



ENVIRONMENT AUDIT



2022 - 2023

GREEN & ENVIRONMENT AUDIT CELL
SARUPATHAR COLLEGE



**Green & Environment Audit Cell
Sarupathar College, Sarupathar, Golaghat**

Sl No.	Name	Designation	Role
1	Dr. Prapti Thakur	Principal, Sarupathar College	Chairperson
2	Mr. Pranjal Dutta	Assistant Professor of English	Coordinator
3	Mr. Krishna Konwar	Assistant Professor of Sociology	Member
4	Mr. Sanjay Rizal	Assistant Professor of Commerce	Member
5	Mr. Norottam Rabha	Library Staff	Member

1. Dr. Prapti Thakur *Prapti Thakur*
2. Mr. Pranjal Dutta *Pranjal Dutta*
3. Mr. Krishna Konwar *Krishna Konwar*
4. Mr. Sanjay Rizal *Sanjay Rizal*
5. Mr. Norottam Rabha *Norottam Rabha*



GOVERNMENT OF ASSAM
OFFICE OF THE DIVISIONAL FOREST OFFICER
GOLAGHAT DIVISION:: GOLAGHAT

e-mail: dfo.t.golaghat@gmail.com


**CERTIFICATE OF
ENVIRONMENT AUDIT**

Certified that Sarupathar College at Sarupathar in Golaghat district has conducted an Environment Audit of their campus for the session 2022-23 through an audit team and identified the polluting factors to the eco-system viz. to soil and ground water of the college campus.

The college authority with active support from students and faculty members have taken green initiatives towards solid and liquid waste managements, e-waste management, rain water harvesting, promoting vermi-composts, planting saplings in the open spaces. The college campus is made plastic free.

The initiatives taken by the college authority to make the environment pollution free is satisfactory.

Dated: Golaghat, 30th May' 2023


(S.K. Thakuria, IFS)
Divisional Forest Officer
Golaghat Division, Golaghat
Divisional Forest Officer
Golaghat Division

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Introduction

Sarupathar College is situated in the Assam-Nagaland border areas of Dhansiri Sub-division located in the Golaghat district of Assam. The place was popularly known as the Dhansiri Valley in the historical era. Sir Edward Gait said that this valley was a well populated and well cultivated region of Northeast India. But due to the outbreak of epidemic and war between the Kachari and Ahom kingdom, the valley became depopulated for more than 50 years. Again people from different places immigrated and resettled particularly after establishment of railway station in 1905.

Sarupathar College was established on 14th November, 1970 and affiliated to Dibrugarh University. This is the only pioneer higher educational institution in the Dhansiri Sub-division.

Location of Sarupathar College:

Sarupathar College is located Dhansiri Subdivision along the Assam Nagaland Border in Golaghat district of Assam which covers an area of 888 sq. km .Embellished by its divers ethnic groups with their rich cultural heritage, this can aptly called Assam in miniature. The river Dhansiri flows 2 km west from the college and the river Doyang flows 6 km. east from the college. The college is situated at a distance of 55 km. to the south of the district headquarters at Golaghat, bounded by unbroken chain of the Naga Hills to the south-east and south and the Karbi Hills to the west.

Vision of the College

Sarupathar College believes it to be its utmost priority to develop the mind, body and intellect of the students and thereby bring in all round development of selfhood. This institution belongs to a remote and rural area and thus it is a primary concern to make it a rural institution of excellence. It endeavors to bring in prosperity and disseminate knowledge among this rural region which is mostly lagging behind in economic and literary spheres. The demographic pattern of students in this institution shows an assimilation of diverse ethnic and cultural identities. Consequently it becomes a place of cross cultural integrity and the student community is encouraged to respect all cultural identities while trying their best to work for the upliftment and preservation of their own cultural traditions. The institution aims at imparting knowledge, discipline and human values to its students coming from different walks of life and thereby makes them good citizens who can contribute towards nation building. The goal of this institution is to make higher education easily accessible and affordable for the country folk of the surrounding who are leading tough agrarian lifestyle.

Environmental Audit:

An environmental audit is described as an official study of a college's environmental impact. It contributes to the improvement of current practices with the goal of minimizing their adverse effects on the environment. Numerous institutions have taken a variety of measures to maintain the campus's ecology, including promoting energy conservation, waste recycling, water

conservation, and water harvesting. The environment audit visualizes all of these operations by taking stock of the college's infrastructure, academic and management policies, and future goals. A green auditor will conduct a systematic and documented examination of an organization's environmental impacts and will generate an environmental audit report. A clean and healthy atmosphere promotes effective learning and creates a setting conducive to learning. Environmental audits may be beneficial in determining how and where a college is using the most energy, water, or other resources; the institution can then explore how to adopt improvements and save money. Additionally, it may be used to assess the kind and amount of waste that can be recycled or to enhance a waste reduction strategy. It has the potential to raise health awareness and develop environmental sensitivity, values, and ethics. It increases staff and student awareness of the campus's environmental effect. Green auditing generates financial savings through minimizing resource use. It enables students and instructors to build a sense of ownership, personal and societal responsibility. As such, it is critical for the college to assess its own contributions to a sustainable future. As environmental sustainability becomes a more pressing concern for the country, the role of higher educational institutions in addressing it becomes more critical.

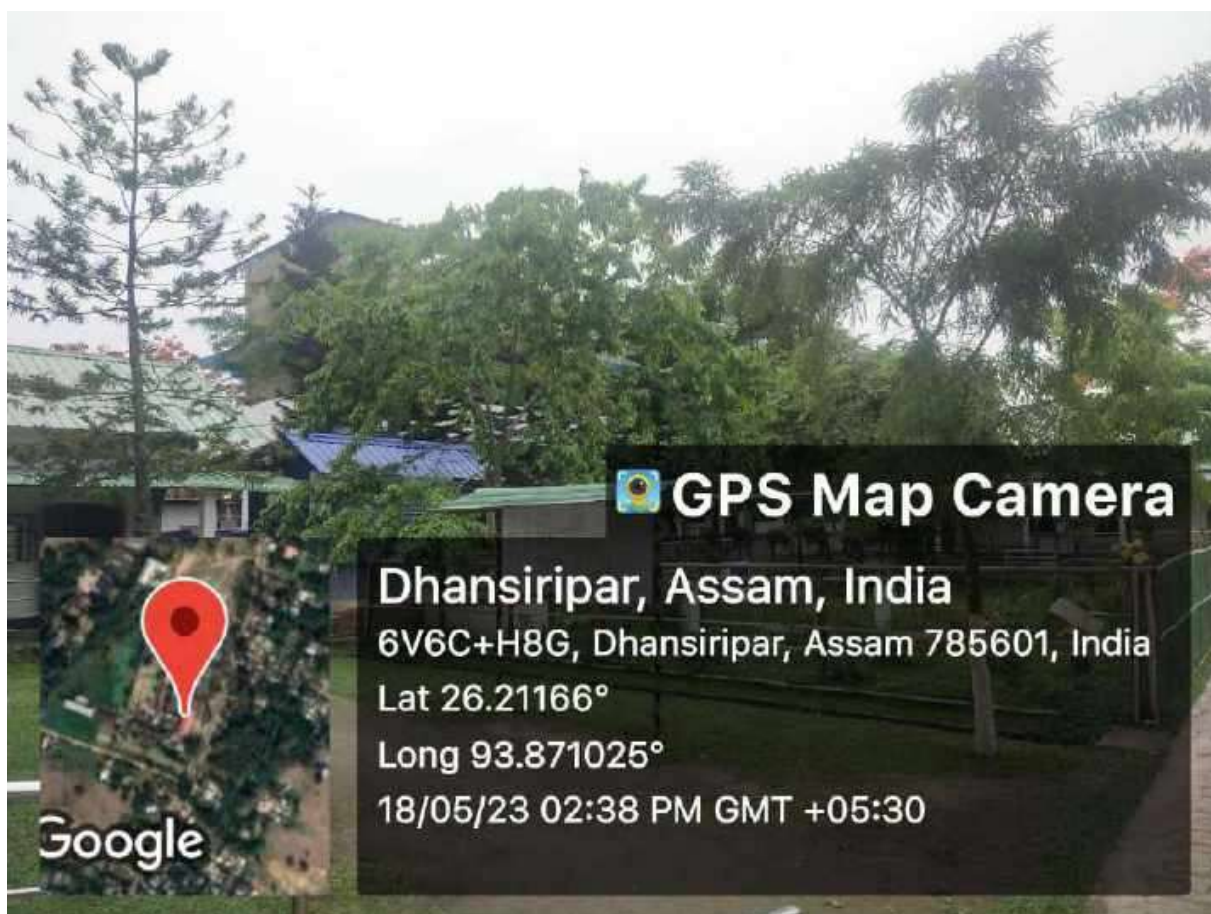


Image:Green Campus of the College

Aims and Objectives of Environment Audit:

The following are the aims and objectives of Environment Audit being conducted by Green and Environment Audit Cell of the college:

- To maintain periodic records on physico-chemical and biological parameters of soil and water in the organization campus.
- To maintain contamination free with safe soil and water for the stakeholders which in turn useful for maintaining the environment and personal hygiene.
- To identify and provide baseline information to assess threat and risk to the ecosystem with respect to safe soil and water due to Organization development.
- To recognise and resolve different environmental threats of the Organization without creating any soil and water pollution.
- To ensure proper utilization of resources available in the surrounding areas towards future prosperity of the humanity as bioresources like water and soil are considered to be very important.
- To fix a couple of norms for disposal of all varieties of wastes for pollution free soil and water as per the Green and Environment Policy.
- To assess the proper utilization of water from the entry to the consumers and discharge the wastewater as per the guidelines of Central and State Government Pollution Boards.

Scope of Environmental Audit:

The scope of Environmental audit is confined to the following areas:

1. Drinking Water Analysis:

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. As a result, water supplies are being depleted and contaminated at a pace that has never been seen before. As a result, every organization committed to environmental stewardship must assess its water use policies.

2. Soil Analysis: The fundamental characteristics of soil samples are very important because soil health determines the number of plant and microbial diversities in terms of the number of Genera and species diversity and richness. Besides, the population density as well as diversity determines the human population intervention, anthropogenic sources, municipal sewage disposal, solid / garbage waste disposal, industries activities and use of large number of vehicles and agrochemicals which will pollute the soil health. The availability of macro and micro-elements of soils determine the number of beneficial microorganisms such as nitrogen fixing, potassium solubilizing and phosphorous mobilizing microorganisms such as bacteria, fungi and actinomycetes. The soil nutrients are being considered as an essential element for enhancing the profuse growth of various plant species and microbial organisms.

3. Waste Management:

This indicator assesses current waste disposal policies (handling, storage, collection, and disposal) and recommends the best course of action to address the issues.

4. Green Initiatives for Pollution Control: The College is naturally gifted with a green campus and this greenery is maintained by the college. The scenic beauty of the college is so ravishing that it attracts various faunal diversity including insects, birds, reptiles and small mammals of the neighboring forest areas. The trees and shrubs surrounding the roads, administrative buildings, library building and the academic building provide a green environment to the college.

Drinking Water Analysis:

The college applied to Pollution Control Board, Govt. of Assam to assess the drinking water quality within the college campus. The primary water sources of the campus are:

1. Ground water through boring
2. Rain water harvesting



Image: Pure Drinking Water facility in the college campus

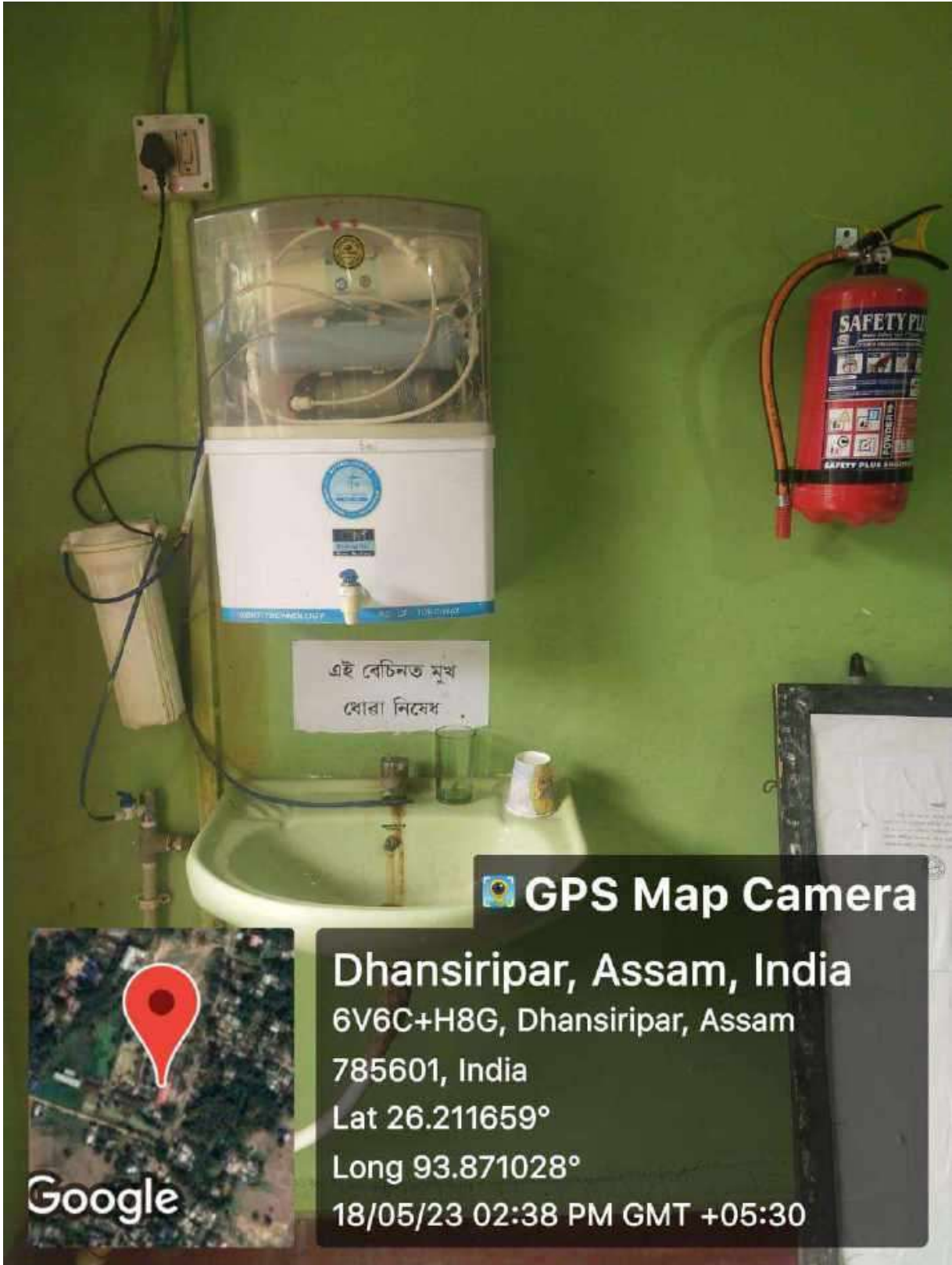


Image: Water Purifier installed in College Office

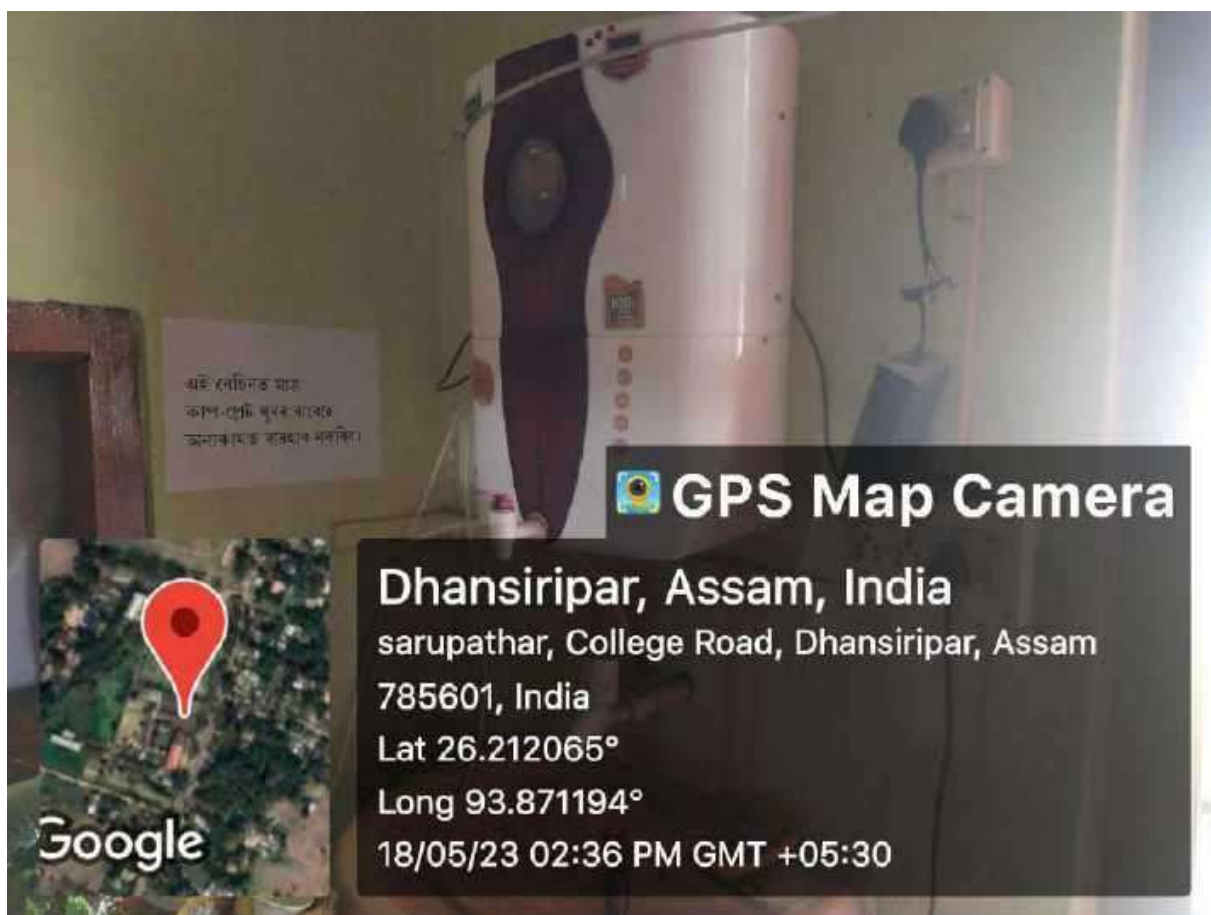


Image: Water Purifier installed in Dept. of Commerce



Image: Water Purifier Installed in Girls' Hostel

Water Testing Report and Analysis

Sample Reference: Sarupathar College
 Sample Type: DTW, Treated
 Received on:

Sample Source: Sarupathar College
 Collected Date: 08/05/2023

Table:

Serial No.	Parameters	Results	Desirable Limit	Permissible Limit in the absence of alternate source
1	Colour	5	5	
2	Odour	Agreeable	Agreeable	
3	Taste	Tasteless	Tasteless	
4	pH	7.80	6.5---8.5	
5	Turbidity	01	01	
6	Free Residual Chlorin	0.00	0.2	
7	Nitrate-Nitrogen		45	
8	TDS	250	500	
9	Chloride	46.79	250	
10	Total Alkalinity	320	200	
11	Sulphate		200	
12	Total Hardness	240	200	
13	Calcium	132	75	
14	Magnesium	26.35	30	
15	Total Iron	0.00	.3	
16	Total Arsenic	0.00	0.01	
17	Floride	0.00	1.0	
18	Microbiological Analysis	Negative	Negative	

GOVT. OF ASSAM
SUB-DIVISION LEVEL LABORATORY
PUBLIC HEALTH ENGINEERING DEPARTMENT

Sarupathar Sub-Division, Sarupathar - 785601, Dist. Golaghat (Assam)
Near Sarupathar Town Water Supply Scheme.

E-mail : scdlphed@gmail.com



Laboratory Code :
ABCGOLUSPAT/SDL

WATER SAMPLE TESTING REPORT

Test Report No. **509**

Issue Date

Issued to

Date **12/5/2023**

Customer Reference No. **Sarupathar College** Sample Description **Sarupathar Town**
Sample Type **DTW, Treated** Sample Collected on Date **8/5/2023**
Sample Collected by **Utpal Hendique** Sample Received on Date **8/5/2023**
Sample Location **Sarupathar college** Sample Quantity **1000 ml**
Date of Analysis Started **8/5/2023** Date of analysis Completed **11/05/2023**

Type of Analysis : Physical : Chemical : Bacteriological :

Sl. No	Parameter	Protocol used	Method	IS 10500 : 2012 (second revision)			Unit
				Desirable Limit	Max Permissible Limit (in absence of better alternate source)	Result	
1.	Colour	IS 3025 (Part 4)	Visual Method	5	15	5	Hazen
2.	Odour	IS 3025 (Part 5)		Acceptable	No relaxation	Acceptable	-
3.	Taste	IS 3025 (Part 5)		Tasteless	No relaxation	Tasteless	-
4.	pH	IS 3025 (Part 11)	Electrometric	6.5-8.5	No relaxation	7.80	-
5.	Turbidity	IS 3025 (Part 10)	Nephelometric	0.1	5	0.1	NTU
6.	Free Residual Chlorine	APHA 4500-ClB	Iodometric	0.2	No relaxation	0.00	Ppm
7.	Nitrate-Nitrogen	IS 3025 Part 34	Chromotropic Acid	45	No relaxation	-	Ppm
8.	TDS	IS 3025 Part 16	Gravimetric	500	2000	250	Ppm
9.	Chloride	IS 3025 Part 32	Argentometric	250	1000	46.79	Ppm
10.	Total Alkalinity	IS 3025 Part 23	Indicator	200	600	320	Ppm
11.	Sulphate	IS 3025 Part 24	Turbidity	200	400	-	Ppm
12.	Total Hardness	IS 3025 Part 21	Titrimetric	200	500	240	Ppm
13.	Calcium	IS 3025 Part 40	EDTA Method	75	200	132	Ppm
14.	Magnesium	APHA 3500-MgB	Calculation Method	30	100	26.35	Ppm
15.	Total Iron	APHA 3500-FeB	Phenanthroline	3	1	0.00	Ppm
16.	Total Arsenic	IS 2088	SDCC Method	0.01	No relaxation	0.00	Ppm
17.	Fluoride	APHA 4500-FD	SAPDNS Method	1.0	1.5	0.00	Ppm
18.	Microbiological Analysis	H2a Stile Method	H2a Vial	Negative	No relaxation	Negative	

Remarks

- Note :**
- The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the sender.
 - For confirmatory Microbiological Test, Fresh sampling may require after observing the proper sampling procedure.
 - The sample meant for chemical / Biological analysis must reach to Laboratory within the 6 hours.
 - The Test Samples meant for chemical analysis will be disposed of after 15 days from the date of issue of test report unless until specifically requested by the customer for retaining over a longer period.

Abh
Assistant Chemist
SDLL PHE, Sarupathar
SUB-DIVISION LEVEL LABORATORY
- PHE, SLE DIVISION

END OF TEST REPORT

DU
IN CHARGE
SUB-DIVISION LEVEL LABORATORY
SDLL, PHE, Sarupathar
LABORATORY - PHE, SUB-DIVISION

Total microbiological analysis, pH, hardness, and total dissolved solids all have an effect on the quality of drinking water and are all stated on a drinking water test result.

Microbiological Analysis: This test determines if a source of drinking water contains micro-biological organisms. If the test results are positive, the water should not be consumed until it has been boiled for five minutes or disinfected in some other way. The sample drinking water contains no such micro-biological organisms.

pH: A pH of less than 6.5 may be harmful to our health. Water that is very acidic may be corrosive and can dissolve metals in pipes, pumps, and other fixtures. pH level of the sample drinking water is 7.80 which is very much within the recommend range of SDWR guidelines of pH 6.5 to 8.5 for drinking water.

Total Hardness: Water that has an excessive amount of calcium and magnesium is referred to as "hard water." While hard water is not harmful to health, it may lead to the formation of scaly deposits in pipes and water tanks. Water should have a hardness reading of 200 –600. Total hardness of the sample drinking water is 240, which is well below the acceptable limit.



Image: Rain water Harvesting

Assessment of Physico-chemical property of Soil samples collected from of the Organization Campus

Soil physico-chemical properties influence the behaviour of soil and hence, knowledge of soil property is important. Soil testing is the only way to determine the available nutrient status in soil and the only way we can develop specific fertilizer recommendations. Soil properties that are sensitive to changes can be used as indicators to improve soil quality. Analysis of soil is carried out for the studies of various parameters like total organic carbon, available nitrogen (N), phosphorus (P₂O₅) and potassium [K₂O], pH, electrical conductivity, soil texture, bulk density, chloride, fluoride and % moisture content. The fertility of the soil depends on the concentration of N, P, K, organic and inorganic materials, conductivity. The physicochemical properties such as moisture content, Nitrogen, phosphorus and organic matter required for the growth of plant. Potassium is used for flowering purpose, it is also required for building of protein, photosynthesis, fruit quality and reduction of diseases and phosphate is used for growth of roots in plants. The soil profile and soil edaphic parameters of the campus observed to be low in the essential nutrients which are needed for the plant growth. The soil fertility has to be enhanced by adapting vermicomposting and proper irrigation facility.

4

কৃষি বিভাগ, অসম
মাটি পরীক্ষাগার, বনভেটী, যোৰহাট
মাটি পরীক্ষাৰ কলাসল আৰু মানৰ অনুশীলন

অনুশীলনৰ নাম "Sonupathan College" পৰীক্ষাগাৰ নং 01
ঠিকনা "Sonupathan," নামৰ পৰামৰ্শদাতা নং
কৃষি সংস্থাস্থাপন নিয়মা চক্রঃ
কৃষি সংস্থাস্থাপন কৰ্মীৰ নামঃ
ঠিকনা Golaghat পৰামৰ্শদাতাৰ নামঃ
মাটি পৰীক্ষাৰ ফলাফলঃ পৰিমাণঃ 135 গ্ৰাম • সোধী বিভাগঃ
অম্লতা (PH) 5.83
জৈৱিক এলকাৰ (Organic Carbon) শতাংশ 6.35%
গড়ে পাব পৰা ফছফৰাছ 0.4 কিঃ/একঃ
(Available Phosphorus)
গড়ে আহিবলৈ বৰিব পৰা পটাছ 90.05 কিঃ/একঃ
(Available Potash)
মুঠ দ্রৱিত লোণ মিঃ মিঃ চেণ্ডিমিটাৰ
(Total Soluble Salts) (In Conductivity)
মাটিৰ ধৰণ (Soil Texture) Silty Clay loam

সহকাৰী মাটি বসায়নবিদ
বনভেটী, যোৰহাট

Soil & Plant Chemistry
Soil-11

অনুমোদিত সাৰৰ পৰিমাণ : কিলোগ্ৰাম প্রতি বিঘাত

শস্য	ইউৰিয়া	চুপাৰ ফছফেই	মিউনেট অৰ পটাছ

ইয়াৰ উপৰিও কলম গোবৰ বা পচন সাৰ
চুম

কিঃ গ্ৰাম/ বিঘা
কিঃ গ্ৰাম/ বিঘা

নিঃ ৩ঃ : সাৰ প্ৰয়োগৰ বিষয়ে কিবা জানিব খুজিলে আপোনাৰ এলেকাৰ কৃষি নিয়মা বা গ্ৰাম সেৱকৰ পৰামৰ্শ লওক। মাটি ডবল
বিভাগে আৰু কিবা তথ্য জানিব খুজিলে উপযোগী পৰীক্ষাগাৰ নং উল্লেখ কৰি সহকাৰী মাটি বসায়নবিদ, মাটি পৰীক্ষাগাৰ
(কৃষি বিভাগ) যোৰহাট-১৩ —এই ঠিকনাত যোগাযোগ কৰক।

সহকাৰী মাটি বসায়নবিদ
মাটি পৰীক্ষাগাৰ, যোৰহাট
যোৰহাট-১৩

Soil samples were collected from different places of Sarupathar College campus and then subjected to analyses for their fundamental soil edaphic parameters such as pH, Electrical conductivity (Ec), Total organic carbon, Total nitrogen, Available Phosphorous, exchangeable Potassium, Total ferric and ferrous ion concentration, Manganese, Magnesium, Zinc, Copper with the help of Soil Test Laboratory, Borbheta, Jorhat, Assam under Government of Assam.

The results indicated that pH recorded values is 5.83. The soil macro-elements like the amount of total Organic Carbon, Phosphorous and Potash were found to be 6.35, 0.4 and 90.05 kg/hectre. The soil sample analysis report revealed that all the values are within the prescribed according to Department of Agriculture, Govt. of Assam.

Waste Management

Waste generates a considerable quantity of litter, which contributes to health concerns. Institutional operations create a variety of wastes that must be properly handled, stored, collected, and disposed of in order to minimise dangers to the environment and public health. The College has made several trash control efforts and endeavours. On the College campus, wastes from various sources are meticulously separated for appropriate disposal. Diverse garbage containers are designated for the collection of various types of waste. The Institute places a premium on environmental health and has contributed to the sustainability of future generations throughout the years. Institutional wastes are often classified into three primary categories: solid, liquid, and e-waste. As shown below, several factors were used to sort and dispose of these wastes.

Solid Waste: Pollution from garbage is unpleasant and contributes significantly to litter in our neighbourhoods, which may cause health concerns. Biodegradable, non-biodegradable, and hazardous waste are the three forms of solid waste. Food trash, canteen garbage, and toilet waste are all examples of biodegradable waste. Plastic, tins, and glass bottles are all examples of non-biodegradable garbage. Hazardous trash includes cleaning chemicals, acids, and laboratory chemicals. Hazardous trash includes cleaning chemicals, acids, and laboratory chemicals. Each department at Sarupathar College, as well as administrative offices, generates garbage that is deposited in the department's small waste bin. Each building has multiple dustbins from which cleaning personnel collects rubbish. Vermi-composting units located within the college campus successfully convert biodegradable wastes to fertiliser. This fertiliser is utilised in the college's fruit orchard and flower garden. Sarupathar College actively opposes the usage of plastic on campus, especially single-use plastics. The college campus has been designated a "Plastic-Free Zone." The College generates a significant amount of paper trash. Paper wastes from Academic Blocks, Libraries, Exam Conduction, Administrative Offices, and Hostels are carefully piled in specified areas and then disposed of properly via vendors. The College supports the use of digital platforms for communication and document exchange in order to lessen reliance on paper.

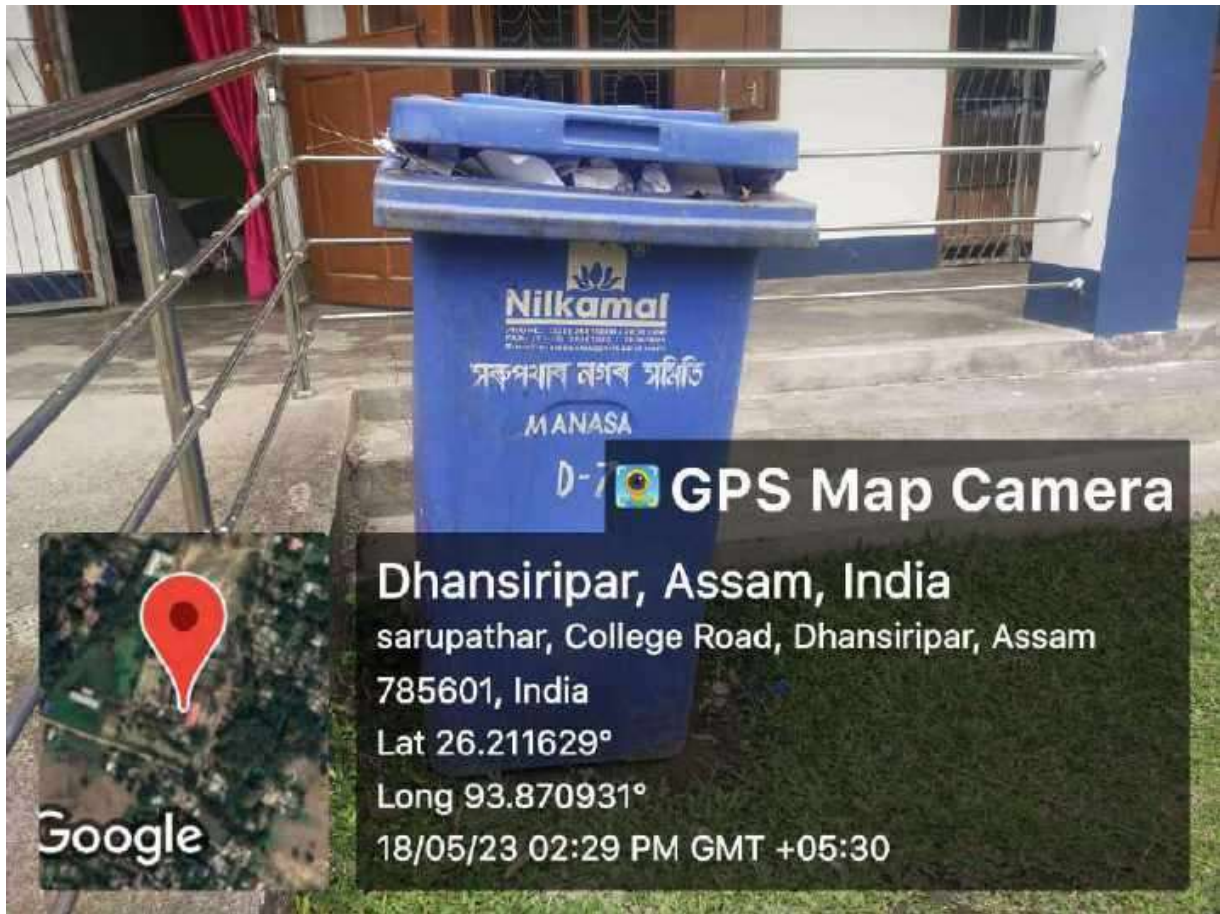


Image: Dustbin placed in front of Administrative Building

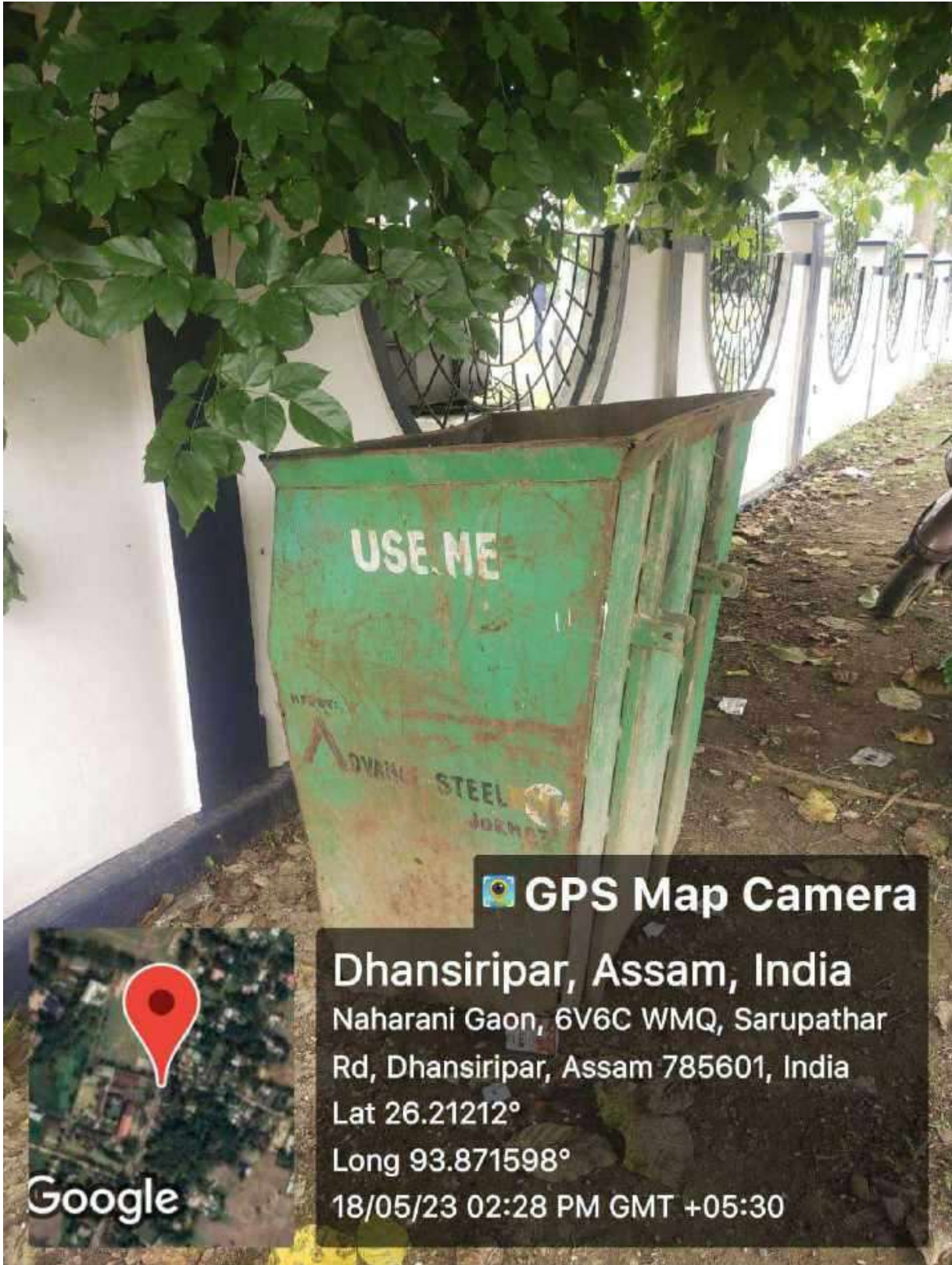


Image: Dustbin placed in College Campus



Image: Garbage Collected from College by Sarupathar Municipality

Liquid Waste: Hostel sewage and canteen effluent waste are the most common liquid wastes created on campus. Following are the measures taken for liquid waste management:

1. Septic tanks are situated across campus and collect waste water from the toilets.
2. During dry seasons, the waste water from the College Canteen is collected and utilised to irrigate the flower beds. The college do not have any sewage treatment plant yet.

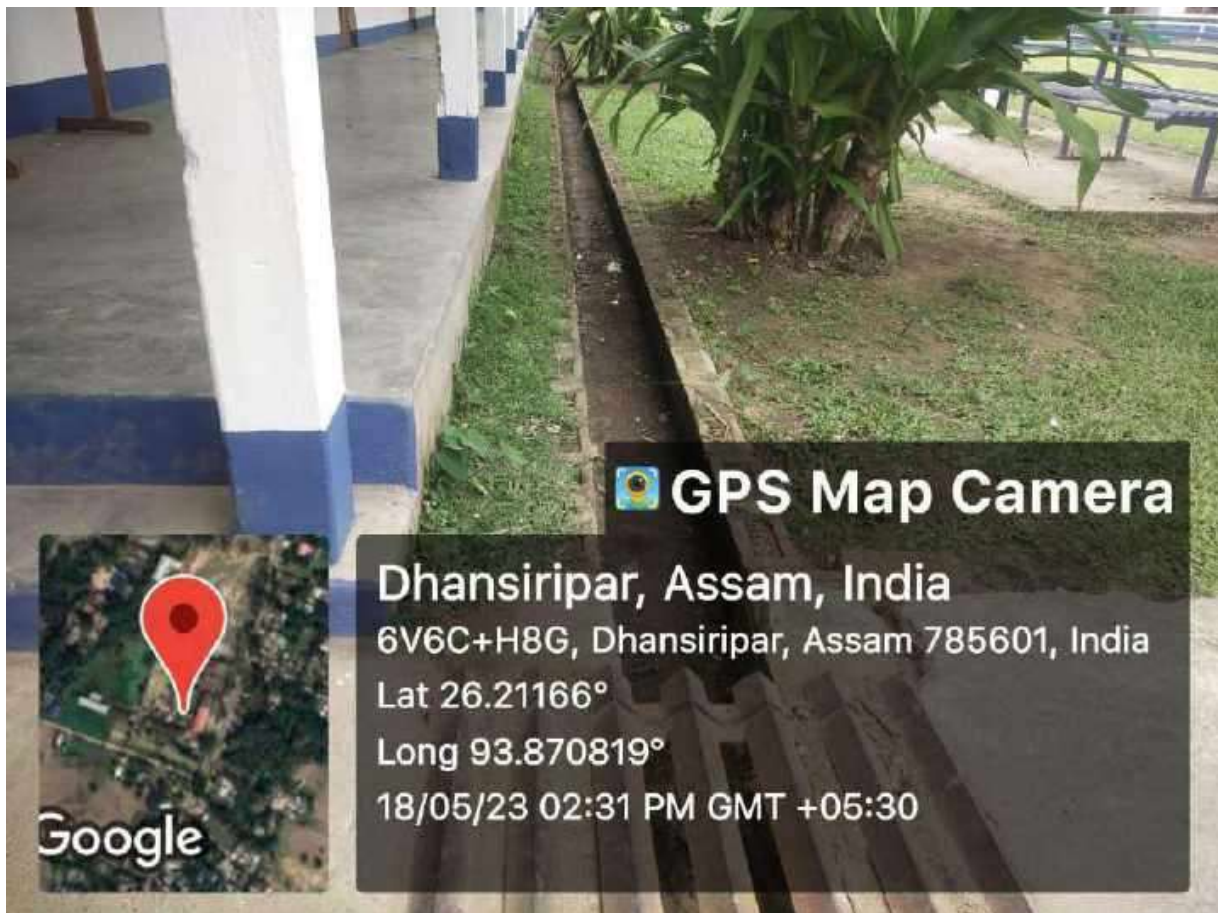


Image: Drainage System in the college

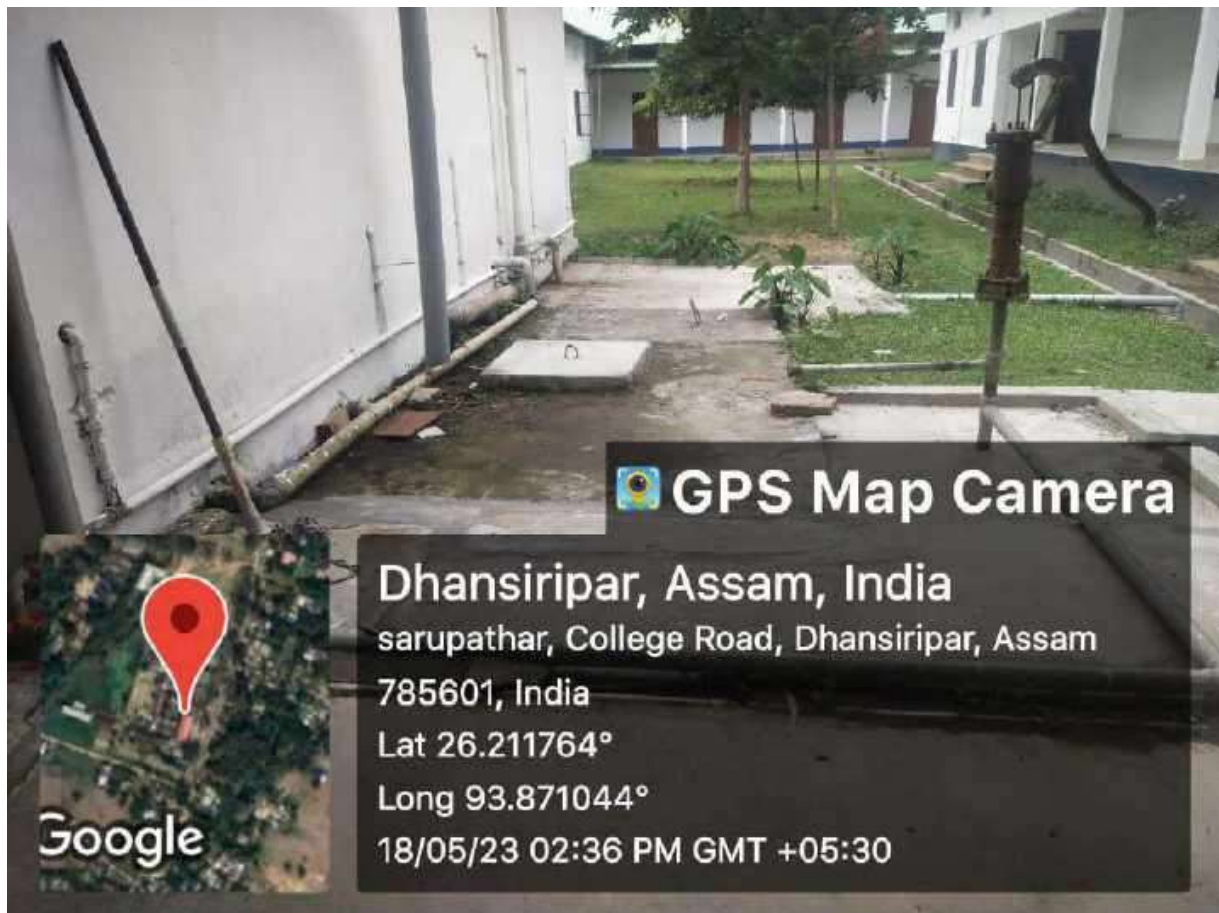


Image: Septic Tank

E-Waste Management: Sarupathar College has a highly effective system in place to dispose of E-waste from diverse sources. Computer labs, electronic labs, academic and administrative offices all produce e-waste. Lab instruments, circuits, desktops, laptops and accessories, printers, charging and network cables, Wi-Fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments, and so on are all examples of e-waste. All of these wastes are put to the best possible use. All of the equipment that cannot be reused or repurposed is disposed of by approved suppliers. For technological upgrades, the Buy-Back option is chosen over a fresh purchase.

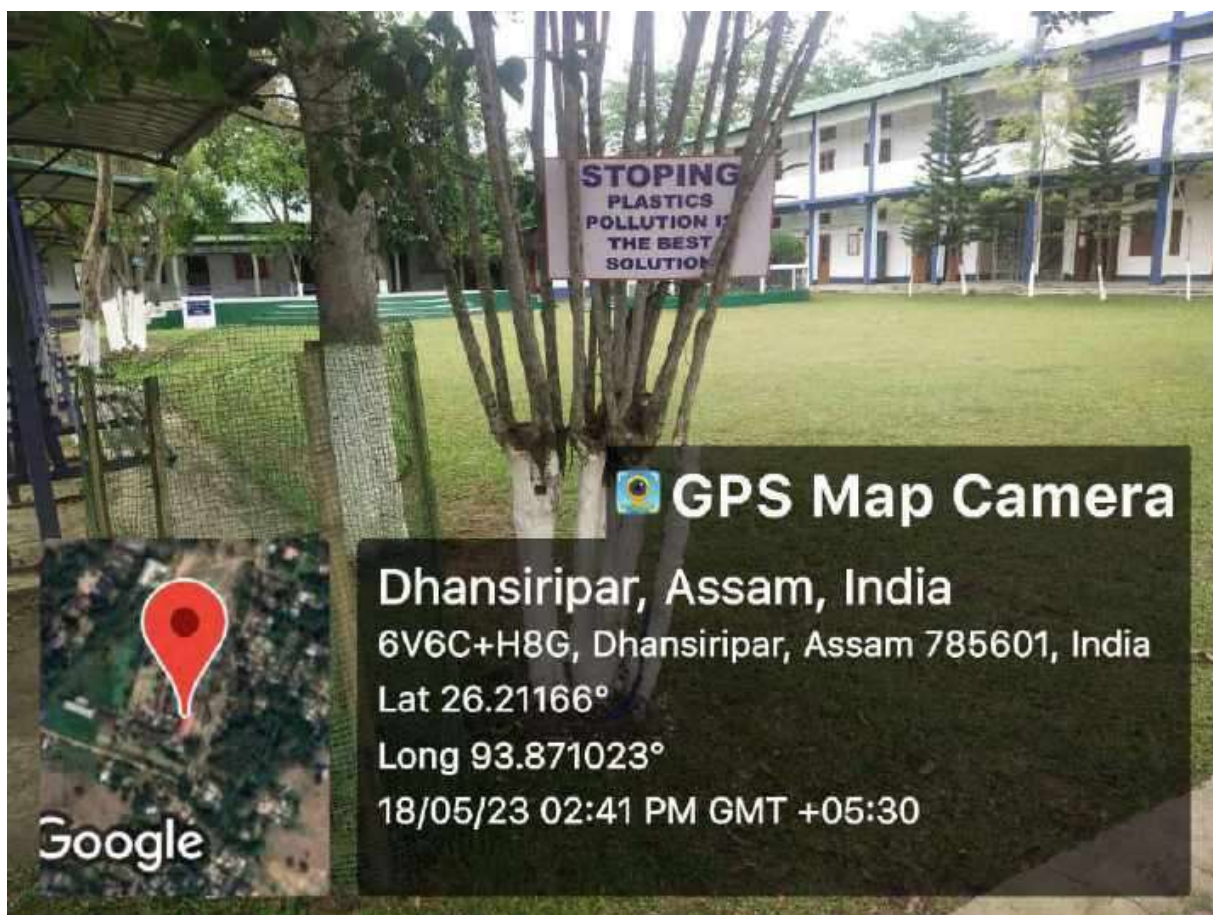


Image: Plastic-free Campus



Image: Vermicomposting Unit in the college

Green Initiatives for Pollution Control: The College has performed different activities like cleanliness drive, plantation programme, plantation clearing, ban on plastic use etc. Awareness campaign on sustainable development, plastic free campus and biodiversity conservation are organized by NSS in collaboration with different bodies in regular manner. Display of environmental awareness board such as: no littering, plastic free campus etc. and different colour coded waste bins to segregate waste and easy collection is provided in all the blocks of the campus. The faculties and students are also encouraged to plant trees in the campus and for this Plantation drives are performed in Environment Day of every year. The college has also introduced the system of planting a sapling by the students who take free admission and also they are responsible to take care of the saplings. However, the protection part of the saplings by fencing and all is maintained by college itself.

The institution also in collaboration with NSS and other departments observe various days like World Environment Day, Earth Day in order to foster values related to environment awareness.



Image: Tree Plantation Drive by faculty members and students

Recommendations:

All of the environmental audit indicators were investigated and analysed thoroughly. Although Sarupathar College has faced several obstacles and difficulties, it has managed and progressed well in managing its environmental effect. However, there is room for growth in a variety of managerial fields. An environmental management system formalised continuous practise, framework creation and monitoring of action plans are recommended for continued development from the existing stage. Reports from environmental audits may help the institution move toward an eco-friendly approach to sustainable growth even more quickly. As a result, new and improved methods may be implemented. In order to ensure a profitable future for the Green Campus, sustainable environment, and community development, the college should keep encouraging all the stakeholders to discourage use of plastic especially single-use plastics, initiate green ways of generating energy, and promote digital/on-line teaching modes.