Land Use Pattern & Green Cover

The land use pattern shows that the college is maintaining the green cover area and further plantation will surely enhance the quality of natural environment in the campus.

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b. Quality of drinking water:

Ensuring access to clean and hygienic drinking water is essential for maintaining a healthy lifestyle. In light of this, Mangaldai College campus subjected its drinking water to rigorous testing by an external entity. NEOLAND Technologies, a distinguished water testing laboratory based in Guwahati, Assam, recognized by Assam Agricultural University and the Tea Board of India, conducted the water testing for the college. According to the report, all parameters of the drinking water fall within the prescribed norms and are below the standards set by IS 10500(2012) and the United States Public Health Drinking Water Standard (USPH). Both treated (Reverse Osmosis) and untreated water was tested separately to measure the anomalies if any. To further ensure the quality of drinking water, the college administration has strategically placed water purifiers in all departments and offices, catering to the needs of students, teachers, and non-teaching staff. Additionally, the college has a water supply plant within the campus, established through a Memorandum of Understanding (MoU) between Mangaldai College and the Public Health Engineering Department (PHED), Mangaldai Division. This plant not only serves the campus but also extends its water supply to the surrounding villages. Actively engaged in water conservation initiatives; Mangaldai College promotes rainwater harvesting and conducts regular awareness campaigns among students and faculty members. For detailed information on the water quality, the attached Annexure 1 and 2 contains the comprehensive water test report.

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Fig.3. Water supply plant and water conservation measures

c. Assessment of sound pollution:

The evaluation of sound pollution within the college campus was conducted utilizing a decibel meter, an instrument designed for measuring noise or sound levels by gauging sound pressure. The findings indicate that 60% of the total geographical area experienced sound levels below 60 decibels, while the remaining 40% recorded levels surpassing 60 decibels. Table 2 provides a breakdown of the campus area covered by different decibel ranges at Mangaldai College.

Table: 2: Sound decibel ranges and area covered in college campus

Decibel Range	Area in hectares	Percentage of Area
< 49	1.33	9.85
49 - 53	1.43	10.59
53 - 56	1.5	11.11
56 -58	2.5	18.52
58 - 60	1.46	10.81
60 - 63	2.8	20.74
63 - 66	1.41	10.44
> 66	1.05	7.93
Total Area	**13.3**	100.00

In accordance with the guidelines provided by the Central Pollution Control Board (CPCB), prolonged exposure to noise levels exceeding 70 dB can potentially damage human hearing. Furthermore, immediate harm to human ears may occur with loud noise surpassing 120 dB. Adhering to CPCB recommendations, it has been identified that 7.93% of the total geographical area of the college experiences sound levels exceeding 66 decibels. This area is particularly situated in close proximity to National Highway (NH) 15, which runs adjacent to the campus. The distribution of decibel

ranges and the pattern of sound pollution in Mangaldai College campus are illustrated in Figure 5.

Fig.4. Data collection by Green Audit Team

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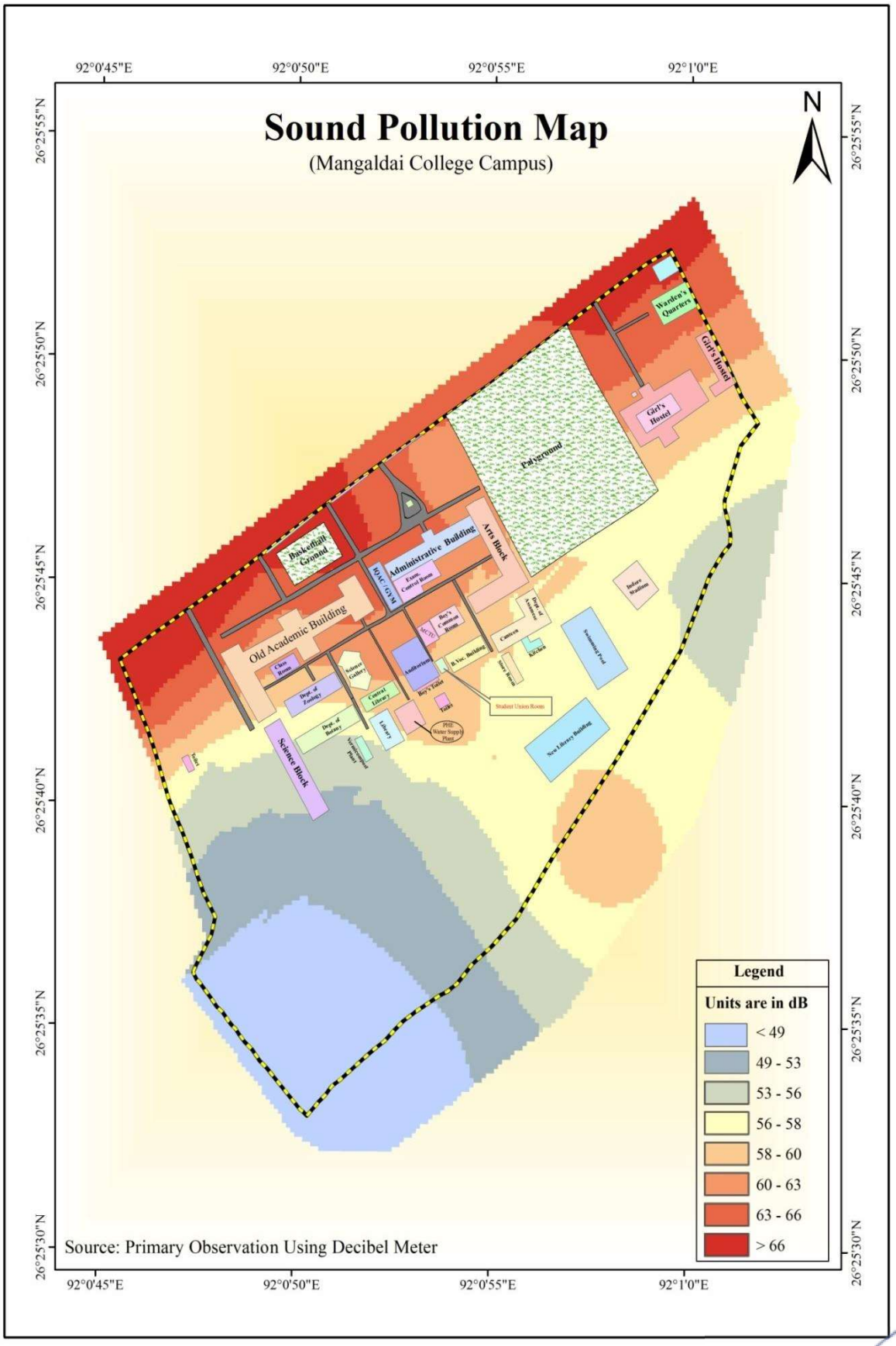

Fig. 5. Patten of sound pollution

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d. Soil composition and properties:

The overall soil composition in Darrang district ranges from sandy to sandy loam, with clayey characteristics found in low-lying areas. The predominant soil type is acidic, featuring medium to high organic carbon levels, along with low to medium phosphorus and potash content. Mangaldai College specifically exhibits an alluvial soil nature. An external entity, NEOLAND Technologies, conducted physiochemical tests on the soil parameters, and the obtained results are outlined below.

Table.3. Soil testing results

Sl. No	Particulars	pH	O.C. (%)	Av. N2 (Kg/ha)	Av. P2 O5 (Kg/ha)	Av. K2 O (Kg/ha)
1	**Top Soil** **Location:** 26.42879 92.01353	6.64	1.23 (H)	411.55 (M)	269.30 (H)	255.36 (M)
2	**Sub Soil** **Location:** 26.42879 92.01353	7.36	0.19(L)	66.38 (L)	179.53 (H)	157.92 (M)
3	**Top Soil** **Location:** 26.42839 92.01373	7.47	1.95(H)	650.52(H)	112.85(H)	137.76(M)
4	**Sub Soil** **Location:** 26.42839 92.01373	7.51	0.35(L)	119.48(L)	73.35(H)	141.12(M)
5	**Top Soil** **Location:** 26.42891 92.01503	7.40	0.43(L)	146.03(L)	56.42(H)	114.24(L)
6	**Sub Soil** **Location:** 26.42891 92.01503	7.91	0.27(L)	92.93(L)	51.29(M)	164.64(M)

(**H** = High, **M**= Medium, **L**= Low)

The soil composition of the campus was determined through a conventional water testing method. Soil samples were collected and subjected to a water test to ascertain basic soil composition and characteristics. In this process, the heaviest components, sand, settled at the bottom, while the lighter materials, silt and clay, floated on top. The detail test report is attached in Annexure 3 and 4.

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Fig. 6. Soil composition and pH meter

Mangaldoi College exhibits a soil composition comprising approximately 30-35% sand, 45-50% silt, and 10-15% clay. The soil pH across various locations on the campus was verified and measured using a soil pH meter, and the average pH level was found to be 7. Additionally, the pH mapping of the campus was conducted using GIS tools, and Figure 7 illustrates the distribution of soil pH in Mangaldai College.

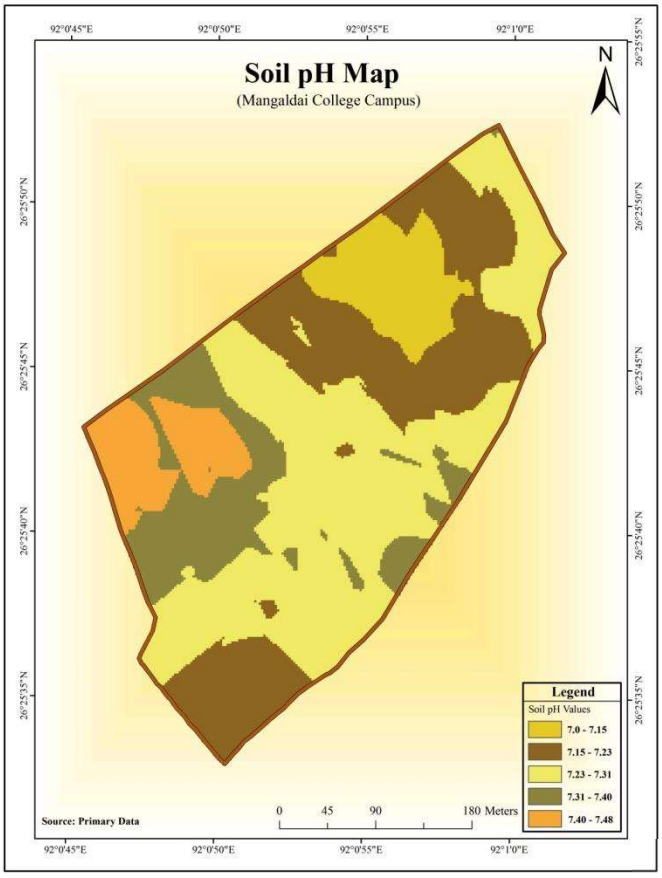

Fig.7. Soil pH map

e. Air quality of the campus:

Situated in a rural area, the college experiences minimal hazardous pollution within the campus; however, external sources contribute to some level of air pollution. Primary sources of Greenhouse Gas (GHG) emissions on the campus include vehicles, refrigerators, air conditioners, etc. The Air Quality Index (AQI) measured in the campus falls within the range of 50-100, signifying acceptable air quality. Nevertheless, certain pollutants may pose a moderate health concern for a small subset of individuals exceptionally sensitive to air pollution.

To uphold air quality standards, the college has implemented various initiatives, such as endemic tree plantation and the installation of solar panels, aimed at mitigating the impact of external air pollution sources.

f. Floral and faunal diversity of the campus:

The floral and faunal diversity of the college campus was assessed with primary observation. The college has a rich diversity of flora and fauna. There are minimum 120 tree species are available in the campus and most of species are endemic in nature. Table 3 shows the list plant species available in the college campus.

Table 4: List of tree species in college campus

Sl. No.	Scientific Name	Common Name
1	*Acalypha indica*	Muktojhuri Patra-manjori
2	*Ageratum conyzoides*	Gendali-bon/Gondhoa-bon
3	*Albizia lucida*	Moz
4	*Alstonia scholaris R.Br.*	Sotian
5	*Alternanthera philoxeroides*	Pani-khutura/ Alligator weed
6	*Alternanthera sessilis*	Matikaduri
7	*Amaranthus viridis*	Khutura khak
8	*Anthocephalus cadamba Mig.*	Kadam
9	*Artocarpus heterophyllus*	Kothal
10	*Auracaria* sp.	Araucaria
11	*Averrhoea carambola*	Starfruit
12	*Averrhoea carambola Linn.*	Kardai/ Starfruit
13	*Azadirachta indica*	MahaNeem
14	*Baccaurea ramiflora*	Leteku
15	*Baccaurea sapida*	Paniyal
16	*Bambusa sp.*	Bamboo
17	*Bauhinia purpurea*	Kanchan

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Sl. No.	Scientific Name	Common Name
18	*Bauhinia racemose*	Kanchan
19	*Bixa Orellana*	Sindur
20	*Butea monosperma*	Palash
21	*Caesalpinia pulcherima Swartz.*	Radhasura
23	*Calamus rotang*	Bet
24	*Calistemon linearis DC.*	Bottle brush
25	*Cassia fistula Linn.*	Sonaru
26	*Cedrus deodara*	Devdar
27	*Centella asiatica*	Manimuni
28	*Citrus maxima*	Robab tenga
29	*Cocos nucifera Linn.*	Narikal
30	*Delonix regia Boj.*	Krishnasura
31	*Derris indica*	Kurus
32	*Desmodium triflorum*	Kodalia
33	*Dillenia indica*	Outenga
34	*Diospyros melanoxylon*	Karai
35	*Drymeria chordate*	Laijabori
36	*Eclipta prostata*	Bhringaraj/Kesaraja/Elenchi/Kehraj
37	*Elaeocarous ganitrus*	Rudraksha
38	*Elaeocarpus floribundus*	Jalphai
39	*Elaeocarpus serratus*	Jalpai
40	*Emblica officinales Gaertn.*	Aamlokhi/ Amla/ Indian gooseberry
41	*Emilia sonchifolia*	Bonkapahua
42	*Erythrina stricta*	Modar (Red)
43	*Eucalyptus citriodora*	Eucalyptus
44	*Eugenia jambolana Lamk.*	Jaam
45	*Evolvulus nummularius*	Bhui-ankra
46	*Ficus benghalensis*	Bot(Sil)
47	*Ficus benjamina*	Weeping fig
48	*Ficus glomerata* Roxb.	Dimoru(Yogyo)
49	*Ficus religiosa* Linn.	Aahat
50	*Ficus virens*	Pakori
51	*Flacourtia cataphracta*	Poniol tree
52	*Garcinia*	Thekera
53	*Grevillea robusta*	Silver Oak
54	*Grona triflora*	Creeping tick trefoil/Three-flower beggarweed
55	*Hedyotis corymbosa*	Bon-jaluk
56	*Hibiscus rosa sinesis*	Jaba

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Sl. No.	Scientific Name	Common Name
57	*Houttynia cordata*	Musandari/Fish mint
58	*Justicia simplex*	Water-willow/ Bheh
59	*Kigelia pinnata*	Sausage tree
60	*Lagerstroemia speciosa*	Ajar
61	*Leucas plukenti*	Doron Kansisa
62	*Lippia nodiflora*	Kurkuri bon
63	*Mangifera indica Linn.*	Mango
64	*Mesua ferrea Linn.*	Nahor
65	*Michelia champaca*	Titasopa
66	*Mikania micrantha*	Japani lota
67	*Mimosa pudica*	Lajuki-lata/Nilaji-bon/Touch-me-not
68	*Mimusops elengi Robx.*	Bakul
69	*Moringa oleifera*	Sajina
70	*Morus alba*	Nuni Mulberry
71	*Musa paradisica*	Banana Tree
72	*Myriactis nepalensis*	Barbori-sak
73	*Neolamarckia cadamba*	Kadam tree
74	*Nosturtium indicum*	Bon-behar/Bon-sariyoh/ Gonga mula
75	*Ocimum basilicum*	Ram tulosi
76	*Oleaeuropaea*	Olive
77	*Oxalis corniculata*	Changoi-tenga/Horu tengeshi khak
78	*Paederia foetida*	Skunk Vine/Bhedai lota/Paduri lota
79	*Pauzolzia hirta*	Borali bhokua
80	*Peltophorum pterocarpum*	Halodhiya sopa
81	*Pheonix sylvistris*	Date plant
82	*Phicus glomarate*	Pakori
83	*Phoenix sylvestri*	Khejur
84	*Phylanthus niruri*	Bhoomi Amalaki/Bhumi Amla
85	*Phynalis minima*	Pokmou
86	*Pileu microphylla*	Gunpowder plant
87	*Pinus khasiana*	Pine tree
88	*Plectanthus patchoulii*	Patchouli
89	*Plumeria rubra*	Champa
90	*Polyalthia longifolia*	Debadaru
91	*Polyalthia pendula*	Debadaru
92	*Polygonum orientale*	Lalborna
93	*Polythia longifolia*	Debadaru
94	*Pongamia pinnata*	Koroch
95	*Psidium guava Linn.*	Madhuri aam
96	*Psidium guava Linn.*	Black guava

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Sl. No.	Scientific Name	Common Name
97	*Riccinus communis*	castor
98	*Riccinus comunis*	Castor bean/ Era gach
99	*Roystonia regia*	Royal palm
100	*Samame asaman*	Rain tree
101	*Santalum album*	Chandan
102	*Saraka asoca*	Ashok tree
103	*Scoparia dulcis*	Bon chini/ Modhu-mehari
104	*Selenicereus undatus*	Dragon fruit
105	*Shorea robusta*	Sal
106	*Solanum nigrum*	Tita-bhekuri
107	*Solanum sisymbriifolium*	Sticky Nightshade/Bitter apple
108	*Spilanthes paniculata*	Bhringaraj Huhuni Sak/ Marchang
109	*Spondias mombin*	Omora
110	*Stellaria media*	Morolia
111	*Streblus asper*	Sarua
112	*Swietenia macrophylla*	Mahogany
113	*Tectona grandis Linn.*	Segun
114	*Terminalia arjuna*	Arjun tree
115	*Terminalia chebula* Retz.	Hilikha
116	*Thevetia sp.*	Karavi
117	*Vateria indica*	Dhup Tree
118	*Vinca rosea*	Nayantara
119	*Xanthium sibricum*	Agora
120	*Zizyphus jujuba*	Bogori

Besides this there are several ferns, fern-allies and bryophytes species available in the college campus. The lists of these species are in the table 5.

Table 5: List of bryophytes and pteridophytes species of the campus.

Sl No	CLASS	ORDER	FAMILY	GENUS	SPECIES
1	Ophioglossopsida	Ophioglossales	Ophioglossaceae	*Ophioglossum*	*O. reticulatum*
2	Filicopsida	Polypodiales	Polypodiaceae	*Drymoglossum*	*D. heterophyllum*
3	Filicopsida	Polypodiales	Polypodiaceae	*Microsorium*	*M. punctatum*
4	Filicopsida	Polypodiales	Polypodiaceae	*Polypodium*	*Polypodium* sp.
5	Filicopsida	Polypodiales	Polypodiaceae	*Pyrossia*	*P. adnascens*
6	Filicopsida	Polypodiales	Drynariaceae	*Drynaria*	*D. quercifolia*
7	Filicopsida	Schizaeales	Lygodiaceae	*Lygodium*	*L. japonicum*
8	Filicopsida	Schizaeales	Lygodiaceae	*Lygodium*	*L. flexuosum*
9	Filicopsida	Pteridales	Cryptogrammaceae	*Onychium*	*O. japonicum*
10	Filicopsida	Pteridales	Pteridaceae	*Pteris*	*P. biaurita*
11	Filicopsida	Pteridales	Pteridaceae	*Pteris*	*P. quadriaurita*
12	Filicopsida	Pteridales	Pteridaceae	*Ceratopteris*	*C. thalictroides*
13	Filicopsida	Pteridales	Adiantaceae	*Adiantum*	*A. capillus-veneris*
14	Filicopsida	Pteridales	Hemionitidaceae	*Pityrogramma*	*P. calomelanos*
15	Filicopsida	Dennstaedtiales	Dennataedtiaceae	*Microlepia*	*M. speluncae*
16	Filicopsida	Aspidiales	Thelypteridaceae	*Ampelopteris*	*A. prolifera*
17	Filicopsida	Aspidiales	Thelypteridaceae	*Christella*	*C. dentata*
18	Filicopsida	Aspidiales	Aspleniaceae	*Asplenium*	*A. nidus*

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Sl No	CLASS	ORDER	FAMILY	GENUS	SPECIES
19	Filicopsida	Aspidiales	Athyriaceae	*Diplazium*	*D. esculentum*
20	Filicopsida	Aspidiales	Nephrolepidaceae	*Nephrolepis*	*N. chordifolia*
21	Filicopsida	Aspidiales	Stenochlaenaceae	*Stenochlaena*	*S. palustris*
22	Filicopsida	Salviniales	Azollaceae	*Azolla*	*A. pinnata*
23	Filicopsida	Salviniales	Salviniaceae	*Salvinia*	*S. cucullata*
24	Sphenopsida	Equisetales	Equisetaceae	*Equisetum*	*E. diffusum*
25	Lycopsida	Selaginellales	Selaginellaceae	*Selaginella*	*Selaginella* sp.
26	Hepaticopsida	Marchantiales	Ricciaceae	*Riccia*	*Riccia* sp.
27	Hepaticopsida	Marchantiales	Marchantiaceae	*Marchantia*	*Marchantia* sp.
28	Bryopsida	Funariales	Funariaceae	*Funaria*	*Funaria* sp.
29	Bryopsida	Polytrichales	Polytrichaceae	*Pogonatum*	*Pogonatum* sp.

The college has a rich faunal diversity also. The green audit team has assessed the faunal diversity in the campus and 73 different species of arachnida, insects, amphibian, reptiles, avifauna and mammals are sighted in the campus. The table 4 and 5 shows the list and number of species sighted in the campus.

Table 6: List of fauna

Sl No	PHYLUM	CLASS	SPECIES (Scientific Name)
1	ARTHROPODA	ARACHNIDA	*Plexippus paykuli*
2	ARTHROPODA	ARACHNIDA	*Badumna longinqua*
3	ARTHROPODA	ARACHNIDA	*Holocnemus sp.*
4	ARTHROPODA	ARACHNIDA	*Telamonia sp.*
5	ARTHROPODA	ARACHNIDA	*Plexippus sp*
6	ARTHROPODA	ARACHNIDA	*Hasarius adansoni*
7	ARTHROPODA	ARACHNIDA	*Evarcha sp.*
8	ARTHROPODA	INSECTA	*Agriocnemis lacteola*
9	ARTHROPODA	INSECTA	*Ariadne merione*
10	ARTHROPODA	INSECTA	*Neurothermis fulvia*
11	ARTHROPODA	INSECTA	*Papilio polytes*
12	ARTHROPODA	INSECTA	*Crocothemis servilia*
13	ARTHROPODA	INSECTA	*Brachydiplax sobrina*
14	ARTHROPODA	INSECTA	*Ommatius sp*
15	ARTHROPODA	INSECTA	*Chalybion sp*
16	ARTHROPODA	INSECTA	*Oecophylla smaragdina*
17	ARTHROPODA	INSECTA	*Chrysomya sp.*
18	ARTHROPODA	INSECTA	*Cantharis pellucida*
19	ARTHROPODA	INSECTA	*Crossocerus megacephalus*
20	ARTHROPODA	INSECTA	*Hypolimnas bolina*
21	ARTHROPODA	INSECTA	*Camponotus compressus*
22	ARTHROPODA	INSECTA	*Amegilla* sp
23	ARTHROPODA	INSECTA	*Orthetrum sabina*
24	ARTHROPODA	INSECTA	*Ceriagrion coromandelianum*
25	ARTHROPODA	INSECTA	*Chrysochus cobaltinus*
26	ARTHROPODA	INSECTA	*Onychargia atrocyana*
27	ARTHROPODA	INSECTA	*Eristalinus megacephalus*

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Sl No	PHYLUM	CLASS	SPECIES (Scientific Name)
28	ARTHROPODA	INSECTA	*Apis dorsata*
29	ARTHROPODA	INSECTA	*Deudorix sp*
30	ARTHROPODA	INSECTA	*Tetraponera rufonigra*
31	ARTHROPODA	INSECTA	*Luciola sp*
32	ARTHROPODA	INSECTA	*Ammophila sp.*
33	ARTHROPODA	INSECTA	*Condylostylus sp*
34	CHORDATA	AMPHIBIA	*Uperodon globulosus*
35	CHORDATA	AMPHIBIA	*Hoplobatrachus tigrinus*
36	CHORDATA	AMPHIBIA	*Hylarana erythraea*
37	CHORDATA	AMPHIBIA	*Euphlyctis cyanophlyctis*
38	CHORDATA	AMPHIBIA	*Fejervarya sp*
39	CHORDATA	AMPHIBIA	*Microhyla sp.*
40	CHORDATA	REPTILIA	*Hemidactylus frenatus*
41	CHORDATA	REPTILIA	*Calotes versicolor*
42	CHORDATA	AVES	*Megalaima asiatica*
43	CHORDATA	AVES	*Megalaima lineata*
44	CHORDATA	AVES	*Dicrurus hottentottus*
45	CHORDATA	AVES	*Dicrurus macrocercus*
46	CHORDATA	AVES	*Coracina macei*
47	CHORDATA	AVES	*Pycnonotus cafer*
48	CHORDATA	AVES	*Centropus sinensis*
49	CHORDATA	AVES	*Acridotheres trisis*
50	CHORDATA	AVES	*Acridotheres fuscus*
51	CHORDATA	AVES	*Sturnus contra*
52	CHORDATA	AVES	*Halcyon smyrnensis*
53	CHORDATA	AVES	*Ninox scutulata*
54	CHORDATA	AVES	*Athene brama*
55	CHORDATA	AVES	*Glaucidium radiatum*
56	CHORDATA	AVES	*Phalacrocorax niger*
57	CHORDATA	AVES	*Bubulcus ibis*
58	CHORDATA	AVES	*Ardeola grayii*
59	CHORDATA	AVES	*Anastomus oscitans*
60	CHORDATA	AVES	*Amaurornis phoenicurus*
61	CHORDATA	AVES	*Metopidius indicus*
62	CHORDATA	AVES	*Treron phoenicoptera*
63	CHORDATA	AVES	*Streptopelia chinensis*
64	CHORDATA	AVES	*Sturnus malabaricus*
65	CHORDATA	AVES	*Parus major*
66	CHORDATA	AVES	*Aethopyga siparaja*
67	CHORDATA	AVES	*Zosterops palpebrosus*
68	CHORDATA	AVES	*Eudynamys scolopaceus*

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Sl No	PHYLUM	CLASS	SPECIES (Scientific Name)
69	CHORDATA	AVES	*Coracias benghalensis*
70	CHORDATA	AVES	*Copsychus saularis*
71	CHORDATA	AVES	*Orthotomus sutorius*
72	CHORDATA	MAMMALIA	*Macaca mulatta*
73	CHORDATA	MAMMALIA	*Callosciurus pygerythrus*

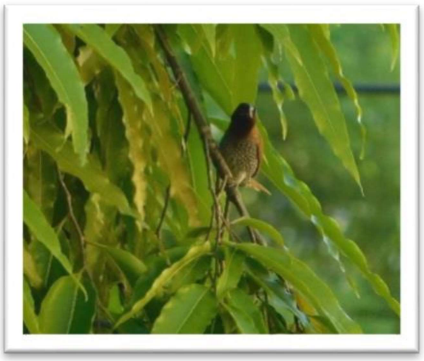
Table: 7 Class and number of faunal species sighted.

Sl No	CLASS	No of species sighted
1	ARACHNIDA	7
2	INSECTA	26
3	AMPHIBIA	6
4	REPTILIA	2
5	AVIFAUNA	30
6	MAMMALIA	2
Total		73

Greater Balloon Frog
(Uperodon globulosus)

Indian Bullfrog
(Hoplobatrachus tigrinus)

Red vented bulbul
(Pycnonotus cafer)



Spotted Munia
(Lonchura punctulata)

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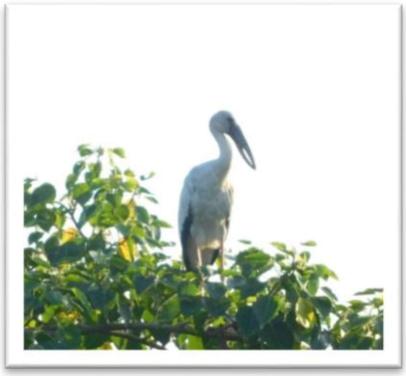
Cattle egret
(Bubulcus ibis)



Asian Open billed stork
(Anastomus oscitans)

Macaca mulatta

Indian Palm Squirrel

White breasted kingfisher
(Halcyon smyrnensis)

Ariadne merione

Fig. 8. Some commonly found faunal species

g. Safety and Security of the Campus:

The campus underwent a comprehensive safety and security audit conducted by the District Disaster Management Authority (DDMA), Darrang. The detailed report from DDMA is appended in Annexure 5 of this document. Mangaldai College boasts a secure and protected environment for students and all stakeholders. Ample open spaces on the grounds provide accommodation for students and faculty members during emergencies. The buildings are equipped with well-spaced ramps and

staircases featuring multiple entry and exit points. Proactive fire safety measures have been implemented, including the installation of an adequate number of fire extinguishers across the campus. Figure 8 visually highlights the presence of ramps, spacious corridors, fire extinguishers, and open areas within the college.

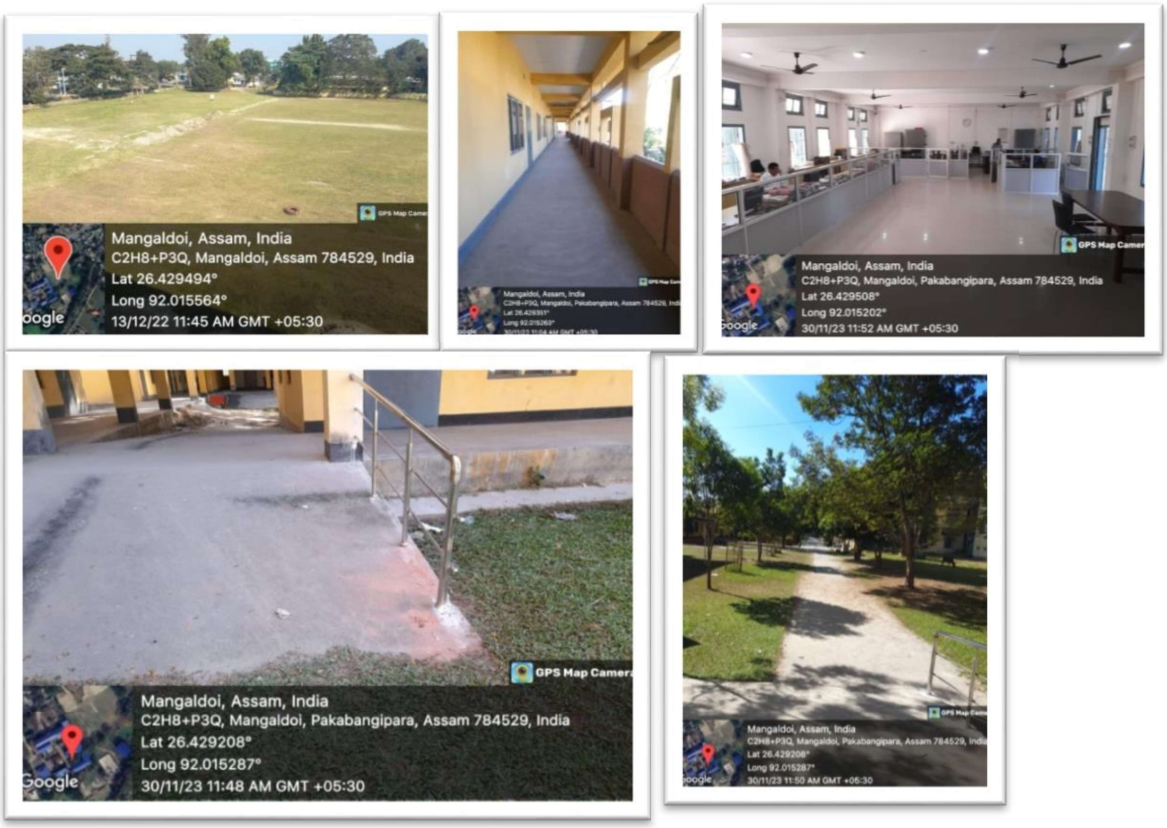


Fig.9. Ramp, Corridors, Fire Extinguisher, Open Space in the campus

h. <u>Waste management:</u>

The college has implemented practical measures to ensure effective waste management, incorporating a segregation system for both dry and wet waste. Numerous strategically placed dustbins are distributed across various locations on the college premises, with a bi-weekly emptying schedule to prevent overflow. Signboards and billboards have been prominently displayed in different areas to enhance awareness about waste management.To foster a green and clean environment, regular cleanliness drives are organized, involving NSS student volunteers, faculty members, and office staff. The collected waste undergoes meticulous sorting into organic and inorganic categories. Organic waste is directed to the college's vermicompost pit, while inorganic waste, along with plastic waste and e-waste, is collected by the Mangaldai Municipality Board (MMB) garbage-carrying van. The MMB and college administration have signed a Memorandum of

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Understanding (MoU) for the weekly collection of garbage from the college campus. This comprehensive approach underscores the college's unwavering commitment to sustainable waste management practice.

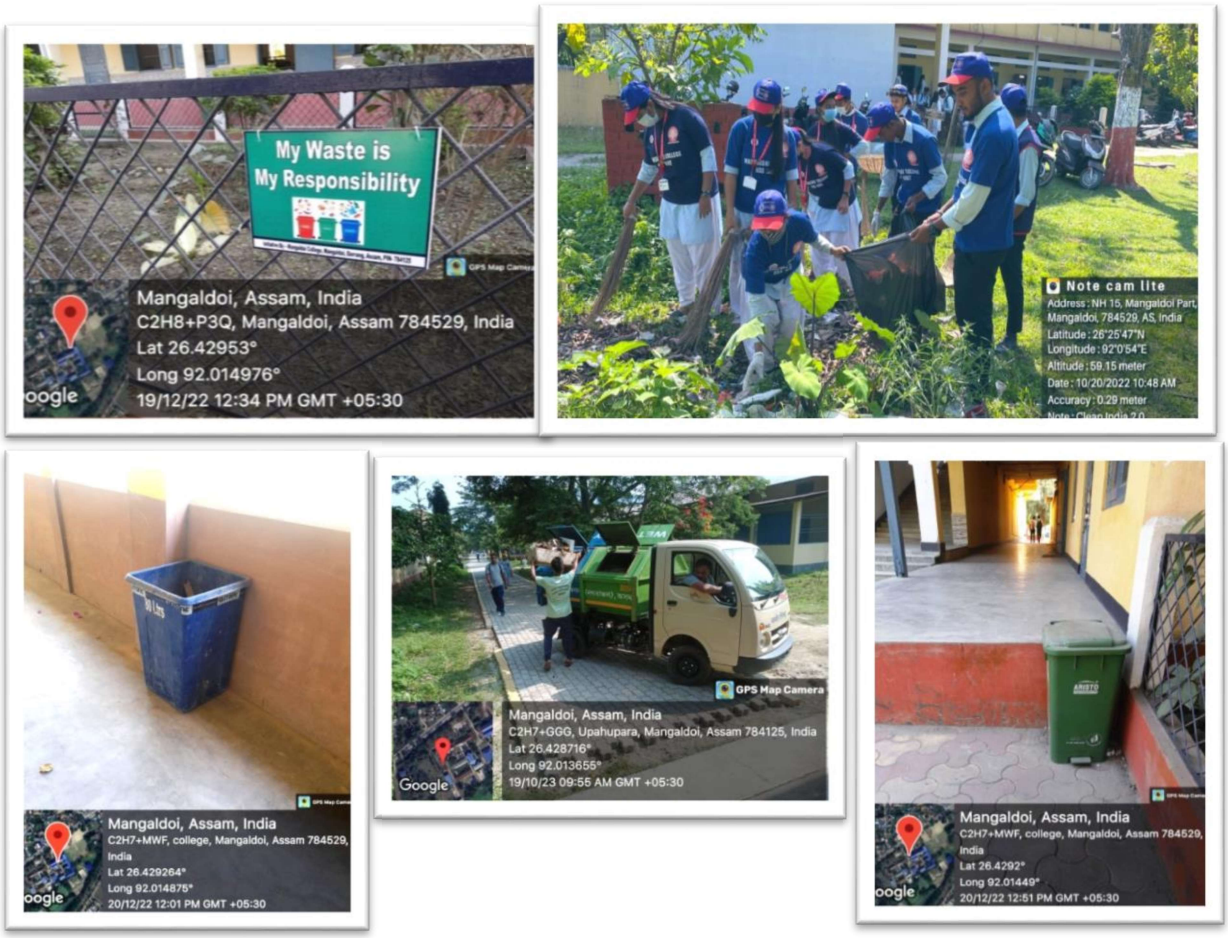

Fig.10. Waste management practices, dry and wet dustbins

i. Human health and safety management:

Mangaldai College is actively prioritizing the health and safety of both students and faculty members. The NCC and NSS units of the college consistently organize blood donation camps in collaboration with local NGOs. Additionally, the college has proactively participated in the Covid-19 third vaccination drive. In the academic year 2022-23, Mangaldai College conducted two vaccination drives in partnership with the District Health Department, Government of Assam

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Fig. 11. Vaccination and Blood Donation Programme.

j. Green initiatives of the college:

Mangaldai College has taken up many green initiatives since its inception in year 1951. The college is giving emphasis on promotion of green energy, plantation drives in and out of the campus, tobacco free campus and make the campus plastic free.

Green Energy Initiatives:

The college has been promoting green energy by installing rooftop on-grid solar panels in the campus. The panels are installed in the administrative building of the college and the total grid capacity of the plant is 29 kWp. This initiative has been taken up in collaboration with Assam Power Distribution Company Limited (APDCL). This venture has reduced the electricity bill of the college by 18%.

Fig.12. Solar Panels of Mangaldai College

i. Plantation drives:

The college has initiated numerous plantation drives both within and beyond the campus premises. These efforts coincide with significant environmental observances such as World Environment Day, Earth Day, Biodiversity Day, World Wildlife Day, and others, during which dedicated plantation drives are executed. In an endeavor to foster a healthy environment within and surrounding the college, plantation initiatives extend to fringe areas as well. The active involvement of NCC cadets, Eco-club

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members, and NSS student volunteers characterizes these activities. Following the plantations, meticulous post-care measures are undertaken to minimize plant mortality rates. Special attention is given to planting endemic species to preserve the ecological balance of the region.

Fig.13. Plantation drives

ii. Tobacco Free Campus:

Mangaldai College campus has been identified as a tobacco free campus by the Darrang District Health Society, National Tobacco Control Programme (NTCP). The campus is completely tobacco free and hoardings are placed in different locations of the campus to make people aware about it. The administration is very particular in maintaining the academic and natural environment of the college.

Fig. 14. Tobacco free campus

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iii. Vermicomposting and organic farming:

Mangaldai College possesses its own vermicompost unit, which is diligently managed and overseen by the Department of Botany. This facility is dedicated to producing organic manure, which is subsequently utilized in the college campus for organic farming purposes. The plant has a production capacity of 160 kg every three months. Additionally, the college features an in-house organic farm, skillfully maintained by the NSS (National Service Scheme) at Mangaldai College. Moreover, there is an organic blue tea garden managed by the Institutional Innovation Council (IIC) at Mangaldai College.

Fig.15. Vermicompost unit and Organic Farming

iv. Mushroom Production Unit:

The Institution's Innovation Council (IIC) in collaboration with Department of Botany, Mangaldai College has established a mushroom cultivation shed in the college campus. Mushrooms offer a range of potential health benefits, and different types of mushrooms may have distinct properties. It's important to note that while there is promising research, some claims may need further investigation, and individual responses can vary. There are some potential benefits associated with mushrooms; these are nutrient richness, its antioxidant nature, immune support, anti-inflammatory effect, etc. Mushroom at present is very famous and demanding at national and international market. Considering its importance and health benefits, the IIC, Mangaldai College has established a mushroom cultivation shed in its campus. The main objective of this garden is to produce raw material for mushroom production in the campus and create awareness among the students and faculty members about its health benefits of mushroom. The other objective is to generate entrepreneur who will take the initiative to market the product to the local and national level.

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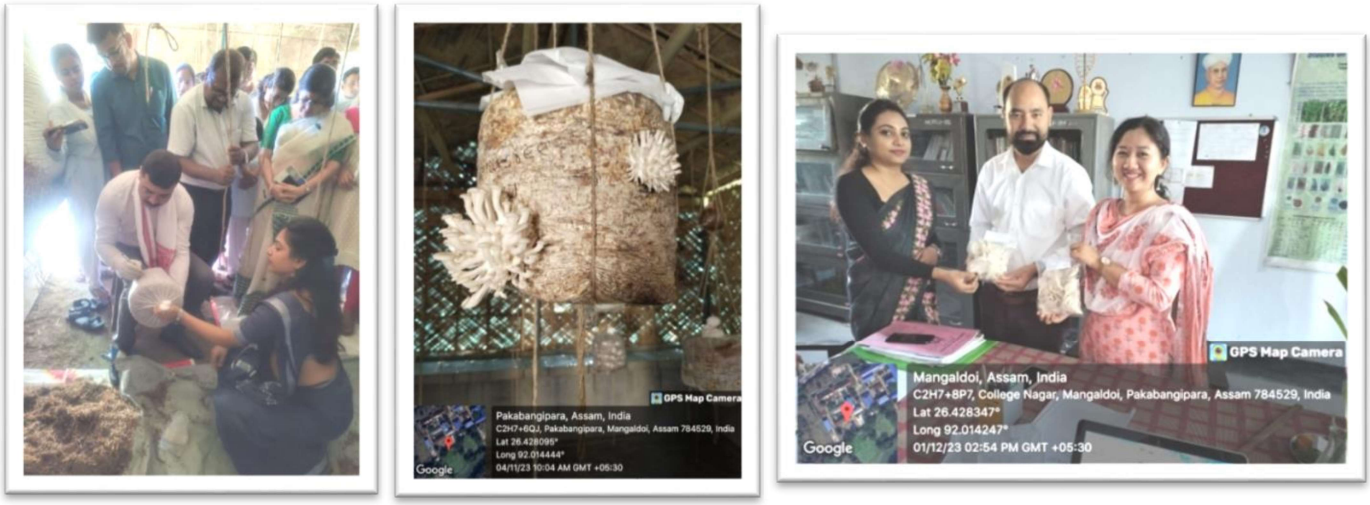

Fig. 16. Mushroom Production Unit

v. Rain water harvesting:

The college has taken water conservation measures through rain water harvesting. There are two units of rainwater harvesting in the campus. The rain water coming from roof tops are collected in two tanks of 1000 liter capacity and accumulated water has been used for gardening, laboratory and other uses. Similarly signboards and billboards having massages of water conservation have been put in different strategic location to make the people aware about the need of conserving water.

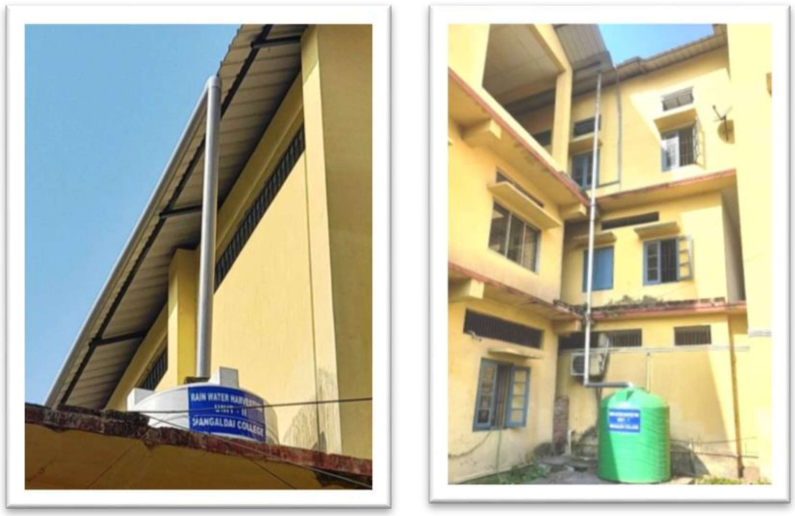

Fig.17. Rain water harvesting

vi. Herbal Blue Tea Garden:

The Institutional Innovation Council of Mangaldai College has established a Blue Tea garden. Blue tea, also known as butterfly pea flower tea or Clitoria ternatea tea, is an herbal tea made from the dried flowers of the butterfly pea plant. It is known for its

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vibrant blue colour, which can change to purple when acidic ingredients like lemon juice are added. While blue tea has gained popularity primarily for its striking appearance, it is also believed to offer several potential health benefits for its antioxidant properties, ant-inflammatory effect, and antibiotic properties. Blue tea at present is very famous and demanding beverage at national and international market.

Considering its importance and medicinal value, the IIC, Mangaldai College has established an Herbal Blue Tea garden in its campus. The main objective of this garden is to produce raw material for blue tea production in the campus and create awareness among the students and faculty members about its health benefits. The other objective is to generate entrepreneur who will take the initiative to market the product to the local and national level.

Fig. 18. Herbal Blue Tea Garden

vii. <u>Plastic free campus:</u>

The college authority has taken pragmatic steps to make the campus free from single use plastic. Complete ban has been imposed on chips packets, plastic cups, plastic plates and other single use plastics inside the campus. The Internal Quality Assurance Cell (IQAC) has also taken steps to make the people aware about the plastic free campus by putting signboards and hoardings in strategic locations. Regular vigilance has been carried out by a team of faculty members and students. Fine has been imposed to those who break the rule.

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Recommendations:

The green audit committee has made some recommendations based upon their observations and analysis. Following are the recommendations made by the committee.

a) Waste management:

The green audit committee recommends following points in waste management of the college

- Measures should be taken to make the waste management system more robust and systematic.
- Organic waste need to be converted to organic compost. Composting plant should be install in the college premises

b) Drinking water:

- The committee recommends maintaining the water quality as well as the existing drinking water facilities in the campus.

c) Planned construction:

- The committee recommends making future constructions in a planned manner, so that natural environment of the college remains intact.
- Open area of the college should be maintained and class rooms should not be constructed near the National Highway 15, where sound pollution is more than 60 decibel.

d) Maintain the green environment:

- Haphazard vehicle entry should be restricted in the college campus.
- The college has a nice green cover area. Fifty percent of the total geographical area is covered by green area and that need to be maintained for future.

e) Continuous green initiatives:

- Initiate additional tree plantation campaigns within the campus.
- Implement eco-friendly initiatives such as expanding the solar energy plant, enforcing a complete ban on plastic, implementing an efficient waste management system, and promoting organic farming.

f) Student participation:

- The committee recommends more student participation in the green initiatives of the college.

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- Proper awareness about the environment and its significance in human life should be carried out among the students through awareness programme and assignments.

g) Prevention of soil degradation:

- The soil type of the college is alluvial soil having 7 pH level, which is a good sign and that need to be maintained.
- The college should ban the utilization of chemical fertilizers and should promote organic composting to maintain the soil quality and reduce soil degradation in the campus.

h) Promotion of paper less technology:

- The committee recommends the reduction of use of paper in the campus. Emails and other electronic mode of communication should be promoted to minimize the use of paper in the campus.

i) Conservation of available flora and fauna:

- The college has a good amount of floral and faunal diversity and that need to be maintained and conserved.
- The college should introduce compensatory plantation in the campus.

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Photo Gallery:

Green Campus

Signboard showcasing environmental preservation

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Survey of Flora and Fauna by Green Audit Team and Students

Endemic Tree Plantation

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Amrit Brikhya Andolon Plantation Programme

Plantation Drive by Eco Club, Mangaldai College

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Green Campus of Mangaldai College

Blood Donation Camp by NCC COY, Mangaldai College

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Annexure 1.

Test Report of Untreated Tube well Water

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Soil, Water, Organic Manure & Plant Testing & Research Lab.
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IN FRONT OF DOORDARSHAN KENDRA
R.G BARUAH ROAD, GUWAHATI - 781024, ASSAM.

98540-33739
98640-39549
94357-46887
86383-21205
E – Mail: neoland123@gmail.com
Web Site: www.neolandtech.com

Date: 23/11/2023

Ref: N.L.T/S/15/23/2693

Results of analysis of water sample:-

Water sample supplied by:

Principal.
MANGALDAI COLLEGE,
Vill : Upahupara,
Dist : Darrang.

NEOLAND Technologies Guwahati-24 R.G Baruah Road

No. of water sample: 1

Sl. No.	Parameter	Value	Acceptable Value (USPH Standard)
1	pH	6.8	6.0-8.5
2	TDS (ppm)	97	500 (ppm)
3	Iron (ppm)	0.045	<0.3 (ppm)

*USPH- United States Public Health Drinking Water Standard
Note: The results are pertaining to the samples supplied.
Heavy Metal Analysis:

Sl. No.	Test Parameters	Test Method	Unit	Requirement (Max. Desirable Limit) (As per IS	Result
1.	Fluoride	APHA 23rd Edition 4500 F-D. SPADNS Method	mg/l	1.0	0.59
2.	Arsenic	IS 3025 :1988(Part 37) Reaff 2003	mg/l	0.01	0.005

Microbiological Analysis :

SL No.	Test parameters	Test Method	Requirement (Max. Desirable Limit) (As per IS 10500:2012)	Results
1.	Coliform Bacteria	APHA-9221B(23rd Edition)	in250ml	Absent
2.	Escherichia coli	APHA-9213/3a(23rd Edition)	in 250ml	Present

for Dr. H. Goswami. Retd. Soil Scientist. (TRA)
NEOLAND Technologies,
Guwahati-24.

NEOLAND TECHNOLOGIES
Opp. Doordarshan
R.G. Baruah Road, Gau-24

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Annexure 2.

Test Report of Treated RO Water :

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IN FRONT OF DOORDARSHAN KENDRA
R.G BARUAH ROAD, GUWAHATI - 781024, ASSAM.

98540-33739
98640-39549
94357-46887
86383-21205
E – Mail: neoland123@gmail.com
Web Site: www.neolandtech.com

Date: 27/11/2023.

Ref: NLT/S/15/23/2698

Results of analysis of water sample:

Water sample supplied by

Principal,
MANGALDAI COLLEGE
Vill: Upahupara
Dist: Darrang

NEOLAND Technologies Guwahati-24 R.G. Baruah Road

No. of water sample: 2 (RO Water)

Sl. No.	Parameter	Value	Accepted Value (USPH Standard)
1	pH	6.5	6.0-8.5
2	TDS (ppm)	94	500 (ppm)
3	Iron (ppm)	0.035	<0.3 (ppm)

*USPH – united States Public Health Drinking Water Standard
Note: The results are pertaining to the sample supplied

Heavy Metal Analysis

Sl. No	Test Parameters	Test Method	Unit	Requirement (Max. Desirable Limit) (As per IS)	Result
1	Fluoride	APHA 23rd Edition 4500 F-D SPADNS Method	mg/1	1.0	0.48
2	Arsenic	IS 3025:1988 (Part 37) Reaff 2003	mg/1	0.01	0.003

Microbiological Analysis

Sl. No	Test parameters	Test Method	Required (Max. Desirable Limit) (As per IS 10500:2012)	Results
1	Coliform Bacteria	APHA-9221B (23 Edition)	in 500 ml	Absent
2	Escherichia coli	APHA-9212/3a(23rd Edition)	In 500 ml	Absent

For
Dr. H. Goswami. Retd. Soil Scientist. (TRA)
NEOLAND Technologies,
Guwahati-24.

NEOLAND TECHNOLOGIES
Opp. Doordarshan
R.G. Baruah Road, Gau-24

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Annexure 3.

Soil Test Report

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86383-21205
E – Mail: neoland123@gmail.com
Web Site: www.neolandtech.com

Date: 23/11/2023
Ref. NLT/9/15/23/2693

Soil samples supplied by:

Principal.
MANGALDAI COLLEGE,
Vill : Upahupara,
Dist : Darrang.

No. of soil sample: **6**

Sl. No.	Particulars	pH	O.C. (%)	Av. N_2 (Kg/ha)	Av. P_2O_5 (Kg/ha)	Av. K_2O (Kg/ha)
1	Top Soil 26.42.879 92. 01 .353	6.64	1.23 (H)	411.55 (M)	269.30 (H)	255.36 (M)
2	Sub Soil 26.42.879 92.01.353	7.36	0.19 (L)	66.38 (L)	179.53 (H)	157.92 (M)
3	Top Soil 26.42.839 92.01.373	7.47	1.95 (H)	650.52 (H)	112.85 (H)	137.76 (M)
4	Sub Soil 26.42.839 92.01.373	7.51	0.35 (L)	119.48 (L)	73.35 (H)	141.12 (M)
5	Top Soil 26.42.891 92.01.503	7.40	0.43 (L)	146.03 (L)	56.42 (H)	114.24 (L)
6	Sub Soil 26.42.839 92.01.503	7.91	0.27 (L)	92.93(L)	51.29 (M)	164.64 (M)

Note: H= High, M=Medium & L=Low.

Note: The results are pertaining to the soil samples supplied.

For
Dr. H. Goswami. Retd. Soil scientist. (TRA)
NEOLAND Technologies.
Guy-24.

NEOLAND TECHNOLOGIES
Opp. Doordarshan
R.G. Baruah Road, Gau-24

Principal
Mangaldai College
Mangaldai

Annexure 4.

DEPARTMENT OF GEOGRAPHY
MANGALDAI COLLEGE, MANGALDAI
DIST-DARRANG, P.O-MANGALDAI, PIN-784125
Phone & Fax: +91 91015 90613, +91 70021 76377(M), E-mail: geographymangaldaicollege@gmail.com

SOIL TESTING REPORT

Date: 17/11/2022

Test Results of Mangaldoi College Soil:

Soil sample collected on 14-11-2022 was put on water test to determine the soil characteristics on a basic level. Sand being heaviest lies in the bottom. Above it is Silt & Clay is the lightest material flats on top.

Durations of Test: 48 hours.

Soil Types:

From the picture, one can observe that Mangaldoi college soil is a mixture of around 30-35% Sand, 45-50% Silt & 10-15% clay.

Average Soil pH: 7

Signature of concern person
Assistant Professor
Department of Geography
Mangaldai College
Dist -Darrang Assam

Principal
Mangaldai College
Mangaldai

Annexure 5.

Safety and security certificate

GOVT OF ASSAM
DISTRICT DISASTER MANAGEMENT AUTHORITY
OFFICE OF THE DEPUTY COMMISSIONER
DARRANG::MANGALDAI

Memo No.DDM.37/2017/
Date: 21 /11/2022

SAFETY AND SECURITY REPORT OF MANGALDAI COLLEGE

As per visual assessment, the campus of the Mangaldai College is safe where multiple entry and exits in the building are available, Fire safety measures are seen and open spaces in the ground are available in the Collage campus to accommodate students, faculty and office staffs in an emergency situation. The Water tanks are well distanced from the class rooms.

Moreover, considering the various hazards and vulnerabilities of the region, testing and analysis of the design and structures of the Collage buildings through technical expertise, installation of fire safety equiptments in the buildings as per norms and management of structural & Non-Structural Safety Measures are to be executed for a resilient safety environment of the college.

District Disaster Management Authority Darrang

District Project Officer (DM)
District Disaster Management Authority,
Darrang, Mangaldai

Principal
Mangaldai College
Mangaldai