Green and Environment Audit Report 2021-22

নন্দনাথ শইকীয়া মহাবিদ্যালয়

NANDANATH SAIKIA COLLEGE

Affiliated to Dibrugarh University

Nanda Nath Saikia College

Prepared by

Green and Environment Audit Team

Nanda Nath Saikia College, Titabar, Jorhat

785630


Green Corridor


Green Campus and
Natural Beauty

Foreward by Principal

Anthropogenic activities are primarily contributing more threats and challenges to natural environment and global disturbances leading to deleterious effects on plants and animals including human beings. Unlawful and injudicious exploitation of natural resources leading to shortage of non-renewable resources. Similarly, toxic and unauthorized chemicals used in agriculture and industries are causing serious threats to public health and hygiene. In cognizance of the above, the academicians, researchers, and social activists are expected to play vital role in protecting the environment from future deterioration. Universities, colleges, and different NGOs might involve in this connection to keep aware the young and energetic youths in protecting our natural environment.

Green Auditing is a systematic approach of resource utilization using a sustainable approach. Green Auditing can assess the eco-friendly and non eco-friendly practices on the campus. In cognizance of the above,Nanda Nath Saikia college, Titabar, Jorhat, Assam is committed to create its significance through different dimensions of environmental protection, health awareness and ecosystem restoration programmes. The college has implemented cost-effective, eco-friendly practices such as solar electricity, clean drinking water facilities for the faculties and students, use of solar panels and LED bulbs for power save and use, display boards indicating best practices to adopt sustainability in soil conservation, air, noise and plastic pollution management, waste degradation etc. The college since its inception has planted a number of trees in the campus to help reducing carbon footprints. The college, recently developed a system for sustainable utilization of organic wastes including the paper residues for production of quality compost that are being regularly used to nurture the plantlets of the college. Additionally, the compost has also being sold inside and outside of the college, leading to a small amount of revenue generation.

Since, the environment is facing lots of environmental, and climate-related threats and others including the rapid temperature fluctuations, CO_2 elevation, global warming, population explosion, poor human health and contamination to air, soil, water, biodiversity losses etc., the present approach to assess and prepare data on "Cutting-age technologies in relation to maintain Green Environment" would hold promises to develop sustainability in future.

(Dr. Litool Baruah)
Principal

Principal
N.N. Saikia College
Titabar

Acknowledgement- by Team Leader – Green Audit

IQAC and Green Audit Assessment Team thanks Dr. Litool Baruah, the Principal, NNS college, Titabor, Jorhat, Assam for assigning the task of Green Audit of this college to us. He is the one, who assisted us from the very beginning till the end of the process.

We appreciate the cooperation that we got from the faculties and students during the data collection, photography and entire process of preparation of the report.

The Coordinator, Green audit team specially thanks HOD, Dept., of Botany & VP, Dr. M. L. Dutta while identifying the plants in the College campus.

The Green Audit Team is indebted to the Director, CSIR-NEIST, Jorhat, Assam while facilitating for the physical and chemical analysis of water sample of our campus.

I am also grateful to The Chief Agronomist, and Soil scientist, Advanced Centre for Integrated Farming Systems Research (ACIFSR), Assam Agricultural University (AAU), Jorhat, Assam, for assisting in soil quality analysis and reporting.

I am also thankful to the Chief Scientist, Regional Agricultural Research Station, Titabar, Jorhat, Assam for supplying the climate-related data of Titabar area for the entire evaluation and reporting period.

Special thanks to Dr. Dhrubajyoti Das, Scientist-E, Dr. Girish Gogoi, STO and Shri Abhijit Medhi, TA Rain Forest Research Institute (RFRI), Jorhat, Assam, India for their overall suggestions during the preparation of the report.

(Pranaba Nanda Bhattacharyya)
Coordinator, Green Audit team,
Nanda Nath Saikia college

Green Audit Team

Sl. No.	Name	Designation
1.	Dr. Litool Baruah (Principal)	Chairman
2.	Dr. Pranaba Nanda Bhattacharyya (Asst. Prof.)	Coordinator
3.	Dr. Partha Pratim Saikia (Asst. Prof.)	Member
4.	Mr. Kaushik Dutta (Asst. Prof.)	Member

DISCLAIMER

Green Audit Team has prepared this report on the basis of primary data collected from different areas of the college. Possible data analysis related to environmental parameters has been made in assistance with the subject experts of renowned Research Institutes, nearby. Further, all reasonable care has been taken in data analysis, report preparation and presentation.

Thus, the final report is being prepared by the Green Audit team in good faith based on scientific information compiled and data processed.

Prepared by
IQAC & Green Audit Team, NNS college

Content

1. Introduction

1.1 About the College

The twenty first century has witnessed an impressive growth in the area of higher education and at the same time, it has created a new environment for education in general and higher education in particular. Since its inception in 1959, Nanda Nath Saikia College, located at Titabar, Jorhat, Assam (Geographical location 26°35'17.15"N latitude and 94°11'13.98"E longitude) is being privileged to have many notable academic administrators, the hard work and dedications of whose has built it as an excellent seat of learning, education and research. Presently, the College has been able to offer a number of talented and resourceful teaching faculties and adequate infrastructure facilities, including modern instrumentation, as well as a balanced course curriculum, in order to enrich theknowledge, ideas, skills, and personalities of underprivileged and aspiring students in the greaterTitabar area, ensuring their long-term success. The college has gained an unprecedented momentum in the fields of research and developmental activities, sports and culture. Reputed leading funding agencies of India like UGC, DBT, DST etc. have granted substantial fund to carry out research activities in different applied and allied subjects/fields of higher studies. Presently, the college has incumbent of 48 permanent faculty members, 08 office staff and bearers and including a total of 1376 students studying at undergraduates and at Higher Secondary. The total area of the college campus is 4.09ha.

1.2 Campus Infrastructure

Nanda Nath Saikia College, Titabar, Jorhat has a well demarcated walled campus comprising of 10.1 acres of land surrounded with greenery environments. Equipped with 14 different Departments, the college has well designed infrastructure facilities including the ICT enabled classrooms for effective teaching learning process.There is a large play-ground with an area of 110x80 sq. mtr within the college campus for outdoor games such as Football, Cricket, Volley Ball, Badminton etc. The College has a well maintained library which provides about 22,225 Nos. books, 13 journals, 11 periodicals and 5 news papers. The operating system of the library has been computerized. Besides, it also has spacious and separate reading rooms for the students and the faculty members of the college. The construction of an e-library section has reached the stage of near completion. A fishery with an area of 70.8x19.7 sq. m is maintained within the college campus. A Botanical Garden enriched with various types of medicinal plants and rare species of flora is another asset of this institution. The indoor games facilities offered by the college include Carom, Table Tennis, and Chess etc. The college has a well protected Girls' Hostel within the campus with a seat capacity of 40 students.

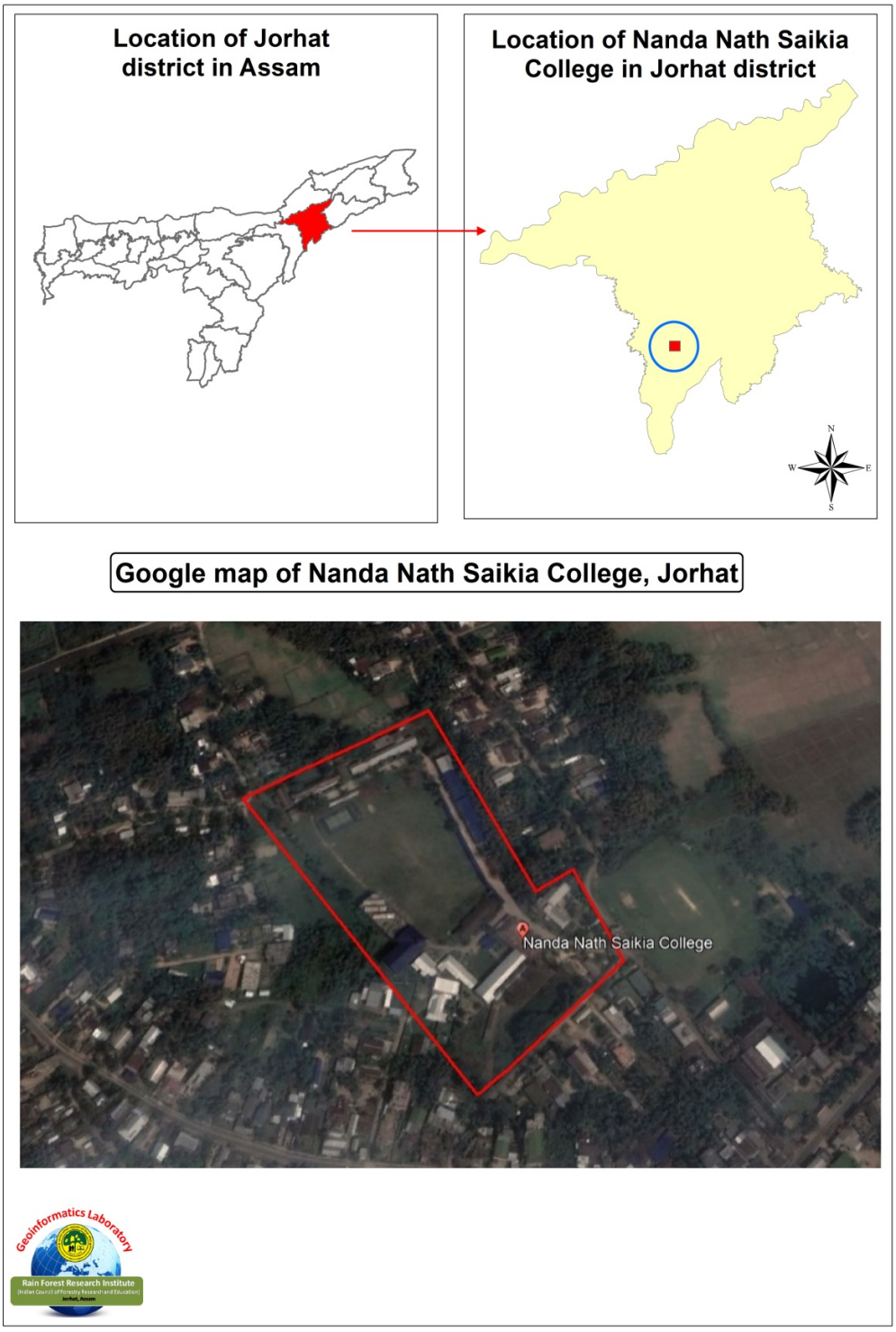


Fig.1: Google earth map showing location of the college

The newly built Computer Centre offers facilities that include internet connectivity, web designing etc. to the students. The college canteen provides refreshment to the students as well as faculty at subsidized rate within the campus. There are also provisions of awarding of the students in the form of scholarships and various memorial awards. Group Insurance Scheme is running under LIC (GIS) from the student contribution of Rs 23.00 per head. Under this insurance scheme a student is given coverage up to Rs 20,000.00 in the event major injury or death.

1.3 Vision and Mission of the college

Our Vision

The institution is committed to provide excellent infrastructure with modern facilities as well as a healthy curriculum for enrichment of knowledge, skill and personality conducive to life time success of the students and welfare of the society.

Our Mission

To provide an environment in which its pupils can discover, examine, preserve and transmit knowledge, wisdom and value that will help to ensure the survival of present and future generations with significant improvement in the quality of life.

1.4 Goals and Objectives of the college

- To impart quality education.
- To communicate the vision and mission of the college to students, teachers, staffs and stakeholders.
- To nurture personality development of students.
- To involve our teachers and students in community and extension activities.
- To enrich knowledge by enhancing institutional collaboration/ networking.
- To provide modern facilities to ensure better teaching-learning process.
- To create a good research environment.
- To ensure a better management system.
- To create an environment of mutual cooperation and contribution among the authority, faculty, students and others stakeholders.

1.5 Strategic Plan of the college

As a leading institution of higher education in Titabar area, the Nanda Nath Saikia college has the noble mission of making the academic and administration of the institution entirely dedicated to the welfare of the students and to enable them to become responsible citizens of the society.

For this purpose, the institution has decided upon some strategic plans and is stressing on theexecution of the same.

- To create an atmosphere of discipline and punctuality among the teaching and non-teaching staff and the students
- To create an effective environment of teaching, learning and research
- To acquaint the students with the updated methods of learning and provide them withnecessary knowledge for the same
- To ensure the use of ICT tools in teaching and learning to improve the traditional mode of education
- To make teaching and learning participatory in nature by enabling the students to participate in the process rather being passive learners
- To make students consciousness about the society and inspire for community service
- To encourage the students to participate in the extra-curricular activities and create an environment for the same
- To initiate processes for collaboration with various leading institutes for sharing knowledge and using the better resources from such institutes
- To encourage the teaching faculty for further study and research so that the students canbe benefitted from that
- To prepare the infrastructure of the college to face the future challenges in teaching andlearning
- To serve the society and to contribute to its progress and development.

1.6 Environmental Policy of the college

Nanda Nath Saikia college, situated in the Jorhat district of Assam, India is an Environment conscious college. In cognizance of "cutting-age technologies of quality consciousness to protect the green environment" the college has taken necessary steps in protecting its biodiversity through nature conservation and maintains the campus as pollution free. Thus, every year, during the rainy season, trees have regularly being planted by the faculties and students to keep the environmentgreen and sustainable. The college administration, staff and students looks after the plants as their responsibility to maintain and conserve greenery environment of the institution.

Environmental policy of the college can be achieved through following means:

- To create awareness among the people including the college fraternity and local people of the area about the necessity of green environment and its protection.
- To plant more trees every year to maintain green campus.
- To use more display boards and green initiatives to keep aware the students aboutecosystem conservation, restoration and maintenance of pollution free campus.
- To create awareness among the college fraternity about the proper use of drinking water without wastage.
- To protect nature through biodiversity conservation.
- To use dry and wet dustbins for keeping College campus clean and sustainable.
- To maximize the use of ICT in teaching-learning activities and minimize the use of paper. It will help to go towards 'paperless office'.
- To create awareness about energy use efficiency in a more sustainable way.
- To use the solid organic wastes for composting in the campus that can be utilized as quality compost for its use to nurture the plants. Additionally, the approach is considered as one of the significant area towards revenue generation by the college.

Finally, green auditing to adopt best practices to maintain an eco-friendly campus for sustainability.

2. Green Audit

Green audit, constituted in the year 1992, aims at providing answers to all the stakeholders and interested parties about the environmental performance and threats arising due to operational practices against thehealth and environment of the surrounding areas of an organization. Organizing green audit is considered as holistic approach to develop and upgrade sustainability in environment such as soil, water, air, energy etc., in and around the academics, research institutes, public and private companies, NGOs and other organizations. Green audit's main strategy for achieving its goal and objective is to use resources as efficiently as possible while causing the least amount of environmental disruption possible and conserving ecosystems. The goal of a green audit is to identify and track the sources of environmental pollution, water quality and quantity, and other safety concerns pertaining to sustainability, hygienic practices, and human health. The goal of green auditing is to maximize the beneficial effects of an organization's ecologically sound system while reducing any potential negative effects on the environment.

In cognizance of its significance in improving various "Functional issues related to adoption of green and sustainable technologies", auditing becomes an integral part of an organization which not only assists in strengthening the internal working environment of an organization but also eradicates many bottlenecks inform of abnormal operational practices and unnecessary economic loads. Evaluation of impacts on the natural resources within the premises due to the routine activities of the organization also adds a value to the sustainable development of the organization. The present green auditing and evaluation of Nanda Nath Saikia college, Titabar, is therefore, carried out to assess the impact of institutional activities and dynamism on conservation of overall environmental resources such as soil, water, air, noise, energy etc.

2.1 Goals and Objectives of Green Audit

Numerous environmental and ecological problems have been brought on by the rapid urbanisation and economic development at the local, regional, and global levels. In the light of this, it is crucial to implement strategies for creating green campuses for educational institutions in order to promote sustainable growth and significantly reduce atmospheric carbon dioxide levels. Additionally, the National Assessment and Accreditation Council, New Delhi (NAAC) has also made it mandatory that all higher educational institutions should submit an annual green audit report. Besides, it is a component of the higher education institutions corporate social duty to make sure that they help to slow down global warming by taking steps to reduce their carbon footprint.

The main objectives of this holistic approach are to assess the environmental quality and eco-friendly and sustainable strategies implemented by Nanda Nath Saikia college time to time to generate quality working environments to facilitate the intervening processes of the campus. The specific objectives are as follows.

- To assess the meteorological parameters
- To assess the quality of soil and water
- To monitor waste generation and management
- To ensure awareness to facilitate enhanced reduction in air and noise pollution
- To ensure optimum and sustainable utilization of resources
- To assess the natural biodiversity in college premises
- To ensure the safety of college fraternities, students and stakeholders
- To ensure awareness on plantation drive, clean environment, health risks etc
- To assess energy use and efficiencies

- To promote safe and clean environment.

2.2 Constitution for Green Audit

The green audit is carried out as per the environmental policy of the NNSC and green audit checklist and contents. The aim of the audit is to check the existing practices and provide advice for the development of environmental policy and practice in the areas of:

- Climate-related parameters in Titabar region
- Natural biodiversity and tree plantations
- Soil and water analysis and reporting
- Nature conservation and photography
- Energy use and efficiency
- Waste management
    i. Solid waste management
    ii. Liquid waste management
    iii. E-waste management
- Maintenance of Green environment and eco-friendly campus

2.3 Focus Area of Study

- Meteorological survey, and data analysis
- Green belt area & biodiversity
- Soil nutrient status and quality assessment
- Water quality assessment
- Air and noise pollution management
- Soil pollution management
- Sustainable approaches in energy use and conservation efficiencies
- Solid waste management and sustainable approaches of utilization
- E-waste management
- Human health and Environmental awareness initiatives

3. Methodology

3.1 Onsite Visit

The team members of Green Audit Committee of the college visited the places physically, inspected and instructed the concerned for improvement and safety measures were undertaken wherever necessary to minimize the impact on environment. Scientists and Officers from Rain Forest Research Institute, Jorhat also visited and inspected the college campus as a third party monitoring.

3.2 Survey and Analysis

Data regarding green and environment were recorded by the Internal Green Audit Committee and arranged the water sample to send to the authorized Laboratories/institutes for analysis. The girths and heights of trees above 10 cm diameter at breast height were measured and listed. The list is sent to RFRI, Jorhat for estimating above ground biomass (AVG) and carbon stock of the college campus

4. Meteorological Survey and Data Analysis

A green audit is a methodical process for identifying, quantifying, documenting, reporting, and analyseof various components of environmental diversity of various establishments. The function of higher educational institutions in connection to environmental sustainability is increasingly more prominent as the topic of environmental sustainability becomes a national concern and matter of emergent. The average weather that prevails throughout a specific time and place is referred to as the climate. To address the issues associated to environmental sustainability, it is crucial to audit climate-change parameters. On natural flora and fauna, changes in weather parameters (such as rainfall, mean minimum and maximum temperatures, relative humidity, etc.) may have direct or indirect effects. Water is substantially in limited supply due to changes in precipitation. Similar to this, month-to-month fluctuations in temperature are anticipated to enhance warming even in the winter. The month-wise weather variations in and around the College premises, Titabar zone is represented in Fig. 2-7.

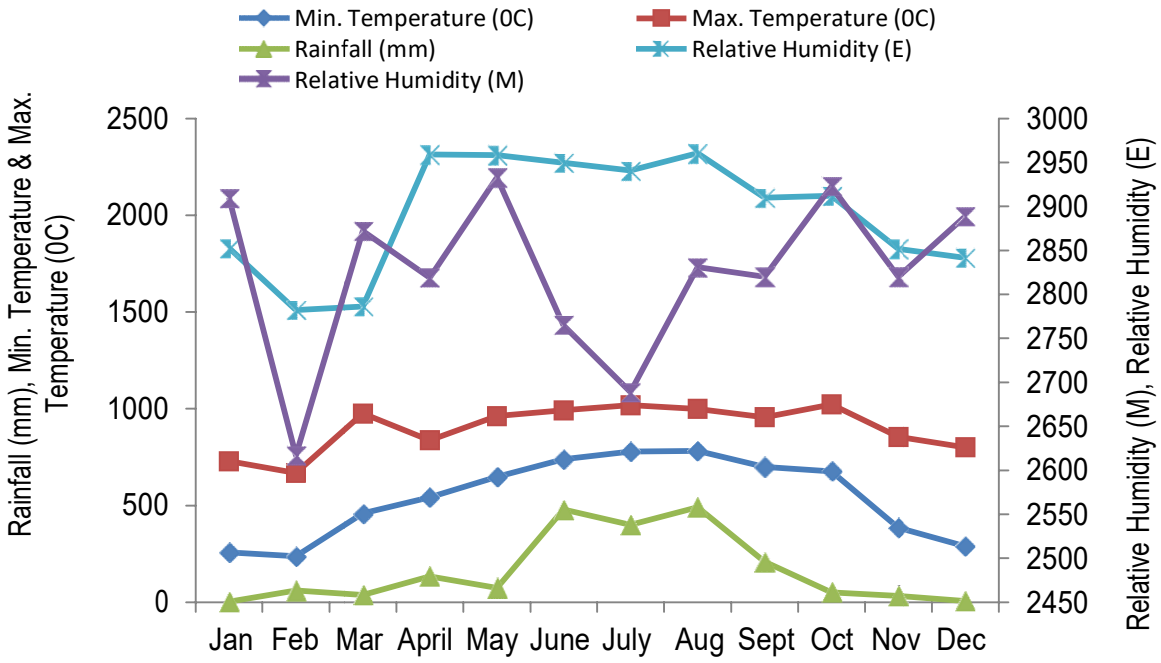


Fig. 2: Month-wise Climatological data during 2017 (source: Regional Agricultural Research Station, Titabar, Jorhat)

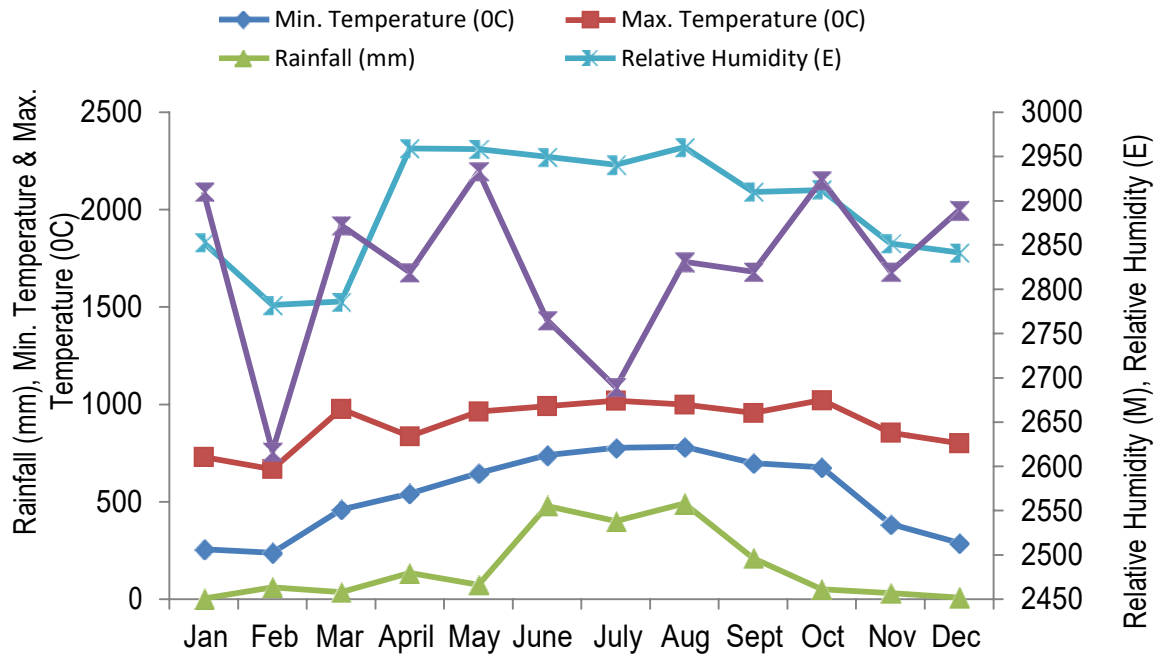


Fig. 3: Month-wise Climatological data during 2018 (source: Regional Agricultural Research Station, Titabar, Jorhat)

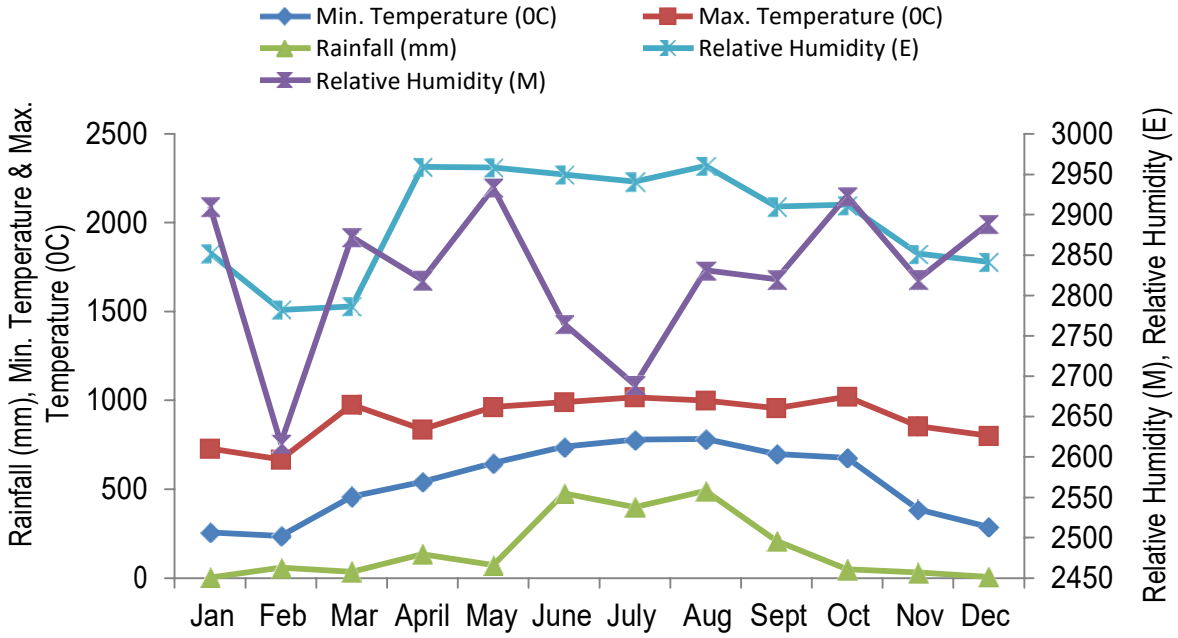


Fig. 4: Month-wise Climatological data during 2019 (source: Regional Agricultural Research Station, Titabar, Jorhat)

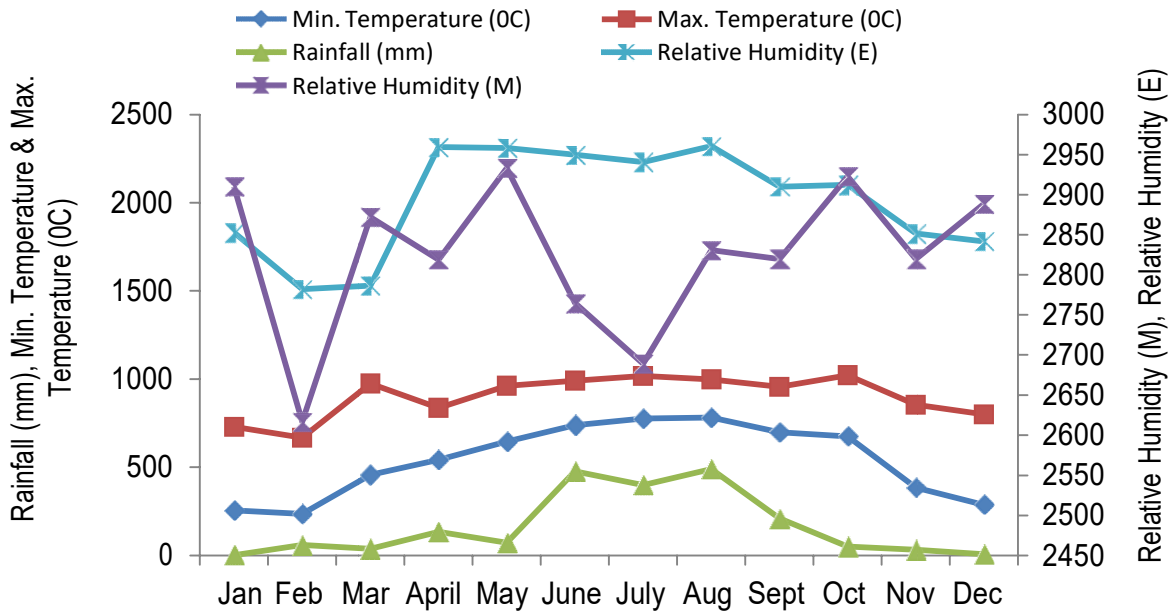


Fig. 5: Month-wise Climatological data during 2020 (source: Regional Agricultural Research Station, Titabar, Jorhat)

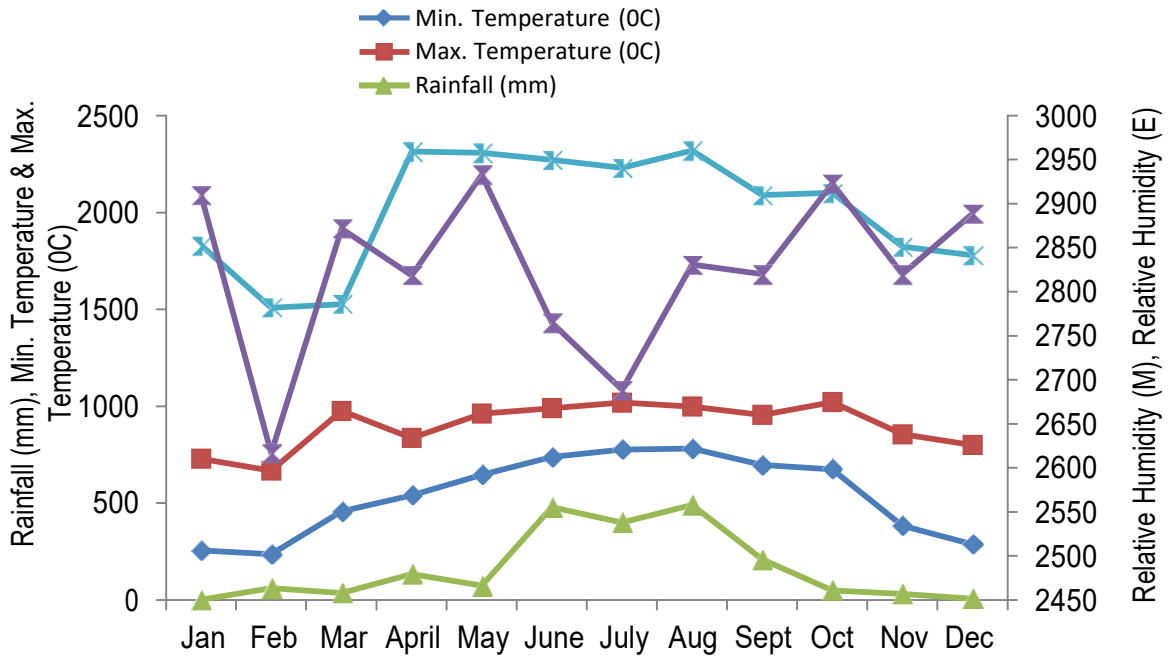


Fig. 6: Month-wise Climatological data during 2021 (source: Regional Agricultural Research Station, Titabar, Jorhat)

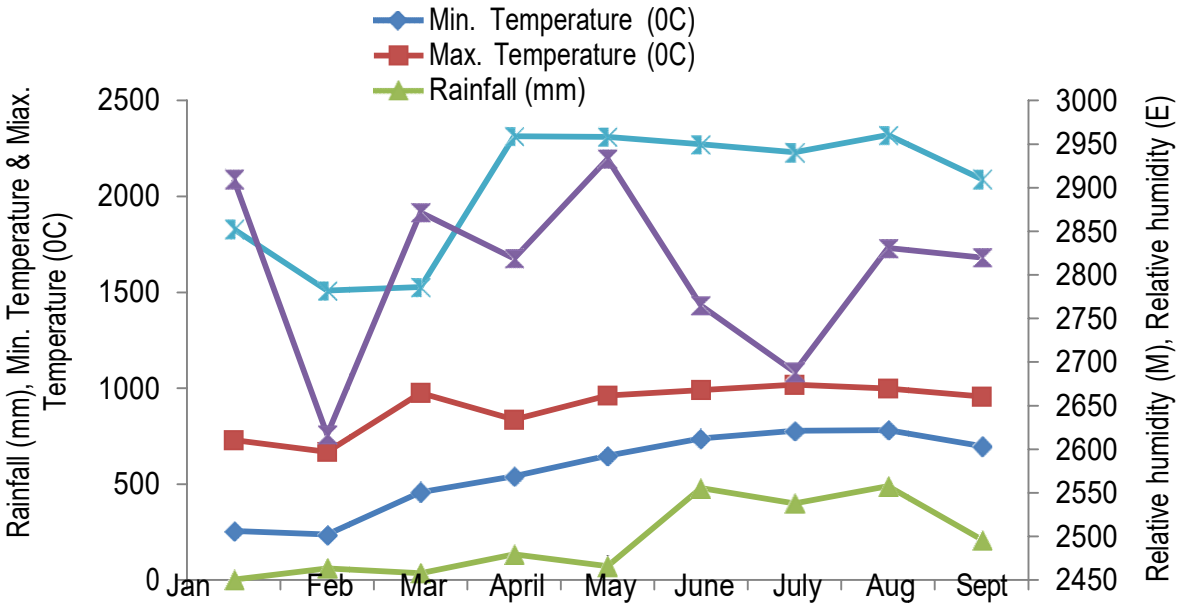


Fig. 7: Month-wise climatological data during 2022 (till September) (source: Regional Agricultural Research Station, Titabar, Jorhat)

5. Water Quality Assessment and Management Strategies

Water quality assessment is considered as one of the essential criteria towards environmental sustainability and for the greater need of human health and hygiene in the college fraternity. Testing of water ensures the clean and safe drinking water for all. Various physico-chemical parameters of potable water sample were tested that were collected from the water filtration unit and tap water system installed in the College Campus (Photo 1). Water supply for drinking and other purposes is maintained by submersible bore wells installed in the college Campus (Photo 2). Besides, the college has also installed one "Arsenic Removal Water Plant System" (Photo 3) to make the water free of Arsenic and other toxicants. The analysis of various water parameters was carried out by CSIR-NEIST, Jorhat, Assam, India using standard procedure of water analysis. The list of various parameters analyzed has been mentioned in the Table 1.

Table 1: Physico-chemical parameters of the water sample under analysis

Sl. No.	Physico-chemical parameters under analysis
1.	pH
2.	Turbidity
3.	Total hardness as CaCO3
4.	Calcium as Ca
5.	Magnesium as Mg
6.	Iron as Fe
7.	Sulphate as SO4
8.	Chloride as Cl
9.	Phenolphthalein alkalinity
10.	Total alkalinity
11.	Total Dissolved Solids
12.	Total Suspended Solids
13.	Arsenic

Photo 1: Filtration Unit in the college campus

Photo 2: Water supply system in the college campus

Photo 3: Arsenic removal water plant for detoxification

The water testing report, it is revealed that all chemicals in the water of the campus is in the desired range as per IS: 10500(2012) value. So, the water of the College can be considered as potable water. The results of water quality analysis have been enclosed in the Annexure-I. The bacteriological analysis of the drinking was done and the result was found in between the desired range. The report of the bacteriological analysis has been enclosed in the annexure-II.

Though the college have to depend upon the ground water for all its needs hence water conservationmeasures are essential for efficient use of water.

The following are the measures taken for conservation of water in the college:

5.1 Rain water harvesting through pond system

One rain water harvesting unit (represented by pond structure) is there in the campus (photo 4a and b), the water of which is regularly being used for irrigation, gardening, a water source for drinking purposes (after proper filtration) etc.

Photo 4a & b: Pond system in the college campus

6. Soil Nutrient Status and Quality Assessment

Any organization that wants to successfully accomplish its vision and goal must use the best resource utilization strategies while causing the least amount of environmental disruption. Taking this into account, the current green audit is now an essential tool for determining the soil's quality and ensuring the development of a green environment in the college campus. The soil quality inside the College campus was studied for various parameters like pH, electrical conductivity, soil organic carbon and availablenitrogen, phosphorous and potassium as per standard methodologies and with the assistance of Soil Scientist, Assam Agricultural University, Jorhat. Randomized block design (RBD) with three replications were followed for soil collection activities. Soil pH is measured in 1:2.5 soil: water suspension. Available phosphorous and potassium content is expressed in P2O5 and K2O forms. Standard methodologies like Walkley and Black rapid titration method, ammonium molybdate method, flame photometric method were followed to assess soil organic carbon, available phosphate and potassium content of soil. Photographs of soil sampling are shown in photo 5A-F. The report on soil quality assessment has been included in the Annexure-III.

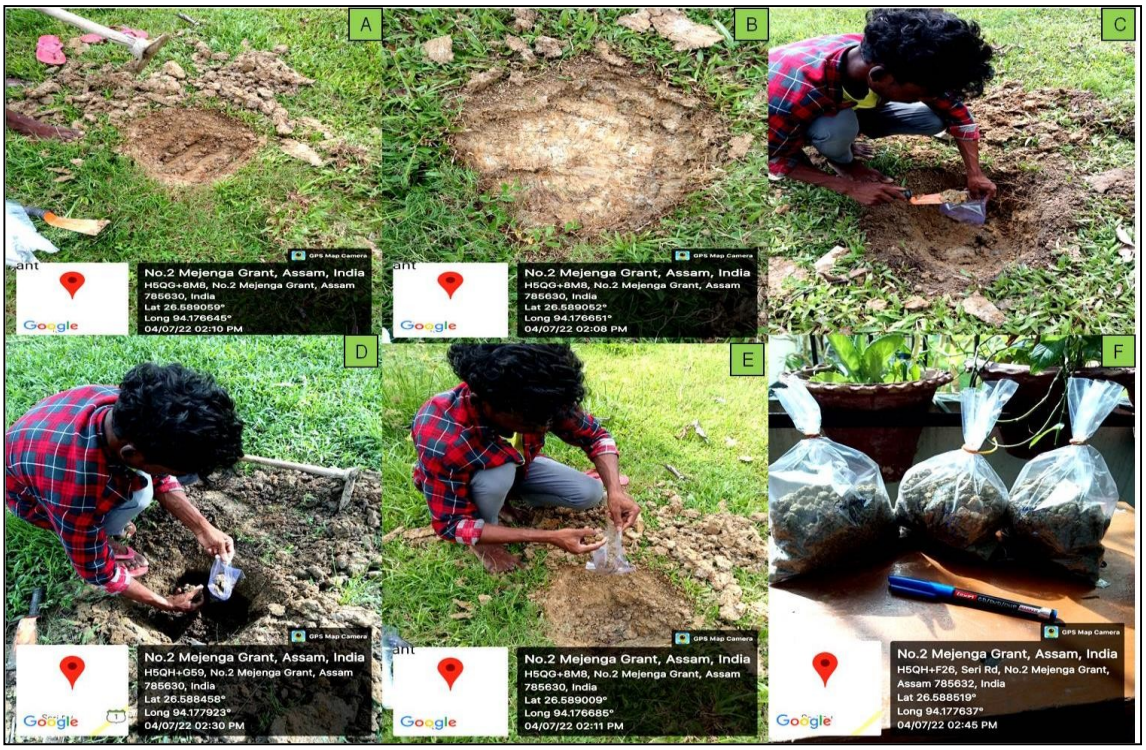


Photo 5A-F: Photographs related to soil sampling using RBD

The college has been trying to make it a plastic free campus by creating awareness among the students and staff members by displaying boards and other programmes on maintaining the soil sustainability (Photo 6-10). Another good practice adopted by the college is that the canteen uses reusable utensils and almost all the Departments are using sufficient dustbins which help in keeping the campus plastic free. Science laboratories are using color indicated dustbins for safe disposal of hazardous chemicals and other materials.

Photo 6: Display boards to create awareness on environment conservation and pollution management

Photo 7: Use of display boards for creating awareness against use of plastic products

Photo 8: Display boards in awareness of pollution management

Photo 9: Awareness on clean environment

Photo 10: Swachh Mission conducted by the College

7. Air Quality assessment and Management

Being situated in the green coverage, the pollution level of the college campus is considered as relatively less. Growth of a number of lichen species indicates the good quality of air prevailing throughout the campus (Photo 11A-D). The photographs show the growth of different types of lichen species on the tree trunk of the campus. Although the hazardous pollution is not there in the college campus, some external means of atmospheric pollution are there, that may be released from vehicles, refrigerators, air conditioner and other activities. Different kinds of trees, herbs and shrubs in the college campus plays vital role in sequestering carbon dioxide and adverse effects of other pollutants. The important plant species in the campus is represented in the Table 2.

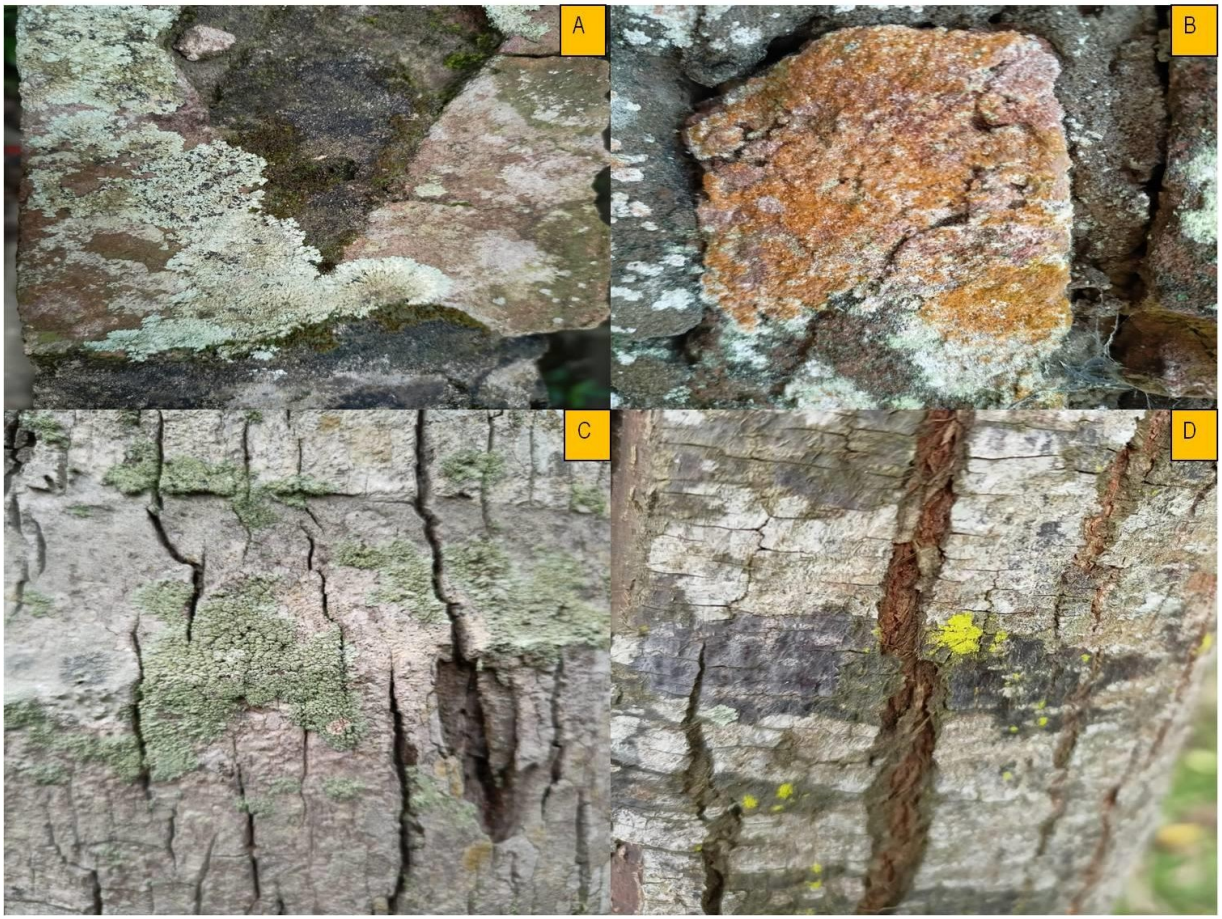


Photo 11(A-D): Diversity of lichen species in the college campus

The college has been displayed various boards and banners for environmental awareness, noise control, conservation and proper use of water and tobacco free campus. More than twenty such display boards has been placed within the campus with proper focus on environment safety and sustainability among the college fraternities. Thus, use of tobacco and tobacco products are completely banned in the college premises and consuming such products is considered as a punishable offence.

Photo 12: Display board "No Smoking and Tobacco Free Campus"

Photo 13: Appreciation certificate from District tobacco council cell, Jorhat

The instructions have been mentioned in the Code of Conduct regarding this matter as well as boards are displayed in various places in the college (Photo 12). Nanda Nath Saikia college campus has been appreciated by District Tobacco Control Cell, Jorhat, Assam, as Tobacco free Institution (Photo 13).

8. Waste Management

8.1 Solid Waste Management

One quality compost unit (Photo 14) has been established in the college campus to utilize diverse types of solid wastes that is regularly generated in the campus. Different raw materials are used in the composting bin includes rice straw, waste shade tree loops, weed biomass, pruning litter from nearby small tea growers (STGs), by-products of house hold matters of college fraternities etc. Potent earthworm species Eesinia fetida, collected from Tocklai Tea Research Institute (TTRI), TRA, Jorhat, Assam, and efficient cellulose degraders isolated from native habitats were used to prepare the quality compost (biofertilizer production) from the composting bin.

Additionally, the college has adopted following practices/service utilized for soil waste disposal.

- Placing dry and wet dustbins in different locations of the college and then taken away for proper disposal (Photo 15).
- Assistance of Municipal bodies for transportation of solid wastes from college campus (Photo 16).
- To reduce non-biodegradable wastes, plastic cups, plates, disposable bottles, etc. are replaced by paper made items.
- Wastes generated on the day of celebration are collected by NCC & NSS Volunteers and kept in dustbin for

collection.

- Students are encouraged not to use plastic/plastic materials.
- Efforts are on to make the office paper free by making all the correspondences online.
- Flex used for publicity or as banner are reused or disposed off properly.
- Proper maintenance of infrastructure and timely repair of furniture are done to minimize solid waste.

Photo 14: Quality compost Unit at college campus for sustainability

Photo 15: Use of dustbins for solid waste management

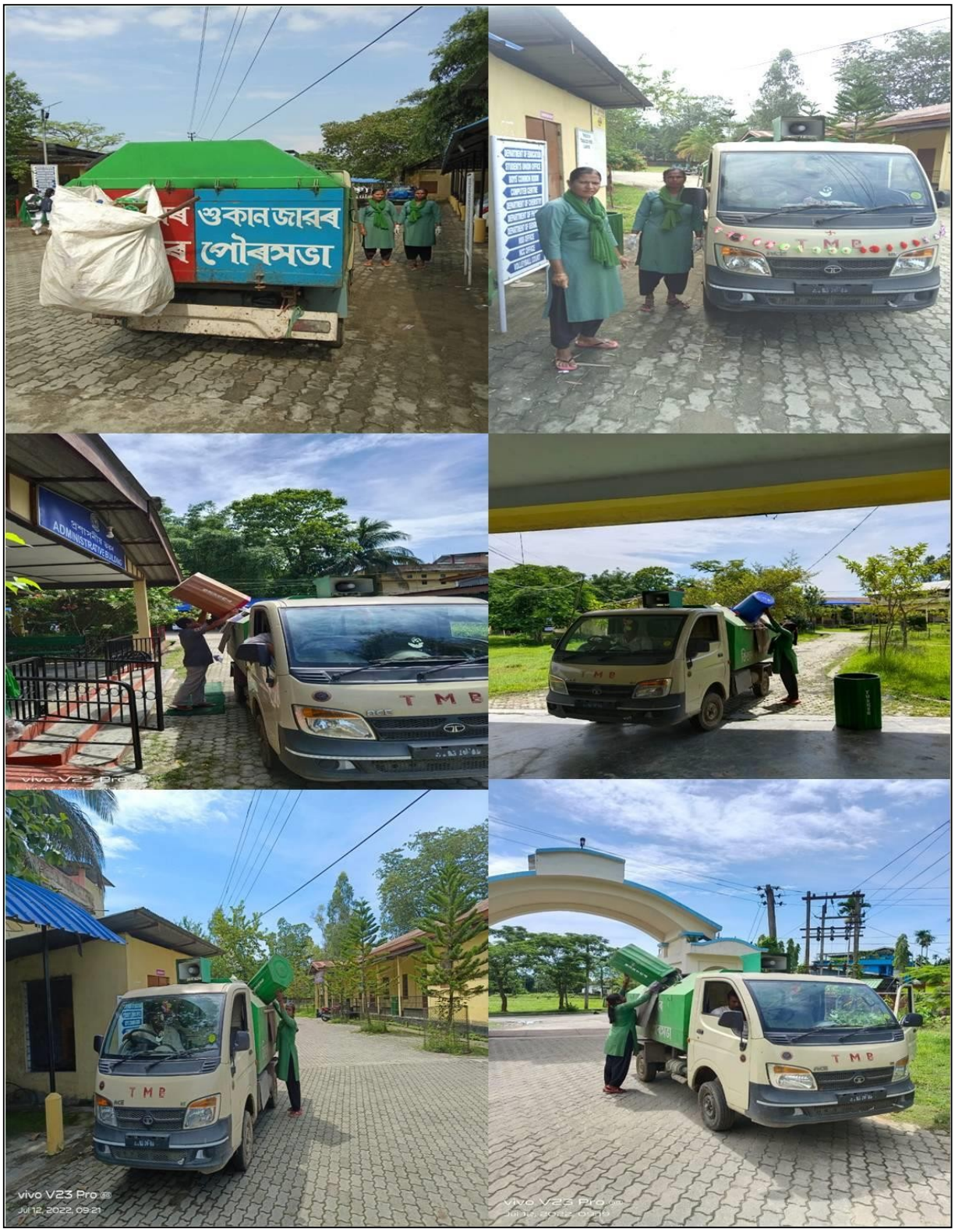


Photo 16: Solid waste management through municipal bodies

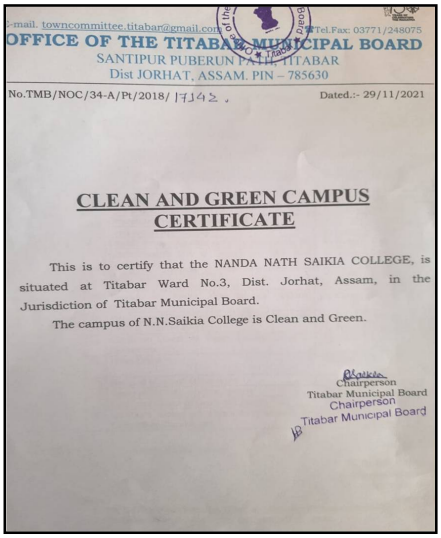
8.2 Liquid waste management

- Wastewater generated from the sanitary blocks, basins etc. are disposed off through proper drainage system.
- Toilets are properly connected to the drainage system which gets rid of waste through drain to separate underground tanks which are regularly cleared and maintained.
- Wastewater from canteen is reserved in a tank for use in gardening, watering trees etc.
- Wastewater generated from the kitchen of Girls' Hostel is handled by proper drainage system.
- The wastewater generated from the laboratory of H.S. classes is very small in quantity. Hence, they are managed through drainage system by diluting the used chemicals with non reusable wastewater.

The certificate of appreciation from concerned authority in relation to maintaining clean and green campus has been shown in the photo 17-18.

8.3 E-waste management

The electronic wastes like obsolete computer, Laptops, monitors, compact discs, printers, scanners, calculators etc. are repaired and reused and those irreparable are sold out. The college tries to reduce the volume of e-waste by upgrading the software at the right time and during the period of checking of electronic items. The college has installed solar street light in the campus to reduce waste from bulbs, tubes etc.



OFFICE OF THE TITABAR MUNICIPAL BOARD
SANTIPUR PUBERUN PATH, TITABAR
Dist JORHAT, ASSAM. PIN – 785630

No.TMB/NOC/34-A/Pt/2018/ 17142 Dated.:- 29/11/2021

CLEAN AND GREEN CAMPUS CERTIFICATE

This is to certify that the NANDA NATH SAIKIA COLLEGE, is situated at Titabar Ward No.3, Dist. Jorhat, Assam, in the Jurisdiction of Titabar Municipal Board.

The campus of N.N.Saikia College is Clean and Green.

Chairperson
Titabar Municipal Board

Photo 17: Certificate of appreciation for maintaining clean and green

रुपये RUPEES
रु.10 Rs.10
INDIA
INDIA NON JUDICIAL
ASSAM 34AA 387763

Memorandum of Agreement
Agreement for disposal of Solid waste

This agreement for disposal of solid waste is made at Titabar, on 21st April, 2022 between N.N.Saikia College, Titabar and Titabar Municipal Board, Govt. of Assam, for serving the purpose of collection and disposal of solid waste of all sort from N.N.Saikia College campus and Girls' hostel on daily basis and would be disposed properly without creating any harm to the natural environment and as per the norms of state government.

The nature of waste that would be collected from the college premises are as follows:

1. Paper waste
2. Biodegradable waste
3. Glass waste
4. Garbage

These waste materials will be collected from the college campus daily or as requested by the college authority which shall be communicated by the Principal.

This agreement for the collection of solid waste materials and disposal of the same are valid for a period of five years from the date of agreement.

21.04.22
Principal
Nanda Nath Saikia College, Titabar, Jorhat, Assam

Principal
N.N.Saikia College
Titabar

Chairman
Titabar Municipal Board, Titabar
Jorhat, Assam

Chairperson
Titabar Municipal Board

Photo 18: MOA for disposal of Solid waste

9. Noise Pollution assessment and Management

Pressure horns are strictly banned in the college campus. Thus, no one of the college fraternities including the faculties, staff and students use pressure horns. This awareness is sufficient enough to keep the college noise free. Besides, various display boards (Photo 19) have been located throughout the college campus and other places in order to maintain silence within the college campus.

Photo 19: Display boards in college campus to create awareness against noise pollution

The green belt area is intended to preserve the environment and enhance the aesthetic value of the college grounds. To ensure that the structures correspond to green and sustainability requirements, the college's green area encompasses the plants, vegetation, and sustainability of the campus. Additionally, this aids in making sure that the environmental policies are implemented, sustained, and evaluated through various environmental awareness initiatives.

10. Sustainable Approaches in Energy Use and Conservation Efficiencies

The purpose of an energy audit is to check, survey, and analyze the energy flows in a building, institution, process, or system in order to conserve energy without degrading the system's output. It indicates where in the supplied system there is higher power consumption. It is also known as managing power consumption to minimize energy waste and maximize energy efficiency. Understanding energy costs, evaluating energy performance, matching energy usage to demand, increasing system efficiencies, optimizing the input energy requirements, and fuel and energy substitution are all part of the energy management (audit) method. Thus, energy use and to conserve in a holistic way is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Following Energy Sources are used in the college

- Electrical
- Diesel
- Petrol
- LPG

10.1 Use of solar panels for energy conservation

In order to entertain energy conservation and to increase the energy use credentials the college has adopted an attractive and photogenic way to have its own solar panels on the roof of Library buildings during construction (Photo 20). The approach eventually provides an excellent opportunity to aware our own people in matters related to solar energy conservation and use efficiency.

10.2 Use of LED bulbs in the college campus

In order to save and conserve energy and to improve energy efficiencies, LED bulbs have been installed throughout the classrooms, laboratories, Principal's office, Administrative office, College main gate, Computer Labs, and Departmental rooms in the college (Photo 21). Energy consumption per month is enclosed in the annexure-IV.

Recommendations

The college administration considers following points on top priority for energy conservation and use efficiency

10.3 To use common or public vehicle instead individual vehicle to conserve fossil fuel

Energy consumption for each building to be estimated to design the energy conservation plan

Instead of out-sourcing the annual maintenance of electrical equipment, staff of concerned Department of the college shall take that responsibility.

Energy saving awareness shall be done by displaying the boards at appropriate place

Encourage natural ventilation and illumination by alteration in the building structures whenever going for new constructions.

Photo 20: Solar panel system in the college building and related infrastructure

Photo 21: Use of LED lights in college campus

11. Green Belt: Initiatives

The college campus is located in the vicinity of approximately 70 plant species (Table 1). Neem, Indian Blackberry Tree, Mango Tree, Krinasura, Devadaru, Thuja, Jack fruit trees, and Spanish cherry are the dominant plant species in the green belt area. Various tree plantation programs are being organized during the month of July and August at college campus and surrounding villages through the initiatives of National service scheme (NSS) unit and Department of Botany. These plantation programs help in encouraging the eco-friendly environment which provides pure oxygen within the college premises and awareness among the local people and society. The plantation program includes the planting of various types of economically important plant species including the herbs, shrubs, and tress. Instead of maintaining biodiversity, the similar species are also being planted for example "NEEM" based on its immense potential in maintaining ecosystem sustainability and air purification properties. The average plant height (m), circumference at base height (m), and approximate age of certain tree species (years) are represented in table 1b. The greenery environment in the college campus has been depicted in Fig. 7 (A-J). Biodiversity in the college campus has been depicted in Fig. 8-12. A total of about 228 individual plants were found in the college campus.

Types of trees planted which are environment friendly are enlisted below

Neem, Indian Blackberry Tree, Basil, Flame Tree, Mango Tree, Jack Fruit, Teak, Guava, Asoka and Spanish cherry, Devadaru tree etc.

Regarding Green Belt and its conservation, the management and college fraternity considers the following eco-friendly points on top priority

- Rapid plantation drives to be executed for plant diversity conservation and future sustainability
- The selection of plant species is based on their values in environment conservation and air purification
- Water ponds are recommended to attract different birds in their migrating and breeding season
- Watering schedule to be planned according to the season
- Reuse of the water shall be done instead of use of fresh water
- Special tree plantation programmes to be organized every year on special occasions like world environment day, nature conservation day and other auspious reasons
- Knowledge on traditional use of plant species in medicine and other uses

Table 2a: Plants available in the Nanda Nath Saikia college campus

SN.	English name	Local name	Scientific name	Family	Habit	Total (Nos.)
1.	Jujube	Bogori	*Ziziphus zuzube* Mill.	Rhamnaceae	Tree	05
2.	Indian Coral Tree	Modar	*Erythrina variegata* L	Fabaceae	Tree	05
3.	Jackfruit	Kothal	*Artocarpus heterophyllus* Lam.	Moraceae	Tree	06
4.	Mango	Aam	*Mangifera indica* L.	Anacardiaceae	Tree	11
5.	Ceylon Ironwood	Nahar	*Mesua ferrea* L.	Calophyllaceae	Tree	12
6.	Coconut Tree	Narikol	*Cocos nucifera* L.	Arecaceae	Tree	04
7.	Margosa plant	Neem	*Azadirachta indica* A. Juss	Meliaceae	Tree	13
8.	Night-flowering Jasmine	Sewali	*Nyctanthes arbor-tristis* L.	Oleaceae	Tree	12
9.	Rosy Trumpet Tree	Pink poui	*Tabebuia rosea* DC.	Bignoniaceae	Tree	01
10.	Arjun Tree	Arjun	*Terminalia arjuna*	Combretaceae	Tree	05
11.	Date palm	Khejur	*Phoenix dactylifera* L.	Arecaceae	Tree	05
12.	Guava	Modhuriam	*Psidium guajava* L.	Myrtaceae	Tree	12
13.	Hog plum	Amara	*Spondias mombin* L.	Anacardiaceae	Tree	01
14.	Indian Fir Tree	Debadaru	*Polyalthia longifolia*	Annonaceae	Tree	08
15.	Golden Shower	Sonaru	*Cassia fistula* L.	Fabaceae	Tree	08
16.	Kassod Tree	Cassia	*Senna siamea*	Caesalpiniaceae	Tree	04
17.	Chebulic myrobalan	Xilikha	*Terminalia chebula* Retz.	Combretaceae	Tree	04
18.	Olive	Jolphai	*Elaeocarpus floribundus* Bl.	Elaeocarpaceae	Tree	02
19.	The Coral Reef Araucaria	Christmas Tree	*Araucaria columnaris*	Araucaria columnaris	Tree	06
20.	Northern white-cedar	Thuja	*Thuja occidentalis* L.	Cupressaceae	Tree	20
21.	Jungle geranium	Rogiyal-phul	*Ixora coccinea* L.	Rubiaceae	Shrub	03
22.	Blue gum	Eucalyptus	*Eucalyptus globules* Labill.	Myrtaceae	Tree	03
23.	Elephant apple	Outenga	*Dillenia indica* L.	Dilleniaceae	Tree	01
24.	Amla	Amlokhi	*Emblica officinalis* L.	Phyllanthaceae	Tree	02
25.	Indian chestnut vine	Nol-tenga	*Tetrastigma leucostaphylum* (Dennst.) Alston ex Mabb.	Vitaceae	Creeper	01
26.	Jambul	Bor Jamu/Jamun	*Syzygium cumini* L.	Myrtaceae	Tree	01
27.	Agarwood	Sanchi	*Aquilaria malaccensis* Lam.	Thymelaeaceae	Tree	07
28.	Spanish cherry	Bokul	*Mymusops elengi* L.	Sapotaceae	Tree	01
29.	Queen's Crape- myrtle	Azar	*Lagerostroemia indica* L.	Lythraceae	Tree	01
30.	Queen sago	Cycas	*Cycas circinalis* L.	Cycadaceae	Tree	02
31.	Horseshoe vitex	Posottia	*Vitex negundo* L.	Lamiaceae	Shrub	01
32.	Datura	Thorn apple	*Datura stromonium*	Solanaceae	Shrub	01
33.	China rose	Rokta-joba	*Hibiscus rosa-sinensis* L.	Malvaceae	Shrub	01
34.	Mulberry plant	Nooni	*Morus alba* L.	Moraceae	Shrub	03
35.	Tea plant	Cha	*Camellia sinensis* (L.) Kunze	Theaceae	Shrub	01
36.	Indian soapberry	Monisal	*Sapindus mukorossi* Gaertn.	Sapindaceae	Tree	01

37.	Heart-leaved moonseed	Giloi	*Tinospora cordifolia* (Thunb.) Miers	Menispermaceae	Climber	01
38.	Skunkvine	Bhadailota	*Paederia foetida* L.	Rubiaceae	Climber	01
39.	Tamarind	eteli	*Tamarindus indica* L.	Fabaceae	Tree	01
40.	Orchid Tree	Kanchan	*Bauhinia variegata* (L.) Benth	Fabaceae	Tree	02
41.	Poinciana	Radhachura	*Caesalpinia pulcherrima* (L.) Sw	Fabaceae	Tree	01
42.	Burmese grape	Leteku	*Baccaurea sapida* (Roxb.) Müll.Arg.	Phyllanthaceae	Tree	01
43.	Indian Date	Khejur	*Phoenix sylvestris* (L.) Roxb.	Arecaceae	Tree	01
44.	Black pepper	Jaluk	*Piper nigrum* L.	Piperaceae	Tree	01
45.	Champak	Champa phul	*Michelia champaca* (L.) Baill. ex Pierre	Magnoliaceae	Tree	01
46.	Asian pigeonwings	Aparajita	*Clitorea ternatea* L.	Fabaceae	Shrub	02
47.	Ceylon cinnamon	Dalchini	*Cinnamomum zeylanicum* L.	Lauraceae	Shrub	02
48.	Teak	Segun	*Tectona grandis* L.f.	Lamiaceae	Tree	02
49.	Black plum	Jamun	*Syzygium cumini* (L.) Skeels	Myrtaceae	Tree	02
50.	Wild hops	Makhiyati	*Flemingia strobilifera* (L.) W.T.Aiton	Myrtaceae	Tree	02
51.	Holy basil	Tulsi	*Ocimum sanctum* L.	Lamiaceae	Shrub	02
52.	Drumstick	Sajina	*Moringa pterygosperma* Lam.	Moringaceae	Tree	01
53.	Golden dewdrop	Duranta-kanta	*Duranta erecta* L.	Verbenaceae	Shrub	01
54.	Star fruit	Kordoi	*Avorrohea carambola* L.	Oxalidaceae	Tree	01
55.	Nemu tenga	Lemon	*Citrus limon* (L.) Osbeck	Rutaceae	Shrub	02
56.	Lemon bottlebrush	bottlebrushes	*Callistemon citrinus* L.	Myrtaceae	Tree	02
57.	Atlas cedar	Cedar	*Cedrus atlantica* (Endl.) Manetti ex Carrière	Pinaceae	Tree	01
58.	Sugarcane	Kunhiar	*Saccharum officinarum* L.	Poaceae	Grass	01
59.	Papaya	Amita	*Carica papaya* L.	Caricaceae	Herb	05
60.	Indian coffee plum	Paniyol	*Flacourtia jangomas* (Lour.) Raeusch.	Salicaceae	Tree	02
61.	Paperflower	Kagaj-phul	*Bougainvillea glabra* Choisy	Nyctaginaceae	Climber	01
62.	Bengal pogostemon	Sukloti	*Pogostemon plectranthoides* Desf.	Lamiaceae	Climber	01
63.	American mahogany	Mahagoni	*Swietenia mahagoni* (L.) Jacq.	Meliaceae	Tree	02
64.	Bedaa nut tree	Bhomora	*Terminalia bellirica* (Gaertn.) Roxb.	Combretaceae	Tree	01
65.	Fish mint	Masandari	*Hauttynia cordata* Thunb.	Saururaceae	Herb	In group
66.	Bacopa	Brahmi	*Bacopa monnieri* (L.) Pennell	Plantaginaceae	Herb	In group
67.	Garden mint	Pudina	*Mentha spicata* L.	Lamiaceae	Herb	In group
68.	Creeping smartweed	Madhu-soleng	*Polygonum chinensis* L. H. Gross	Polygonaceae	Herb	In group
69.	Indian chestnut vine	Nol-tenga	*Tetrastigma leucostaphylum* (Dennst.) Alston ex Mabb.	Vitaceae	Creeper	01
70.	The Flame tree	Krishnachura	*Delonix regia*	Caesalpinioideae	Tree	10

Table 2b: Average plant height, girth at breast height and approximate age of certain tree species available at college campus.

SN.	English name	Local name	Scientific name	Girth at breast height (m)	Average plant height (m)	Approx. Age (years)
1.	Elephant apple	Outenga	*Dillenia indica* L.	1.1	13	11
2.	Amla	Amlokhi	*Emblica officinalis* L.	0.6	6	20
3.	Olive	Jolphai	*Elaeocarpus floribundus* Bl.	0.7	5	20
4.	Chebulic myrobalan	Xilikha	*Terminalia chebula* Retz.	0.7	5	20
5.	Jambul	Bor Jamu/Jamun	*Syzygium cumini* L.	1.4	10	20
6.	Jujube	Bogori	*Ziziphus zuzube* Mill.	1.1	12	20
7.	Mango	Aam	*Mangifera indica* L.	2.2	28	35
8.	Blue gum	Eucalyptus	*Eucalyptus globules* Labill.	0.7	40	35
9.	Jackfruit	Kothal	*Artocarpus heterophyllus* Lam.	1.0	14	35
10.	Arjun Tree	Arjun	*Terminalia arjuna* (Roxb.) Wight & Arn.	2.0	70	40
12.	Guava	Modhuriam	*Psidium guajava* L.	0.6	4	12
13.	Hog plum	Amara	*Spondias mombin* L.	1.5	50	35
14.	Kassod Tree	Cassia	*Senna siamea* (Lam.) Irwin et Barneby	1.1	70	35
15.	Golden Shower	Sonaru	*Cassia fistula* L.	1.9	40	35
16.	Kassod Tree	Cassia	*Senna siamea* (Lam.) Irwin et Barneby	1.5	18	25
17.	The Coral Reef Araucaria	Christmas Tree	*Araucaria columnaris* J.R.Forst. Hook.	0.5	3.5	10
18.	Northern white-cedar	Thuja	*Thuja occidentalis* L.	0.4	2.5	12
	White teak	Gamhar	*Gmelina arborea* Roxb. ex Sm.	1.2	70	35
19.	Ceylon Ironwood (Nahar flower)	Nahar	*Mesua ferrea* L.	1.5	50	35
20.	Indian Fir Tree	Debadaru	*Polyalthia longifolia* (Sonn.) Thwaites	0.5	40	20
21.	The Flame tree	Krishnachura	*Delonix regia*	1.4	50	29
22.	Night-flowering Jasmine	Sewali	*Nyctanthes arbor-tristis* L.	0.4	12	12
23.	Atlas cedar	Cedar	*Cedrus atlantica* (Endl.) Manetti ex Carrière	0.7	20	25
24.	Date palm	Khejur	*Phoenix dactylifera* L.	1.5	30	35
25.	Teak	Segun	*Tectona grandis* L.f.	1.5	35	25
26.	Indian Coral Tree	Modar	*Erythrina variegata* L	0.6	15	14
27.	Coconut Tree	Narikol	*Cocos nucifera* L.	0.8	12	26
28.	Margosa plant	Neem	*Azadirachta indica* A. Juss	0.5	12	20
29.	Queen's Crape- myrtle	Azar	*Lagerostroemia indica* L.	0.9	18	15
30.	Poinciana	Radhachura	*Caesalpinia pulcherrima* (L.) Sw	0.7	25	22

11. Carbon Stock of the College Campus

All green plants absorbed carbon dioxide gas emitted by the various human activities to the environment which help to mitigate the climate change. The above ground carbon stock of all the trees of the college campus having 10 cm diameter at breast height was estimated and the total above ground biomass and total carbon stock of the entire tree species of the college was found 144.9 Mg and 68.1 Mg respectively. The above ground biomass and its carbon stock per unit area was estimated to be 35.43Mg/ha and 16.65Mg/ha. Total above ground biomass carbon of each tree species per hectare area is shown in the Fig.8.

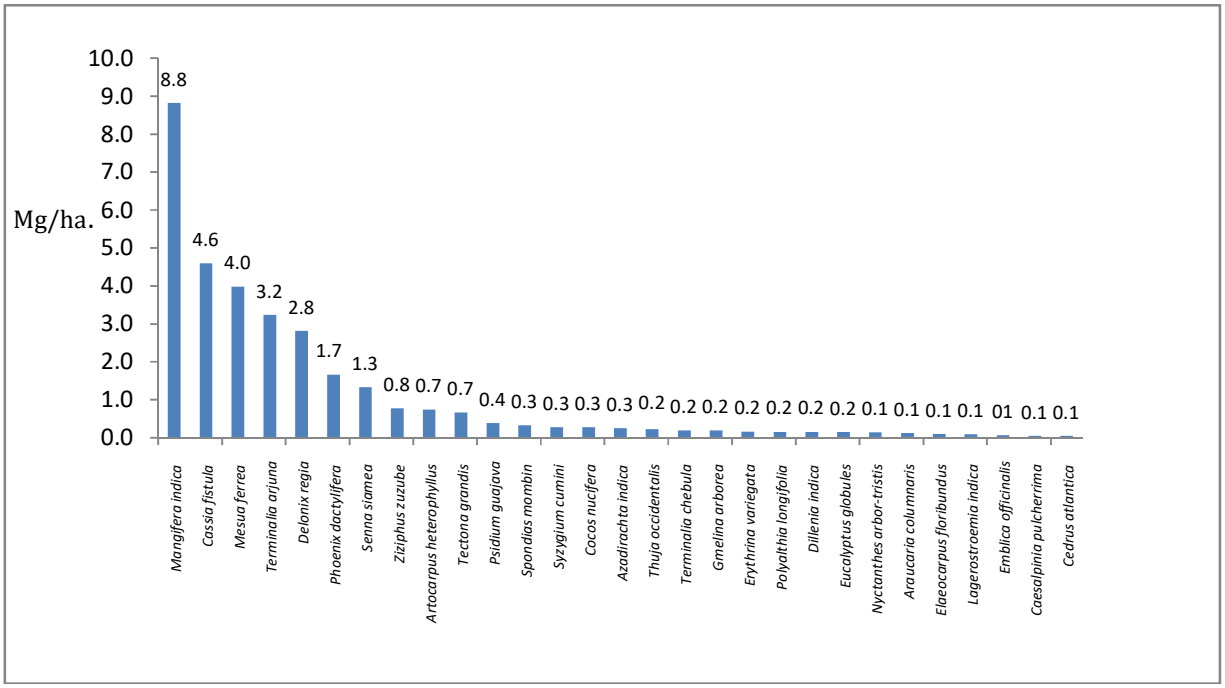


Fig. 8: Total above ground biomass carbon of each tree species (Mg/ha.)

Photo 22 (A-B): Photographs related to plant diversity in college campus. A. Greenery environment around the administrative building; B. Tree canopy

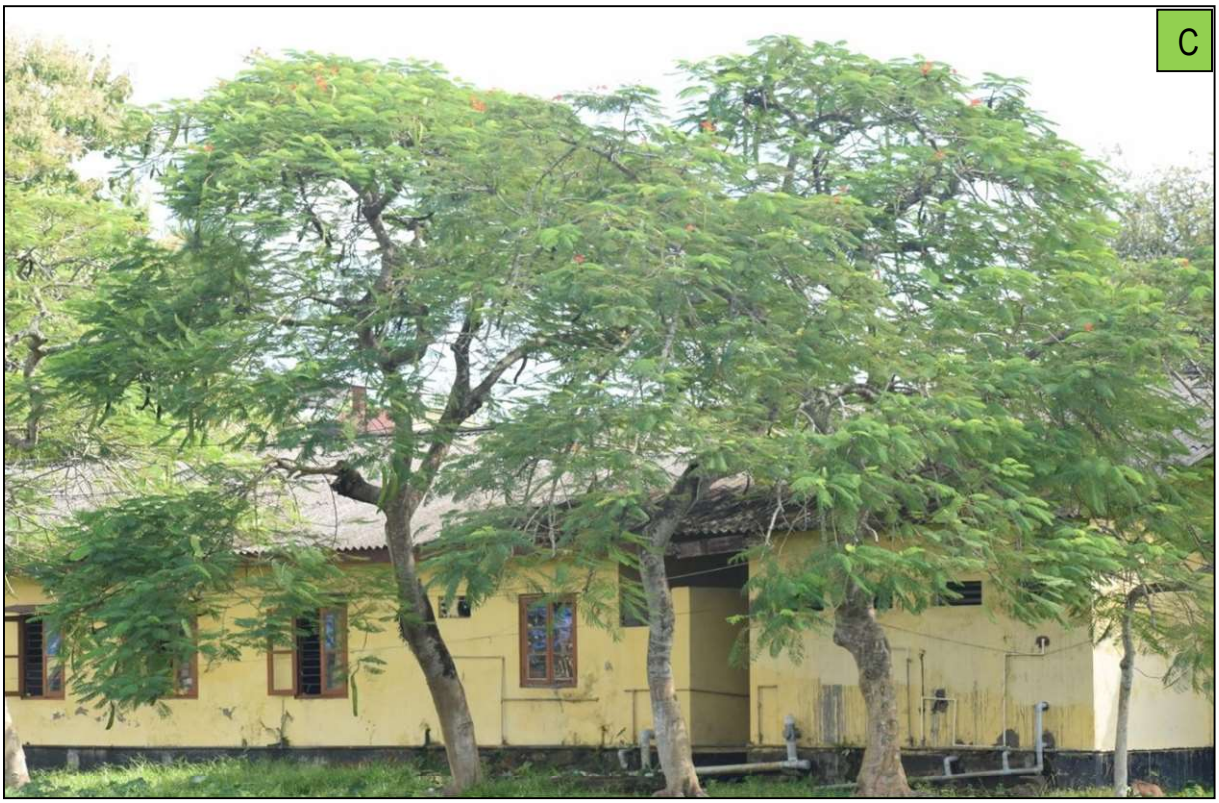


Photo 22 (C-D): Photographs related to plant diversity in the college campus

Photo 22 (E-F): Photographs related to plant diversity in college campus.; Plant tags and greener environment

Photo 22 (G-H): Photographs related to plant diversity in college campus and maintenance of greener environment with the assistance of students and faculties

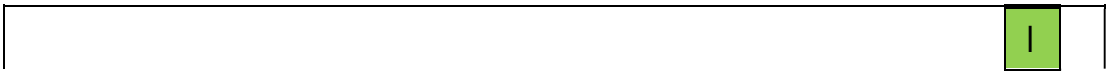


Photo 22 (I-J): Photographs related to plant diversity in college campus

Photo 23 (A-F): Bird diversity in the college campus

Photo 24 (A-D): Butterfly diversity in the campus

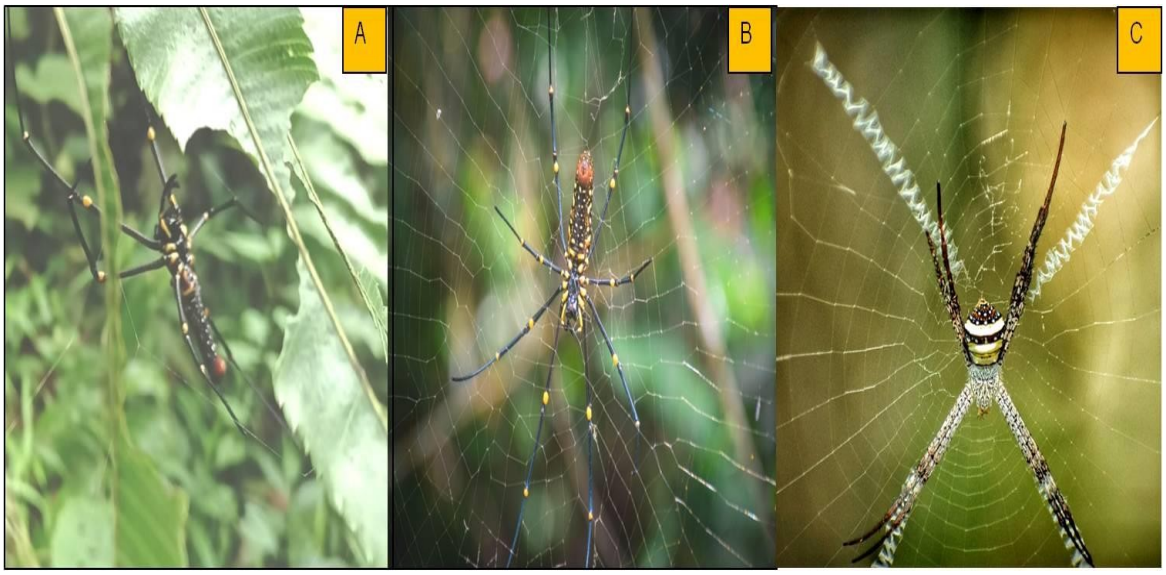


Photo 25 (A-C): Spider diversity in the campus

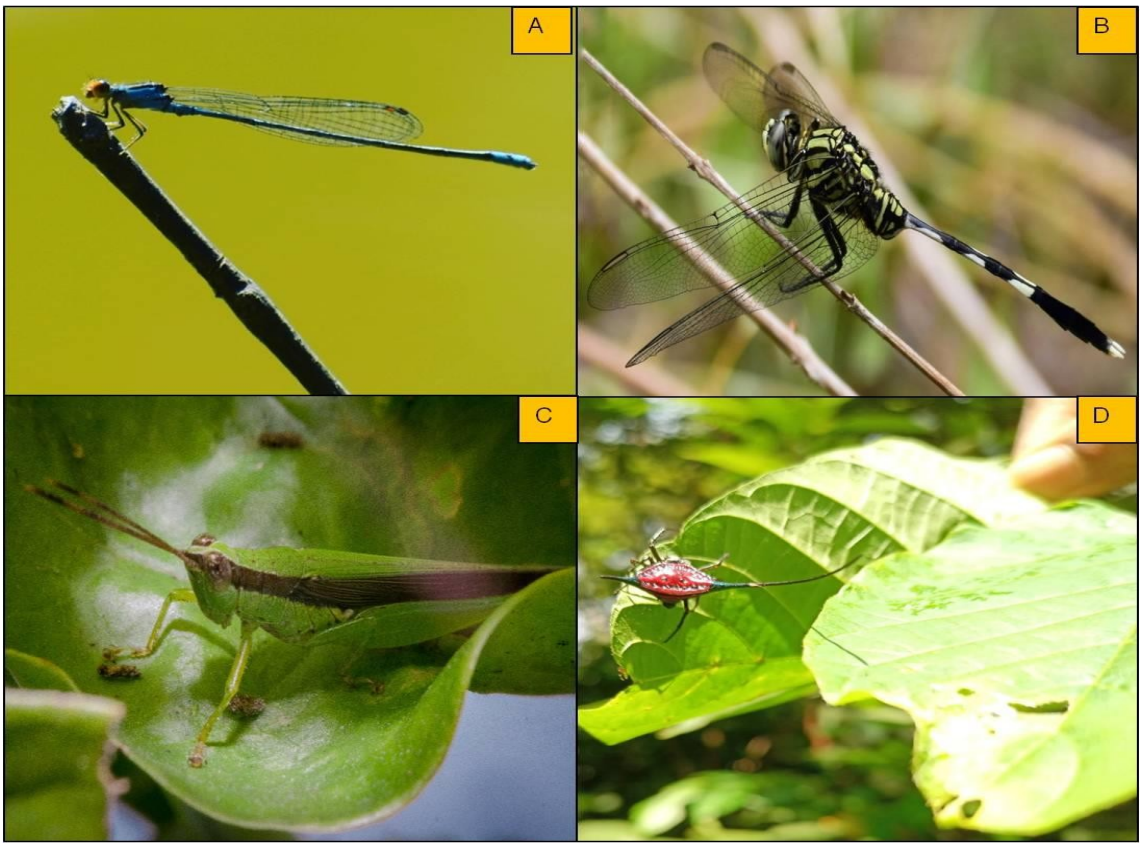


Photo 26 (A-D): Beneficial insects in the college

Photo 27 (A-E): Common natural enemies in the campus

12. Health and Environmental Awareness Initiatives

The college organizes various health awareness programmes regarding different human ailments of significant interest. Other activities related to health and hygiene include awareness programmes like “no tobacco use”, blood donation, vaccinations etc., are also been organized time to time for creating health awareness among the college fraternity, students, and society.

Photo 28 (A-D): Health awareness activities and blood donation camp

13. List of Awareness program organized by the college under different banner

SN.	Programmes Conducted (2017-2022 till date)	Date
1.	Swatchhta Pakhwada	1st -15th September, 2017 & 1st -15th August, 2018
2.	NSS Day Observation	24th September, 2017, & 24th September, 2018,
3.	Special Camp on Health and Hygiene	12-19th February, 2018
4.	Celebration of World Environment Day	5th June 2018, 2020, 2021, & 2022
5.	Celebration of Nature Conservation Day	28th July, 2022
6.	Celebration of International Ozone Day	16th September, 2021
7.	Yoga Camp and International Yoga Day	19th-21th June, 2018
8.	Swachh Bharat Summer Internship Program	1st June to 30th July, 2018
9.	Special Talk and awareness programmes on General Problems of Women's Health and Hygiene	13th November, 2018 & 11th-12th November, 2021
10.	Special Camp on Disaster Management	11th-17th March, 2019
11.	Different awareness Programme at School level for plantation of trees and health issues	23th September, 2019
12.	Awareness programme on Integrated Farming System for Livelihood Security and Income Generation	9th November, 2019
13.	Awareness programme on Hygiene of Women Workers of Tea Gardens	8th March, 2020
14.	Celebration of International women day	8th March, 2020
15.	National Webinar entitled Pandemic Impact on Women and Children: Covid-19 Perspectives	8th July, 2020
16.	Workshop on Yoga for Stress Management	13th December, 2020
17.	Swachh Bharat programme	6th February, 2021
18.	Training Programme for Small Tea Growers	19th February, 2021
19.	Special camp on Blood Donation Camp	10th May, 2021
20.	Covid -19 Vaccination Counter/Camp organization during 2021	13th-14th May, 2021
21.	National Webinar entitled "Ethics of Pandemic"	3rd September, 2021
22.	Awareness Programme on "Bamboo and its Utilizations"	28th September, 2021
23.	Swachh Bharat- Clean India Programme	1st-31st October, 2021

14. Conclusions

Green and Environment Audit is considered as one of the essential criterion to assess the green and environment-friendly approaches in relation to maintain sustainability in future. Under the able guidance of Dr. L. Baruah, the Principal of the college, the institution has initiated a number of healthy and environment-friendly smart approaches to create awareness among the college fraternities including the faculties, office bearers, students and society. This holistic approach to maintain the ecologically sound environment signifies the contribution of Nanda Nath Saikia college to the adjoining society is, thus, promising and equally adds beneficial impacts to restore overall environmental resources such as soil, water, air, noise and energy etc.

Further, as the environment is under rapid risks of lots of environmental and climate-related threats, the present strategies and awareness programmes that are being organized by the college to maintain the environment clean and green would hold an iconic example towards development of sustainability and climate smart ecosystem and environment.

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सी एस आइ आर-उत्तर पूर्व विज्ञान तथा प्रोद्योगिकी संस्थान
(पूर्व क्षेत्रीय अनुसंधान प्रयोगशाला)
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ई-मेल : manashjyoti@neist.res.in
वेबसाईट : www.neist.res.in

From: The Director

No. QSP/MgS/01/Testing/2022
Date: 20.06.2022

To
Dr L Baruah
Principal
N.N. Saikia College
Titabor, Pin: 785630
Jorhat, Assam

Sub: Physical and chemical analysis of water sample.
Ref: Your letter no. NNSC/3799; dated 07.06.2022
For the sample received on 07.06.2022.

Sir,

With reference to the above, please find enclosed herewith the test report for your needful. For your kind information please note that the report(s) are not to be used for any legal purpose and shall not be produced in any court of law to any dispute whatsoever.

The testing report shall not be utilized for any sales promotion or advertisement. We would be happy if you could send your feedback in the enclosed "customer satisfaction" format so that we can serve you better.

Thanking you,

Yours faithfully

20/6/2022

(Jatin Kalita)
Principal Scientist
Head, Research Planning and Business Development Division

Encl: as above

Copy to: HoD/GL, **Analytical Chemistry Group, Materials Sciences and Technology Division**

Connecting Science & Technology for a Brighter Tomorrow
उज्ज्वल भविष्य के लिए विज्ञान एवं प्रौद्योगिकी का समन्वय
हम हिन्दी में किये गये पत्राचार का स्वागत करते हैं ।

Format No. QSP/MR/20/F.01

RIGHT TO INFORMATION

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM

TEST REPORT

Report No. : CSIR-NEIST-Jorhat/QSP/MR/20/AnC/TR-3368/06-2022
(No. of Pages : 03)

MEMORANDUM

This Test Report is issued by CSIR-North-East Institute of Science & Technology, Jorhat, Assam, India, a National Laboratory under CSIR India. This Report refers only to the particular item submitted for test.

This Report if reproduced for any purpose, commercial or otherwise, should be reproduced in full. The reproduction of a part or an abstract thereof, has to be specifically approved from Director, CSIR-North-East Institute of Science & Technology, Jorhat.

The results reported in the Test Report are valid at the time of and under the stated conditions of measurement.

RIGHT TO INFORMATION

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM

Name of the Division : Analytical Chemistry Group, MSTD	**Report No.** CSIR-NEIST-Jorhat/QSP/MR/20/AnC/TR- 3368/06-2022	
TEST REPORT OF WATER SAMPLE	DATE 16/06/2022	PAGE 1 of 3

INDEX

CONTENTS

1. **SCOPE** : **Physical and Chemical analysis of water sample supplied by:**
   Dr. L. Baruah ,
   Principal
   N.N. Saikia College,
   Titabor, PIN: 785630
   Jorhat ,Assam

   REFERENCE : **NNSC/3799; Dated: 07.06.2022**

2. **TEST RESULTS** : **Enclosed.**

3. **CONCLUSION**

TEST CONDUCTED BY		CHECKED BY	APPROVED BY
K. Gogoi (Tech. Officer.)	Dr. A. Phukan (Sr.Tech. Officer)	Dr. P. J. Saikia (GL, Analytical Chemistry Group, MSTD)	Dr. A. M. Das (Chairman, Testing Report Committee)

Released By Signature & Date

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM

Name of the Division : Analytical Chemistry Group, MSTD	Report No. CSIR-NEIST-Jorhat/QSP/MR/20/AnC/TR- 3368/06-2022	
TEST REPORT OF WATER SAMPLE.	DATE 16/06/2022	PAGE 2 of 3

1. **SCOPE**

1.1 Service/Job Register No. & Date of Receip: : 1428/2022; 07/06/2022

1.2 Requested by (Name & Address of the Agency/ Client) : Dr. L. Baruah, Principal, N.N. Saikia College, Titabor, PIN: 785630 Jorhat, Assam

1.3 Description of the Test : **Physical and Chemical analysis.**

1.4 Sample Identification : Water sample.

1.5 Environmental Conditions : Temperature : Room Temperature; Humidity :

1.6.1 Test Method : **IS :3025**

1.6.2 Reference Standard & Year of Publication : IS : 10500, 2012

1.6.3 Any other Standard : NIL.

1.6.4 Any other Method : NIL.

1.7

Equipment Used						Basic Accuracy
Equipment Name :	(a) pH	(b)EC-TDS Analyzer	(c) Nephelo/ Turbidity Meter	(d) Spectrophotometer	(e) AAS	
Make	: Eutech	ELICO	Altis	AnalyticJena	AnalyticJena	
Model	: PH 510	CM-183	----	SPECORD 240	Zenit 700P	
Calibration Due on :	:Auto Calibrated.	Auto Calibrated	Auto Calibrated	Auto Calibrated	Auto Calibrated	
Traceable to	: Wet Chem Lab	Wet Chem Lab	Wet Chem Lab	U V-IR room	AAS Room	

1.8 Location of Test : **Analytical Chemistry Group, MSTD**

TEST CONDUCTED BY		CHECKED BY	APPROVED BY
K. Gogoi (Tech. Officer.)	Dr. A. Phukan (Sr.Tech. Officer)	Dr. P. J. Saikia (GL, Analytical Chemistry Group, MSTD)	Dr. A. M. Das (Chairman, Testing Report Committee)

RIGHT TO INFORMATION

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM

Name of the Division : Analytical Chemistry Group, MSTD	**Report No.** CSIR-N CSIR-NEIST-Jorhat/QSP/MR/20/AnC/TR- 3368/06-2022	
TEST REPORT OF WATER SAMPLE.	DATE 16/06/2022	PAGE 3 of 3

2. **RESULT**

Sl. No.	Sample Identification Details :	Dimensional Detail / Parameters.	Strength/ Tested Value with Unit.	Remarks Value as Per IS : 10500, 2012
01.	Water Sample	01) pH	6.8 at 26.6°C	6.5 - 8.5
		02) Turbidity (NTU)	Not detected	1 NTU (MAX)
		03) Total Hardness as $CaCO_3$	76.5 mg/l	200 mg/l (MAX)
		04) Calcium as Ca	1.8 mg/l	75 mg/l (MAX)
		05) Magnesium as Mg	Trace (< 1.0 mg/l)	30 mg/l (MAX)
		06) Iron as Fe	0.08 mg/l	0.3 mg/l (MAX)
		07) Sulphate as SO_4	Trace (< 1.0 mg/l)	200 mg/l (MAX)
		08) Chloride as Cl	992.6 mg/l	250 mg/l (MAX)
		09) Phenolphthelain Alkalinity	Not detected	----
		10) Total Alkalinity	Not detected	200 mg/l (MAX)
		11) Total Dissolved Solids	3.50 ppt	500 mg/l (MAX)
		12) Total Suspended Solids	30.0 mg/l	----
		13) Arsenic	3.1 µg/l	10 µg/l (MAX)

TEST CONDUCTED BY		CHECKED BY	APPROVED BY
K. Gogoi (Tech. Officer.)	Dr. A. Phukan (Sr.Tech. Officer)	Dr. P. J. Saikia (GL, Analytical Chemistry Group, MSTD)	Dr. A. M. Das (Chairman, Testing Report Committee)

ANNEXURE-II

CSIR-NORTH EAST INSTITUTE OF SCIENCE AND TECHNOLOGY
(Formerly Regional Research Laboratory)
(Council of Scientific & Industrial Research)
JORHAT – 785 006, ASSAM, INDIA
Phone: 0376-2371284/2370012(O) +919706633281 (M)
EPABX: 2370117, 2370121, 2370139
Gram: RESEARCH Fax: 0376-2370011
E mail : manashjyoti@neist.res.in
Website: www.neist.res.in

सी एस आई आर-उत्तर पूर्व विज्ञान तथा प्रोद्योगिकी संस्थान
(पूर्व क्षेत्रीय अनुसंधान प्रयोगशाला)
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
जोरहाट - 785006 आसाम, भारत
फोन : 0376-2371284/2370012 (O) +919706633281 (M)
इपीएबीक्स : 0376-2370117/2370121/2370139
ग्राम : रिसर्च, फैक्स : 0376 2370011
ई-मेल : manashjyoti@neist.res.in
वेबसाईट : www.neist.res.in

From: The Director

No. QSP/MgS/01/Testing/2022
Date: 29.06.2022

To
The Principal
N N Saikia College, Titabor,
P.O.: Titabor, Jorhat
Pin: 785630, Assam

Sub: Bacteriological analysis of water sample.
Ref: Your letter no. nil, for the sample received on 07.06.2022.

Sir,

With reference to the above, please find enclosed herewith the test report for your needful. For your kind information please note that the report(s) are not to be used for any legal purpose and shall not be produced in any court of law to any dispute whatsoever.

The testing report shall not be utilized for any sales promotion or advertisement. We would be happy if you could send your feedback in the enclosed "customer satisfaction" format so that we can serve you better.

Thanking you,

Yours faithfully

(Jatin Kalita)
Principal Scientist
Head, Research Planning and Business Development Division

Encl: as above

Copy to: HoD/GL, **Biotechnology Group, Biological Sciences and Technology Division**

Connecting Science & Technology for a Brighter Tomorrow
उज्ज्वल भविष्य के लिए विज्ञान एवं प्रौद्योगिकी का समन्वय
हम हिन्दी में किये गये पत्राचार का स्वागत करते हैं ।

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM
An ISO 9001:2015 Certified Organization

NAME OF THE DIVISION: BSTD	Report No. : CSIR-NEIST-Jorhat /QSP/MR/20/TR-956/16/06/2022	
TEST REPORT OF: Bacteriological analysis of water sample	DATE 16.06.2022	PAGE 2 of 3

1. SCOPE

1.1	Service/Job Register No. & Date of Receipt	: Nil
1.2	Requested by	: Principal N N Saikia College, Titabor P.O. Titabor Jorhat-785630
1.3	Description of the Test	: Bacteriological analysis of water sample
1.4	Sample Identification	: 1 No. of Water sample
1.5	Environmental Conditions	: Temperature : 37°C Humidity :
1.6.1	Test Method	: 1. Multiple tube fermentation method for Bacteriological analysis 2. Plate count
1.6.2	Reference Standard & Year of Publication	: 1. IS: 10500 for Bacteriological analysis
1.6.3	Any other Standard	: WHO Standard
1.6.4	Any other Method	: USPHS/ American Water Works Association

1.7

Equipment Used		Basic Accuracy
Equipment Name	: Laminer Air Flow, Incubator	
Make	: IKON Instruments, Secor	
Model	: 1104, Delux	
Calibration Due on	: 21.09.2022	
Traceable to	: Room No. 4, Biotechnology ,BSTD	

1.8 Location of Test : Laboratory

TEST CONDUCTGED BY	CHECKED BY	APPROVED BY
Palakshi Bordoloi Designation: T.O.	Dr Ratul Saikia HOD, BSTD	Dr. A.M. Das Approved Authorized Signatory (Chairman, Testing Report Committee)

NAME OF THE DIVISION : BSTD	Report No.: CSIR-NEIST-Jorhat/QSP/MR/20/TR-956/16.06.2022	
TEST REPORT OF: Bacteriological analysis of water sample	DATE 16.06.2022	PAGE 3 of 3

2. RESULT:

Bacteriological analysis :

Sl No.	Sample Identification details	Total Count/ml	MPN Coliform /100 ml	MPN *E coli* /100 ml	Remarks
1	Drinking water	3	Nil	Nil	The supplied sample was free from any Coliform or *E coli.*

3. CONCLUSION: **The sample was collected and supplied by the party.**

TEST CONDUCTED BY	*CHECKED BY*	*APPROVED BY*
Palakshi Bordoloi Designation: T.O.	Dr Ratul Saikia HOD, BSTD	Dr A.M. Das Approved Authorized Signatory (Chairman, Testing Report Committee)

CSIR-NORTH-EAST INSTITUTE OF SCIENCE & TECHNOLOGY
JORHAT – 785 006, ASSAM
An ISO 9001:2015 Certified Organization

NAME OF THE DIVISION: BSTD	Report No.:CSIR-NEIST-Jorhat/QSP/MR/20/TR-956/16/06/2022	
TEST REPORT OF: Bacteriological analysis of water sample	DATE 16.06.2022	PAGE 1 of 3

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CONTENTS

1. SCOPE :

Bacteriological analysis of water sample: 1 No.

Submitted by the Party: Principal
N N Saikia College, Titabor
P.O. Titabor
Jorhat-785630

Particulars of payment: Paid Rs 885.00 by UPI ID 215863764399 of PNB

2. TEST RESULTS: Enclosed

3. CONCLUSION: Enclosed

TEST CONDUCTED BY	CHECKED BY	APPROVED BY
Palakshi Bordoloi Designation:.T.O.	Dr Ratul Saikia HOD, BSTD	Dr. A.M. Das Approved Authorized Signatory (Chairman, Testing Report Committee)

Released By:

Signature & Date:

ADVANCED CENTRE FOR INTEGRATED FARMING SYSTEMS RESEARCH
(AICRP on IFS under ICAR-IIFSR, Modipuram, Meerut)
Assam Agricultural University
Jorhat, Assam- 785 013 (INDIA)

No. AICRP-IFS/SA/1/ 2018-19/ 132 Date: 22/9/2022

SOIL ANALYSIS REPORT

1. Name of the Official/ Person : The Principal, NN Saikia College, Titabar
2. Number of samples : 01
3. Kind of sample : Soil

With reference to the Letter No. NNSC/2022/3846 dtd. 04/07/2022, one (01) number of soil sample received from The Principal, NN Saikia College, Assam, was analyzed, and the data are listed below.

S. No.	Sample	Parameters with values						Remark
		pH*	EC (dS/m)	OC (%)	Available Nitrogen (kg/ha)	Available Phosphorus (kg/ha)**	Available Potassium (kg/ha)**	
1	01	4.82 (Acidic)	98.7 (Less)	0.78 (High)	301.27 (Medium)	110.28 (Very high)	123.2 (High)	*pH is measured in 1:2.5 soil:water suspension. **Available phosphorus and potassium content is expressed in P_2O_5 and K_2O forms.

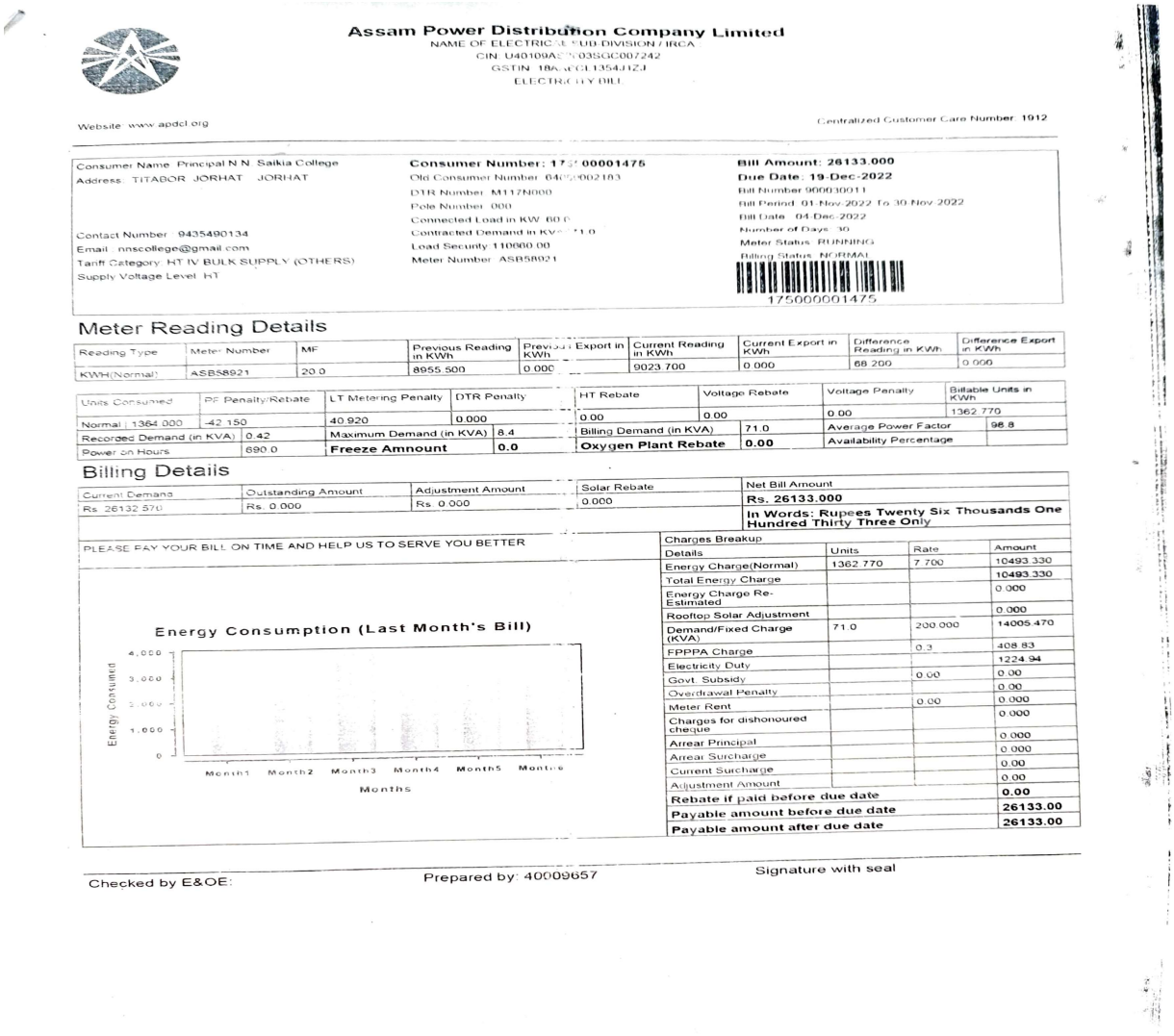
EC: Electrical conductivity; OC: Organic carbon.

This is not a legal document and cannot be used for any legal purposes.

22/9/2022

Dr. Bhabesh Gogoi
Scientist (Soils)
Assam Agricultural University, Jorhat-13
Phone: 94353 52867
Email: bg100777@yahoo.co.uk
Alt. email: bhabesh.gogoi@aau.ac.in

Soil Scientist
Advanced Centre for IFS Research
Assam Agricultural University
Jorhat-785013



Assam Power Distribution Company Limited

NAME OF ELECTRICAL SUB-DIVISION / IRCA

CIN: U40109AS2003SGC007242

GSTIN: 18AACCU1354J1ZJ

ELECTRICITY BILL

Website: www.apdcl.org

Centralized Customer Care Number: 1912

Consumer Name: Principal N N. Saikia College
Address: TITABOR JORHAT JORHAT

Contact Number: 9435490134
Email: nnscollege@gmail.com
Tariff Category: HT IV BULK SUPPLY (OTHERS)
Supply Voltage Level: HT

Consumer Number: 17[illegible] 00001475
Old Consumer Number: 04[illegible]002183
DTR Number: M117N000
Pole Number: 000
Connected Load in KW: 80.0
Contracted Demand in KVA: 71.0
Load Security: 110000.00
Meter Number: ASB58021

Bill Amount: 26133.000
Due Date: 19-Dec-2022
Bill Number: 900030011
Bill Period: 01-Nov-2022 To 30-Nov-2022
Bill Date: 04-Dec-2022
Number of Days: 30
Meter Status: RUNNING
Billing Status: NORMAL

17500001475

Meter Reading Details

Reading Type	Meter Number	MF	Previous Reading in KWh	Previous Export in KWh	Current Reading in KWh	Current Export in KWh	Difference Reading in KWh	Difference Export in KWh
KWH(Normal)	ASB58921	20.0	8955.500	0.000	9023.700	0.000	68.200	0.000

Units Consumed	PF Penalty/Rebate	LT Metering Penalty	DTR Penalty	HT Rebate	Voltage Rebate	Voltage Penalty	Billable Units in KWh
Normal : 1364.000	-42.150	40.920	0.000	0.00	0.00	0.00	1362.770
Recorded Demand (in KVA)	0.42	Maximum Demand (in KVA)	8.4	Billing Demand (in KVA)	71.0	Average Power Factor	98.8
Power on Hours	690.0	**Freeze Amnount**	**0.0**	**Oxygen Plant Rebate**	**0.00**	Availability Percentage	

Billing Details

Current Demand	Outstanding Amount	Adjustment Amount	Solar Rebate	Net Bill Amount
Rs. 26132.570	Rs. 0.000	Rs. 0.000	0.000	**Rs. 26133.000**

In Words: Rupees Twenty Six Thousands One Hundred Thirty Three Only

PLEASE PAY YOUR BILL ON TIME AND HELP US TO SERVE YOU BETTER

Energy Consumption (Last Month's Bill)

Charges Breakup			
Details	Units	Rate	Amount
Energy Charge(Normal)	1362.770	7.700	10493.330
Total Energy Charge			10493.330
Energy Charge Re-Estimated			0.000
Rooftop Solar Adjustment			0.000
Demand/Fixed Charge (KVA)	71.0	200.000	14005.470
FPPPA Charge		0.3	408.83
Electricity Duty			1224.94
Govt. Subsidy		0.00	0.00
Overdrawal Penalty			0.00
Meter Rent		0.00	0.000
Charges for dishonoured cheque			0.000
Arrear Principal			0.000
Arrear Surcharge			0.000
Current Surcharge			0.00
Adjustment Amount			0.00
Rebate if paid before due date			**0.00**
Payable amount before due date			**26133.00**
Payable amount after due date			**26133.00**

Checked by E&OE:

Prepared by: 40009657

Signature with seal

Annexure-V

Photographs showing glimses of activities done by the College

Photo 29: Programmes on Swatchhta Pakhwada

Photo 30: Swachh Bharat-Clean India programme outside the callege campus

Photo 31: Plantation drive at college campus and botanical garden

Photo 32: Special talk and awareness programmes on human health and hygiene

Photo 33: Special camp on disaster management

Photo 34: Workshop on "Yoga for Stress management"

Photo 35: Training programme for entrepreneurship development and awareness to small tea growers (STGs)

Photo 36: Training programme for entrepreneurship development and awareness to small tea growers (STGs)

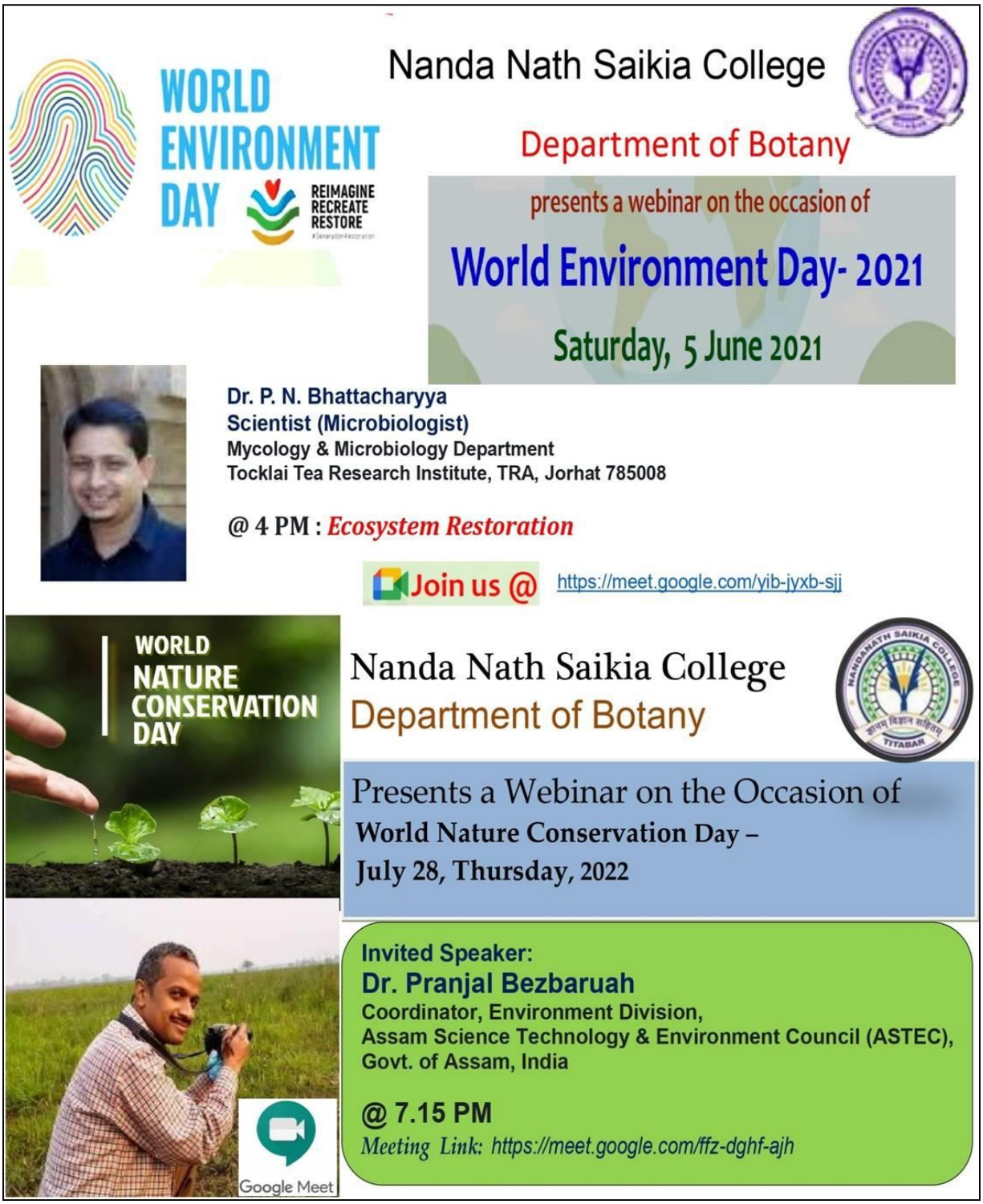


Photo 37: Webinars on special day celebrations

Photo 38: International women day celebration & webinar on National science day celebration