ENVIRONMENT AUDIT REPORT

2021-22

Madhab Choudhury (MC) College, BARPETA, ASSAM

PREPARED BY:

ENVIRONMENT AUDIT COMMITTEE,

M.C. COLLEGE, BARPETA, ASSAM

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Ref: ETS/MCC/CC/01/2022 **Date: 20th April 2022**

COMPLETION CERTIFICATE

This is to certify that the report compiled on the basis of field investigation of Micro-Meteorological Quality, Ambient Air Quality, Noise Quality, Drinking water Quality and Soil Quality study for M C College, Barpeta. The present work is carried out at the request of the Principal, M C College, Barpeta on 4th February 2022.

The findings of the study carried out during the month of February 2022 are presented in this report. The field work and Laboratory work is carried out under the supervision of Dr. Hrishikesh Sarma, MSc, PhD(Chemistry), Executive Director, and Mr. Subash Baruah, Technical Expert, ETS, Guwahati. All the analysis of Air, Noise, Soil and Water quality is done at the laboratories of Enviro Testing Services, Noonmati, Guwahati. The Laboratory is duly recognised by State Pollution Control Board, Assam, ISO 9001 :2015; ISO 45001:2018.

For Enviro Testing Services

Date: 20.04.2022

Ex. Director, ETS, Guwahati

PREFACE

The factors that are highly responsible for the deterioration of the biosphere are called pollutants or environmental hazards. In other words "Environment is sum total of water, air and land interrelationships among themselves and also with the human being, other living organisms and property". It includes all the physical and biological surrounding and their interactions. Environmental studies provide an approach toward understanding the environment of our planet and the impact of human life upon the environment. The Environment Audit Committee discusses the factors that are problems associated with the surroundings and hence these factors are discussed with the air, water, soil, and the sound found on the college campus i.e. drinking water, water use and management of the campus, air quality in the campus, the noise level in the campus and generation of waste materials and the waste disposal system, cleanliness practices, Best Practices, and Suggestions.

ENVIRONMENT AUDIT COMMITTEE

M.C. COLLEGE, BARPETA ASSAM

TEAM MEMBERS

Sl. No.	Name of the member	Designation	Duty performed
1	Dr. Prakash Sarma	Chairman, Environment Audit Committee & Principal, M.C. College Barpeta	Facilitator and chief patron
2	Dr Hitesh Das	Co-ordinator, Environment Audit Committee & Asstt. Professor, M.C. College Barpeta	Technical advisor, field surveyor, data keeper and compiler
3	Dr Eushah Ali	Member, Environment Audit Committee & Assistant Professor, M.C. College Barpeta	Technical consultant
4	Mr. Abdur Rezzak Ali	Member, Environment Audit Committee & Asstt. Professor, M.C. College Barpeta	Technical consultant
5	Dr Jaydev Mandal	Member, Environment Audit Committee & Asstt. Professor, M.C. College Barpeta	Technical consultant
6	Dr Koncheng Buragohain	Member, Environment Audit Committee & Asstt. Professor, M.C. College Barpeta	Technical consultant

OBJECTIVES

The aims and objectives of the Environment Audit Report would focus on the following outcomes:

1. Environmental education through a systematic environmental management approach
2. Improving environmental standards
3. Benchmarking for environmental protection initiatives
4. Sustainable use of natural resources available on the College campus.
5. Financial savings through a reduction using the natural resources (green approach)
6. Development of ownership, personal and social responsibility for the College campus and its environment
7. Developing an environmental ethic and value systems in young people

CONTENT

INTRODUCTION

Madhab Choudhury (MC) College is the third oldest college in the undivided Assam, the college and from 24-26 October 2014 the MC College celebrated its Platinum jubilee with great joy and pride. The year-long celebrations were inaugurated with a memorable inaugural function in which the Hon'ble Chief Minister of Assam, Late Tarun Gogoi was the Chief Guest. The college's establishment year was 1939 and it has been affiliated with Gauhati University, Guwahati 781014 as the undergraduate college. Now the MC College has opened master's degrees in a few departments under a similar university. Presently a total of fifteen numbers of departments from both the streams are being engaged in providing higher education among the students of which the department of Botany from the science stream and the department of Assamese from the Arts stream are conducting PG programmes under Gauhati University – the affiliating University of the college

The college is located in the headquarter of the district Barpeta. Since the Barpeta town is surrounded by various Satras established by Mahapurush Sankardeva and his beat student Mahapurush Madhavdeva and the town becomes – the Satra Nagari of Assam with an area of about 15.76 acres. The college campus is ornamented with a good number of floristic elements comprising the greenery of the whole campus. The floristic elements along with a managed water body (pond), a botanical garden, and a reserved site for fox conservation have also been supporting a rich faunistic diversity on the college campus.

A Nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. Educational institutions

now a days are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. The activities pursued by colleges can also create a variety of adverse environmental impacts.

The Environment Audit or the report focuses the present status of the abiotic component and its impact on the college campus. Hence the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989) and defined the Environmental Auditing as: "A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects." Environmental auditing is a process whereby an organization's environmental performance is tested against its environmental policies and objectives to evaluate the actual scenario at the campus. It can be a useful tool for a college to determine how and where they are using the most natural resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can also create health consciousness and promote environmental awareness, values and ethics.

It provides staff and students better understanding of Environmental impact on the college campus. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. Thus it is imperative that the college evaluate

its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent. A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues.

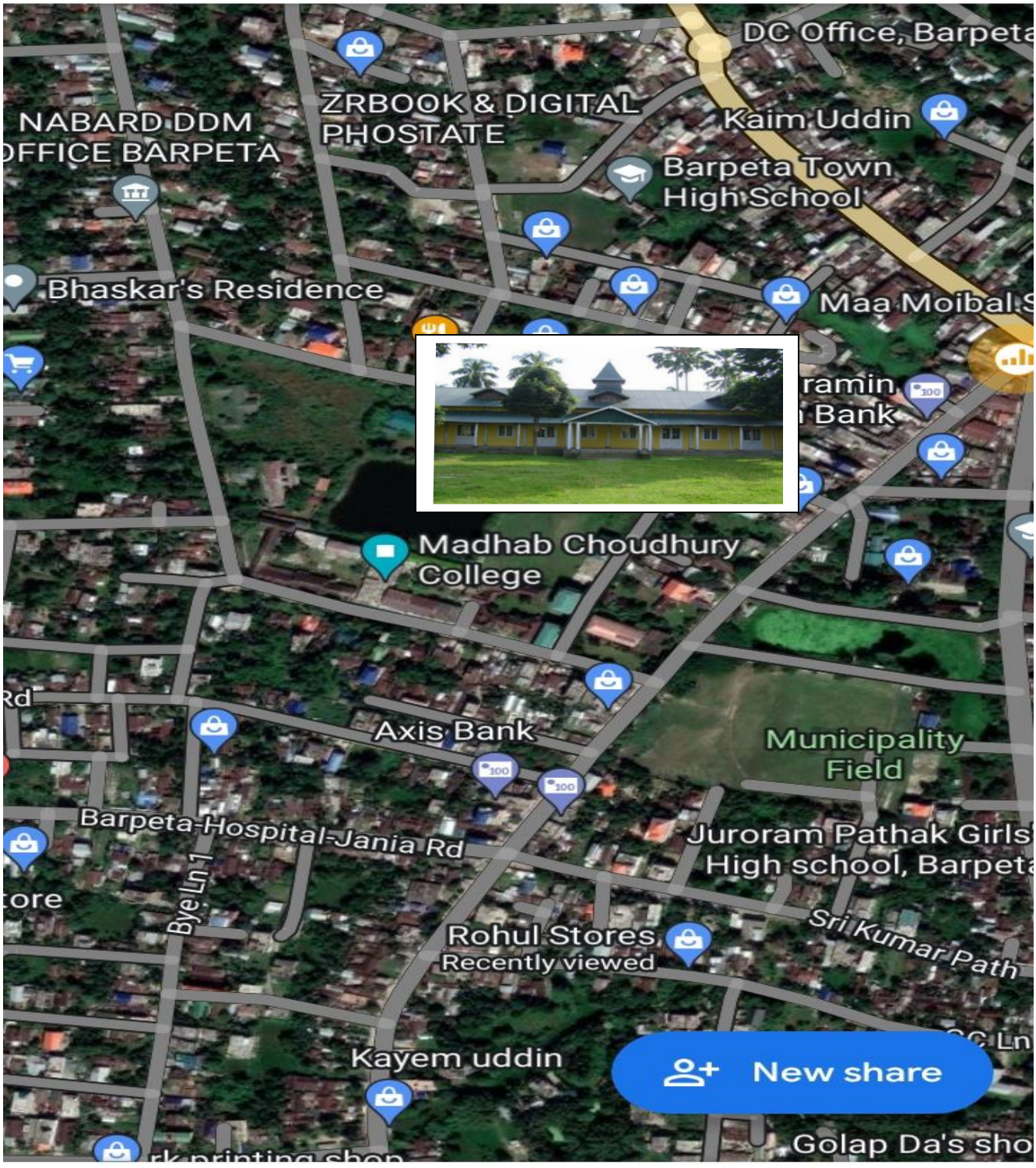

Fig 1: Google map of the College campus

4.

Overview of the MC College, Barpeta

Madhab Choudhury (MC) College is located on the northern bank of the mighty Brahmaputra River. The main campus of the college spreads over an area of 15.76 acres as per land record. The building of the MC College is situated in the headquarters of the Barpeta district of the state of Assam (India). It consists mainly of three sections: the interconnected teaching and administrative block, the Library and the Seminar Hall, and the college auditorium. The landscaped grounds of MC College are widely admired for their beauty. In addition, there are cricket, lawn tennis, football, and volleyball fields along with a pond. The MC College admits students from all social milieus and empowers them through intensive mentoring and counseling to face the challenges of life and become responsible and sensitized citizens of the country. The college campus is characterized by well-connected roads connected to the main Barpeta Town. Also, the campus is surrounded by a residential area with green vegetation.

The MC College imparts education to Undergraduates in the following Departments:

1. Department of Anthropology
2. Department of Economics
3. Department of English
4. Department of History

5. Department of Mathematics
6. Department of Political Science

7. Department of Assamese
8. Department of Geography
9. Department of Education
10. Department of Philosophy
11. Department of Chemistry
12. Department of Physics
13. Department of Botany
14. Department of Zoology
15. Department of Computer Science

The MC College imparts education to Post-graduates in the following Departments:

1. Department of Assamese
2. Department of Botany
3. Department of Anthropology

Land Cover and Land Use

The landscape of MC College, Barpeta is a composite mosaic of Assam Type Buildings, an RCC auditorium, and buildings with a greener environment with a wetland area. All the academic departments and residential units/hostels have come up at the boundary of the filled wetland area, the Pond. Organized plantations on the campus have given the overall green cover to a college campus.

The college has been occupying an area of 15.76 acres of which ~ 10.533 acres of land is in use for various purposes and ~5.227 acres are lying free contributing to the greenery of the campus.

Built up environment

Table 1: Land use pattern in the college campus

Table 1 shows different types of built-up areas. Since there has been some additional built-up post-2015 survey, the actual figure under the total built-up will be a little more than shown here. It is found that under the built-up category, of which Assam-type units, hostels, and administrative units form a significant part. Since the wetlands are essential components of the campus landscape and biodiversity, therefore the pond located on the campus will provide the utmost importance to preserving this ecosystem.

Table 1: Built-up categories in MC College Campus (Based on earlier survey)

Serial No.	Land Use Category	Area occupied(Acre)
1	Assam type building	1.651

2.	RCC buildings	1.246
3.	Other RCC Constructions	0.027
4	Store-house	0.010
5	Semi-concrete construction	0.093
6	Concrete ground	0.125
7	Play ground	1.55
8	Water body	1.262
9	Botanical garden	0.068
10	Fox conservation centre	3.720
11	Flower garden	0.011
12	Drain	0.030
13	In-campus lanes	0.792
14	Café cum Photostat stall	0.002
15	Water pump-house	0.007
16	Rain gauge installation	0.006
17	Water tank installation	0.021
18	Drinking water plant	0.002
19	Unused area (free- land)	5.227
	Total Land	15.85

8.

An Insight into MC College Environment Audit

The Environment Audit for the MC College campus comprises four stakeholders namely (a) Solid-waste management audit, (b) Water analysis Audit (c) Soil analysis audit (d) Air Pollution analysis Audit, and (e) Noise level permeability audit. Except for

the solid waste management audit, other stakeholders of the environmental audit of the college campus have been assessed by ISO Certified company, The Enviro-Testing-Services (Accredited by SPCB Assam, ISO 9001, ISO 45001, MSME) Bijoy Nagar, House No-35, Noonmati, Guwahati -781020, Assam. The assessment records have been reported in the following tabular forms as mentioned below:

Solid-Waste Management Audit

A solid Waste audit covers the generation of solid waste, its collection, and disposal. The audit focuses on the volume of wastes accumulated on the campus and assesses whether the way in which it is treated or disposed of is environmentally sensitive. The MC College campus is provided the waste collection bins surrounding the environment (The photos of the waste bins are displayed). Using the waste collection bins student are learning the identification of biodegradable and non-biodegradable wastes and keep them in their respective bins. After the collection of organic debris or biodegradable wastes, the sweeper personnel disposes of them for aerobic decomposition at the dumping sites. Collecting the non-biodegradable wastes from the college campus, the local municipality board sends the wastes for the recovery and reuse of plastic wastes, metal waste, etc. Recycling practice serves as a way to keep large amounts of solid waste out of landfills, conserve resources and save energy.

Hazardous waste is potentially dangerous to living beings and the environment those are mainly chemicals such as cadmium, lead, PVC, bleach, zinc, chemical laboratory waste, etc. Chemical laboratories have the potential to generate a wide range of hazardous waste: aqueous waste (cyanide, chromium VI, sulfide); organic liquids (solvents, oils); and solids (glass, sharps, resins, alloys). Efficient management of hazardous waste involves an organized system of identification, storage upon generation or containerization,

collection and transportation, and final treatment to disposal which depends on the physical form of wastes. Disposal of hazardous wastes includes land disposals, incineration, dumping in the sea, deep well injection, etc. The Hazardous waste audit for the college campus identifies the sites where such wastes are generated and the proper drainage or the sites selected for their disposal.

The solid wastes generated are from the office of the Principal, MC College, and the Boys' and Girls' Hostel of the college. The average quantity of solid waste has been shown in the tabular form as mentioned below. As tabulated below, on average, the hostels account for the highest amount of solid waste generated on the campus. On average, the academic departments, hostels, and MC College campus generate 8.5 kg, 20 kg, and 7.5 kg of solid waste per month respectively.

Table 2: Soil waste collection

Serial Nos.	Stakeholders	Average Solid Waste, kg/month	Percentage (%)
1	The office of the Principal, MC College	8.5	24
2	The Boys' and Girls' Hostel	20.0	55
3	College Campus	7.5	21
	Total	36	100

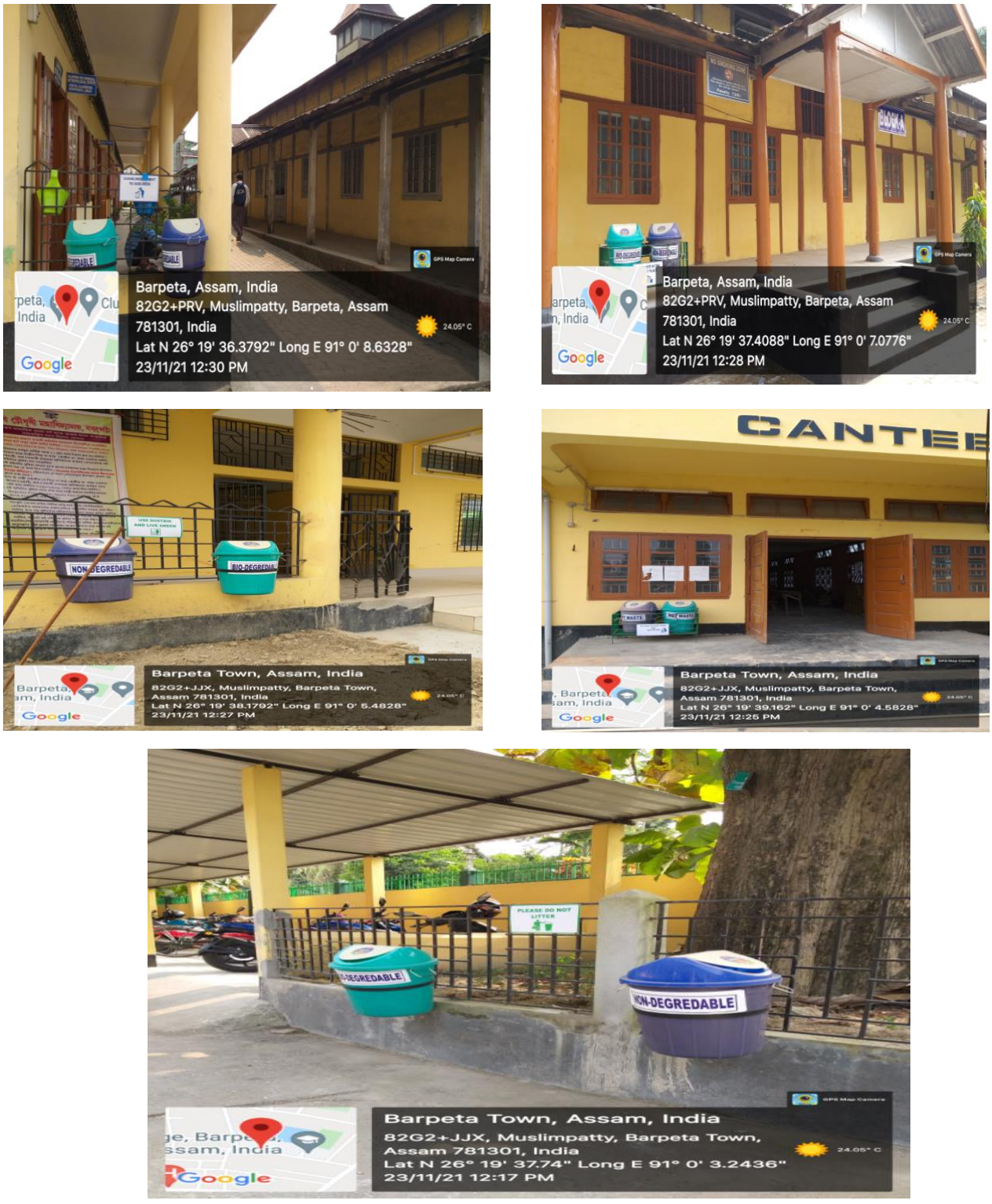

Fig. 2: Soil waste management bins displayed inside MC College Campus

The principal and the students of the MC College are highly educated about the environmental awareness related to waste management. In this regard, the students of the MC College have been engaged in various cleanliness programs organized by the district administration from time to time. Therefore, all stakeholders are more or less aware of the issues involved in solid waste. Each of these sections/ stakeholders has appropriated its own set of solid-waste management practices as per their convenience, requirements, and availability of resources. Investigation reveals that 15 Academic Departments of the college have a total of 35 numbers indoor dustbins installed for solid-waste disposals. In average terms, each of these departments has a provision of 7 dustbins.

Fig 3: Soil waste incineration site inside the MC College campus

The departments of Anthropology, Botany, Chemistry, and Mathematics further maintain bio-degradable and non-biodegradable facilities. The Hostel supervisors/teacher's quarters maintain on an average 2 personal dustbins for solid-wastes disposals. Depending on requirements, the strength of borders, and green practices, varying numbers of dustbins are installed in the hostels as well as on the whole campus.

A substantial amount of wastes-both plastic and biodegradable is generated on the college campus. As mandated, these are to be removed and disposed of properly by the vendors/contractors which seem to be not strictly adhered to. However, in a recent initiative by the authority, dustbins for segregation of various wastes as recommended by the Green Audit Committee have been installed in front of the academic departments. The centralized system of solid-waste management involves timely and periodic lifting of the disposed of wastes under the initiative of the Barpeta Municipality Board (BMC).
The Laboratories of Chemistry, Botany, Zoology, and Physics have the potential to generate a wide range of hazardous waste: aqueous waste (cyanide, chromium VI, sulfide); organic liquids (solvents, oils); and solids (glass, sharps, resins, alloys). Efficient management of hazardous waste involves an organized system of identification, storage upon generation or containerization, collection and transportation, and final treatment to disposal which depends on the physical form of wastes.

It was investigated that the department of chemistry uses more than 50 % of total academic departments to use hazardous substances in their laboratories and hence more hazardous waste in terms of chemicals is generated. Unfortunately, these laboratories do

not possess any efficient infrastructure for proper containerization, transportation, and treatment of these hazardous wastes.

Water analysis Audit

This parameter audits consumption of water, various uses of water as well as leakages and overflow of water from tanks. Besides, it tries to explore whether waste water is efficiently managed on the campus. Drinking water quality within the campus (sample from seven distinct locations including Hostels, Academic departments, and the office of the Principal) was found to be within permissible limit according to IS-10500 standards.

Drinking Water Quality

Drinking water samples were collected from M C College Boys Hostel (DW1), M C College Girls Hostel (DW2), and the Principal Office of M C College (DW3). Results of the analysis of the most relevant water quality parameters are given in Table 1. The test method for all the parameters along with the tolerance limit as suggested by IS-10500 is presented in Table 2. All the parameters are found to be within the tolerance limit as suggested by IS: 10500.

Table 3: Basic information of the drinking water sampling stations

Sr.No.	Sampling Locations	GPS Co-ordinate	
1	Boy's Hostel	N26°19'39.7"	E091°00'01.9"
2	Girls Hostel	N26°19'41.0"	E091°00'01.6"

3	Principal Office	N26°19'38.5"	E091°00'04.7"

Water -use and consumption

Approximately, 2500 liters of water are pumped on a daily basis by an average hostel. 60% of water is used in the laboratories of science departments, while the remaining 40% is used for outdoor purposes. Back-up water facilities like hand-pumps are available inside the college campus. The water harvesting culture is available on the college campus nearby the Botany department.

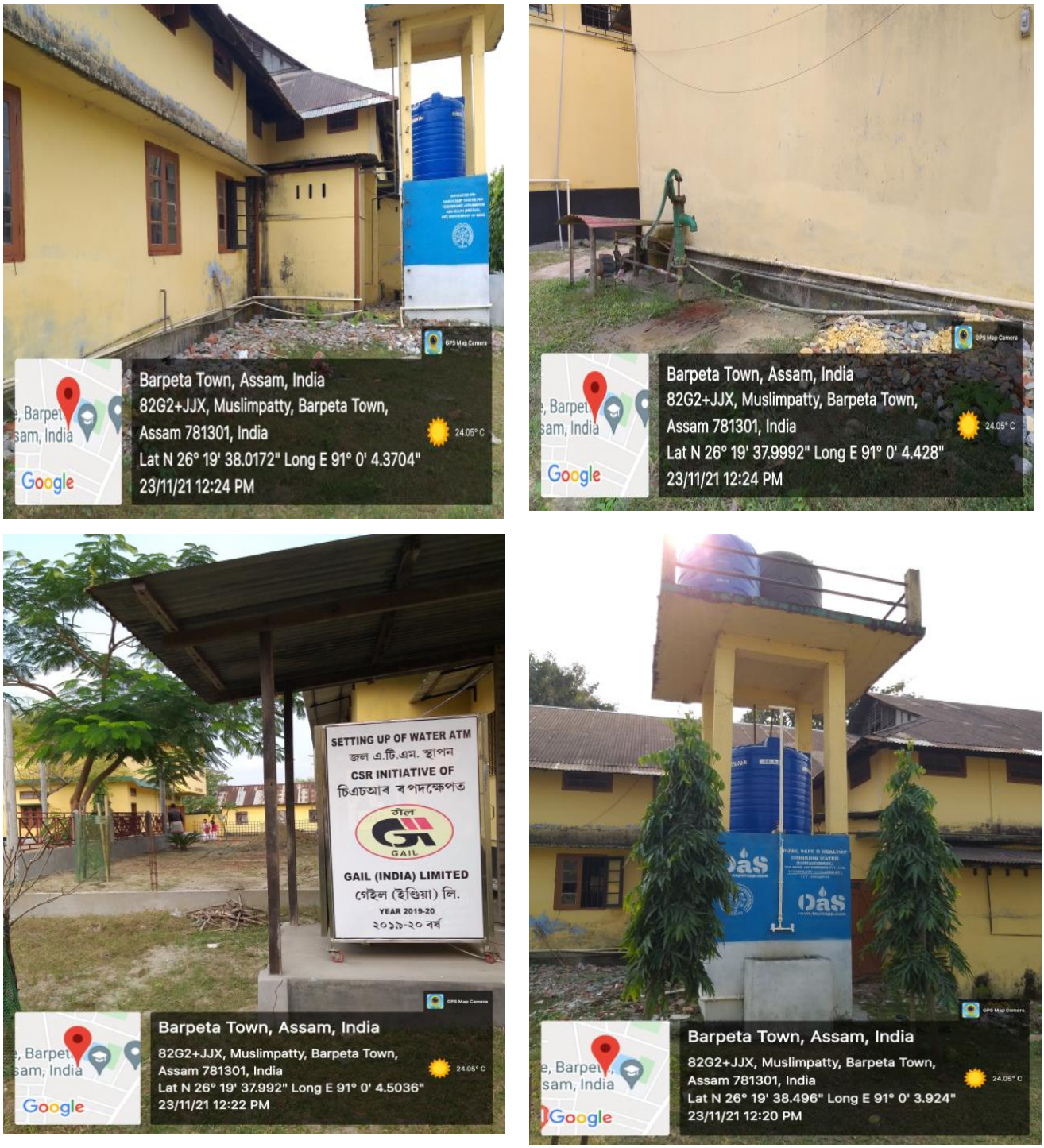

Fig 4: Drinking water resources inside the MC College Campus

Table 4: Methodology along with respective standards of Water Quality Monitoring

S/N	Parameters	Test Methods	IS-10500
1	Odour	APHA 20th Edition, 2150 B	Unobjectionable
2	Temperature (^{0}C)	Thermometry Method	50
3	Turbidity (NTU)	APHA 20th Edition, 2130B	5
4	pH	APHA 20th Edition, 4500-	6.5 – 8.5
5	Conductance (mS/cm)	APHA 20th Edition, 2510B	-
6	Total Dissolved Solid	APHA 20th Edition, 2540 B	500
7	Total Suspended Solid	APHA 20th Edition, 2540 B	-
8	Chloride (mg/L)	APHA 20th Edition, 4500-Cl-	250
9	Residual Chlorine (mg/L)	APHA 20th Edition, 4500-Cl-	0.2
10	Sulphates as SO_4	APHA 20th Edition, 4500-	250
11	Nitrate (mg/L)	APHA 20th Edition, 4500-	45
12	Fluoride (mg/L)	APHA 20th Edition, 4500-F^-	1
13	Calcium (mg/L)	APHA 20th Edition, 3500 B	75
14	Magnesium (mg/L)	APHA 20th Edition, 3500 B	-
15	Iron (mg/L)	APHA 20th Edition, 3111 B	0.3
16	Manganese	APHA 20th Edition, 3111 B	0.1
17	Zinc	APHA 20th Edition, 3111 B	5
18	Arsenic	APHA 20th Edition, 3112 B	0.01
19	Total Coliform (MPN/100	APHA 20th Edition, 3111 B	0
20	Faecal Coliform (MPN/100	APHA 20th Edition, 9221 E	0

Status of waste-water management

Primary sources of water wastage on the campus are overflowing water tanks, leakages in pipes, and mud-filled tanks. The Department of Chemistry, Botany, and Zoology lose water due to leakages and plumbing discrepancies in their systems. As far as drainage systems are concerned, the science blocks have not been introduced to well-functioning drainage and sewage system so far.

Table 5: Results of Drinking Water Quality Monitoring at M C College

S/N	Parameters	Unit	DW1	DW2	DW3
1	Odour	--	NS	NS	NS
2	Temperature (^{0}C)	^{0}C	22	22	22
3	Turbidity (NTU)	NTU	0.6	0.6	0.8
4	pH	-	7.1	7.1	7.2
5	Conductance (mS/cm)	mS/cm	0.42	0.62	0.48
6	Total Dissolved Solid (mg/L)	mg/L	68.0	64.0	66.0
7	Total Suspended Solid (mg/L)	mg/L	24.0	28.0	31.0
8	Chloride (mg/L)	mg/L	24.1	26.2	24.1
9	Residual Chlorine (mg/L)	mg/L	<0.01	<0.01	<0.01
10	Sulphates as SO_4 (mg/L))	mg/L	8.8	8.7	9.2
11	Nitrate (mg/L)	mg/L	4.8	6.4	9.1
12	Fluoride (mg/L)	mg/L	0.16	0.13	0.16
13	Calcium (mg/L)	mg/L	24.6	21.6	26.8
14	Magnesium (mg/L)	mg/L	26.3	22.3	28.1
15	Iron (mg/L)	mg/L	0.18	0.12	0.13
16	Manganese	mg/L	0.006	0.004	0.006
17	Zinc	mg/L	0.08	0.06	0.08
18	Arsenic	mg/L	<0.001	<0.001	<0.001
19	Total Coliform (MPN/100 mL)	mg/L	03	03	03
20	Faecal Coliform (MPN/100 mL)	mg /L	NIL	NIL	NIL

Soil analysis audit

Soil samples were collected from 3 different locations in the study area. It was analyzed for the most relevant physical and chemical parameters including the heavy metals. It may be noted from the results of the analysis that many of the soil samples have alkaline pH while the Assam soil is acidic in nature. The soil texture is dominated by sand in all cases. The presence of cations such as Calcium, Magnesium, Sodium, and Potassium is considerable for all the locations. The variation of SAR is found to be 1.5 to 2.2. The cation exchange capacity is also significant for the entire study area. The soil also has a considerable presence of heavy metals.

Table 6: Sampling stations for the collection of soil

Sr.No.	Sampling Locations	GPS Co-ordinate
1	College Premises	N26°19'36.4" E091°00'06.9"
2	Near Boy's Hostel	N26°19'44.2" E091°00'00.9"
3	Near Girls Hostel	N26°19'40.6" E091°00'02.7"

Table 7: Results of Soil Quality Monitoring at MC College, Barpeta

S/N	Parameters	[S1]	[S2]	[S3]
1	PH (1: 2)	8.1	7.8	8.2
2	Conductance (ms)	0.36	0.23	0.26
3	Sand (%)	87.0	84.6	83.4
	Silt (%)	1.04	3.01	0.06
	Clay (%)	11.9	12.4	16.6
4	Water Holding Capacity (%)	41.3	46.1	48.3
5	Bulk Density (gcm^{-3})	1.2	1.1	1.3
6	Cation Exchange capacity (meq/kg)	0.28	0.26	0.27
7	Nitrogen (%)	0.06	0.08	0.07
8	Potassium (mg/kg)	16.2	12.8	17.4
9	Sodium (mg/kg)	23.6	26.1	21.2
10	Calcium (g/kg)	18.3	16.6	19.6
11	Magnesium (mg/kg)	38.2	34.1	39.2
12	Phosphorous (mg/kg)	11.2	12.4	7.6
13	Organic matter (%)	0.68	0.54	0.64
14	Sodium Absorption Ratio (SAR)	1.8	1.4	2.8
15	Zinc (mg/kg)	19.3	22.4	18.6
16	Copper (mg/kg)	6.4	8.6	7.4

20.

Ambient air quality audit: the Meteorological Study at the MC College

The air environment of the study area covers climate, site-specific micrometeorology, and ambient air quality. It may be noted that the study was carried out for a short duration. Our onsite meteorological study reveals that the average temperature and humidity of the study area as recorded during the study period lies in the range of 210C to 260C and 74% to 78%. The predominant wind direction is North East. The onsite monitoring for wind speed along different parameters are exhibited in Table 8 and 9

Table 8 : Micro Meteorological Study at MC College

S/N	Parameters	Metrological Data at MC College Date: 11.02.2022	
1	Temperature	Min	21
		Max	26
2	Relative Humidity	8.30am	74
		17.30pm	78
3	Wind Speed	8.30am	7.6
		17.30pm	8.4
4	Wind Direction	8.30am	NE
		17.30pm	NE

Ambient Air Quality at the MC College

The results obtained are presented in Table 3. The monitoring was conducted on a 24-hour basis as per standard procedure using Ecotech PM-10 & PM 2.5 with Gaseous Attachment. All the Ambient Air Quality meets the National

Table 9: Results of Ambient Air Monitoring Station at M C College

AMBIENT AIR QUALITY						
	Duration (24 Hour)		Average			
S/N	Parameters	Unit	Concentration	Limit	Weather Condition*	Test Method
1	Particulate Matter (PM10)	µg/m^3	72.4	100		IS5182(23)
2	Particulate Matter (PM2.5)	µg/m^3	46.2	60		CPCB Guideline
3	Sulphur Dioxide (SO_2)	µg/m^3	14.2	80		IS5182(2)
4	Nitrogen Dioxide(NO_2)	µg/m^3	16.8	80		IS5182(vi)
5	Pb in PM 10	µg/m^3	<0.2	1.0	Clear	IS5182(vi)
6	Pb in PM2.5	µg/m^3	<0.2	1.0		IS5182(vi)
7	Ni in PM10	ng/m^3	2.2	20		IS5182(vi)
8	Ni in PM2.5	ng/m^3	<2.0	20		IS5182(vi)
9	As in PM10	ng/m^3	BDL	06		IS5182(vi)
10	As in PM2.5	ng/m^3	BDL	06		IS5182(vi)

Generally the air pollution comprises the particulates matter including the chemicals like phenol, toluene, formaldehyde and styrene etc.

The academic departments have sophisticated electrical gadgets comprising these chemicals. The electrical appliances such as air conditioners and heaters further have been found to cause emissions of sulfur dioxide, nitrogen oxide, carbon dioxide to increase by hundreds to thousands of metric tons, i.e., up to 3 percent per degree

Celsius. Further, the audit assesses whether the use of artificial pest controls is prevalent on the campus. Artificial pest controls and pesticides come with a specific set of environmental concerns, making them less air-friendly. Therefore a routine air quality data must be provided for getting the air quality status. In absence of any past reference data and/or data from other independent sources, reliability of the presented dataset in this report could not be validated. However, it will be of importance to work out the cause and effect relationship on these atmospheric parameters and relate to the temperature profile in the campus. A continuous monitoring programme is, therefore, required to be taken up in the campus.

Noise level audit

In the present study, the noise level measurements were recorded using a precision sound level meter (Envirotech SLM100) with a measuring range between 0-150 dB. The instrument is calibrated before the measurements are recorded. The microphone was placed at 1.0 m from the facades of the house, away from any reflecting surface and 1.2 m above the ground. In each location, an adequate number of samples were taken at 10-minute intervals.

The noise levels were recorded during daytime and meteorological conditions: no wind no rain. The Noise Level Monitored (Table 10 and 11) and analyzed is found to be within the CPCB Prescribed Limit.

Table 10: Air sampling stations of the MC College

Sr.No.	Sampling Locations	GPS Co-ordinate	
1	College Main Gate	N26°19'36.4"	E091°00'06.9"
2	Principal Office	N26°19'38.5"	E091°00'04.7"

3	Play Ground	N26°19'38.3"	E091°00'07.3"
4	Near Chemistry Department	N26°19'38.5"	E091°00'05.3"
5	Near Physics Department	N26°19'37.9"	E091°00'01.7"
6	Near Zoology Department	N26°19'43.6"	E091°00'00.7"
7	Boy's Hostel	N26°19'39.7"	E091°00'01.9"
8	Girls Hostel	N26°19'41.0"	E091°00'01.6"

24.

Table 11: Results of Noise Monitoring at M C College

S/N	Locations	GPS Co-ordinate		Daytime SPL(dB) [6 am		CPCB Limit
		N26°19'36.4"	**E091°00'06.9"**	**Leq**	**Range**	
1	College Main Gate	N26°19'38.5"	E091°00'04.7"	68.5	55 – 72	**75**
3	Principal Office	N26°19'38.3"	E091°00'07.3"	64.2	58 – 71	

4	Play Ground	N26°19'38.5"	E091°00'05.3"	52.2	45 – 62
5	Near Chemistry	N26°19'37.9"	E091°00'01.7"	56.1	49 – 66
6	Near Physics Department	N26°19'43.6"	E091°00'00.7"	56.8	49 - 69
6	Near Zoology Department	N26°19'39.7"	E091°00'01.9"	61.3	46 - 63
7	Boy's Hostel	N26°19'41.0"	E091°00'01.6"	61.4	39 - 65
8	Girls Hostel	N26°19'36.4"	E091°00'06.9"	58.1	43 – 67

This study requires the sampling sites that are affected by the traffic noise as these noise levels are higher compared to the standards of the Central Pollution Control Board, India (CPCB, 1998) for the prescribed area in the college campus and its surroundings. Being an educational institution MC College falls under the silence zone and the permissible noise limits for this category zone are a maximum of 50 dB during daytime (6 am-9 pm) and a maximum of 40 dB during nighttime (9 pm-6 am). Therefore an extensive study is required to draw the noise levels inside the campus.

Best Practices or Initiatives for the Environment of MC College, Barpeta

1. The solar panel is installed at MC College.
2. The installation of solid waste incineration inside the college campus.
3. Biodiversity Conservation: the MC College has a lush green campus that provides habitat to various species. Recently conducted bird count reports Indian peafowl, parakeets, Sunbird, black kite, house crow, Humes warbler, large-billed crow, woodpecker, jungle babbler, roofers triple, common tailor bird, Eurasian

collar dove, oriental magpie Robin, bulbul, Green bee-eater, brown-headed green barbet, Brahmini Starling, Paro cistatus, Indian Robin.

4. Tree Plantation Drives: Periodically the plantation drives by students and staff on the campus.
5. E-Waste Management: Collection of e-waste by staff and E-waste is sent to the authorized recyclers for adequate disposal
6. Solid Waste Management: Lifting of garbage from campus on alternate days by Barpeta Municipality Board (BMB), Barpeta

Areas of Improvement

1. Environment Policy to be adopted by the College Campus.
2. Water meters should be installed and maintain the inventory of groundwater extraction resource bore well.
3. Storage of chemicals like; paints, gums resins, oils, lubricants, acids, etc. in a designated place, and safety/warning signs should be displayed.
4. An internal inspection system should be developed for various aspects of the environment available on campus
5. A Waste Management plan should be prepared for the campus.
6. Display of environment awareness posters should be there in the prominent areas of campus.

Suggestions

1. Formation of Environment Policy and communicated to all faculties and other staff members.
2. Environmental Monitoring i.e. (Ambient Air Quality Monitoring, Stack Monitoring of DG sets
3. Water monitoring needs to be conducted by State Pollution Control Committee-approved laboratory for the frequency of six months.
4. Reduction in use of paperwork by goes digital system.

5. Water meters should be installed at the institute for monitoring water consumption for the landscape.
6. Increase in Environmental promotional activities for spreading awareness on the campus.
7. As practically feasible avoid the use of personal vehicles inside the campus

Summary of Environment Audit Committee:

The Environment Society of MC College aims to spread awareness amongst students regarding the natural environment that they are a part of, and the impact of their everyday actions on it. We aim to protect the environment by spreading awareness to save energy and water, reducing the use of disposable plastics, promoting reusable materials, planting saplings, etc. We believe that a better world is not only within reach, but is being built today. We conduct environment-friendly events which are not only intellectual but also interactive and fun to attend. These include workshops, tree plantation drives, rallies, online awareness campaigns, competitions, and so on. The environmental audit committee identified and put up nameplates of 56 different species of trees present on our college campus for developing awareness about diversity in nature. In continuation, this year a project on tree watch and tree mapping was carried out for 15 species. We found that our college has more Neem trees (Azadirachta Indica) and Saptaparini trees (Alstonia Scholaris).

Conclusions

This audit involved extensive consultation with all the campus team and interactions with key personnel on a wide range of issues related to Environmental aspects. The MC College has an Environmental Committee for sustainable use of resources. Overall 60% of the college campus is for landscaping. The audit has identified several observations for making the campus premise more environmentally friendly.

The recommendations are also mentioned with observations for the campus team to initiate actions. The audit team opines that the overall site is maintained well from an environmental perspective. There are no major observations but a few things are important to initiate urgently waste management records by the monthly inventory of hazardous waste, rainwater harvesting recharge; water balance cycle, and periodic inspection of buildings housekeeping and environment policy.