

2022-23

Green and Environment Audit Report

2022-23

Kharupetia College



Green Audit Team

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Foreword

The world's natural environment is changing fast due to heavy human influence. Problems like climate change, deforestation, rising sea levels, and melting glaciers are getting worse quickly, threatening biodiversity, climate stability, and the overall health of the planet. As the global population exceeds 8 billion, we're using more and more natural resources, putting immense pressure on the environment. The Indian sub-continent, with its rapidly growing population, is feeling these environmental impacts strongly.

In this situation, colleges and universities have a vital role to play in protecting the environment. Kharupetia College, located in Assam's Darrang district and founded in 1981, is a leading institution in higher education. Since its beginning, the college has been actively working to conserve nature and natural resources. It has taken various steps like planting trees, using solar power, providing clean water, keeping the campus free of tobacco and plastic and managing waste effectively to preserve the environment.

Additionally, the college has been running awareness campaigns to educate students and others about the importance of conserving nature and promoting sustainable development. Realizing the importance of understanding how resources are used and waste is generated; Kharupetia College has started a "green audit" to assess eco-friendly and non-eco-friendly practices on campus. This report aims to provide valuable insights that can inspire and guide everyone involved towards a future that's sustainable and environmentally friendly.



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GREEN AUDIT REPORT

Kharupetia College


From

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Certificate

This is to certify that the Green Audit Report of Kharupetia College is based on original data collected during the study period. The baseline information, facts, and data have been prepared and compiled by the Internal Green Audit Team of the college and submitted to me for evaluation. The information and data included in the report have been thoroughly verified on-site for their reliability. Additionally, it is certified that the data used in this report are original and have not been published or presented elsewhere. The field survey data and photographs were taken by the undersigned. The maps were prepared by the GIS consultant after providing the data his assistants, or the internal green audit team of Kharupetia College.


(PRANJIT KUMAR SARMA)

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1. Introduction:

Kharupetia College stands as one of the leading institutions of higher education in the Darrang District. Its inception in 1981 is a testament to the tireless efforts of the visionary individuals from the greater Kharupetia locality. Initially established through private endeavors, the college transitioned into a government-aided institution on March 25, 1998, under a deficit system of grants-in-aid. Subsequently, it was provincialized by the Government of Assam on December 1, 2005, according to Government notification No. LPG. 112/2005/158 dated December 19, 2005.

The college holds recognition under section 2(f) & 12 (B) of the UGC Act, 1956, signifying its compliance with the University Grants Commission standards. Affiliated with Gauhati University, it underwent assessment and accreditation by the National Assessment and Accreditation Council (NAAC) in October 2004. Offering both Higher Secondary and Degree Courses in Arts and Commerce streams, Kharupetia College boasts an impressive track record of performance in various University and Council Examinations.

Kharupetia College is situated in an area predominantly inhabited by minority communities, characterized by a challenging socio-economic environment. Furthermore, the college operates within a district identified as one of the aspirational districts in the country. In line with the college's vision and mission, efforts are tirelessly made to offer quality higher education to learners hailing from this socially and economically disadvantaged region.

To fulfill this commitment, the college has assembled a dedicated team of teachers who spare no effort in delivering excellence in both academic and extracurricular activities. These faculty members are not only academically proficient but also actively engaged socially and intellectually. Academic excellence remains a paramount focus, with faculty members encouraged to continually strive for greater heights in both academic and extracurricular pursuits. The college administration provides comprehensive logistical support to facilitate this pursuit of excellence.

In addition to their professional duties, teachers actively participate in various community welfare initiatives and outreach programs. Recognizing the increasing demand for educational opportunities in the backward region, the college has periodically expanded the intake capacity of its various courses and programs. Furthermore, the college extends financial incentives and support to deserving and underprivileged students from the locality, within the constraints of its limited resources.

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

A green audit, alternatively referred to as an environmental audit, holds significant importance within higher educational institutions, serving multiple purposes. Its overarching objective lies in evaluating and enhancing the institution's environmental sustainability initiatives and policies. Below is an overview detailing its necessity and fundamental concept:

- a. **Environmental Responsibility:** Higher educational institutions wield significant environmental influence due to their scale, energy consumption, waste production, and transportation demands. Undertaking a green audit enables these institutions to uphold their environmental responsibilities by pinpointing areas where they can mitigate their ecological impact.
- b. **Resource Efficiency:** Green audits scrutinize the efficiency of resource allocation, encompassing energy, water, and materials, within the institution's operations. By recognizing inefficiencies and implementing strategies to optimize resource utilization, institutions can not only curtail expenses but also diminish waste output.
- c. **Compliance and Regulation:** Green audits serve as a mechanism to ensure institutional adherence to environmental statutes and standards established by regulatory authorities. This proactive approach aids institutions in sidestepping legal repercussions and safeguarding against reputational harm associated with non-compliance.
- d. **Educational Opportunity:** Green audits offer educational avenues for students, faculty, and staff by fostering awareness regarding environmental concerns and sustainable methodologies. It advocates for the infusion of sustainability principles into academic curricula and institutional practices, thereby nurturing a culture of environmental stewardship.
- e. **Stakeholder Engagement:** Conducting a green audit necessitates the involvement of diverse stakeholders, including students, faculty, staff, administrators, and the local community. This collaborative effort cultivates dialogue and cooperation concerning sustainability endeavors, encouraging active participation in implementing eco-friendly solutions.
- f. **Benchmarking and Improvement:** Green audits establish foundational data on environmental performance, facilitating institutions in monitoring their progress over time and comparing against peer

entities. This process facilitates continual enhancement by pinpointing areas for advancement and establishing benchmarks for sustainability targets.

There are several key steps to conduct a green and environment audit.

a. **Planning and Preparation:** In this initial phase, the audit's scope and objectives are defined, a diverse audit team is assembled, and an audit plan is developed. This plan outlines the methodologies, data collection techniques, and timelines to be followed throughout the audit process.

b. **Data Collection and Analysis:** The audit team gathers data on various environmental factors such as energy consumption, water usage, waste generation, transportation habits, and procurement procedures. Analyzing this data helps to identify trends, patterns, and areas that require improvement.

c. **Evaluation and Assessment:** The collected data is evaluated against pertinent environmental criteria, including regulatory standards, industry benchmarks, and best practices. Through this assessment, the audit team evaluates the institution's environmental performance, pinpointing both strengths and areas for enhancement.

d. **Recommendations and Action Plan:** Based on the audit findings, the team formulates recommendations and devises an action plan to address identified areas for improvement. These recommendations may include initiatives like adopting energy-efficient technologies, embracing renewable energy sources, reducing waste generation, promoting recycling and composting, improving transportation options, and integrating sustainability principles into campus policies and operations.

e. **Implementation and Monitoring:** The institution puts the recommended actions into practice and closely monitors progress toward achieving sustainability objectives. Ongoing monitoring and periodic audits ensure the sustainability improvements are sustained over time and enable the identification of new opportunities for enhancement.

Overall, green audits within higher educational institutions play a pivotal role in advancing environmental sustainability efforts, fostering campus-wide engagement, and reinforcing the institution's commitment to responsible resource management. Recognizing its significance, Mangaldai College conducted a green environmental audit on 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) emphasizes "Institutional Values and Best Practices," with a specific focus on environmental sustainability among its core components. This criterion evaluates the institution's dedication to upholding values such as ethical conduct, social responsibility, and sustainable development. Green audits serve as a crucial tool in meeting the requirements of Criterion 7 by showcasing the institution's commitment to environmental stewardship and sustainable practices. Here's how green audits align with NAAC Criterion 7:

- a. **Environmental Management Systems (EMS):** Green audits demonstrate the institution's establishment and implementation of an Environmental Management System, encompassing policies, procedures, and practices aimed at minimizing environmental impact. NAAC evaluates the effectiveness of the institution's EMS in fostering sustainable development and addressing environmental risks.
- b. **Compliance with Environmental Regulations:** Green audits provide evidence of the institution's compliance with environmental regulations and standards mandated by regulatory authorities. NAAC assesses the institution's adherence to pertinent 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 infuse sustainability-related topics, research, and projects across disciplines to raise awareness and understanding of environmental issues.
- d. **Promotion of Sustainable Practices:** Green audits showcase the institution's initiatives in promoting sustainable practices among students, faculty, staff, and the wider community. NAAC assesses the effectiveness of the institution's endeavors in fostering energy conservation, waste reduction, water management, green transportation, and other sustainable behaviors.
- e. **Engagement with Stakeholders:** Green audits demonstrate the institution's engagement with diverse stakeholders, including students, faculty, staff, administrators, and the local community, to advance environmental sustainability. NAAC evaluates the institution's efforts to encourage collaboration, participation, and dialogue on sustainability initiatives as part of its assessment under Criterion 7.

f. **Continuous Improvement:** Green audits underscore the institution's commitment to continuous improvement in environmental performance and sustainability practices. NAAC evaluates the institution's mechanisms for monitoring, evaluating, and enhancing its environmental initiatives to realize sustainability goals over time.

In summary, green audits contribute significantly to fulfilling the requirements of NAAC Criterion 7 by providing tangible evidence of the institution's dedication to environmental sustainability, ethical conduct, and best practices aligned with institutional values. They demonstrate the institution's endeavors to embed sustainability into its operations, curriculum, and engagement with stakeholders, thereby enhancing its overall accreditation process.

4. **Vision of the College:**

The college has a vision to make it a centre of excellence adding value to education with dedication to nurture the students and transform them into employable persons and good citizens of the nation.

5. **Mission of the College:**

The college has the following mission or objectives.

- To impart quality higher education to the society
- To develop human resource in such a way so that they can participate in the nation building process.
- To bring social change in desired way by using education as a tool for change.
- To provide employability to the youths through vocational and employment oriented courses.
- To inculcate the sense of good citizenship among the youths.
- To bring this institution of higher education closer to the community with the help of various extension educational activities.
- To elevate the college to a centre of excellence.

6. **Environmental Policy of Kharupetia College:**

Located in the Darrang district of Assam, Kharupetia College holds a prominent position as a premier educational institution in the region. Founded in 1981, the college has maintained a tradition of excellence in academia, providing a conducive learning environment for students and faculty alike. With a strong emphasis on environmental awareness, the college has implemented various green initiatives dedicated to preserving the local ecosystem and fostering a pollution-free campus. The collaborative efforts of the college administration, students, staff, faculty, and other stakeholders underscore a collective commitment to preserving, safeguarding, and nurturing the green environment of the college.

7. Environmental Policy Statement of Kharupetia College:

Kharupetia College has an environmental policy focused on conserving nature, creating sustainable solutions, and supporting rural and traditional technologies while also controlling energy use. Here's what we aim to do:

- Raise awareness among students about saving natural resources and creating a sustainable environment. We want to keep our college green.
- Plant endemic species to keep a balance in our environment.
- Regularly conduct green audits to keep track of the green initiatives we're taking.
- Implement rainwater harvesting using traditional methods to conserve water.
- Keep our campus free from pollution - in the air, water, soil, and noise.
- Educate everyone about using drinking water efficiently, without any wastage.
- Encourage the use of bio-friendly dry and wet bins around the campus for proper waste collection and management.
- Reduce the use of paper and paper waste to move towards a paperless office environment.

8. Policy Objectives:

The goals of Kharupetia College's environmental policy are:

- Educate and involve students and staff in environmental issues and sustainability.
- Support and value traditional rural technologies to conserve the natural environment.

9. Objective of Green and Environmental Audit:

The main goal of this green audit is to evaluate the environmental condition and develop plans to make the campus more eco-friendly. The specific objectives of this green audit include:

- a. Assessing the land use pattern and green coverage on campus.
- b. Evaluating the quality of drinking water available in the campus.
- c. Measuring the level of sound pollution within the campus.

- d. Analyzing the composition and properties of the soil.
- e. Studying the diversity of flora and fauna present on campus.
- f. Ensuring the safety and security of the campus environment.
- g. Monitoring waste generation and its management.
- h. Increasing awareness among people about the environmental condition of the campus.

These objectives were achieved through multiples approaches with scientific analysis.

a. Land use pattern and green cover of Kharupetia College:

A thorough examination of the Kharupetia College campus was carried out utilizing a satellite image obtained from Digital Globe on January 18, 2024 along with on-site surveys using DJI Phantom Drone. The evaluation primarily concentrated on assessing the campus's land utilization and the extent of greenery. Leveraging Global Positioning System (GPS) technology and advanced satellite image processing, different land usage types were identified and meticulously mapped. The results indicate that over 33.02% of the total geographical area of Kharupetia College is covered by greenery. The specific breakdown of various land usage categories and their respective area coverage is outlined in Table 1.

Table: 1: Land use pattern of Kharupetia College Campus

Sl No	Categories	Area (in Acres)	Percentage of area cover
1	Green Area	8.15	36.59
2	Building	2.04	9.16
3	Roads	1.32	5.92
4	Open Area	8.20	36.82
5	Water Bodies	2.07	9.29
6	Sand / Low-lying Area	0.49	2.20
Total Campus Area		22.27	100

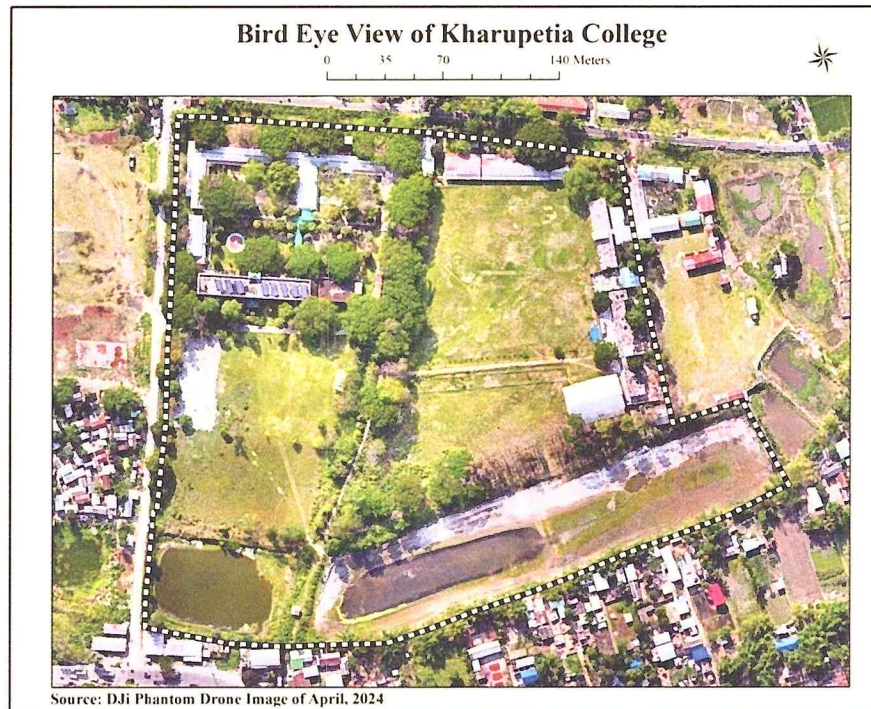


Fig. 1. Bird Eye View of Kharupetia College

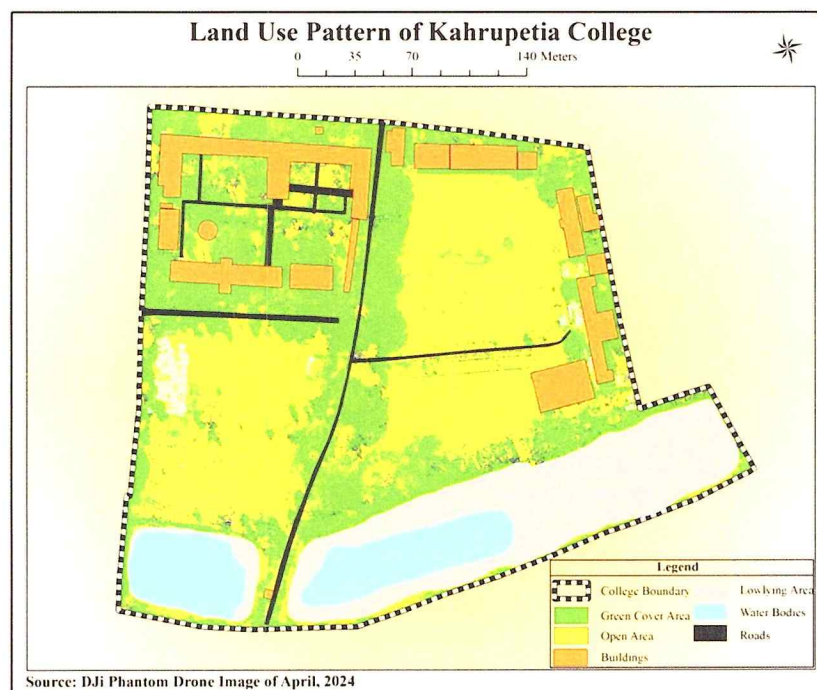


Fig.2. Land Use Pattern of Kharupetia College.

The analysis of the land use pattern indicates that the college is effectively preserving its green cover area. Moreover, additional plantation efforts are expected to further improve the quality of the natural environment on campus.

b. Drinking Water Quality Assurance:

Ensuring access to clean and hygienic drinking water is pivotal for sustaining a healthy lifestyle. With this commitment in mind, Kharupetia College undertook a thorough examination of its drinking water quality, entrusting the task to NEOLAND Technologies, a renowned water testing laboratory located in Guwahati, Assam. Endorsed by Assam Agricultural University and the Tea Board of India, NEOLAND Technologies meticulously evaluated the campus water sources. The evaluation, conducted in accordance with IS 10500(2012) and the United States Public Health Drinking Water Standard (USPH), confirmed that all parameters of the drinking water comply with prescribed norms. Separate tests were conducted for both treated (filtered) and untreated water to identify any irregularities. To further fortify the assurance of quality drinking water, the college administration strategically installed drinking water points across all departments and offices, catering to the needs of students, faculty, and staff. Moreover, a water supply plant within the campus, established through ensures a continuous supply of clean water not only to the campus but also to neighboring villages. Actively committed to water conservation efforts, Kharupetia College has initiated rainwater harvesting and regularly conducts awareness campaigns among its student and faculty communities. For detailed insights into the water quality assessment, Annexures 1 and 2 provide comprehensive water test reports.



Fig.3 Drinking water plant & water conservation measures

Results of analysis of drinking water sample:**No. of water sample: 02**

Sl. No	Parameter	Value	Accepted Value (USPH Standards)
1	pH	7.01	6.0-8.5
2	TDS (ppm)	120	500 (ppm)
3	Iron (ppm)	0.098	<0.3 (ppm)

- USPH – United States Public Health Drinking Water Standards
- Note: The results are pertaining to the sample supplied.

Heavy Metal Analysis

Sl. No	Test Parameters	Test Method	Unit	Requirements (Max. Desirable Limit as per IS)	Result
1	Fluoride	APHA 23 rd Edition 4500 F-D SPADNA Method	mg/l	1.0	0.59
2	Arsenic	IS 3025:1988 (Part 37) Ref. 2003	mg/l	0.01	0.004

Note: The results are pertaining to the sample supplied.

c. Assessment of Sound Pollution Level:

To assess sound pollution levels within the college campus, a decibel meter was employed. This instrument is specifically designed to measure noise or sound levels by detecting sound pressure. The evaluation revealed that 60% of the total geographical area registered sound levels below 60 decibels, while the remaining 40% recorded levels exceeding 60 decibels. Table 2 offers a detailed breakdown of the campus area categorized by different decibel ranges at Mangaldai College. Following the guidelines set forth by the Central Pollution Control Board (CPCB), prolonged exposure to noise levels surpassing 70 dB poses a potential risk of damaging human hearing. Moreover, immediate harm to human ears may occur with loud noise exceeding 120 dB. In accordance with CPCB recommendations, it has been observed that 8.63% of the total geographical area of the college experiences sound levels exceeding 66 decibels. This specific area is predominantly 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 within the Kharupetia College campus are depicted in Figure 4.

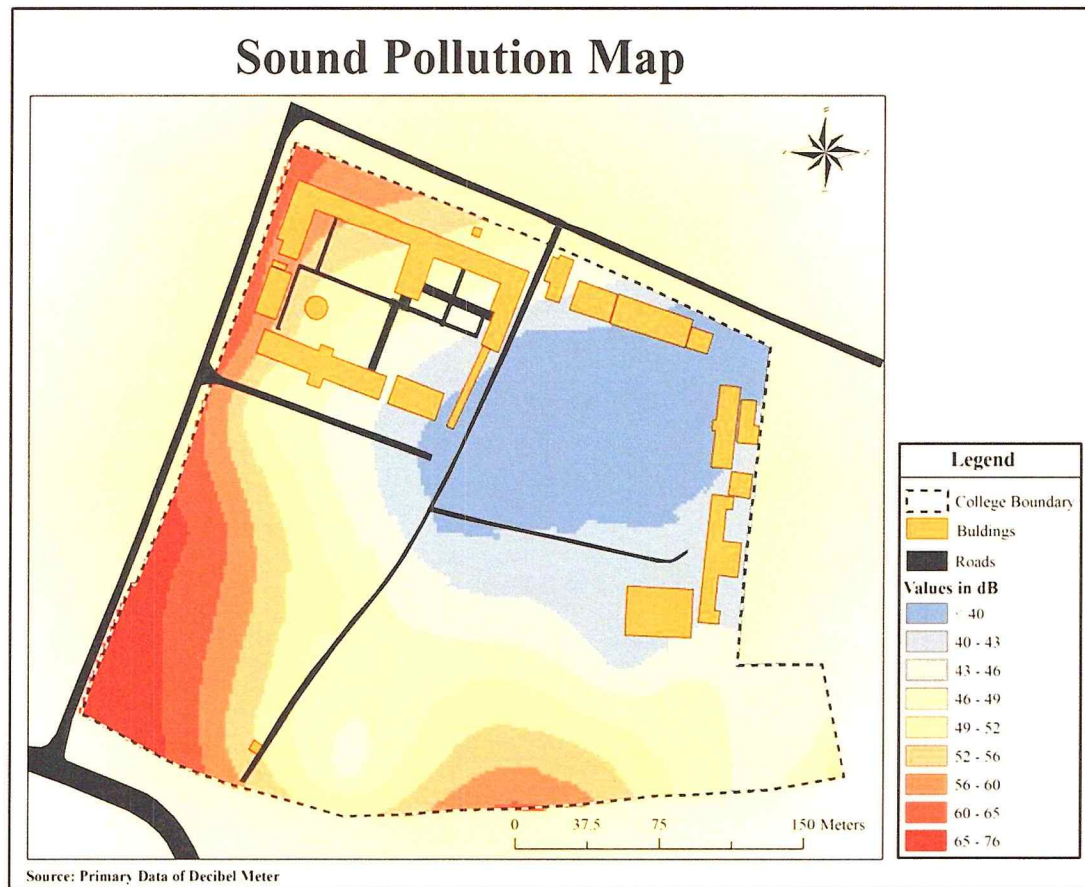


Fig. 4. Sound pollution level in the college campus

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

Decibel Range	Area in acre	Percentage of Area
<40	3.87	17.38
40 - 43	3.40	15.27
43 - 46	3.34	15.00
46 - 49	3.67	16.48
49 - 52	2.42	10.87
52 - 56	2.01	9.03
56 - 60	1.56	7.00
60 - 65	1.18	5.30
65 - 76	0.82	3.68
Total Area	22.27	100.00

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. Kharupetia 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. P2O5 (Kg/ha)	Av.K2O (Kg/ha)
1	Top Soil Location: 26.515718 92.130314	7.24	1.14(H)	421.13(M)	249.20(H)	265.36(M)
2	SubSoil Location: 26.515275 92.131521	7.68	0.23(L)	66.38(L)	169.43(H)	167.92(M)
3	Top Soil Location: 26.513433 92.130496	6.27	1.75(H)	650.52(H)	122.75(H)	147.26(M)
4	SubSoil Location: 26.513777 92.129327	7.22	0.45(L)	113.18(L)	71.25(H)	140.22(M)
5	Top Soil Location: 26.514800 92.129542	7.12	0.32(L)	156.03(L)	46.42(H)	112.24(L)
6	SubSoil Location: 26.513887 92.131712	7.20	0.23(L)	82.83(L)	61.29(M)	174.54(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.

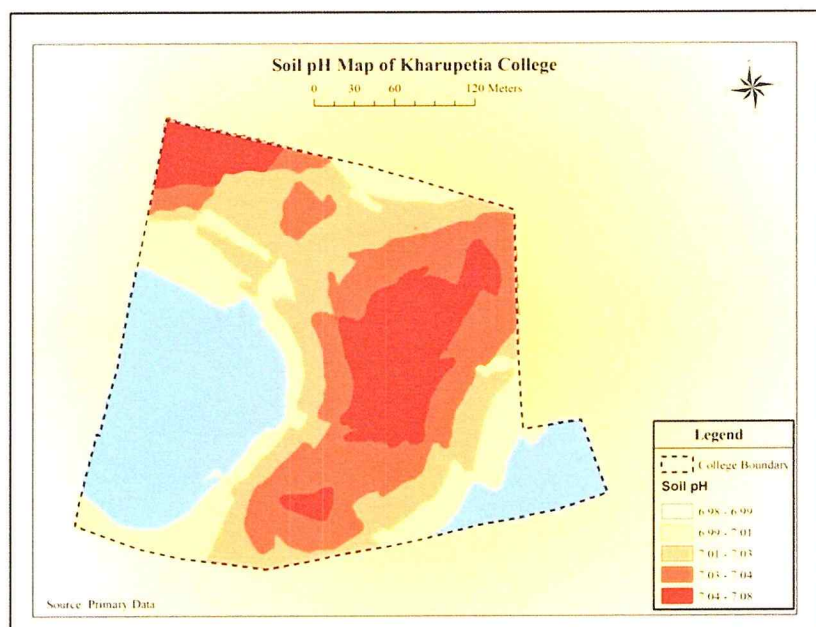


Fig. 5. Soil pH level map of the campus



Fig.6. Soil texture, composition and pH meter

Kharupetia College exhibits a soil composition comprising approximately 80 % sand, 10% silt, and 10% 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 Kharupetia College.



Fig.7. Soil sample collection by external expert for physio-chemical test

e. Air quality of the campus:

The air quality on campus is generally good, as the college is located in a rural area with minimal pollution from within the campus. However, there are some external factors contributing to air pollution. Vehicles, refrigerators, and air conditioners are among the main sources of greenhouse gas emissions on campus.

The Air Quality Index (AQI) measured on campus falls within the range of 0 - 19, which indicates excellent air quality. However, certain pollutants may still pose a moderate health concern for a small group of people who are exceptionally sensitive to air pollution.

To maintain air quality standards, the college has taken several steps, including planting more trees native to the area and installing solar panels. These initiatives aim to reduce the impact of external sources of air pollution. The parameters of air quality indicators of the campus on the survey date as follows.

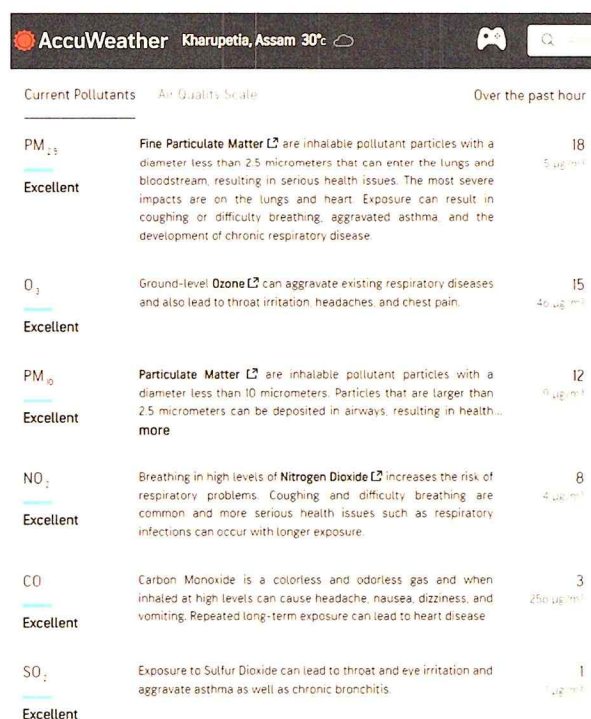


Fig. 8 Air quality index of Kharupetia

f. The Ecological Richness of Campus Life:

A comprehensive assessment was conducted to explore the rich tapestry of flora and fauna on college campus. The campus boasts a remarkable diversity of plant and animal life. With a minimum of 47 tree species, most of which are endemic to the region, our ecosystem flourishes. Refer to Table 03 for a detailed list of plant species thriving within the college campus grounds.

Table: 3. List of plant species available in the college campus

SI No	Local Name	Scientific Name
1	Bakul	<i>Mimusops elengi</i>
2	Darjiling Pine	<i>Pinus kesya</i>
3	Sirish	<i>Samanea saman</i>
4	Icaroi	<i>phragmites karka</i>
5	Hamuthira	<i>Citrus reticulata</i>
6	Nahar	<i>Mesua ferrea</i>
7	Krishna Chura	<i>Delonix regia</i>
8	Hilikha	<i>Terminalia chebula</i>

Sl. No.	Local Name	Scientific Name
9	Ahot	<i>Ficus religiosa</i>
10	Amlokhi	<i>Phyllanthus emblica</i>
11	Devadaru	<i>Polyalthia longifolia</i>
12	Takau	<i>Livistona jenkinsiana</i>
13	Mohaneem	<i>Azadirachta indica</i>
14	Kola Jam	<i>Syzygium cumini</i>
15	Dapota	<i>Ocimumbasilicum</i>
16	Titasopa	<i>Michelia champaca</i>
17	Velhu	<i>Tetramelos nodiflora</i>
18	Segun	<i>Tectona grandis</i>
19	Pakeri	<i>Ficus rumphii</i>
20	Arjun	<i>Terminalia arjuna</i>
21	Agaru	<i>Aquilaria malacensis</i>
22	Ghoraneem	<i>Melia azedarach</i>
23	Kodom	<i>Anthocephalus cadamba</i>
24	Eukliptas	<i>Eucalyptus maculata</i>
25	Kadam	<i>Anthocephaluscadamba Mig.</i>
26	Bokduli	<i>Ficusglomerata roxb.</i>
27	Jolfai	<i>Elaeocarpus floribundus</i>
28	Tisfol	<i>Evolvulusnummularius</i>
29	Modar	<i>Erythrina indica</i>
30	Poma	<i>Cedrela toona</i>
31	Robab tenga	<i>Citrus grandis</i>
32	Laobondha	<i>Pterospermum acerifolium</i>
33	Simolu	<i>Bombax ceiba</i>
34	Sishu	<i>Dalbergia sisoo</i>
35	Velkor	<i>Trewia nodiflora</i>
36	Koroi	<i>Albizia procera</i>
37	Gamori	<i>Gmelina arborea</i>
38	Karush	<i>Pongamia glabra</i>
39	Auotenga	<i>Dillenia indica</i>
40	Soitiyan	<i>Alstonia scholaris</i>
41	Dimuru	<i>Ficus roxburghii</i>
42	Kothal	<i>Artocarpus heterophyllus</i>
43	Dimuru	<i>Ficus roxburghii</i>
44	Maha Neem	<i>Azadirachtaindica</i>
45	Nahor	<i>Mesuaferrea Linn.</i>
46	Madhuriam	<i>Psidiumguava Linn.</i>
47	Segun	<i>TectonagrandisLinn.</i>

The college has a rich faunal diversity also. The green audit team has assessed the faunal diversity in the campus and 20 different species of arachnida, insects, amphibian, reptiles, avifauna and mammals are sighted in the campus. The table 4 and shows the list and number of species sighted in the campus.

Table. 4. List of fauna of the campus

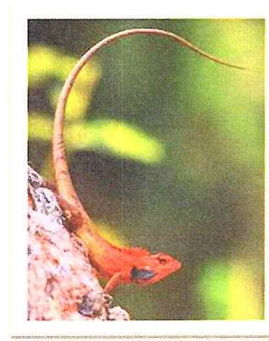
Sl. No.	PHYLUM	CLASS	SPECIES (Scientific Name)
1	ARTHROPODA	ARACHNIDA	<i>Badumna longinqua</i>
2	ARTHROPODA	ARACHNIDA	<i>Telamonia sp.</i>
3	ARTHROPODA	ARACHNIDA	<i>Evarchasp.</i>
4	ARTHROPODA	INSECTA	<i>Agriocnemislacteola</i>
5	ARTHROPODA	INSECTA	<i>Neurothermisfulvia</i>
6	ARTHROPODA	INSECTA	<i>Crocothemisservilia</i>
7	ARTHROPODA	INSECTA	<i>Chalybionsp</i>
8	ARTHROPODA	INSECTA	<i>Amegillasp</i>
9	CHORDATA	AMPHIBIA	<i>Uperodon globulosus</i>
10	CHORDATA	AMPHIBIA	<i>Hylarana erythraea</i>
11	CHORDATA	AMPHIBIA	<i>Microhylasp.</i>
12	CHORDATA	REPTILIA	<i>Calotes versicolor</i>
13	CHORDATA	AVES	<i>Megalaimaasiatica</i>
14	CHORDATA	AVES	<i>Dicrurusmacrocerus</i>
15	CHORDATA	AVES	<i>Acridotherestris</i>
16	CHORDATA	AVES	<i>Coracina macei</i>
17	CHORDATA	AVES	<i>Treronphoenicoptera</i>
18	CHORDATA	AVES	<i>Streptopeliachinensis</i>
19	CHORDATA	AVES	<i>Sturnus malabaricus</i>
20	CHORDATA	MAMMALIA	<i>Callosciuruspygerythrus</i>

Table: 5. Class and number of faunal species sighted.

Sl. No.	CLASS	No. of species sighted
1	ARACHNIDA	03
2	INSECTA	05
3	AMPHIBIA	03
4	REPTILIA	01
5	AVIFAUNA	07
6	MAMMALIA	01
Total		20



Callosciurus pygerythrus



Calotes versicolor



Hylarana erythraea



Chalybion sp.



Streptopelia chinensis



Sturnus malabaricus



Neurothermis fulvia



Coracina macei

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 included in Annexure 5 of this document. Kharupetia College provides a secure and protected environment for students and all stakeholders. Ample open spaces on the grounds ensure sufficient 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 9 visually highlights the presence of ramps, spacious corridors, fire extinguishers, and open areas within the college.

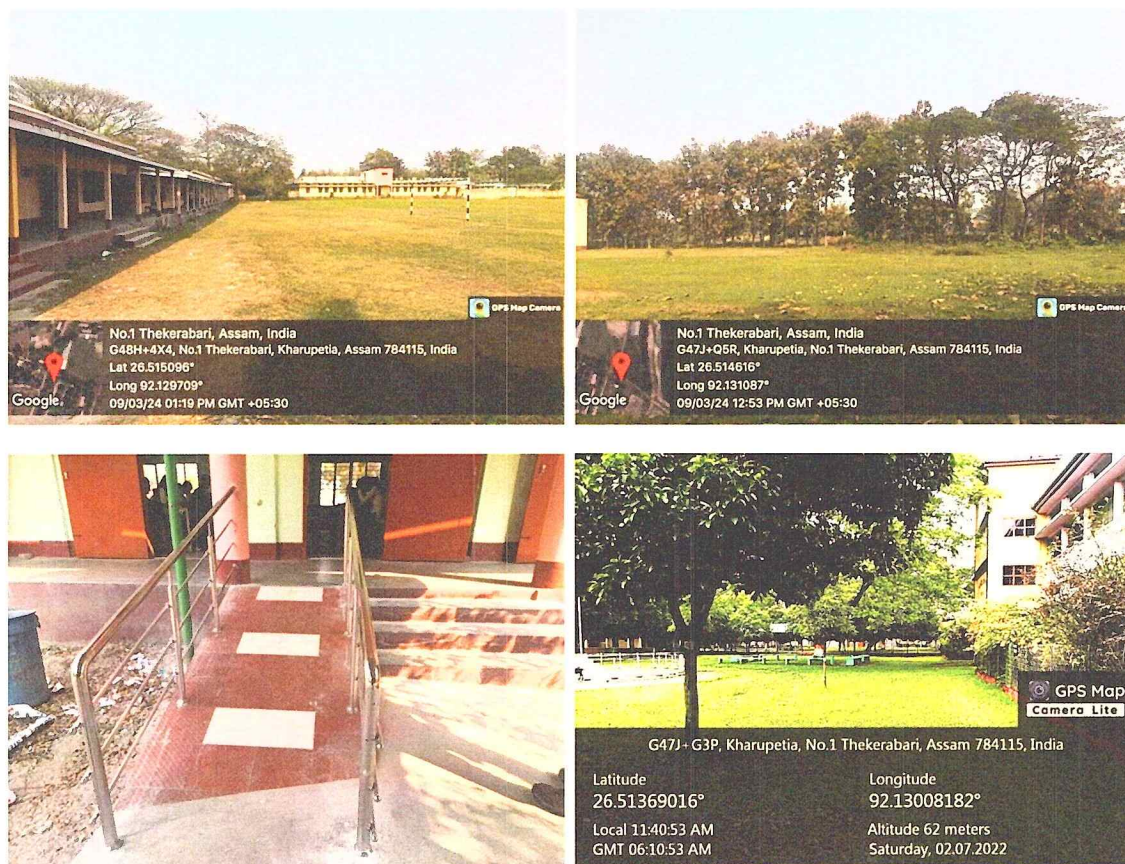


Fig.9. Open space, ramp and spacious internal roads of the campus.

h. Waste Management:

The college has adopted practical measures to enhance waste management, introducing a segregation system for dry and wet waste. Numerous strategically placed bins are distributed throughout the campus, emptied bi-weekly to prevent overflow. Prominent signboards and billboards have been installed in various locations to raise awareness about proper waste management practices. Regular cleanliness drives, involving NSS student volunteers, faculty members, and office staff, are conducted to maintain a green and clean environment. The collected waste is carefully sorted into organic and inorganic categories.

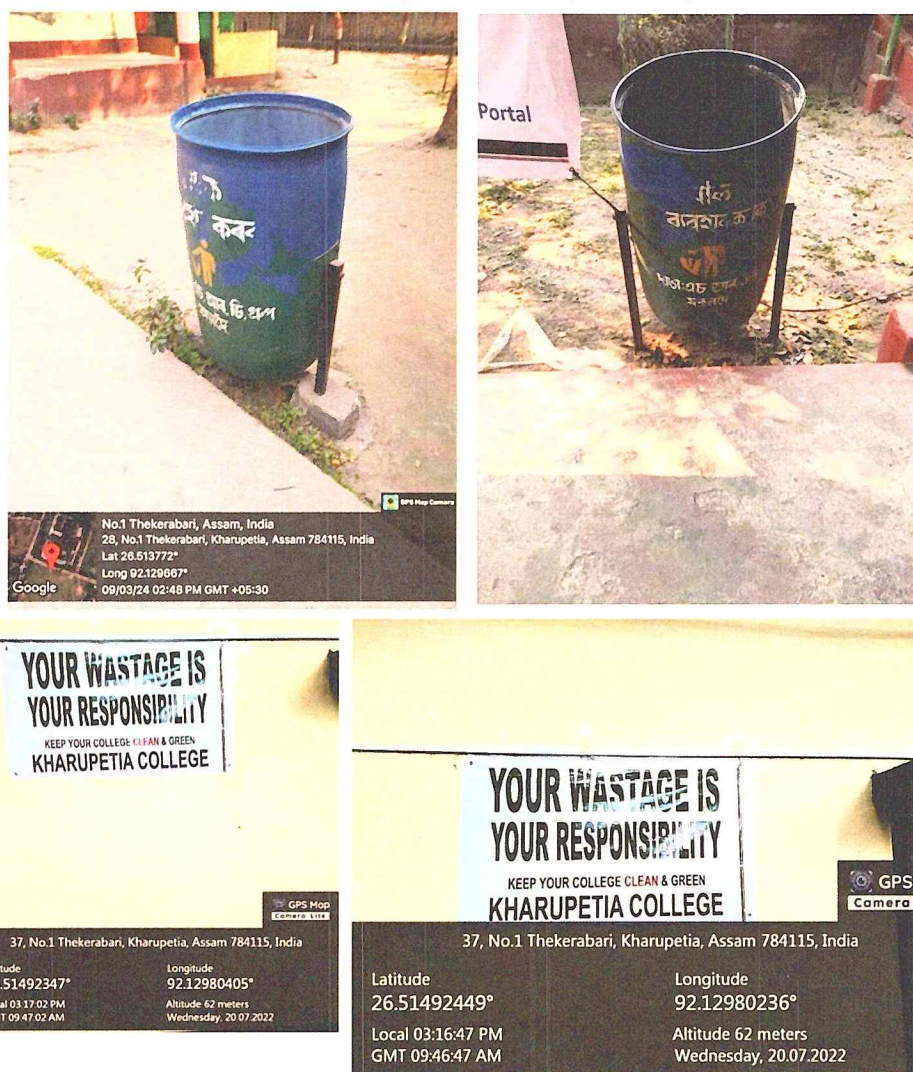


Fig.10. Dustbin installed in the campus for garbage collection & awareness initiatives

i. Human health and safety management:

Kharupetia College is committed to prioritizing the health and safety of its students and faculty. The college regularly organizes blood donation camps in collaboration with local NGOs. Furthermore, the college has actively participated in the Covid-19 third vaccination drive. During the 2022-23 academic year, Kharupetia College held two vaccination drives in partnership with the District Health Department, Government of Assam.



Fig.11. Health checkup camp

j. Green Initiative of the College:

Since its inception Kharupetia College has undertaken numerous green initiatives. The college emphasizes the promotion of green energy, conducts plantation drives both on and off-campus, maintains a tobacco-free environment, and strives to eliminate plastic use on campus.

a. Green Energy Initiative:

The college is promoting green energy by installing rooftop on-grid solar panels on campus. These panels, with a total grid capacity of 21 kWp, are installed on the administrative building. This initiative is collaboration with Assam Power Distribution Company Limited (APDCL).



Fig. 12. Solar panels of the college

b. Plantation Drive:

The college has initiated numerous plantation drives both on campus and in surrounding areas. These efforts align with significant environmental observances such as World Environment Day, Earth Day, Biodiversity Day, and World Wildlife Day, during which dedicated plantation drives are conducted. To promote a healthy environment within and around the college, these initiatives extend to fringe areas as well. The active participation of student volunteers is a key feature of these activities. Following the plantations, meticulous post-care measures are taken to minimize plant mortality rates. Special attention is given to planting endemic species to preserve the region's ecological balance.



Fig.13. Plantation Drive

c. Tobacco Free Campus:

Kharupetia College has been designated a tobacco-free campus by the Darrang District Health Society. Hoardings placed at various locations across the campus inform and remind everyone of this status. The administration is dedicated to preserving both the academic and natural environment of the college.

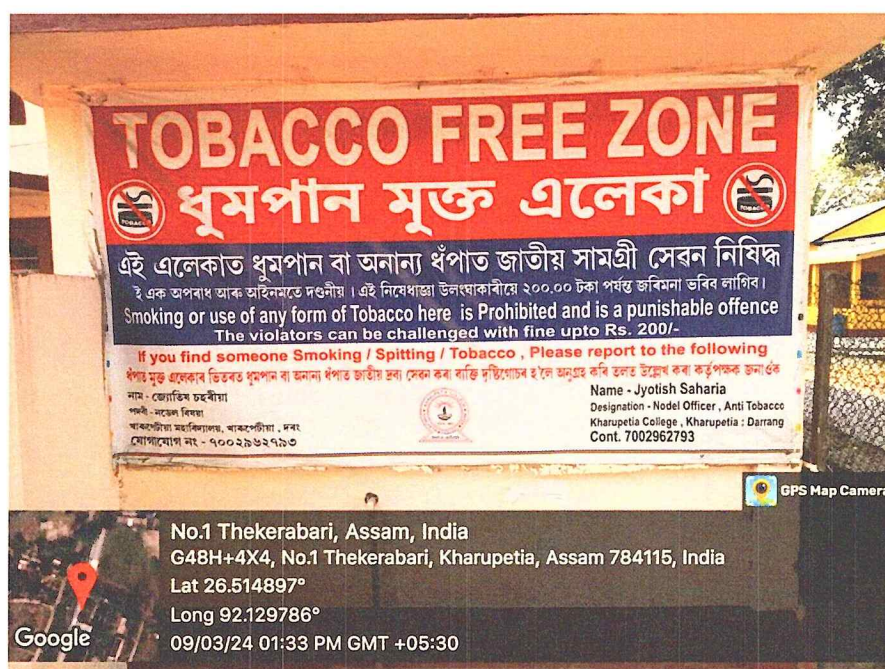


Fig. 14. Anti tobacco initiatives taken by the college.

d. Plastic free campus:

The college administration has implemented practical measures to eliminate single-use plastics on campus. A complete ban has been imposed on items such as chip packets, plastic cups, plastic plates, and other single-use plastics. The Internal Quality Assurance Cell (IQAC) has placed signboards and hoardings in strategic locations to raise awareness about the plastic-free campus initiative. A team of faculty members and students regularly conducts vigilance, and fines are imposed on those who violate the ban.

e. **Rainwater Harvesting:**

The college has installed a rainwater harvesting system on its campus. This system collects and stores rainwater, which is then utilized for various purposes. The accumulated rainwater is primarily used for watering the plants, ensuring that the campus greenery remains healthy and vibrant. Additionally, the harvested rainwater is used in the toilets, contributing to water conservation efforts by reducing the reliance on groundwater supplies. This initiative not only promotes sustainability but also sets an example for environmental stewardship within the college community.

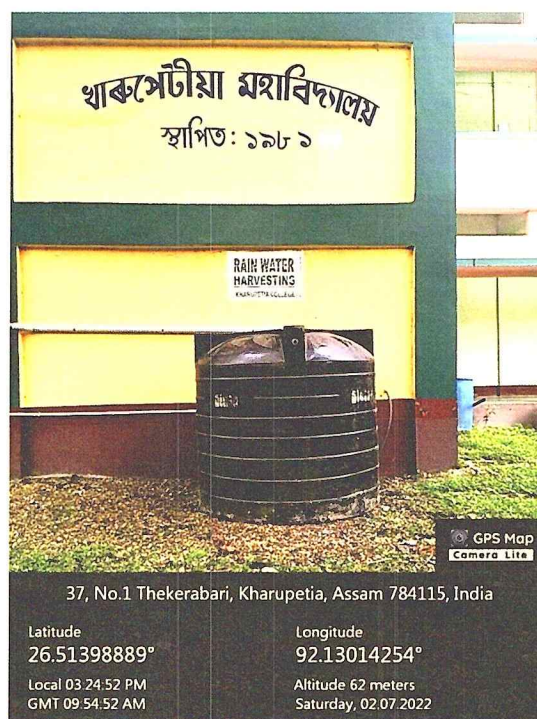


Fig.15- Rainwater harvesting plant

Recommendations:

Based on their observations and analysis, the Green Audit Committee has put forward the following recommendations:

- a. **Waste Management:** The committee recommended the following points regarding waste management practices in the campus.
 - The college should sign a Memorandum of Understanding (MoU) with the Kharupetia Municipality Board for garbage collection from the college campus on regular basis.

- Measures should be taken to make the waste management system more robust and systematic.
- The organic waste should be converted in to organic compost. A composting plant should be installed in the campus to generate organic manure.

b. Drinking water:

- The college should installed RO drinking water system in all the departments.
- Robust water conservation measures like regular awareness, installation of sensor based water taps, etc should be introduced in the college.

c. Planned Construction in the Campus:

- The committee recommends that future constructions be planned carefully to ensure the natural environment of the college remains preserved.
- The open areas of the college should be preserved, and classrooms should not be constructed near National Highway 15, where sound pollution exceeds 60 decibels.

d. Maintain the Green Environment: The committee recommended maintaining the green environment of the campus.

- Haphazard vehicle entry should be restricted in the college campus.
- The green cover of the campus should be maintained.

e. Continuous Green Initiatives:

- The college should take more green initiatives in and outside the campus.
- College have a beautiful campus with alluvial soil, hence the college can initiate the organic farming in the campus.

f. Promotion of paperless 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.

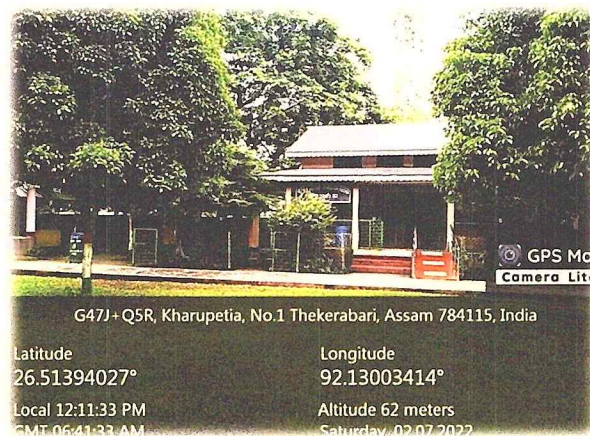
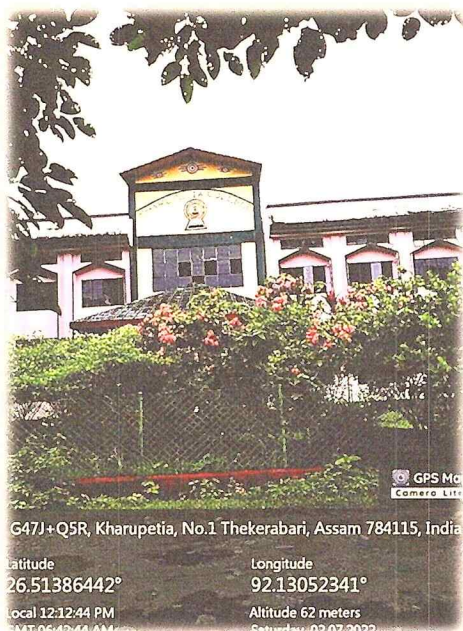
g. Student participation in maintaining the college campus:

- The college has a good student base and hence, it can be used to maintain the college campus and its green environment.

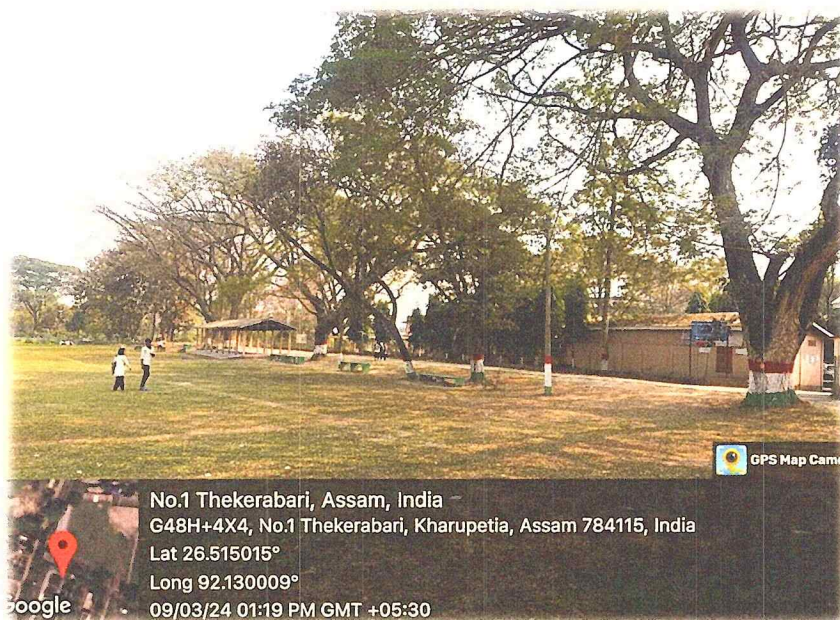
h. Conservation of available flora and fauna:

- 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 and outside the campus.

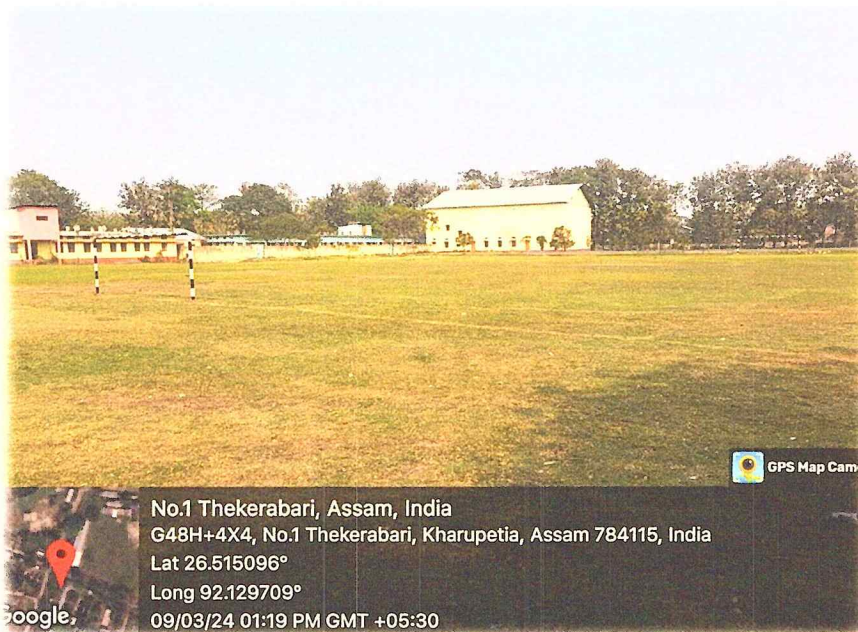
Photo Gallery



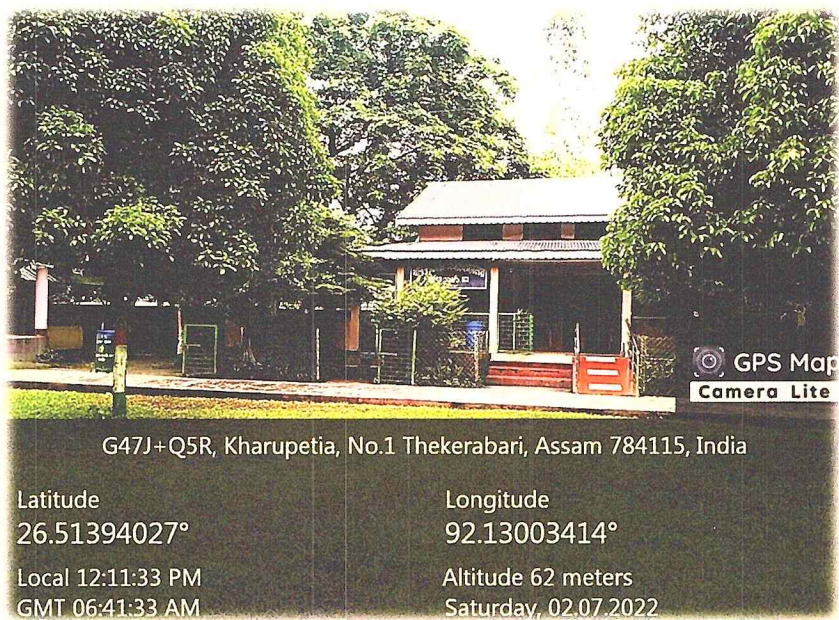
Green Environment of the college



Open Space of the Campus



Playground of the campus



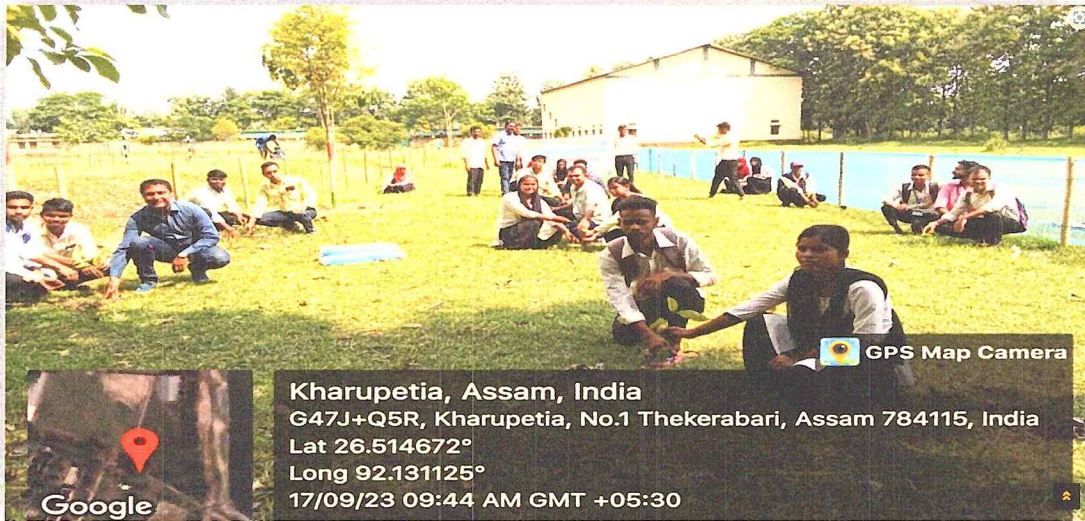
Plantation inside the campus



Anti tobacco initiatives by the college.



Health check up camp



Student participation in plantation drive.



Student participation in plantation drive.



Distribution of saplings to students



Awareness Program

ANNEXURE-1: Soil Testing Report**NEOLAND Technologies**

Soil, Water, Organic Manure & Plant Testing & Research Lab.

Recognised By: Tea Board Of India, Govt. Of Assam & A.A.U

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:

Soil Sample Supplied By:

Kharupetia College

Dist.: Darrang, Assam

Sl. No	Particulars	pH	O.C. (%)	Av. N2 (Kg/ha)	Av. P2O5 (Kg/ha)	Av. K2O (Kg/ha)
1	Top Soil Location: 26 515718 92 130314	7.24	1.14(H)	421.13(M)	249.20(H)	265.36(M)
2	SubSoil Location: 26 515275 92 131521	7.68	0.23(L)	66.38(L)	169.43(H)	167.92(M)
3	Top Soil Location: 26 513433 92 130496	6.27	1.75(H)	650.52(H)	122.75(H)	147.26(M)
4	SubSoil Location: 26 513777 92 129327	7.22	0.45(L)	113.18(L)	71.25(H)	140.22(M)
5	Top Soil Location: 26 514800 92 129542	7.12	0.32(L)	156.03(L)	46.42(H)	112.24(L)
6	SubSoil Location: 26 513887 92 131712	7.20	0.23(L)	82.83(L)	61.29(M)	174.54(M)

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

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

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

ANNEXURE-II: Water Testing Report

**NEOLAND Technologies**

Soil, Water, Organic Manure & Plant Testing & Research Lab.

Recognised By: Tea Board Of India, Govt. Of Assam & A.A.U

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

Kharupetia College

Dist.: Darrang, Assam

Results of analysis of drinking water sample:

No. of water sample: 02

Sl. No	Parameter	Value	Accepted Value (USPH Standards)
1	pH	7.01	6.0-8.5
2	TDS (ppm)	120	500 (ppm)
3	Iron (ppm)	0.098	<0.3 (ppm)

- USPH – United States Public Health Drinking Water Standards
- Note: The results are pertaining to the sample supplied

Heavy Metal Analysis

Sl. No	Test Parameters	Test Method	Unit	Requirements (Max. Desirable Limit as per IS)	Result
1	Fluoride	APHA 23 rd Edition 4500 F-D SPADNA Method	mg/l	1.0	0.59
2	Arsenic	IS 3025:1988 (Part 37) Ref 2003	mg/l	0.01	0.004

Note: The results are pertaining to the sample supplied

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

NEOLAND TECHNOLOGIES
 Opp Doordarshan
 R G Baruah Road Gau-24

ANNEXURE-III: Covid-19 Vaccination Certificate

GOVT. OF ASSAM
OFFICE OF THE JOINT DIRECTOR OF HEALTH SERVICES, DARRANG, MANGALDAI
No. Jt.DHS(D)/Certificate/2023-24/ 808 Dated Mangaldai the 30th April./2023

COVID VACCINATION CERTIFICATETO WHOM IT MAY CONCERN

This is to certify that during Covid-19 Pandemic, 2021 Health Department had organized several vaccination camps at Kharupetia College Campus and more than fifty (50%) percent of the teaching staff, non-teaching staff and students of the college got vaccinated. Other staff and students took their vaccination at their respective villages, where Covid Vaccination was done during the Pandemic by Health Department, Darrang.

Joint Director of Health Services
Darrang, Mangaldai.

Jt. Director of Health Services
Darrang, Mangaldai



GPS Map
Camera Lite

G47J+G3P, Kharupetia, No.1 Thekerabari, Assam 784115, India

Latitude
26.51407732°

Local 11:52:16 AM
GMT 06:22:16 AM

Longitude
92.13019151°

Altitude 62 meters
Saturday, 02.07.2022

-END-