GREEN AND ENVIRONMENTAL AUDIT REPORT

(2022-2023)

BAJKUL MILANI MAHAVIDYALAYA,
PURBA MEDINIPUR, WEST BENGAL

CONSULTRAIN MANAGEMENT SERVICES,
LAKE ROAD, KOLKATA

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTRAL RESEARCH (TIEER),
MEDINIPUR

CONSULTRAIN MANAGEMENT SERVICE
Lake Road, Kolkata, West Bengal, India

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTAL RESEARCH (TIEER)
Reg. No. S/1L/42578 of 2006-07
Office address: M-10, Bidhannagar, Medinipur-721101, W.B., India

GREEN AUDIT CERTIFICATE

Academic Year: 2022-2023

This is to certify that Bajkul Milani Mahavidyalaya, Bajkul, Purba Medinipur, West Bengal has good and healthy eco-friendly environment created for saving Earth and Nature. Tropical Institute of Earth and Environmental Research associated with Consultrain Management Service are satisfied after Green Audit with moral support of Honorable Principal/ TIC, IQAC Team, Staff and Students for academic year 2022-2023. This efforts taken by Faculties and Students towards environment and sustainable are highly appreciable and commendable.

(Dr. Binoy Kr. Chanda)	(Dr. Pranab Sahoo)	(Mrs. Sanchita Bhattachariya)	(Dr. Sudipta Kr. Maiti)
President, TIEER	Asst. Professor & Secretary, TIEER	ISO-Auditor & CEO, CMS	Expert & Member, TIEER

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ACKNOWLEDGEMENT

We, The Environment Audit Team thank the management of Bajkul Milani Mahavidyalaya for assigning us such an important work on Green & Environmental audit. We appreciate the cooperation to our team for the assigned study, giving us necessary inputs to carry out audit activities.

Our special thanks to:

- Principal/TIC of the College
- IQAC Members
- Teaching & supporting staff

AUDIT EXPERT MEMBERS

The Committee members are listed below:

SL. No.	NAME	DESIGNATION	AREA IN INTEREST
1.	Dr. Binoy Kr. Chanda	President, TIEER & Former IC, VU	Environment Science & Climatology
2.	Dr. Pranab Sahoo	Secretary, TIEER & Assistant Professor and HOD, Dept of Geography, S.B. Mahavidyalaya, Kapgari	Climate Change and Environment Management and Biogeography
3.	Mrs. Sanchita Bhattachariya	Consultant, Consultrain Management services, Kolkata, & Member, TIEER, ISO-9001,14001&50001Cerfied Auditor.	Environment Management
4.	Dr. Sudipta Maiti	Faulty, Dept. of Botany, Raja N.L. Khan Womens' College, Midnapore	Plants Diversity & Carbon stocking, Green Management
5.	Dr. Chandan Karan	Faculty, Dept. of Geography, S.B. Mahavidyalaya, Kapgari	Land use Survey, Ecology and Map Designer
6.	Dr. Mrinmoy Ghorai	Assistant Professor in Zoology, PanskuraBanomali college.	Fauna & Aqua animals and Biodiversity conservation
7.	Sri Ananda Das	Asst. Teacher & expert	Electro physics
8.	Sri Biplob Nayek	Drone Surveyor	Aerial Photography
9.	Sri Sarat Chatterjee	Surveyor	Water and Air Quality Measurement
10.	Sri Sanjib Mahata	Surveyor & Expert in RS &GIS	Map Designer
11.	Sri Soumitra Patra	M.Tech in Agriculture and surveyor	Micro irrigation technology and water management
12.	Mrs Sumita Swar	Surveyor and Expert ENVS	Waste and Environment Management

CONTENTS

1.0 INTRODUCTION :

The word "Green" means ecofriendly and produce better environment. Green and environmental Audit is a process of systematic, documented, periodic and objective evaluation of components of environmental diversity with the aim of ensuring readiness in eco-friendly environment and conservation of natural resources in its operations. The process starts with systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of the college. Green auditing is a means of assessing environmental performance. Green audit is a valuable means for a College to determine how and where they are using the most energy or water or other resources; the College can then consider how to implement changes and make savings. It can create healthy consciousness and promotes environmental awareness, values and ethics.

Site and Situation of Bajkul Milani Mahavidyalaya premises

1.1 Goals & Objectives:

It aims to analyses environments within and outside of the concerned area, which will have an impact on the eco-friendly atmosphere. It provides staff and students better understanding of Resource management on their area of work.

The Main Objectives of Carrying of Green Environmental Audit:

- To ensure the performance of the Institution with respect to environmental activities they are involved in, in compliance with existing laws and regulations
- To locate the Green area and the Geographical location of the College – aerial view
- To document the floral and faunal diversity of the College
- To develop and follow the waste management system
- To reduce the energy consumption of the Institution
- To report the expenditure on green initiatives, carbon foot print
- To record the air, water quality of the Institution
- To conserve the natural resources

Areas of Concern:

- WATER MANAGEMENT
- WASTE MANAGEMENT
- AIR QUALITY AND CARBON FOOTPRINT
- E-WASTE MANAGEMENT
- ENERGY MANAGEMENT
- BIODIVERSITY

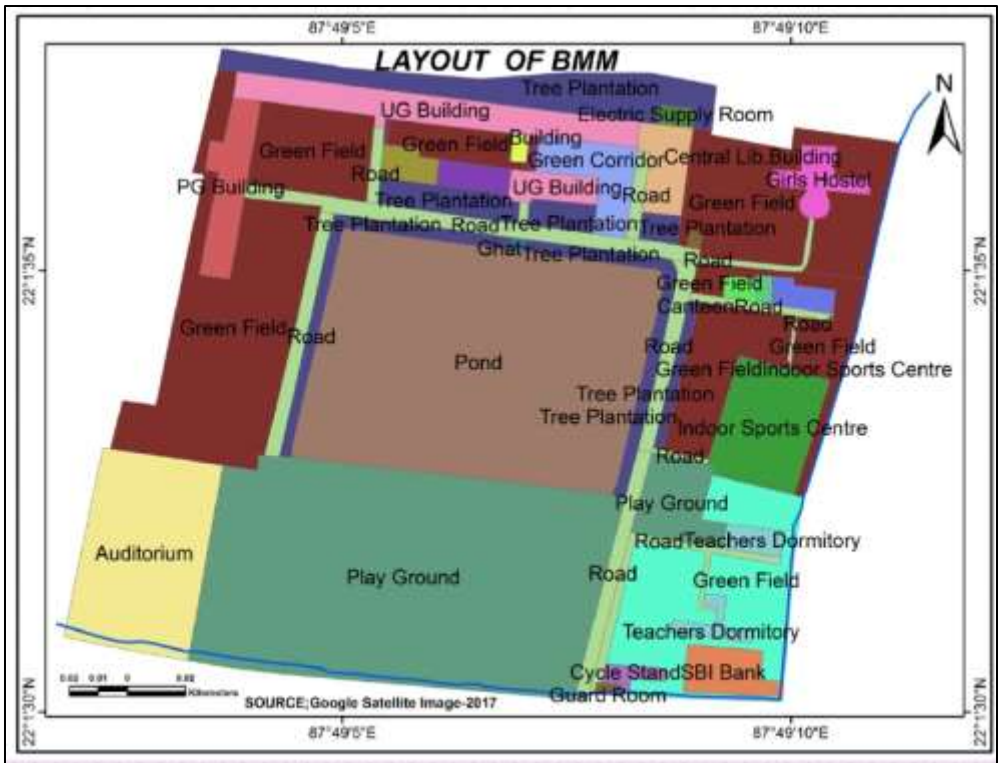
Meeting with Hon'ble Principal & IQAC Team

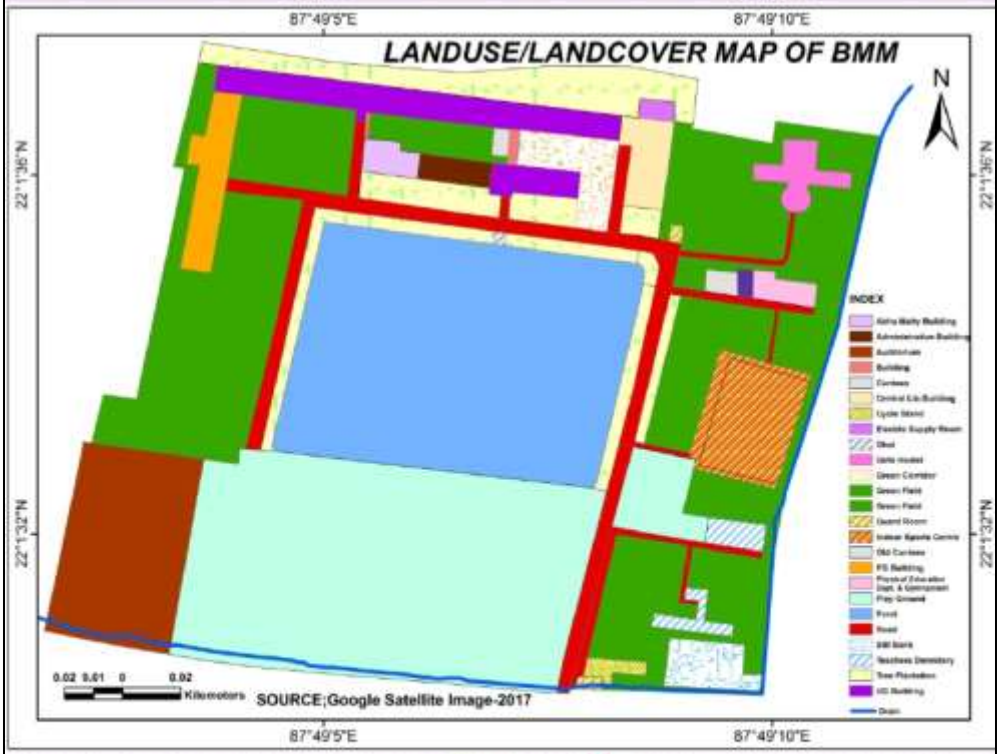
This Audit has been conducted by a Committee constituted by the Experts & Scientists from different reputed Institutes. The Committee developed a questionnaire for audit based on the regulatory and statutory requirements of Centre as well State. The basic data was gathered and compiled, which the committee analyzed. By and large, the audit reveals a healthy environment inside the Bajkul Milani Mahavidyalaya campus. The committee has suggested short term as well as long-term suggestions for improved environmental conditions to a higher levels and authorities and all stakeholders of the College conforms that they will give due attention and utilize opportunities for identified improvements.

1.2 About the College :

Bajkul Milani mahavidyalaya (Affilated to Vidyasagar University) Was re-accredited with grade "B"(2.66) by NAAC in the year 2015. That college has established in 3rd September, 1964 at located Kismat Bajkul, Bhagwanpur, Purba Medinipur, West Bengal, India. And also affiliation by C/186/Affi.Dt 03/09/64, formely Culcutta University & now Vidyasagar University (1985).

Green campus with Bajkul Milani mahavidyalaya





- **Prepared by**
- **Prof. Rabin Das & Mr. Gautam Kumar Das,**
- **Dept. of Geography (UG & PG), Bajkul Milani Mahavidyalaya**

Vision :

- Our vision is to impart qualitative higher education to the students hailing mostly from disadvantaged families of rural Bengal.
- Our innate desire is to help the students of the locality so that they may grow up as responsible good citizens of future India and to motivate and make them up to date with the challenging modern trends of academics.
- To open job-oriented courses and introduce need-based subjects for the advancement and upward mobility of the students towards globalization.
- To open and provide more PG Courses in specifically Physics and other science disciplines to extend the higher education opportunities in this rurban circumstance.
- To uphold the ambience of discipline, learning and culture with deep regard for human values for becoming good human beings.
- To inculcate the qualities of morality, nobility and magnanimity among the students thus removing all barriers to comprehensive education of good quality in order to serve the society in a better manner.

Mission :

- Our mission is to encourage the students in general to develop their latent talents and innate ideas through value based education under the ideology of great men and women of India and other countries in the world.
- We humbly try to infuse the spirit of Vivekananda's ideal of man-making and character building through education into the hearts of young students and inspire them to mould their lives accordingly.
- Shifting from conventional curriculum to a more dynamic and learner friendly system of curricular choices in response to social needs.
- Evolving suitable strategies for sustaining quality in teaching, learning, research and extension activities, student support and progression and infrastructure and learning resources.
- Seeking collaboration with reputed institution of higher learning to enhance and upgrade the quality of the institution.
- Integrating teachers' research-works with teaching for the benefit of students and also enhancing teachers' quality with reference to the interest of beneficiaries.
- Organizing seminars in various departments every year for the teaching, non-teaching staff and also students which focus on various aspects.
- The hostel life is so designed that the students are made to practice the fundamental values like regular prayer, practice of yoga, self supported life style, good hygiene, clean environment, discipline and punctuality and fellow-feelings.

General Information :

Total area of the college campus – 12.5 acres,
Building area: 4.125 acres,
Green & Vegetated area: 1.625 acres.
Play Ground & Vacant land area: 5.00 acre
Water Bodies area: 1.75 acre
Departments: 28 (Post Graduate & Under Graduate-26, ITI-2)
Laboratories: 09
Students: 3976
Teaching & Non-teaching staff:198
Others stakeholder: 36
Total Stake holders: 4210
Auditorium /Seminar hall:02
Hostels: 01
Hostel students: 24
Gymnasium Hall: 01
Indoor Stadium: 01
ITI & Automobile section:02

Arial Views of College Premises


GPS Map Camera
Bajkul, West Bengal, India
2RG9+Q5M, Bajkul, Kismat Bajkul, West Bengal 721626, India
Lat 22.026215°
Long 87.817939°
Drone Survey

Table 1 Area Coverage of the College Campus

Area Coverage of College Premises:	Area in Percentage
Building and Construction	33.00
Vegetation Cover	13.00
Playground and Fallow land	40.00
Water Bodies	14.00

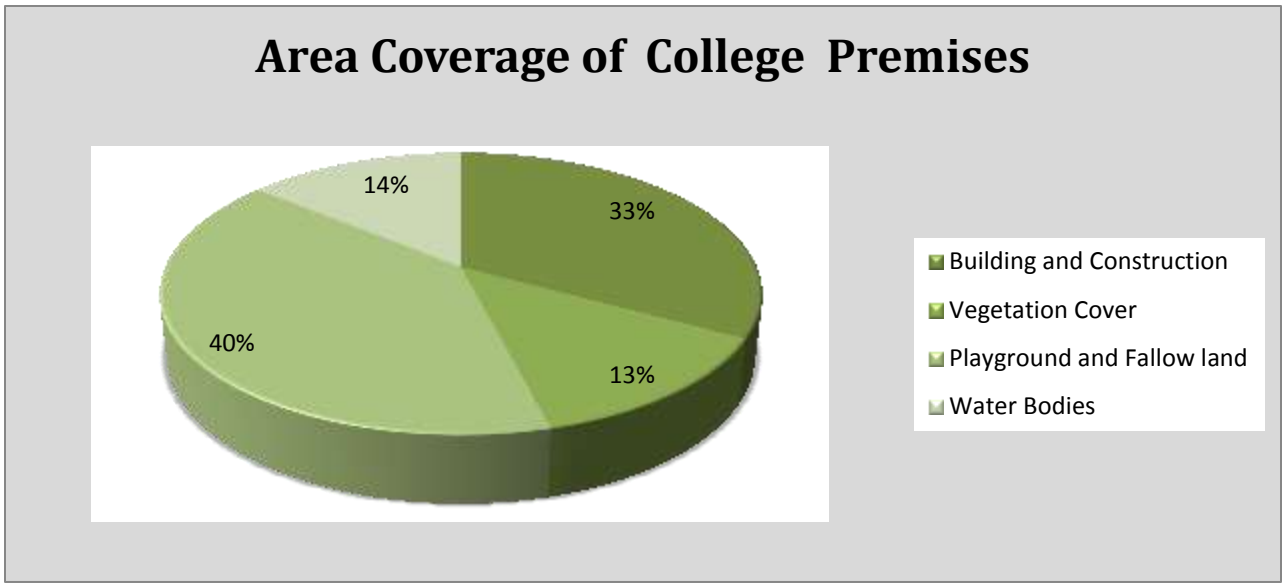


Fig. 1 Area Coverage of College Premises

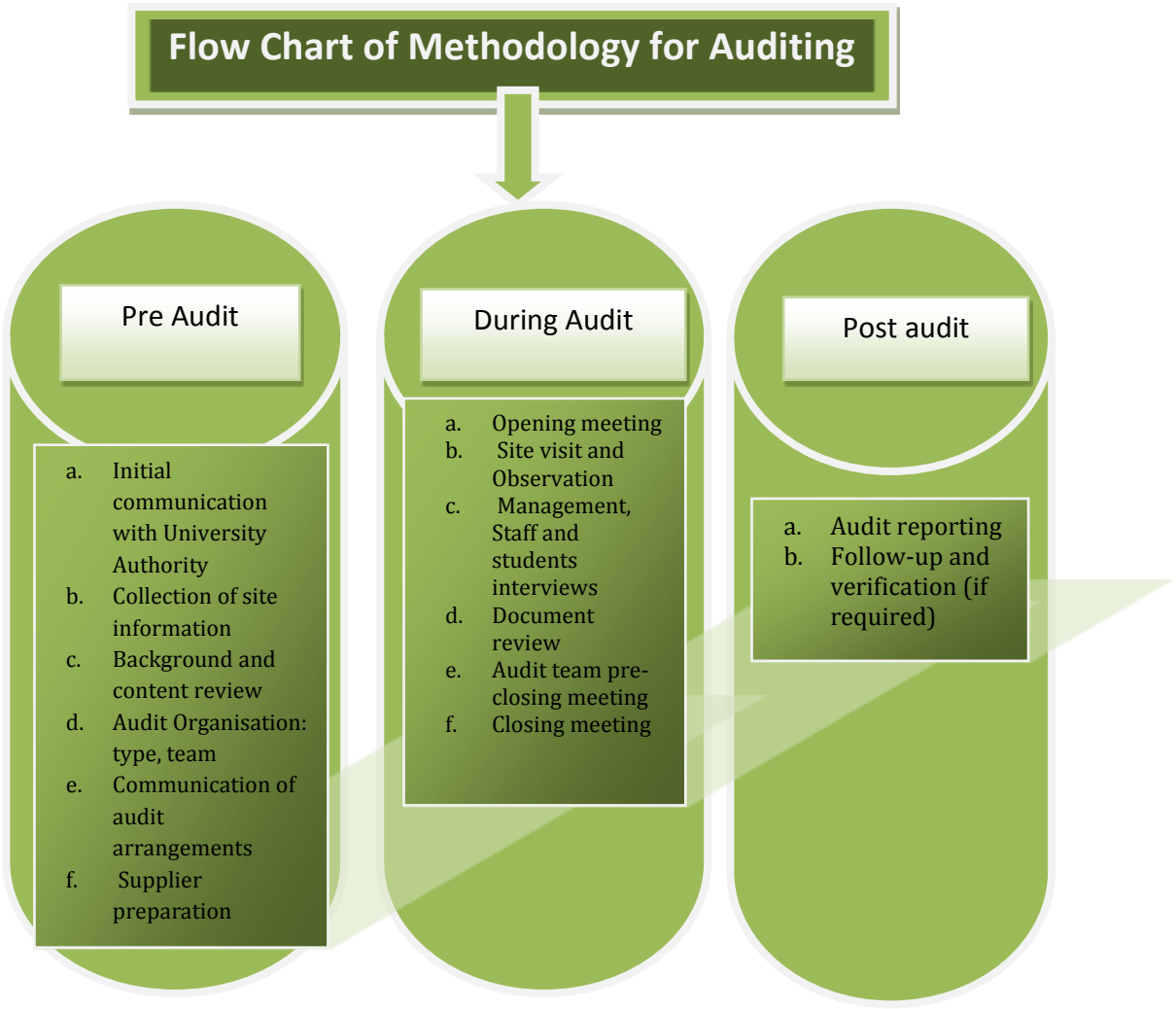
1.3 Purpose of Green and Environmental Auditing:

- To provide basis for improved sustainability
- To create a green campus
- To enable waste management through reduction of waste generation, solid- waste and water recycling
- To promote plastic free campus and evolve health consciousness among the stakeholders
- To recognize the cost saving methods through waste minimizing and managing
- To empower the organizations to frame a better environmental performance
- To develop an environmental ethics and values systems in youngsters.
- To establish valuable tools and methods for managing-and monitoring of environmental and sustainable development programs.

2.0 PRE-AUDIT STAGE:

2.1 Methodology and Survey Schedules:

The methodology is adopted for this assessment by collecting the information by onsite visit, group discussion, campus survey, enquiry, observation. Perception study and opinion survey are also included in the Auditing Report.



The Audit team started the audit at the College Campus on 10th June, 2022

SL.NO	PURPOSE	DATE	REMARKS
1.	Communication with College authority	27th January,2023	Discuss about term and condition
2.	Opening Meeting	8th Feburary,2023	Submitted the survey schedule
3.	Collection information about the College	16th February,2023	Introduced to Administrative Officer
4.	Campus visit , site enquiry and department survey & observation	23th February,2023	Outdoor observation with Drown camera& Photo camera, Laboratory enquiry
5.	Review data and Assessment	12th June,2023	Data generate and drown figures
6.	Pre Closing meeting	14nd June,2023	Meeting with IQAC
7.	Closing Meeting	17th June,2023	Pre-submission of the Report
8.	Submit audit report	21th June,2023	Submit of the Report

2.2 Site Visit:

1. College and its premises were visited and analyzed by the audit-teams several times to gather information.
2. Campus trees were counted and identified.
3. Medicinal garden, play grounds, canteen, library, All Department, office rooms, Hostels, Canteen and parking grounds were also visited to collect data.
4. Number and type of vehicles used by the stakeholders were counted and fuel consumption for each vehicle was verified with the user.
5. Number of LPG cylinders used in labs, canteen and hostel kitchen were also counted.
6. Water taps were checked. Leakage of a few water taps and over-flow tanks were noticed during the site inspection.

Following steps were taken for data collection:

- Survey to each Department, Laboratories, Library, Canteen etc.
- Data collected by observation and interview.
- Assessment of the environmental condition through measurement

2.3 Survey & Data Collection:

- A Questionnaire was developed covering all aspects of Green and Environment aspects for collection of data.
- Arrangement of Drone survey was made available to cover every corner of the college and its neighborhood areas.
- Data Analysis - Calculation of energy consumption, analysis of water reused, waste generation & disposal arrangements.
- Recommendation - On the basis of results of data analysis and observations, some steps for reducing power consumption, water consumption, waste management etc. were recommended.

We have discussed and interacted with different groups like teachers, students and staff to identify the attitudes and awareness towards environmental issues at the institutional, district, national and global level. Data and information were also collected form utility bills, reuse of water, waste management, use of energy-saving devices and e-waste. This information was added to the carbon footprint data, generating a fairly clearer picture of the emissions and impact of the reduction measures undertaken.

Green play Ground

Administrative Buildings

3.0 AUDIT STAGE :

3.1 Campus Survey and Enquiry:

Green and Environmental audit forms part of a resource management process. Total area including neighborhoods was surveyed using Drone and the data derived from this survey was detailed in our report.

Aerial Views of the Structural area

Eco-campus concept mainly focuses on the reduction of contribution to emissions, on the efficient use of energy and water; Minimize waste generation or pollution and also economic efficiency. All these indicators are assessed in process of "Green Auditing of educational institute". Covered areas included in this green auditing are water, energy, air quality & carbon footprint, waste, biodiversity campus.

The Audit covered the following major areas:

1. Water Efficiency and Water Management
2. Energy Efficiency and Energy Management
3. Air Quality and Carbon foot print and Management
4. Waste and Waste Management
5. Biodiversity and Green Zone and management

Departmental Visit

Table-2 Total Stakeholders of the College

Students -	3976 persons
Teaching, Non-teaching and Other Stakeholders	234 persons
Total	4210 persons
Approximate no of visitor (per day)-	36 persons

3.2 Water Efficiency and Water Management :

The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water and also proper water management practices along with rooftop rain water harvesting system must be installed in whole campus for recharging ground water and meeting part of the water requirements. It is therefore essential that any environmentally responsible institution examine its water use and Re-use practices.

a	Usage of water	That water is use for Drinking, Washing, Cleaning, Cooking, Bathing and gardening purpose. The maximum water is use for Bathing and washroom in the college. About 13875 Litre water has been consumed for that purpose.
b.	Total Consumption of water	About 38000Litre water per day
c.	Water wastage	The leakage and misuse of water is about 500Litre in whole campus. Small drip from a leaky tap, sewage water from pan in toilets and over flow can waste significant amount of water per day.
d	Surface water Harvesting	The surface water bodies are available in college campus. About 1.75 acre area has covered with three ponds. About 4000 litre water has harvesting in that College Campus.

Table-3 Use of water in Different Purpose of College Premises

Use of water in Different Purpose Per Day	Use in Percentage
Bathing and washroom	37.00
Cooking and washing	13.00
Cleaning and gardening	22.00
Drinking	19.00
Others	9.00

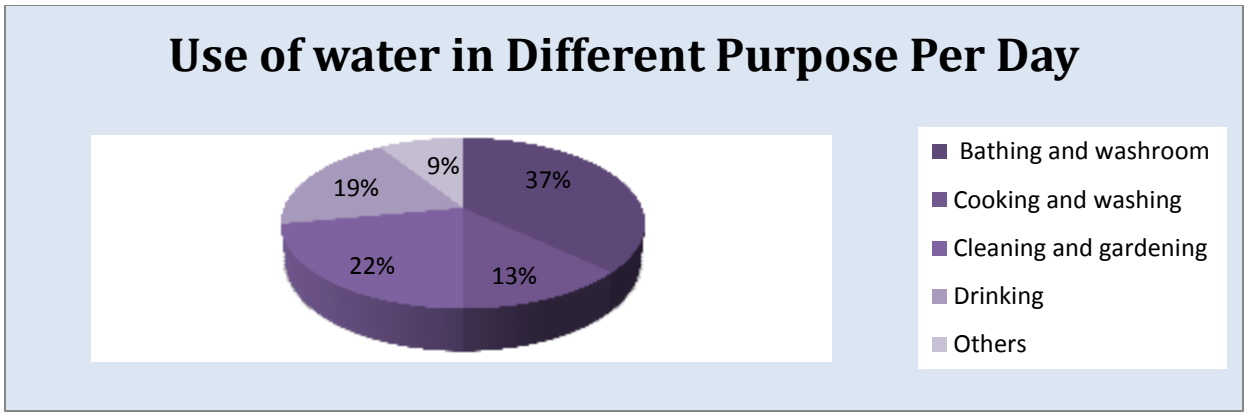


Fig.2 Use of water in Different Purpose Per Day

Sl. No.	Factors	Weightage
1	Quality of Water	H
2	Re-use of water	L
3	Water Harvesting & Recharge	M
4	Use of Surface Water	H

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Recommendation

Water conservation faucets in washrooms were not seen. Installation of such faucets can save water and will help in minimising the water footprint of the institute. Sanitary wastewater generated from washrooms is connected to sewerage system.

Surface water body (pond)

3.3 Energy Efficiency and Energy Management:

a	Energy sources	Sources of Energy: Conventional Electricity, LPG Gases, Diesel, Petrol and Non –conventional Solar energy
b.	Energy consumption	The useable energy is Conventional and Non-Conventional energy. The used Electricity energy is 59077 units which costing is Rs.576000. About 3% energy is Non-conventional energy which is contributed from Solar Power. The Maximum energy is consumed for ITI and Automobile Section amounting to 43% of total consumption.
c.	Usage of LPG	It has been observed that LPG gas cylinders are used in Hostel, Canteen & Laboratories (26PC/year) for cooking and other purpose. There are Green generators used in the premises.

Table-4 Source of Energy in Percentage

Source of Energy	In Percentage
Conventional	97
Non -Conventional	3

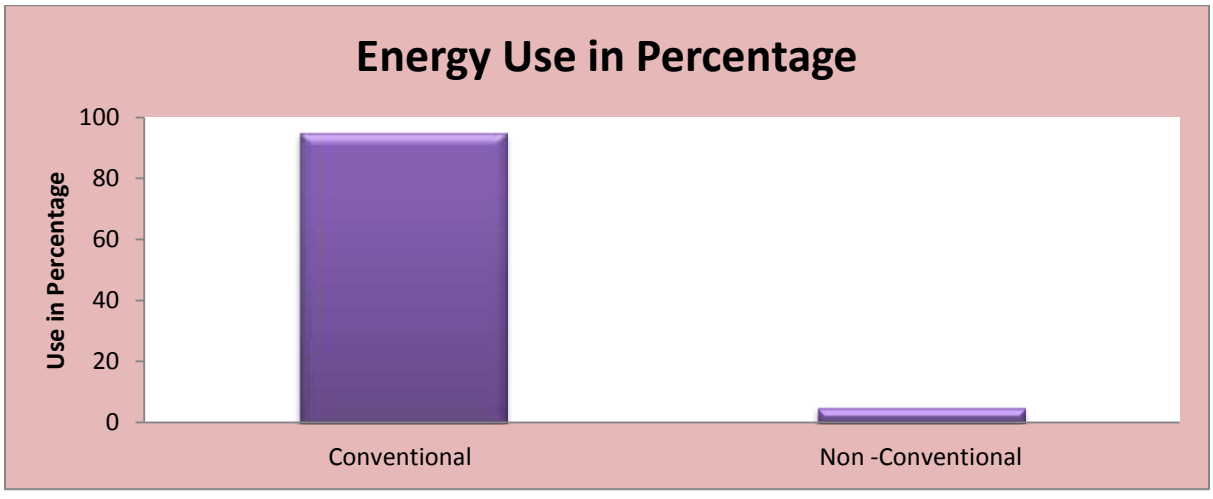


Fig. 3 Use of Energy in Percentage

Source of NCE

Table-5 Energy Consumption in different Purpose in Percentage

Energy Consumption in different Purpose	In Percentage
Automobile and ITI	44
light and fans	25
Computer and Laboratory	19
AC	7
Pump	3
Others	2

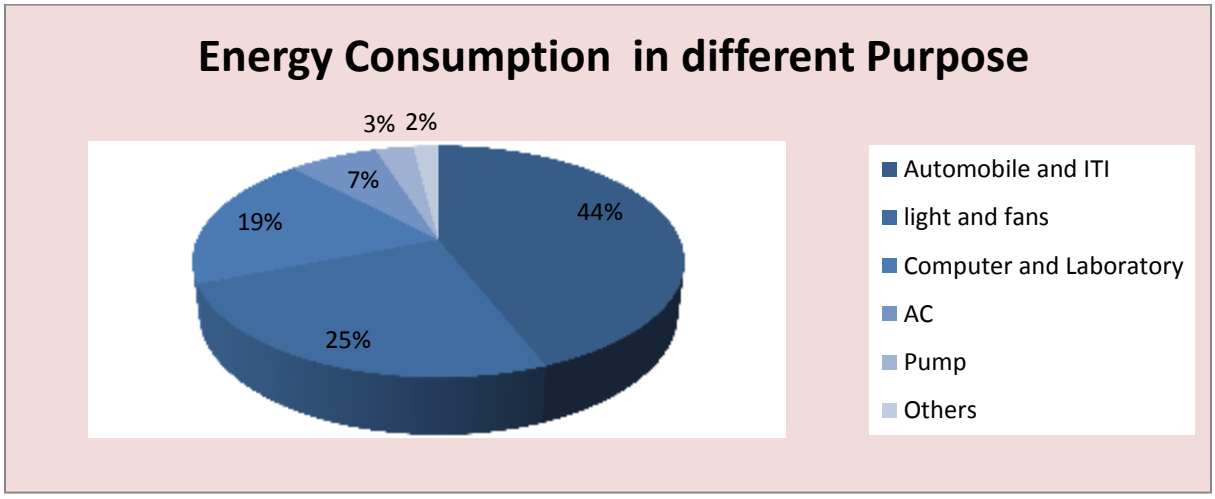


Fig. 4 Percentage of Energy Consumption in different Purpose

Recommendations:

a) Standard Operation Procedures (SOPs) should be prepared and followed for green purchasing wherein equipment's with star rating; those using eco-friendly materials; those with safe disposal policy or return to supplier after unused, can be considered.

b)For purchasing new electronic appliances, star rating provided by Bureau of Energy Efficiency (BEE) should be considered. The equipment which has maximum star ratings could be purchased, which will consume less energy, ensure environmental sustainability and also operate at low cost.

c) Every classroom and lab with central switch board should have a diagram linking place of tube light, fan etc. with corresponding switch. This will ensure that correct fitting is switched on/ off and can save time & unnecessary operation.

d) Installation of automatic lights with sensors can be considered.

e) Usage of light reflectors is recommended as the reflectors can spread light to relatively large areas.

f) Notices/ signage can be put up/ displayed near switches and on notice boards, informing students and staff to switch off all Departments & Sectors when not in use.

g) Use of large percentage renewable energy should be considered.

3.4 Air Quality and Carbon Footprints :

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol, Diesel, LPG Gas). The most common greenhouse gases are Carbon Dioxide, CFC, water vapor, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most leading greenhouse gas, comprising about 214ppm (2019) to the Earth's atmosphere. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is observed that the Outdoor air quality is Fresh and comfortable for breathing to human life.

Table-6 Amount of CO_2 (ppm) in different location of the College Campus

Different location of the College Premises	Amount of CO_2 (ppm)
Principal Office	480
Automobile & ITI	440

Indoor Stadium	430
Gymnasium	420
Girls Hostel	420
Staff Quarter	415
Canteen	425
Chemistry Lab	430
Computer Sci. Lab	470
Physics Lab	430
Geography Lab	440
Central Library	440
Car Parking Stand	420
Play Ground	410

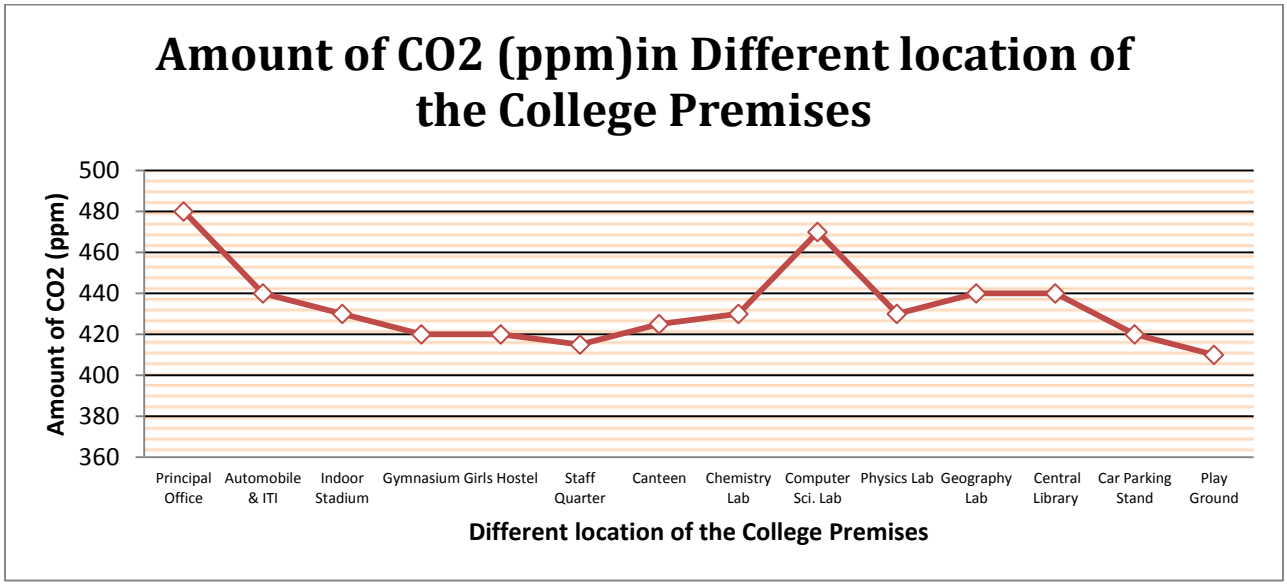


Fig. 5 Amount of CO2 (ppm) in Different Location of the College Premises

Table-7 Amount of CO_2 (ppm) in the air in different location,(College Campus) session 2021-2022

Amount of CO_2 (ppm) in the Air in Different places of the College Premises	**Amount of CO_2 (ppm)**
Outdoor	400
Indoor (Class room)	420
Indoor (Laboratories)	440

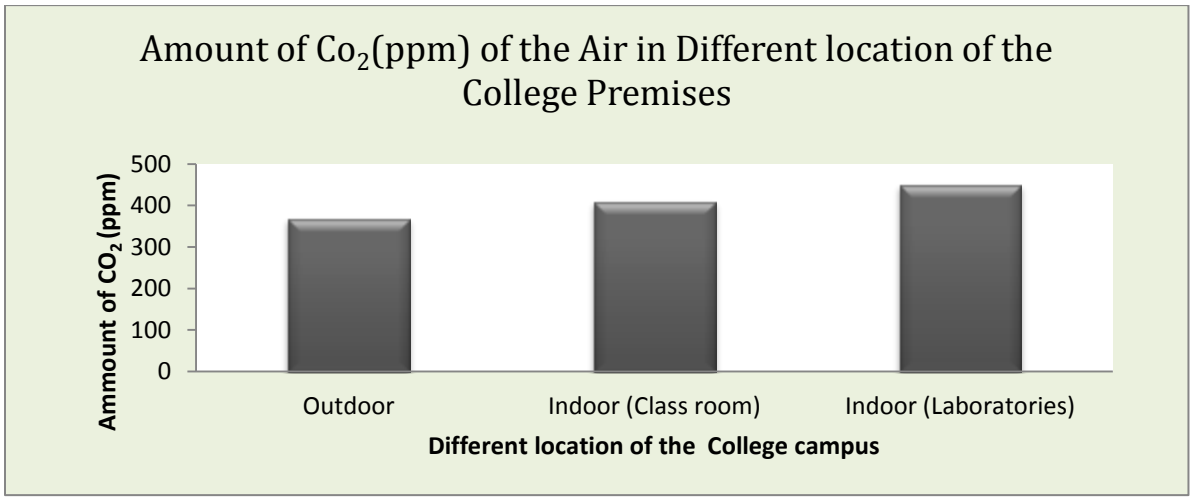


Fig. 6 Amount of Co_2(ppm) of the Air in Different location of the College Premises

Recommendation:

a) Ventilation is achieved by fans in the institute and air conditioners in Official and Lab. places.

b) Heating Ventilation and Air Conditioning (HVAC) system is not installed.

c) No indoor plants were observed in the entire institute. Indoor plants can be plotted not only for the aesthetic appearance but also for health benefits.

Air Quality Assessment

3.5 Generation of Waste and Waste Management:

Waste (or wastes) is useless or unusable materials or components which are discarded after principal use. Sometimes, it is a defective article and of no use. In modern outlook waste may be a valuable substance subject to an appropriate operation or action on the waste. With the context of waste management RRR (Reduce, Reuse and Recycle) model may be followed in appropriate fashion.

The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices. Keeping the objective of the audit the following study will be limited to the waste generated in an academic campus and surroundings.

Table-9 Types of wastes

Type of Wastage in Per Day	Amount in Kg
Degradable	48
Non degradable	5

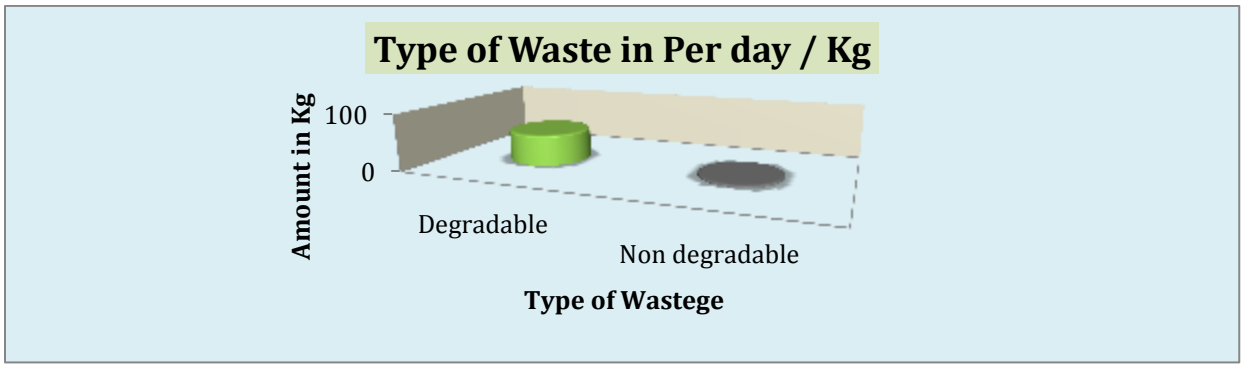


Fig. 8 Type and Amount of Waste per Day in Kg.

The following categories of wastes are generated in the College campus:

a) Solid waste - Waste generated through paper, plastic packaging causes nuisance. Some wastes are generated after various experiments, primarily, chemistry laboratory; broken test tube, glassware are the example.

b) Liquid waste - There are bio-chemical wastes generated through various chemical reactions and biological processes. Generally, these are being drained to nearby Surface water bodies contaminating water and soil. Appropriate means is suggested to adopt scientific liquid waste management practices. These are neutralization, bacterial control, and natural control through plantation.

Table-10 Source of Wastage in Different Sector (per day in Kg)

Source of Wastage in Different Sector(per day in Kg)	Degradable wastage Amount in Kg.	Non Degradable wastage Amount in Kg.
Quarter and Hostels	16	1
Canteen	5	0.5
Office	3	0.5
Laboratories	2	0.5
Forest and Garden	18	0.25
Others	4	2.25

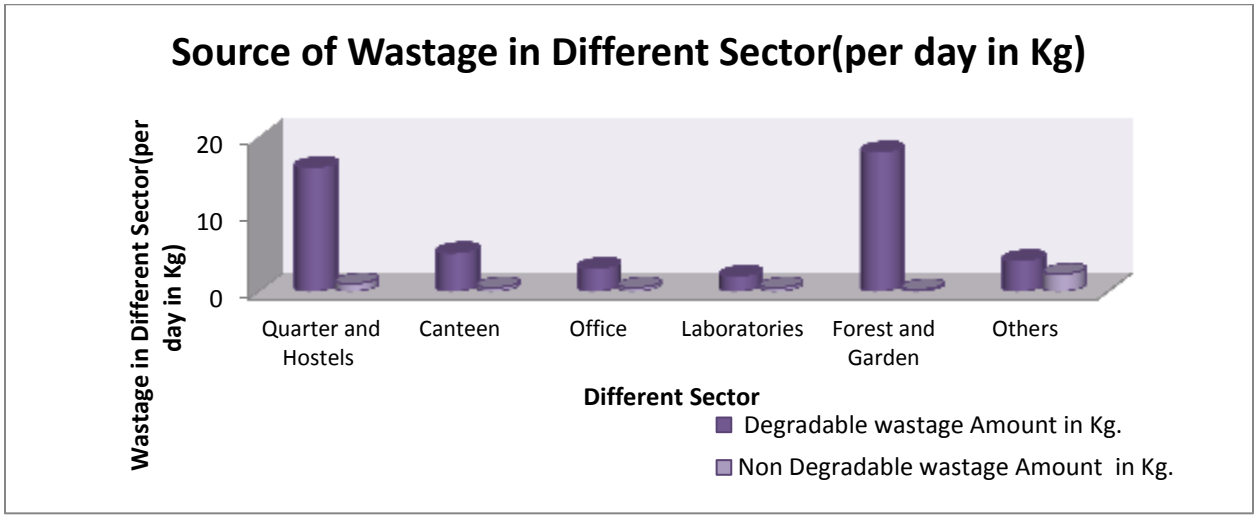


Fig. 9 Source and Amount of Wastage in Different Sector (per day in Kg)

Audit of Wastage management status in Different Sector


Wastage Management

The following are being emphasized during audit of waste management:
a) Name of the waste
b) Category of waste
c) Quantity of waste
d) Hazardous effect of the waste
e) Institutional action and mechanism for waste management

Compliance audit of waste issues:
At the present stage the institute is capable in managing their waste. They are complying with the essential requirements of waste management although suggestions are given for future improvements.

Performance Audit of Waste Issues:
No critical audit issue is there with respect to the waste management.

Implemented wastes management		
Sl.no	Factors/Indicators	Weightage
1	Plastic and Polythene free	M
2	Re-use of papers	H
3	Hazardous effect waste management	M
4	Removal of E-Wastes	M
5	Organic & food waste	M
6	Others solid wastes	M

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Awareness Slogan in college premises

3.6 Auditing for Biodiversity & Green Campus Management:

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. In one year, a single mature tree will absorb up to pounds of Carbon dioxide from the atmosphere, and release it as Oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

About 13% area is under greenery and biodiversity zone and 14% area is water bodies' also wet land. Biodiversity includes the genetic variability and diversity of life forms such as plants, animals, microbes etc. living in a wide range of ecosystems. Flora and fauna of College campus in Bajkul Milani Mahavidyalaya premises is rich.

Table 11 Area Coverage of the College Campus

Area Coverage of College Premises:	Area in Percentage
Building and Construction	33.00
Vegetation Cover	13.00
Playground and Fallow land	40.00
Water Bodies	14.00

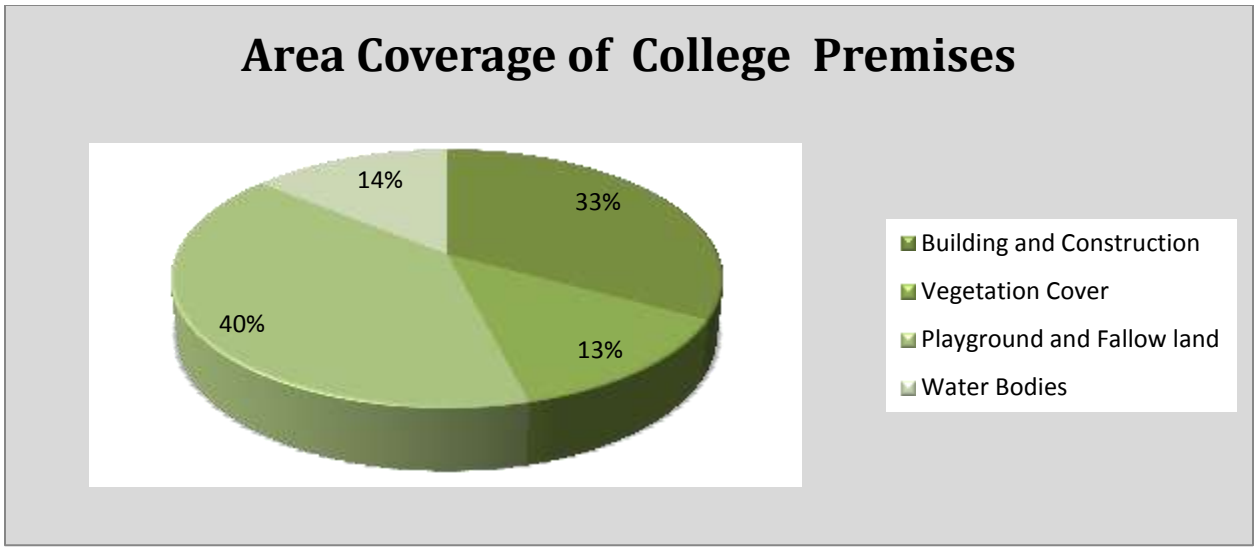


Fig. 10 Area coverage of the College Premises

Departmental visit

Biodiversity Study

Floral diversity - Bajkul Milani Mahavidyalaya has more than 12.5 acre of area. It is divided by different habitat, like aquatic, pond, pond bank, low land, water logging area, dumping area, open area, etc. They have planted different types of plants in different habitat since long. Being a college of coastal Bengal area, all types of cyclonic activities are affected here. Last two cyclone like Amphan (2018) and Yash (2019) have remarkable destruction here. It has been calculated that there are 180 numbers of trees are destroyed by the storm, Yash. Two old *Araucaria sp* tree situated in front of the main entrance, was fully destroyed by Yash. The college authority has divided their land in different form of plantation. They have Medicinal plant garden, Kitchen garden, Banana garden, Lemon garden, Fruit garden and Rose garden. Beside this they also have different plantation programme. Mango tree (*Mangifera indica*), Coconut tree (*Cocos nucifera*), Royal Plam tree (*Roystonea regia*), Akashmoni tree (*Acacia auriculiformis*) plantation programme had been taken regularly as college activities in different past years. It is remarkable that there is a Banyan tree (*Ficus benghalensis*) at the South west corner of the pond, near a *Ghat.* Perhaps it is the largest tree trunk (GBH-269 cm.) within the campus. It harbours huge faunal specimens.

It is found from a rapid ecological study on February 2023 in the campus that there are 36 Tree species (including Gymnosperm), 32 shrub species and 43 herb species (including aquatic species) (Table – 1 and Fig.-1).

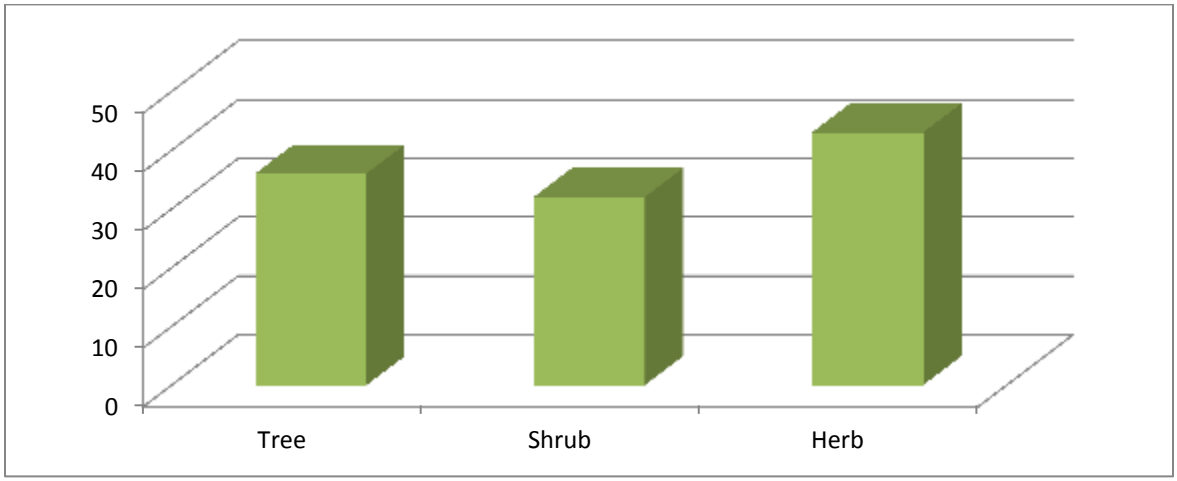


Fig.-1: Floral inventory of the college campus

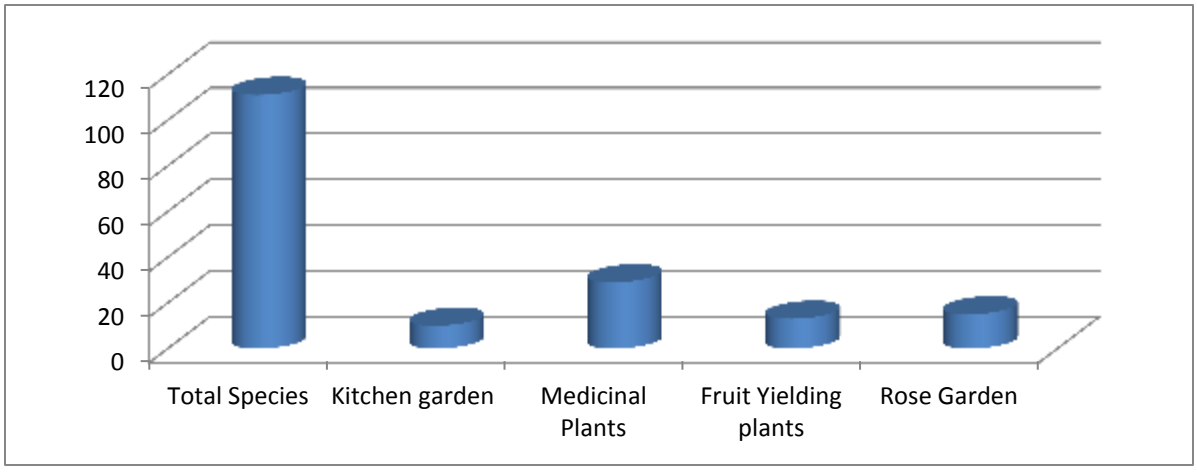
There are different types of plantation which are as follows-

Flower Garden – A large flower garden is found in front of main building decorated with statues of veteran educationist and freedom fighters. Rose is the main plants but different seasonal varieties also planted (Table – 2). Gymnosperm like *Cycas* sp. is planted here and also in pots. A flowering Sisal (*Agave Americana*) plant is indicating its old age. It seems that garden is fully maintained.

Kitchen Garden – There is a small kitchen garden in front of hostel. The area will be approximately 2-3 decimal. But there ten types of vegetables have been grown like, Tomato, Cauliflower, Capsicum etc. . There is large bush of sugarcane (*Saccharum officinarum*). There is a large banana garden just other side of the kitchen garden. It is quite large (15 dec. approx.) area. Different varieties of bananas are grown here (Table-3).

Medicinal Plants Garden – The College have a small patch (5 decimal approx.) of medicinal plant garden to introduce the valuable plant to the students. . There are 29 species till now (Table-4). There are few plots are blank. Very important species are there like *Aloe vera*, Asok, Ulatchandal, Sarpagandha, Aswaagandha, Citronella etc. Bahera, the another important medicinal plant (*Terminalia belerica*) is not in the garden but saw in front the main building.

Fruit bearing trees – It is very good sign that the campus has huge number of fruit bearing trees. Most of the trees are indigenous tree (Table-5). Like Guava, Lychee, Jam, Jamrul, Tal, Kanthal, etc. There are approximately thirteen fruit yielding tree species are found. A lemon garden is found behind the canteen. Different varieties of lemon are found. Following figure (Fig.-2) is showing a comparative diagram between total species and species of different gardens.



Quadrat analysis - Three quadrats have been studied within the campus (Table-6). It showed

that frequencies of trees are quite good (total 16 trees). Diversity of tree species is also remarkable. Timber yielding (*Acacia auriculiformis*, *Swetenia macrophylla),* fruiting bearing (*Mangifera indica*), avenue tree (*Roystonea regia*) etc. have been found.

Carbon stocking – We have studied 3 quadrats within the college campus. There are 16 trees are found within the quadrats. Total Carbon sequestration potential is 3820.5kg. It is assumed that the probability of carbon stocking is per tree is 238.78kg (Table-7).

Table -1: List of plants in Bajkul Milani Mahavidyalaya campus.
Tree

Sl. No.	Scientific Name	Local name	Family
1.	*Acacia auriculiformis*	Sonajhuri	Fabaceae
2.	*Albizia lebbeck*	Khiris	Fabaceae
3.	*Anthocephalus cadamba*	Kadam	Rubiaceae
4.	*Artocarpus heterophylla*	Jack Fruit	Moraceae
5.	*Azadirachta indica*	Neem	Meliaceae
6.	*Borassus flabellifer*	Tal	Arecaceae
7.	*Butea monosperma*	Palas	Fabaceae
8.	*Callistemon sp.*	Bottle brush	Myrtaceae
9.	*Casuarinas equsetifolia*	Jhau	Casuarinaceae
10.	*Citrus decumana*.	Batabilabu	Rutaceae
11.	*Cocos nucifera*	Narkol	Arecaceae
12.	*Couroupita guianensis*	Nagkesor	Lecythidaceae
13.	*Eugenia jambolana*	Kalojam	Myrtaceae
14.	*Ficus benghalensis* L.	Bot	Moraceae
15.	*Ficus glomerata*	Jaggadumur	Moraceae
16.	*Khaya anthotheca*	Lambu	Meliaceae
17.	*Litchi chinensis*	Lychee	Sapindaceae
18.	*Mangifera indica* L.	Amm	Anacardiaceae
19.	*Manilkara zapota*	Sofeda	Sapotaceae
20.	*Mimusops elangi*	Bakul	Sapotaceae

21.	*Murrya koenigii*	Kamini	Rutaceae
22.	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
23.	*Peltophorum pterocarpum*	Radhachura	Fabaceae
24.	*Polyalthea longifolia*	Debdaru	Annonaceae
25.	*Pongamea pinnata*	Karanj	Fabaceae
26.	*Psidium guajava*	Peyara	Myrtaceae
27.	*Ravenela madagascariensis*	Panthapadap	Strelitziaceae
28.	*Roystonea regia*	Cuban royal plam	Arecaceae
29.	*Swietenia macrophylla*	Mahogini	Meliaceae
30.	*Syzygium samarangense*	Jamrul	Myrtaceae
31.	*Tectona grandis*	Teak	Lamiaceae
32.	*Terminalia catappa*	Kat Badam	Starculaceae
33.	*Terminalia belerica*	Bahera	Combretaceae
34.	*Thevetia peruviana*	Karabi	Apocynaceae

Shrub

Sl. No.	**Scientific Name**	**Local name**	**Family**
1	*Aborma augustum*	Ulatchandal	Starculaceae
2	*Adenium sp.*		Apocynaceae
3	*Agave Americana*	Sisal	Asparagaceae
4	*Aschenomone aspera*	Sola	Fabaceae
5	*Asperagas racemosus*	Satamuli	Asperagaceae
6	*Cinnamomum tamala*	Tejpata	Lauraceae
7	*Cinnamomum zeylanicum*	Darchini	Lauraceae
8	*Citrus limetta*	Mosambi	Rutaceae
9	*Citrus limon*	Pati lebu	Rutaceae
10	*Cycas revolute*		Cycadaceae
11	***Datura stramonium.***	Dhutra	Solanaceae
12	*Duranta repens*	Hedge	Verbenaceae

13	*Euphorbia milii*		Euphorbiaceae
14	*Ficus glomerata*	Jaggyadumur	Moraceae
15	*Gymnema sylvestre*	Gurmar	Asclepiadaceae
16	*Hibiscus rosa sinensis*	Joba	Malvaceae
17	*Ixora coccinea*	Rangan	Rubiaceae
18	*Jatropha gossipifolia*	Gabjora	Euphobiaceae
19	*Justicia lupilana*	Bisalyakarani	Acanthaceae
20	*Mimosa pudica variety Pink*	Lajjawati	Fabaceae
21	*Mimosa pudica variety white*	Lajjawati	Fabaceae
22	*Moringa oleifera*	Sajne	Moringaceae
23	*Murraya paniculata*	Kamini	Rutaceae
24	*Musa paradisiacal*	Kacha kola	Musaceae
25	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
26	*Ocimum tenuiflorum*	Krishna tulsi	Lamiaceae
27	*Phyllanthus emblica*	Amlaki	Phyllanthaceae
28	*Rauvolfia serpentine*	Sarpagandha	Apocynaceae
29	*Rosa sp.*	Golap	Rosaceae
30	*Tabernemontana divaricata*	Tagar	Apocynaceae
31	*Terminalia bellirica*	Bahera	Combretaceae
32	*Trachyspermum ammi*	Ajowan	Apiaceae

Herb

Sl. No.	**Scientific Name**	**Family**
1	*Achyranthuys aspera*	Amaranthaceae
2	*Aloe vera*.	Liliaceae
3	*Andropogon aciculatus*	Poaceae
4	*Artemisia vulgaris*	Asteraceae

5	*Basella rubra*	Basellaceae
6	*Blumea lacera*	Asteraceae
7	*Brassica oleracea* var. botrytis	Brassicaceae
8	*Bryophyllum pinnatum*	Crassulaceae
9	*Capsicum annuum*	Solanaceae
10	*Carica papaya*	Caricaceae
11	*Cephalandra indica*	Cucurbitaceae
12	*Cleome viscosum*	Capparaceae
13	*Cosmos sp.*	Asteraceae
14	*Cucurbita Sp.*	Cucurbitaceae
15	*Curcuma amada*	Zingiberaceae
16	*Curcuma zedoaria*	Zingiberaceae
17	*Cyanodon dactylon*	Poaceae
18	*Cymbopogon citrates*	Poaceae
19	*Cyperus kyllinga*	Cyperaceae
20	*Dahlia pinnata*	Asteraceae
21	*Desmodium triflorum*	Fabaceae
22	*Digitaria sanguinales*	Poaceae
23	*Eclipta alba*	Asteraceae
24	*Eupatorium ayapana*	Asteraceae
25	*Heliotropium indicum*	Boraginaceae

26	*Lycopersicum esculantum*	Solanceae
27	*Nicotiana tabacum*	Solanaceae
28	*Oldanladia corymbosa*	Rubiaceae
29	*Oxalis corniculata*	Oxalidaceae
30	*Phyllanthus amaru*	Euphorbiaceae
31	*Salvia sp.*	Lamiaceae
32	*Scoparia dulsis*	Plantaginaceae
33	*Solanum melongena*	Solanaceae
34	*Strephania harnandifolia*	Menispermaceae
35	*Triamphetta rhomboida*	Malvaceae
36	*Wedelia chinensis*	Asteraceae
37	*Withania somnifera*	Solanaceae

Aquatic plants

Sl. No.	**Scientific Name**	**Family**
1.	*Alocasia esculanta*	Araceae
2.	*Commelina diffusa*	Commelinaceae
3.	*Enhydra fuctuens*	Asteraceae
4.	*Ipomoea aquatic*	Convolvulaceae
5.	*Jussiaea repens*	Onagraceae
6.	*Nymphea alba*	Nympheaceae

Gymnosperm

Sl.no.	Scientific Name	Family
1.	*Cycas* sp.	Cycadaceae

2.	*Thuja orientalis*	Cupressaceae

Table -2 : Plants of flower Garden

Sl. No.	Scientific name	Local name	Family
1	*Ixora coccinea*	Rangan	Rubiaceae
2	*Agave Americana*	Sisal	Asparagaceae
3	*Duranta repens*	Hedge	Verbenaceae
4	*Hibiscus rosa sinensis*	Joba	Malvaceae
5	*Euphorbia milii*		Euphorbiaceae
6	*Rosa sp.*	Golap	Rosaceae
7	*Adenium sp.*		Apocynaceae
8	*Cycas revolute*		Cycadaceae
9	*Thuja orientalis*	Jhau	Cupressaceae
10	*Aurocaria heterophylla*		Araucariaceae
11	*Murraya paniculata*	Kamini	Rutaceae
12	*Tabernemontana divaricata*	Tagar	Apocynaceae
13	*Cosmos sp.*	Cosmos	Asteraceae
14	*Dahlia pinnata*	Dahlia	Asteraceae
15	*Salvia sp.*	Salvia	Lamiaceae

Table - 3: Plants of kitchen garden

Sl. No.	Scientific name	Local name	Family
1.	*Lycopersicum esculantum*	Tomato	Solanceae
2.	*Solanum melongena*	Begun	Solanaceae
3.	*Carica papaya*	Papaya	Caricaceae
4	*Moringa oleifera*	Sajne	Moringaceae
5	*Alocasia esculanta*	Cochu	Araceae
6	*Basella rubra*	Pui	Basellaceae
7	*Capsicum annuum*	Lanka	Solanaceae
8.	*Cucurbita Sp.*	Kumro	Cucurbitaceae
9.	*Brassica oleracea* var. botrytis	Fulcopy	Brassicaceae

10.	*Musa paradisiacal*	Kacha kola	Musaceae

Table-4 : List of Medicinal Plants Present in Medicinal plant Garden

Sl. No.	**Scientific Name**	**Local name**	**Family**
1	*Aborma augustum*	Ulatchandal	Starculaceae
2	*Aloe vera*.	Ghritakumari	Liliaceae
3	*Artemisia vulgaris*	Nagdona	Asteraceae
4	*Asparagus racemosus*	Satamul	Asparagaceae
5	*Bryophyllum pinnatum*	Patharkuchi	Crassulaceae
6	*Cinnamomum tamala*	Tejpata	Lauraceae
7	*Cinnamomum zeylanicum*	Darchini	Lauraceae
8	*Curcuma amada*	Amada	Zingiberaceae
9	*Curcuma zedoaria*	Palo	Zingiberaceae
10	*Cymbopogon citrates*	Citronella	Poaceae
11	***Datura stramonium*.**	Dhutra	Solanaceae
12	*Eupatorium ayapana*	Ayapana	Asteraceae
13	*Ficus glomerata*	Jaggyadumur	Moraceae
14	*Gymnema sylvestre*	Gurmar	Asclepiadaceae
15	*Jatropha gossipifolia*	Gabjora	Euphobiaceae
16	*Justicia lupilana*	Bisalyakarani	Acanthaceae
17	*Mimosa pudica variety Pink*	Lajjawati	Fabaceae
18	*Mimosa pudica variety white*	Lajjawati	Fabaceae
19	*Nicotiana tabacum*	Tamak	Solanaceae

20	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
21	*Ocimum tenuiflorum*	Krishna tulsi	Labiatae (Lamiaceae)
22	*Phyllanthus emblica*	Amlaki	Phyllanthaceae
23	*Rauvolfia serpentine*	Sarpagandha	Apocynaceae
24	*Saraca asoca*	Ashok	Ceasalpiniaceae
25	*Strephania harnandifolia*	Nimukho	Menispermaceae
26	*Terminalia bellirica*	Bahera	Combretaceae
27	*Trachyspermum ammi*	Ajowan	Apiaceae
28	*Wedelia chinensis*	Mahabringaraj	Asteraceae
29	*Withania somnifera*	Aswagandha	Solanaceae

Table -5: List of plants of fruit present in campus

Sl. No.	Scientific name	Common name	Family
1	*Artocarpus heterophylla*	Jack Fruit	Moraceae
2	*Borassus flabellifer*	Tal	Arecaceae
3	*Citrus decumana*.	Batabilabu	Rutaceae
4	*Cocos nucifera*	Coconut	Arecaceae
5	*Eugenia jambolana*	Kalojam	Myrtaceae
6	*Litchi chinensis*	Lychee	Sapindaceae
7	*Mangifera indica*	Aam	Anarcardiaceae
8	*Manilkara zapota*	Sofeda	Sapotaceae
9	*Mimusops elengii*	Bakul	Sapotaceae
10	*Psidium guajava*	Piara	Myrtaceae

11	*Terminalia catappa*	Kat Badam	Starculaceae
12.	*Citrus limon*	Pati lebu	Rutaceae
13.	*Citrus limetta*	Mosambi	Rutaceae

Table -6 : List of Quadrats studied within the college campus

Quadrat - 1

This place is in between two building and upper side of medicinal plant garden. Mostly the place is getting less sunlight. Trees are very old perhaps from the beginning time of the college. Any type of shrubs are not found here.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Mangifera indica*	206	14
2.	*Couroupita guianensis*	122	15
3	*Ravenela madagascariensis*	69	8
4	*Ravenela madagascariensis*	68	8
5	*Ravenela madagascariensis*	69	8

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1	*Hemigraphis hirta*	5
2.	*Cephlandra indica*	2

Quadrat – 2

The location of this quadrat is near the staff quarter. Staff quarter is situated near the main gate (gate no.-1). Low land and plantation of *Acacia* sp. are found. There are three mango trees near the quarters. It seems that few parts are water logging area in rainy season.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Acacia auriculiformis*	69	7
2	*Acacia auriculiformis*	56	6
3	*Acacia auriculiformis*	70	7
4	*Acacia auriculiformis*	32	5

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1.	*Stephania harnandifolia*	2
2.	*Alternanthera sessile*	2

3.	*perotis indica*	5
4.	*Boerhavia repens*	3
5.	*Cyanodon dactylon*	13
6.	*Mikania scandens*	2
7.	*Enhydra fluctuens*	5

Quadrat - 3

It is the northern side of the campus between the building and boundary wall. Whole area is a waste dumping zone. Plantation of Mahogini (*Swetenia macrophylla*) trees are found. There are different types of fruit trees also.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Swetenia macrophylla*	100	10
2.	*Swetenia macrophylla*	105	10
3	*Swetenia macrophylla*	72	9
4	*Swetenia macrophylla*	52	7
5	*Swetenia macrophylla*	64	8
6	*Mangifera indica*	42	6
7.	*Syzygium samarangense*	36	5

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1.	*Stephania harnandifolia*	2
2.	*Blumea lacera*	3
3.	*Cyanodon dactylon*	15

Table -7 : Carbon sequestration potential of trees of college campus

Sl. No.	GBH Class (in cm)	No. of Trees	Biomass (in Kg.)	Carbon stock (in Kg.)
1	50	3	318	159
2	50-100	10	6680	3340
3	100-150	2	3928	1964
4	200 - 250	1	7641	3820.5
			Total	**9283.5**

Faunal Diversity- The College has two ponds, huge trees, waste land, low land, banana garden which are habitat of faunal components. So, wide variety of fauna are supporting its rich biodiversity. The college campus is the feeding and breeding ground of the many animals. Different types of earth worm, insects (moths, butterfly, wasp, and bees), amphibian, reptilian, birds and mammals are found here and there in the college campus. There is one big, one small

size pond are present under the college premises. In those ponds there have many indigenous fresh water fishes which are nourished. From conversation with faculty members, different stakeholders of the college, following information are collected.

Faunal Diversity		
Phylum: Annelida		
Local Name		Scientific Name
1	Kecho	*Pheretimaposthuma*
2	Joke	*Hirudinaria*sp
Phylum: Arthropoda		
1	Prajapati	*Papilio*sp
2	Moth	*Galleria* sp
3	Moumachi	*Apis*sp
4	Jonaki	*Lampyrisnoctiluca*
5	Arsola	*Periplanetaamericana*
6	Vimrul	*Vespa orientalis*
7	Lalpipra	*Oecophyllasmaragdina*
8	Kakrabicha	*Buthus*sp
9	Tetulbicha	*Scolopendra*sp
10	Kenno	*Julus*sp
11	Pangapal	*Schistoceragregaria*
12	Anopilis masa	*Anopheles* sp
13	Culex masa	*Culex*sp
14	Ades masa	*Aedes*sp
15	Gubrepoka	*Coprislunaris*
16	Pharing	*Orthetrum*sp
17	Wepoka	*Odontotermes*sp
18	Machi	*Muskadomestica*
19	Makarsa	*Nephila*sp
Phylum: Mollusca		
20	Sthalsamuk	*Acatinafulica*
21	Jalsamuk	*Pilaglobosa*
22	Gugli	*Bellamyabengalensis*
23	Jhinuk	*Lamellidensmarginalis*
24	Kath joke	*Limax*sp
Fresh water fishes		
1	Ruimach	*Labeorohita*
2	Katlamach	*Catlacatla*
3	Mrigelmach	*Cirrhinusmrigala*
4	Bata mach	*Labeobata*
5	Kalbose	*Labeocalbasu*
6	Silver carp	*Hypophthalmichthysmolitrix*
7	Grass carp	*Ctenopharyngodonidella*

8	Cyprinuscarpio	*Cyprinuscarpio*
9	Balkurmach	*Glossogobiusgiuris*
10	Magurmach	*Clariasbatrachus*
11	Singimach	*Heteropneustesfossilis*
12	Latamach	*Channapunctatus*
13	Chang mach	*Channagachua*
14	Sholmach	*Channastriata*
15	Koi mach	*Anabasatestudineus*
16	Phaloimach	*Notopterusnotopterus*
17	Tilapia	*Oreochromismossambicus*
18	Pabdamach	*Ompokpabda*
19	Phutimach	*Puntiusticto*
20	Mourlamach	*Amblypharyngodonmola*
21	Techoka or Bostam pona	*Aplocheiluspanchax*
22	Kholsamach	*Colisa*sp
23	Pankalmach	*Mastacembelussp*
24	Dhariamach	*Esomusdanricus*
25	Chandamach	*Chanda*sp
26	Tangra	*Mystus*sp
Class : Amphibia		
1	Kuno bang	*Duttaphrynusmelanostictus*
2	Sona bang	*Ranatigrina*
Class: Reptilia		
1	Loudaga	*Ahaetullanasutas*
2	Jaldhora	*Xenochriphispiscator*
3	Matiali sap	*Elachistodonwestermanni*
4	Jamna sap	*Ptyasmucosus*
5	Godi sap	*Varanus*sp
6	Keute	*Naja*sp
7	Tiktiki	*Hemidactylusflaviviridis*
8	Girgiti	*Calottes versicolor*
9	Kachhap	*Tryonix*sp
Class : Aves		
1	Charaipakhi	*Passer domesticus*
2	Tuntuni	*Orthotomus*sp
3	Satbhaya	*Turdoideseaudatus*
4	Doyel	*Copsychussaularis*
5	Bulbul	*Pycnonotus*sp
6	Kak	*Corvussplendens*
7	Shalik	*Acridotherestristris*
8	Phinge	*Dicrurousadsimilis*
9	Kajalpakhi	*Laniuscristatus*
10	Kat thokra	*Dinopiumbenga*

11	Baspati	*Meropsorientalis*
12	Chotomachranga	*Alcedoatthis*
13	Sadabookmachranga	*Halcyon* sp
14	Lakhsmipancha	*Tyto alba*
15	Kuturepancha	*Athenebrama*
16	Kokil	*Eudynamysscolopacea*
17	Tia	*Pisttacula*sp
18	Gughu	*Streptopeliachinensis*
19	Paira	*Columba livia*
20	Dahuk	*Amaurornisphooniurus*
21	Bak	*Ardeolagrayii*
Class : Mammalia		
1	Katbirali	*Funambuluspennantii*
2	Neul	*Herpestesedwardsii*
3	Mechobiral	*Prionailurusviverrinus*
4	Katas	*Felischaus*
5	Khaksial	*Vulpesbengalensis*
6	Chucha	*Suncusmurinus*
7	Indur	*Bandicotabengalensis*
8	Nenhtiindur	*Musmusculus*
9	Badhur	*Pteropus*sp
10	Chamchika	*Pipistrellus tenuis*

Few suggestions for biodiversity management – The College has a lash green area with different ecological habitat for biotic components. Following suggestions are given for its better management.

- Name plates should be given to trees for their easy identification to students
- A board should be given in front of medicinal plant garden where use of every plant will be written there.
- A board should be given in front the pond where indigenous fish conservation is going on. The board will display about the type of fish conserved.
- If possible a bird watching area may be demarcated in front of hostel (North east corner of the campus)
- Rose garden may be converted to butterfly garden.

Table-17 Green Coverage of the College Premises

Green Coverage of the College Premises	Area in Percentage
Native and Natural Vegetation	27
Plantation	32
Agro-Plants	36
Medicinal Plants	5

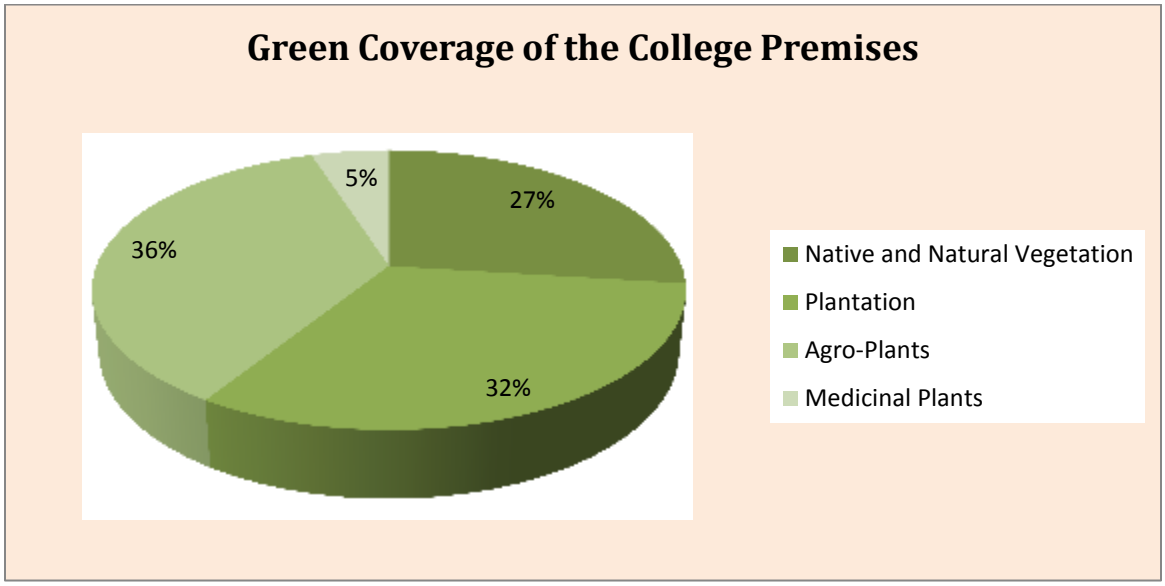


Fig. 11 Green Coverage of the College Premises

Implemented Biodiversity & Green Management		
Sl. No	Factors/ Indicators	Weightage
1	Plants Diversity	M
2	Birds and Insects	M
3	Mammals	M
4	Fishes and Amphibian	H
5	Fungus & Organisms	L

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

3.7 Reviews of Documents and Records:

Documents such as admission registers, registers of Engineering and water charge remittance, furniture register, laboratory equipment registers, purchase register, audited statements, and office registers were examined and data were collected. College calendars, college magazines, annual report of the college and NAAC self-assessment reports, UGC report etc. were also verified as part of data collection.

3.8 Review of Policies:

Discussions were made with the College management regarding their policies on environmental management. Future plans of the College were also discussed. The management would formulate a revised environment /green policy for the college in the light of green auditing. The purpose of the green audit was to ensure that the practices followed in the campus are to be in accordance with the Green Policy adopted by the institution.

3.9 Interviews:

In order to college information for green auditing different audit groups which are IQAC Cell, Dept. HOD, Teaching and non-teaching staff, students, Students Union, parents and other stakeholders of the College. Discussions were also made with the PTA office bearers to clarify doubts regarding certain points.

4.0 POST AUDIT STAGE :

4.1. Data Analysis and Assessment :

The base of any Green audit and Environmental audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner.

Although Green & Environmental audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. Each of the three components are crucial in ensuring that the organization's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organization's environmental performance.

4.2 Results and Findings:

a) Water -

Water Audit and Assessment:

Sl. No.	Object and Parameter	Observation and Finding
1	Source of water	➢ Underground(34000liter) ➢ Surface water(4000litre) ➢ Surface water bodies(1.75 acre)
2	Capacity of water storage (Daily)	➢ Reservoir and Overhead tanks-38000liter ➢ Total amount of used -37500ltr

		➢ Total misuse of water- 500 ltr
3	Amount of used water per day	37500 liter
4	Misuse of water in daily	Leakage, overflow and Misuse- 500 liter
5	Maximum used of water per day – Bathing and Washroom purpose	37% (13875liter)
6	Amount of water for used per day- Drinking Purpose	19% (7125 liter)
9	pH level of drinking water	6.8
10	TDS level of drinking water	80 ppm - 120ppm
11	Use of surface water	4000lt

b. Energy-

a) ❖Electricity Consumption – 59077 Unit (Conventional). Rs.576000/- Per Year
b) Conventional energy- 59077 Unit
c) Nonconventional energy-9600Unit (Production Capacity)
d) Payable cost of electricity – Rs.576000/- Per Year

❖ Fossil fuel consumption per Year:
   a. Number of Gas cylinders used for cooking purpose(Hostels& Canteen) – 22PC
   b. Number of Gas cylinders used in Chemistry Laboratory - 4PC
   c. Diesel used for green Generator- 40 liter

❖Number of Green Generators - 1 Unit
❖Cost of fuel for Generator – Rs. 3600/-Month

Energy Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Source of energy (conventional)	97%
2	Source of energy (Non-conventional)	Solar- 3%(9600Unit)
3	Total consumption of Electric Power	59077 Unit
4	The maximum use of Electric Power	Conventional - 95%
5	Maximum energy consumption in the purpose	Automobile & ITI – 25994unit AC-4135 unit
6	Energy Consumption in Computer & Lab.	11225 unit
7	No. of LPG Gas cylinder for coking purpose	22
8	No. of LPG Gas cylinder used in Laboratories	4
9	Amount of diesel used for green generator	40 liter
10	No. of Computers and use of energy	84 (110.88 Unit/Day)
11	No. of AC and use of energy	16(120 Unit/Day)

Energy consumption in different purpose, 2022-23		
1.	Automobile & ITI	25994 unit
2.	Lights & Fans	14779 unit
3.	Air Condition	4135 unit
4.	Lifting of water(HP pump)	1772 unit
5.	Computer & Dept. Lab	11225 unit
6.	Others(CCTV,TV, water cooler & others)	1181 unit

c. Wastes-

- Total Students – 3976 persons
- Other Stakeholders – 36 persons
- Total Stakeholders - 4210 persons
- Departments – 26
- Student Hostels - 01
- Office & Building - 05
- Canteen- 01
- Type of Wastes & Management: Biological Wastes Disposal by local authority & Bio-fertilizer Unit.
- E-wastes- computers, electrical and electronic parts – Disposal by selling
- Plastic waste- disposal by selling
- Solid wastes – Damaged furniture, Iron & Metal scraps- Disposal by Selling
- Food wastes – Waste Rice, Vegetable, Paper plates- Disposal to by local authority
- Chemical wastes – Laboratory waste treatment –Inadequate -No treatment
- Waste water – washing, urinals, and bathrooms in soak pits
- Glass waste – Broken glass wares from the labs to local authority
- Napkin & Clothes incinerators- Disposal to local authority

Waste Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Degradable waste	48(Kg/Day)
2	Non degradable	5(Kg/Day)

3	Source of waste (Organic)	Hostels, Canteen and Garden
4	Source of waste (Chemical Waste)	Zoology Lab., Chemistry Lab., Botany Lab. and Micro-Biology lab
5	Plastic waste management	Use of separate dustbin and Established of different waste unit

e) Green Campus-

Green cover of the campus- 13% area

Free space including Playground-40% area

Crops cultivated in the campus:

Chilly, Cabbage, Tomato, Spinach, Brinjal, Cauliflower, Ladies finger, Pea and different seasons flowers are produced during different seasons in Hostels Kitchen garden and College premises area.

Biodiversity observation

Table 18 Biodiversity and Green Coverage

Sl. No.	Object and Parameter	Observation and Finding
1	Vegetation coverage area	13 % Area
2	Types of green coverage	➢ Native and Natural Vegetation- 27 % ➢ Medicinal plants-5% ➢ Agro-plants-36% ➢ Plantatio-36%
3	Different types of Animal	➢ Mammals -Squirrel, Rat, Free ranging Cat, Free ranging Dog, Field Rat, Bengal Fox etc. ➢ Amphibian-Snake, Frogs ➢ Birds- Crow, Common Moyna, Pigeon, etc. ➢ Insects- Ants, Butterfly, Spider etc.
4	Biodiversity and Green Management Programme	➢ Awareness program arrange by- Dept. of Zoology and Dept. of Botany among the students and Staff through the year ➢ Observation and celebration of environmental days ➢ Maintain the ponds ecosystem & fishes cultivation

Aerial views and Green coverage area

Table 19 Green Coverage of the College Premises

Green Coverage of the College Premises	Area in Percentage
Native and Natural Vegetation	27
Plantation	32
Agro-Plants	36
Medicinal Plants	5

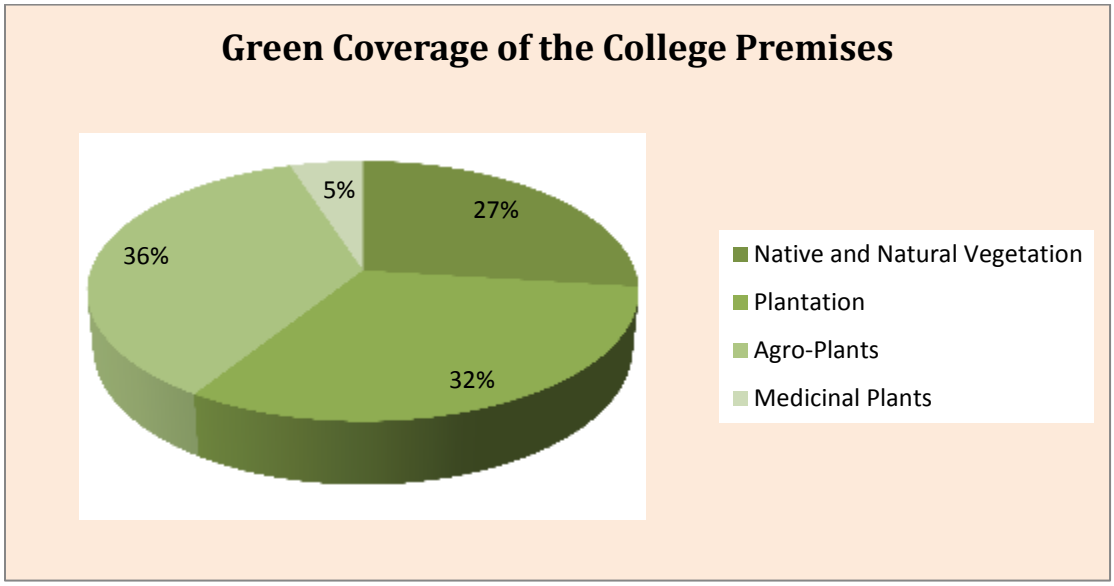


Fig. 12 Green Coverage of the College Premises

f) Carbon Footprint-

- Number of Students & Staff using cycles – 330
- Number of persons using cars – 4
- Number of persons uses two wheelers – 30
- Number of students uses Buses - 2113
- Number of persons using other transportations –260
- Number of visitors per day – 15
- Number of Students staying in the hostel – 14
- Number of Faculty and staff staying in the quarters – 00
- Average distance travelled by stake holders – 20 kms /day
- Expenditure for transportation per person per day – Rs. 30/-

4.3 SUMMARY:

I. The installation of solar panels, Fire extinguishers training, organic vegetable cultivation, Vermi composting practices are inadequate.
II. The College campus is plastic free and maintained the outdoor air quality.
III. The environmental awareness initiatives are adequate.
IV. The College campus is plastic free and maintained the outdoor air quality.
V. Indoor air quality of the laboratories is very uncomfortable and inhospitable.
VI. Use of notice boards and signs are inadequate to reduce over exploitation of natural resources.
VII. Fully carbon foot prints and wastes free zone actions should be taken to maintain this.
VIII. Rain water harvesting systems, solar power generation, Bio Gas, Re-use of water environmental education programs have to be fully explored.
IX.
X. There is Nature club of the College towards its environmental performance for Community development.
XI. Programs on green initiatives have to be increased. Campus is declared "Clean Campus"
XII.

Implemented Air Quality management		
Sl No	**Indicator**	**Weightage**
1	Carbon & Smoke free	H
2	Exhaust fans &Ventilation	L
3	Emission of GHGs	M
4	Indoor Plants	L

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Major Audit Observations		
Sl. No	**Sectors/Indicators**	weightage
1	Water efficiency Audit	H
2	Energy efficiency Audit	L
3	Air Quality & Carbon foot print Audit	M
4	Wastes Audit	H
5	Green & Biodiversity Audit	H

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

4.4 Environmental Education:

The following environmental education program may be implemented in the College before the next green and environmental auditing:-

- Installation of different captions : No smoking, , switch OFF light and ON after use, plastic free campus etc.
- Training programs in solid waste management, liquid waste management, setting up of medicinal plant nursery, water management, vegetable cultivation, tree planting, energy management, landscape management, and rain water harvesting and water re-use methods.
- Conduct exhibition of recyclable waste products
- Activate the nature or green clubs
- Set up Organic vegetable garden, medicinal plant garden, Indigenous fish farm etc. for providing proper training to the students.

4.5 Common Recommendations

- ✓ Adopt an environmental policy for the college
- ✓ Introduce UGC Environmental Science course to all students
- ✓ Renovation of cooking system in the canteen to save gas
- ✓ Establish water, waste and energy management systems
- ✓ Establish a purchase policy for environmental friendly materials
- ✓ Conduct more seminars and group discussions on environmental education
- ✓ Students and staff can be permitted to solve local environmental problems

4.6 Criteria Wise Recommendations

Water Audit

- Drip irrigation for gardens and micro irrigation technology can be initiated.
- Establish water treatment systems.
- Remove damaged taps and install sensitive taps is possible.
- Establish the more water reuse unit in the Hostel & staff quarter's area.
- Awareness programs on water conservation to be conducted.
- Drip irrigation for gardens and micro irrigation technology can be initiated.
- Establish the re-use water management methods.

- Establish rain water harvesting systems for each building and each campus.
- .

Energy Audit

- ✓ Replace computers and TVs with LED monitors.
- ✓ More energy efficient fans, tubes and bulb should be replaced.
- ✓ Automatic power switch off systems may be introduced.
- ✓ Employment of more solar panels and other renewable energy sources.
- ✓ Conduct more save energy awareness programs for students and staff.

Waste Audit

- ❖ Practice of waste segregation to be initiated.
- ❖ Establish of a unit for chemical liquid wastes and Hazardous waste management
- ❖ A model Vermi composting plant to be set up in the Hostels, canteen and Quarters of Establish a Regular functional bio gas plant.
- ❖ A model solid waste treatment system to be established.
- ❖ Practice of waste segregation to be initiated.
- ❖ Establish of a unit for chemical liquid wastes and Hazardous waste management
- ❖ A model Vermi composting plant to be set up in the Hostels, canteen and Quarters of college campus.
- ❖ Establish an e-waste management unit

Green Campus Audit

- ✓ All trees in the campus should be named scientifically.
- ✓ Develop the Herbal and medicinal plants garden for large area
- ✓ Create more space for planting in vacant land.
- ✓ Establish a butterfly park.
- ✓ Not just celebrating environment day but making it a daily habit.
- ✓ Providing funds to nature club for making campus more green
- ✓ Establish an Orchid ex-situ zone .
- ✓ Develop the Fruits trees area for Birds conservation
- ✓ Grow potted indoor plants at verandah, class rooms and Laboratories.
- ✓ Create automatic drip irrigation system during summer holidays.
- ✓ Not just celebrating environment day but making it a daily habit.
- ✓ Providing funds to nature club for making campus more green
- ✓ Conducting competitions among departments for making students more interested in making the campus green.
- ✓
- ✓ Encouraging students not just through words, but through action for making the campus green
- ✓ Conducting competitions among departments for making students more interested in making the campus green.

Carbon footprint Audit

- ❖ Establish a more efficient cooking system to save gas

- Establish the indoor plants in office rooms ,computer lab and other laboratories to CO_2 management
- Providing more college bus services to the students and staff.
- Establish a system of carpooling among the staff and visitors to reduce the number of four wheelers coming to the college.
- Encourage students and staff to use cycles.
- Establish the indoor plants in office rooms ,computer lab and other laboratories to CO_2 management
- Providing more college bus services to the students and staff.

Audit Team

Aerial View of Entrance Gate in College premises

Executive Summary: 2022-23

Environmental Audit is a process of systematic, documented, periodic and objective evaluation of components of environmental diversity with the aim of safeguarding the environment and natural resources. The process starts with the systematic identification, quantification, recording, reporting and analysis of components of environmental diversity and is a means of assessing environmental performance (Welford, 2002). It aims to analyze environments within and outside of the concerned area, which will have an impact on the eco-friendly atmosphere. Green and Environmental audit is a valuable means for an institution to determine how and where they are using the most resources; the institution can then consider how to implement changes and take necessary management measures. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on their area of work. Environmental auditing and the implementation of mitigation measures is a win-win situation for the institution, the learners and the planet. It can also create health consciousness and promote to holistic approaches to environmental management, awareness, values and ethics. Green and Environmental auditing promote financial savings through efficiency of resource usage. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the institute 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.

In Bajkul Milani Mahavidyalaya, Purba Medinipur, W.B the audit process involved initial interviews with the teachers and staffs to clarify policies, activities, records and the cooperation in the implementation of mitigation measures. This was followed by collection of data through the questionnaires, review of records, observation and enquiry of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the Green and Environmental auditing process. The baseline data prepared for the Bajkul Milani Mahavidyalaya, Purba Medinipur, W.B. will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development. Existing data will allow the College to compare its programmers and operations with those of peer institutions, identify areas in the need of improvement, and prioritize the implementation of future projects.

The area of the College premises is 12.5 acre out of which about 1.625 acre areas is covered by trees, plants etc. and 1.75 acre areas is covered by surface water bodies and wetland In the present audit report most of the aspects are covered such as tree plantation, awareness about environment programmers, rain water harvesting and plastic free premises. The College has already taken some steps to protect the environment with help of teachers, staff and students under the guidance of Dr. Pijushkanti Dandapat Principal/TIC, Bajkul Milani Mahavidyalaya, Purba Medinipur, We expect that the management will be committed to implement the green and environmental audit recommendations. We are happy to submit this green and environmental audit report to the Bajkul Milani Mahavidyalaya, Purba Medinipur,W.B.

CONSULTRAIN MANAGEMENT SERVICE
Lake Road, Kolkata, West Bengal, India

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTAL RESEARCH (TIEER)
Reg. No. S/IL/42578 of 2006-07
Office address: M-10, Bidhannagar, Medinipur-721101, W.B., India

GREEN AND ENVIRONMENTAL AUDIT CERTIFICATE

Academic Year: 2021-2022

This is to certify that Bajkul Milani Mahavidyalaya, Bajkul, Purba Medinipur, West Bengal has good and healthy eco-friendly environment created for saving Earth and Nature. Tropical Institute of Earth and Environmental Research associated with Consultrain Management Service are satisfied after rapid ecological survey with moral support of Honorable Principal, IQAC Team, Staff and Students for academic year 2021-2022. This efforts taken by Faculties and Students towards environment and sustainable are highly appreciable and commendable.

(Dr. Binoy Kr. Chanda)	(Dr. Pranab Sahoo)	(Mrs. Sanchita Bhattacharjya)	(Dr. Sudipta Kr. Maiti)
President, TIEER	Asst. Professor & Secretary, TIEER	ISO-Auditor & CEO, CMS	Expert & Member, TIEER

GREEN AND ENVIRONMENTAL AUDIT REPORT

(2022-2023)

BAJKUL MILANI MAHAVIDYALAYA,
PURBA MEDINIPUR, WEST BENGAL

CONSULTRAIN MANAGEMENT SERVICES,
LAKE ROAD, KOLKATA

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTRAL RESEARCH (TIEER),
MEDINIPUR

CONSULTRAIN MANAGEMENT SERVICE
Lake Road, Kolkata, West Bengal, India

TROPICAL INSTITUTE OF EARTH AND ENVIRONMENTAL RESEARCH (TIEER)
Reg. No. S/1L/42578 of 2006-07
Office address: M-10, Bidhannagar, Medinipur-721101, W.B., India

GREEN AUDIT CERTIFICATE

Academic Year: 2022-2023

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(Dr. Binoy Kr. Chanda)	(Dr. Pranab Sahoo)	(Mrs. Sanchita Bhattachariya)	(Dr. Sudipta Kr. Maiti)
President, TIEER	Asst. Professor & Secretary, TIEER	ISO-Auditor & CEO, CMS	Expert & Member, TIEER

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Reg. No. S/1L/42578 of 2006-07
Office address: M-10, Bidhannagar, Medinipur-721101, W.B., India

ENVIRONMENTAL AUDIT CERTIFICATE

Academic Year: 2022-2023

This is to certify that Bajkul Milani Mahavidyalaya, Bajkul, Purba Medinipur, West Bengal has good and healthy eco-friendly environment created for saving Earth and Nature. Tropical Institute of Earth and Environmental Research associated with Consultrain Management Service are satisfied after Environmental Audit with moral support of Honorable Principal/TIC, IQAC Team, Staff and Students for academic year 2022-2023. This efforts taken by Faculties and Students towards environment and sustainable are highly appreciable and commendable.

(Dr. Binoy Kr. Chanda)	(Dr. Pranab Sahoo)	(Mrs. Sanchita Bhattachariya)	(Dr. Sudipta Kr. Maiti)
President, TIEER	Asst. Professor & Secretary, TIEER	ISO-Auditor & CEO, CMS	Expert & Member, TIEER

ACKNOWLEDGEMENT

We, The Environment Audit Team thank the management of Bajkul Milani Mahavidyalaya for assigning us such an important work on Green & Environmental audit. We appreciate the cooperation to our team for the assigned study, giving us necessary inputs to carry out audit activities.

Our special thanks to:

- Principal/TIC of the College
- IQAC Members
- Teaching & supporting staff

AUDIT EXPERT MEMBERS

The Committee members are listed below:

SL. No.	NAME	DESIGNATION	AREA IN INTEREST
1.	Dr. Binoy Kr. Chanda	President, TIEER & Former IC, VU	Environment Science & Climatology
2.	Dr. Pranab Sahoo	Secretary, TIEER & Assistant Professor and HOD, Dept of Geography, S.B. Mahavidyalaya, Kapgari	Climate Change and Environment Management and Biogeography
3.	Mrs. Sanchita Bhattachariya	Consultant, Consultrain Management services, Kolkata, & Member, TIEER, ISO-9001,14001&50001Cerfied Auditor.	Environment Management
4.	Dr. Sudipta Maiti	Faulty, Dept. of Botany, Raja N.L. Khan Womens' College, Midnapore	Plants Diversity & Carbon stocking, Green Management
5.	Dr. Chandan Karan	Faculty, Dept. of Geography, S.B. Mahavidyalaya, Kapgari	Land use Survey, Ecology and Map Designer
6.	Dr. Mrinmoy Ghorai	Assistant Professor in Zoology, PanskuraBanomali college.	Fauna & Aqua animals and Biodiversity conservation
7.	Sri Ananda Das	Asst. Teacher & expert	Electro physics
8.	Sri Biplob Nayek	Drone Surveyor	Aerial Photography
9.	Sri Sarat Chatterjee	Surveyor	Water and Air Quality Measurement
10.	Sri Sanjib Mahata	Surveyor & Expert in RS &GIS	Map Designer
11.	Sri Soumitra Patra	M.Tech in Agriculture and surveyor	Micro irrigation technology and water management
12.	Mrs Sumita Swar	Surveyor and Expert ENVS	Waste and Environment Management

CONTENTS

1.0 INTRODUCTION :

The word "Green" means ecofriendly and produce better environment. Green and environmental Audit is a process of systematic, documented, periodic and objective evaluation of components of environmental diversity with the aim of ensuring readiness in eco-friendly environment and conservation of natural resources in its operations. The process starts with systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of the college. Green auditing is a means of assessing environmental performance. Green audit is a valuable means for a College to determine how and where they are using the most energy or water or other resources; the College can then consider how to implement changes and make savings. It can create healthy consciousness and promotes environmental awareness, values and ethics.

Site and Situation of Bajkul Milani Mahavidyalaya premises

1.1 Goals & Objectives:

It aims to analyses environments within and outside of the concerned area, which will have an impact on the eco-friendly atmosphere. It provides staff and students better understanding of Resource management on their area of work.

The Main Objectives of Carrying of Green Environmental Audit:

- To ensure the performance of the Institution with respect to environmental activities they are involved in, in compliance with existing laws and regulations
- To locate the Green area and the Geographical location of the College – aerial view
- To document the floral and faunal diversity of the College
- To develop and follow the waste management system
- To reduce the energy consumption of the Institution
- To report the expenditure on green initiatives, carbon foot print
- To record the air, water quality of the Institution
- To conserve the natural resources

Areas of Concern:

- WATER MANAGEMENT
- WASTE MANAGEMENT
- AIR QUALITY AND CARBON FOOTPRINT
- E-WASTE MANAGEMENT
- ENERGY MANAGEMENT
- BIODIVERSITY

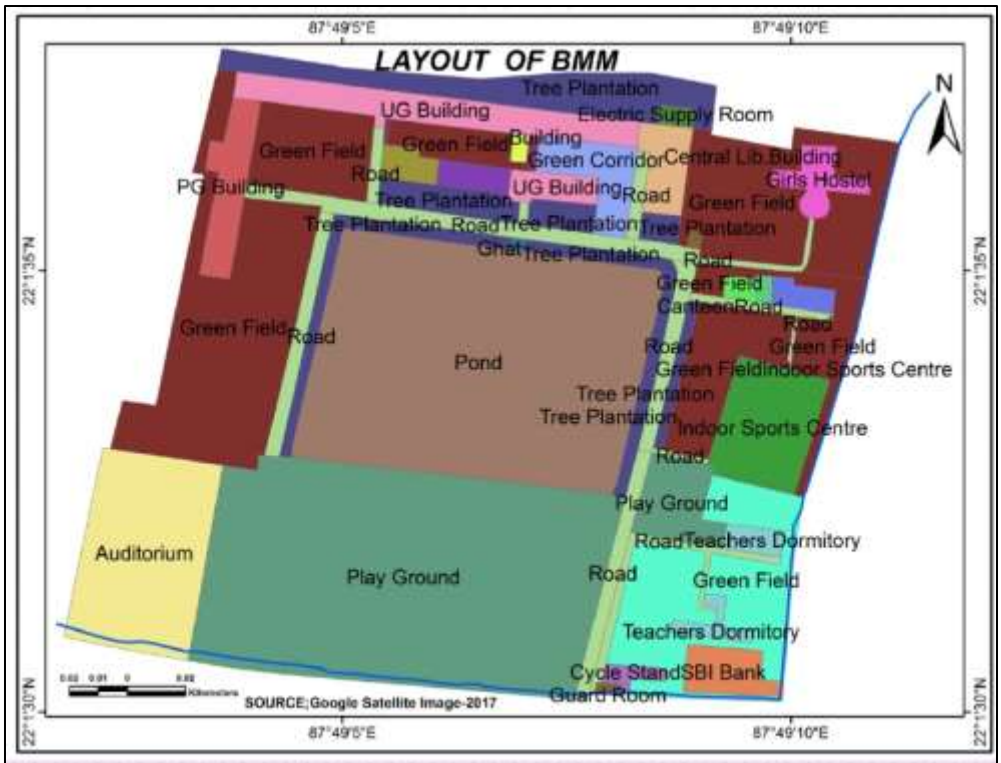
Meeting with Hon'ble Principal & IQAC Team

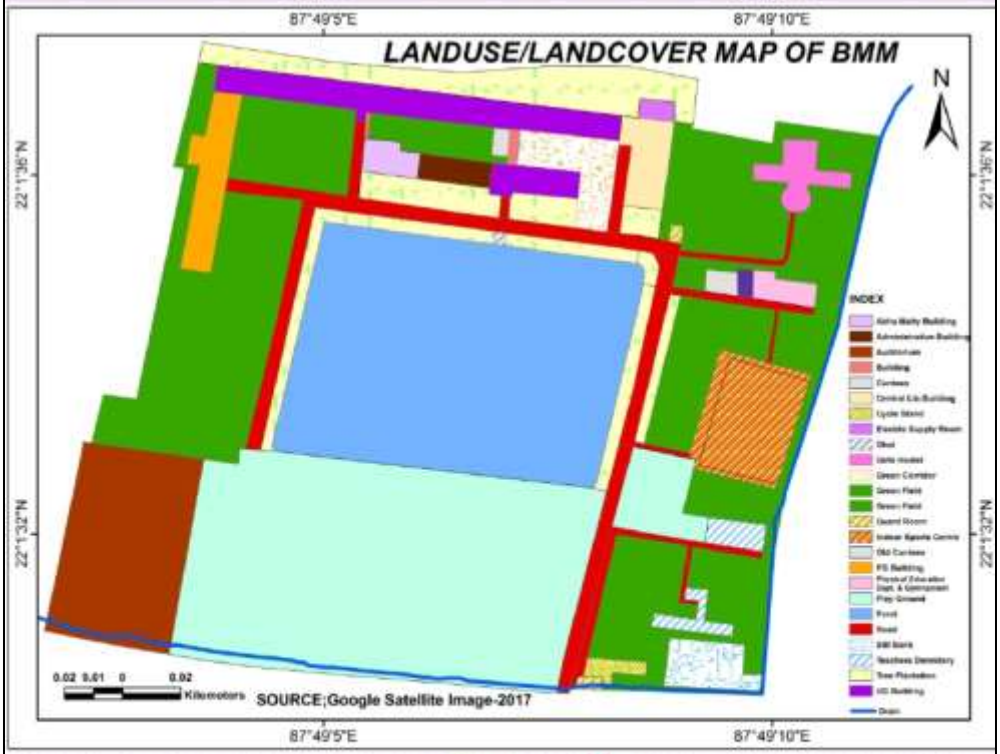
This Audit has been conducted by a Committee constituted by the Experts & Scientists from different reputed Institutes. The Committee developed a questionnaire for audit based on the regulatory and statutory requirements of Centre as well State. The basic data was gathered and compiled, which the committee analyzed. By and large, the audit reveals a healthy environment inside the Bajkul Milani Mahavidyalaya campus. The committee has suggested short term as well as long-term suggestions for improved environmental conditions to a higher levels and authorities and all stakeholders of the College conforms that they will give due attention and utilize opportunities for identified improvements.

1.2 About the College :

Bajkul Milani mahavidyalaya (Affilated to Vidyasagar University) Was re-accredited with grade "B"(2.66) by NAAC in the year 2015. That college has established in 3rd September, 1964 at located Kismat Bajkul, Bhagwanpur, Purba Medinipur, West Bengal, India. And also affiliation by C/186/Affi.Dt 03/09/64, formely Culcutta University & now Vidyasagar University (1985).

Green campus with Bajkul Milani mahavidyalaya





- **Prepared by**
- **Prof. Rabin Das & Mr. Gautam Kumar Das,**
- **Dept. of Geography (UG & PG), Bajkul Milani Mahavidyalaya**

Vision :

- Our vision is to impart qualitative higher education to the students hailing mostly from disadvantaged families of rural Bengal.
- Our innate desire is to help the students of the locality so that they may grow up as responsible good citizens of future India and to motivate and make them up to date with the challenging modern trends of academics.
- To open job-oriented courses and introduce need-based subjects for the advancement and upward mobility of the students towards globalization.
- To open and provide more PG Courses in specifically Physics and other science disciplines to extend the higher education opportunities in this rurban circumstance.
- To uphold the ambience of discipline, learning and culture with deep regard for human values for becoming good human beings.
- To inculcate the qualities of morality, nobility and magnanimity among the students thus removing all barriers to comprehensive education of good quality in order to serve the society in a better manner.

Mission :

- Our mission is to encourage the students in general to develop their latent talents and innate ideas through value based education under the ideology of great men and women of India and other countries in the world.
- We humbly try to infuse the spirit of Vivekananda's ideal of man-making and character building through education into the hearts of young students and inspire them to mould their lives accordingly.
- Shifting from conventional curriculum to a more dynamic and learner friendly system of curricular choices in response to social needs.
- Evolving suitable strategies for sustaining quality in teaching, learning, research and extension activities, student support and progression and infrastructure and learning resources.
- Seeking collaboration with reputed institution of higher learning to enhance and upgrade the quality of the institution.
- Integrating teachers' research-works with teaching for the benefit of students and also enhancing teachers' quality with reference to the interest of beneficiaries.
- Organizing seminars in various departments every year for the teaching, non-teaching staff and also students which focus on various aspects.
- The hostel life is so designed that the students are made to practice the fundamental values like regular prayer, practice of yoga, self supported life style, good hygiene, clean environment, discipline and punctuality and fellow-feelings.

General Information :

Total area of the college campus – 12.5 acres,
Building area: 4.125 acres,
Green & Vegetated area: 1.625 acres.
Play Ground & Vacant land area: 5.00 acre
Water Bodies area: 1.75 acre
Departments: 28 (Post Graduate & Under Graduate-26, ITI-2)
Laboratories: 09
Students: 3976
Teaching & Non-teaching staff:198
Others stakeholder: 36
Total Stake holders: 4210
Auditorium /Seminar hall:02
Hostels: 01
Hostel students: 24
Gymnasium Hall: 01
Indoor Stadium: 01
ITI & Automobile section:02

Arial Views of College Premises


GPS Map Camera
Bajkul, West Bengal, India
2RG9+Q5M, Bajkul, Kismat Bajkul, West Bengal 721626, India
Lat 22.026215°
Long 87.817939°
Drone Survey

Table 1 Area Coverage of the College Campus

Area Coverage of College Premises:	Area in Percentage
Building and Construction	33.00
Vegetation Cover	13.00
Playground and Fallow land	40.00
Water Bodies	14.00

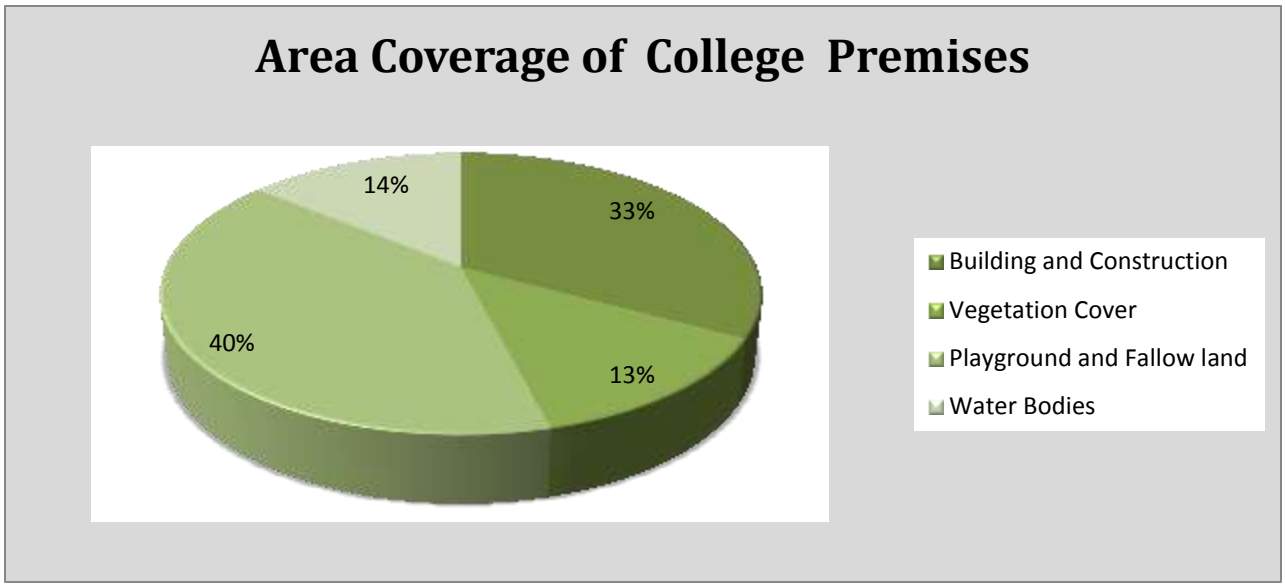


Fig. 1 Area Coverage of College Premises

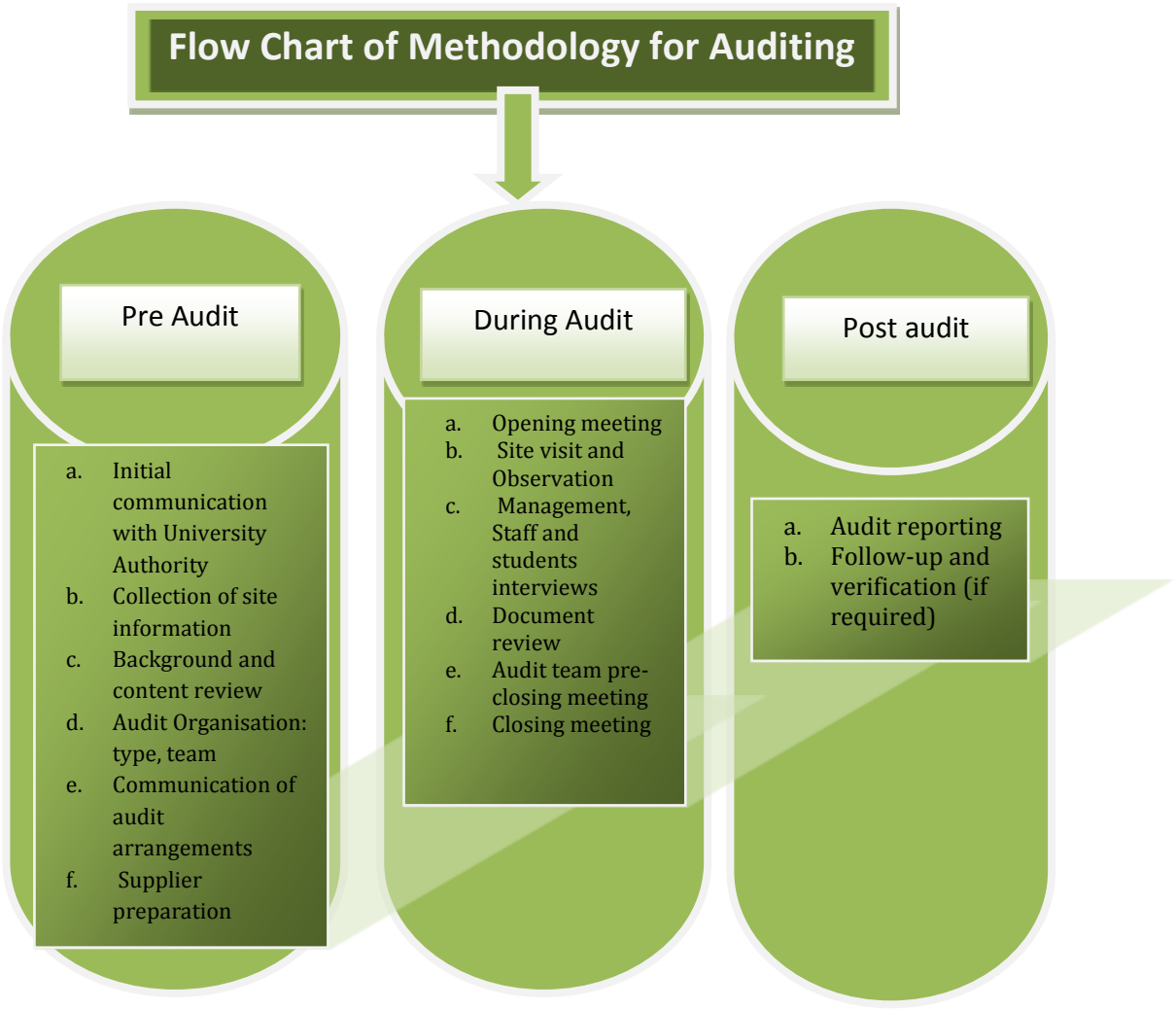
1.3 Purpose of Green and Environmental Auditing:

- To provide basis for improved sustainability
- To create a green campus
- To enable waste management through reduction of waste generation, solid- waste and water recycling
- To promote plastic free campus and evolve health consciousness among the stakeholders
- To recognize the cost saving methods through waste minimizing and managing
- To empower the organizations to frame a better environmental performance
- To develop an environmental ethics and values systems in youngsters.
- To establish valuable tools and methods for managing-and monitoring of environmental and sustainable development programs.

2.0 PRE-AUDIT STAGE:

2.1 Methodology and Survey Schedules:

The methodology is adopted for this assessment by collecting the information by onsite visit, group discussion, campus survey, enquiry, observation. Perception study and opinion survey are also included in the Auditing Report.



The Audit team started the audit at the College Campus on 10th June, 2022

SL.NO	PURPOSE	DATE	REMARKS
1.	Communication with College authority	27th January,2023	Discuss about term and condition
2.	Opening Meeting	8th Feburary,2023	Submitted the survey schedule
3.	Collection information about the College	16th February,2023	Introduced to Administrative Officer
4.	Campus visit , site enquiry and department survey & observation	23th February,2023	Outdoor observation with Drown camera& Photo camera, Laboratory enquiry
5.	Review data and Assessment	12th June,2023	Data generate and drown figures
6.	Pre Closing meeting	14nd June,2023	Meeting with IQAC
7.	Closing Meeting	17th June,2023	Pre-submission of the Report
8.	Submit audit report	21th June,2023	Submit of the Report

2.2 Site Visit:

1. College and its premises were visited and analyzed by the audit-teams several times to gather information.
2. Campus trees were counted and identified.
3. Medicinal garden, play grounds, canteen, library, All Department, office rooms, Hostels, Canteen and parking grounds were also visited to collect data.
4. Number and type of vehicles used by the stakeholders were counted and fuel consumption for each vehicle was verified with the user.
5. Number of LPG cylinders used in labs, canteen and hostel kitchen were also counted.
6. Water taps were checked. Leakage of a few water taps and over-flow tanks were noticed during the site inspection.

Following steps were taken for data collection:

- Survey to each Department, Laboratories, Library, Canteen etc.
- Data collected by observation and interview.
- Assessment of the environmental condition through measurement

2.3 Survey & Data Collection:

- A Questionnaire was developed covering all aspects of Green and Environment aspects for collection of data.
- Arrangement of Drone survey was made available to cover every corner of the college and its neighborhood areas.
- Data Analysis - Calculation of energy consumption, analysis of water reused, waste generation & disposal arrangements.
- Recommendation - On the basis of results of data analysis and observations, some steps for reducing power consumption, water consumption, waste management etc. were recommended.

We have discussed and interacted with different groups like teachers, students and staff to identify the attitudes and awareness towards environmental issues at the institutional, district, national and global level. Data and information were also collected form utility bills, reuse of water, waste management, use of energy-saving devices and e-waste. This information was added to the carbon footprint data, generating a fairly clearer picture of the emissions and impact of the reduction measures undertaken.

Green play Ground

Administrative Buildings

3.0 AUDIT STAGE :

3.1 Campus Survey and Enquiry:

Green and Environmental audit forms part of a resource management process. Total area including neighborhoods was surveyed using Drone and the data derived from this survey was detailed in our report.

Aerial Views of the Structural area

Eco-campus concept mainly focuses on the reduction of contribution to emissions, on the efficient use of energy and water; Minimize waste generation or pollution and also economic efficiency. All these indicators are assessed in process of "Green Auditing of educational institute". Covered areas included in this green auditing are water, energy, air quality & carbon footprint, waste, biodiversity campus.

The Audit covered the following major areas:

1. Water Efficiency and Water Management
2. Energy Efficiency and Energy Management
3. Air Quality and Carbon foot print and Management
4. Waste and Waste Management
5. Biodiversity and Green Zone and management

Departmental Visit

Table-2 Total Stakeholders of the College

Students -	3976 persons
Teaching, Non-teaching and Other Stakeholders	234 persons
Total	4210 persons
Approximate no of visitor (per day)-	36 persons

3.2 Water Efficiency and Water Management :

The concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water and also proper water management practices along with rooftop rain water harvesting system must be installed in whole campus for recharging ground water and meeting part of the water requirements. It is therefore essential that any environmentally responsible institution examine its water use and Re-use practices.

a	Usage of water	That water is use for Drinking, Washing, Cleaning, Cooking, Bathing and gardening purpose. The maximum water is use for Bathing and washroom in the college. About 13875 Litre water has been consumed for that purpose.
b.	Total Consumption of water	About 38000Litre water per day
c.	Water wastage	The leakage and misuse of water is about 500Litre in whole campus. Small drip from a leaky tap, sewage water from pan in toilets and over flow can waste significant amount of water per day.
d	Surface water Harvesting	The surface water bodies are available in college campus. About 1.75 acre area has covered with three ponds. About 4000 litre water has harvesting in that College Campus.

Table-3 Use of water in Different Purpose of College Premises

Use of water in Different Purpose Per Day	Use in Percentage
Bathing and washroom	37.00
Cooking and washing	13.00
Cleaning and gardening	22.00
Drinking	19.00
Others	9.00

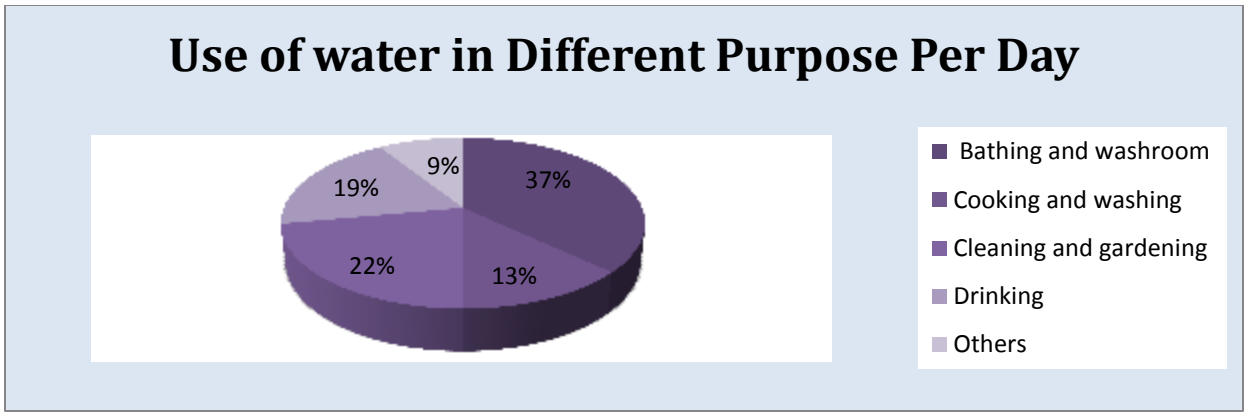


Fig.2 Use of water in Different Purpose Per Day

Sl. No.	Factors	Weightage
1	Quality of Water	H
2	Re-use of water	L
3	Water Harvesting & Recharge	M
4	Use of Surface Water	H

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Recommendation

Water conservation faucets in washrooms were not seen. Installation of such faucets can save water and will help in minimising the water footprint of the institute. Sanitary wastewater generated from washrooms is connected to sewerage system.

Surface water body (pond)

3.3 Energy Efficiency and Energy Management:

a	Energy sources	Sources of Energy: Conventional Electricity, LPG Gases, Diesel, Petrol and Non –conventional Solar energy
b.	Energy consumption	The useable energy is Conventional and Non-Conventional energy. The used Electricity energy is 59077 units which costing is Rs.576000. About 3% energy is Non-conventional energy which is contributed from Solar Power. The Maximum energy is consumed for ITI and Automobile Section amounting to 43% of total consumption.
c.	Usage of LPG	It has been observed that LPG gas cylinders are used in Hostel, Canteen & Laboratories (26PC/year) for cooking and other purpose. There are Green generators used in the premises.

Table-4 Source of Energy in Percentage

Source of Energy	In Percentage
Conventional	97
Non -Conventional	3

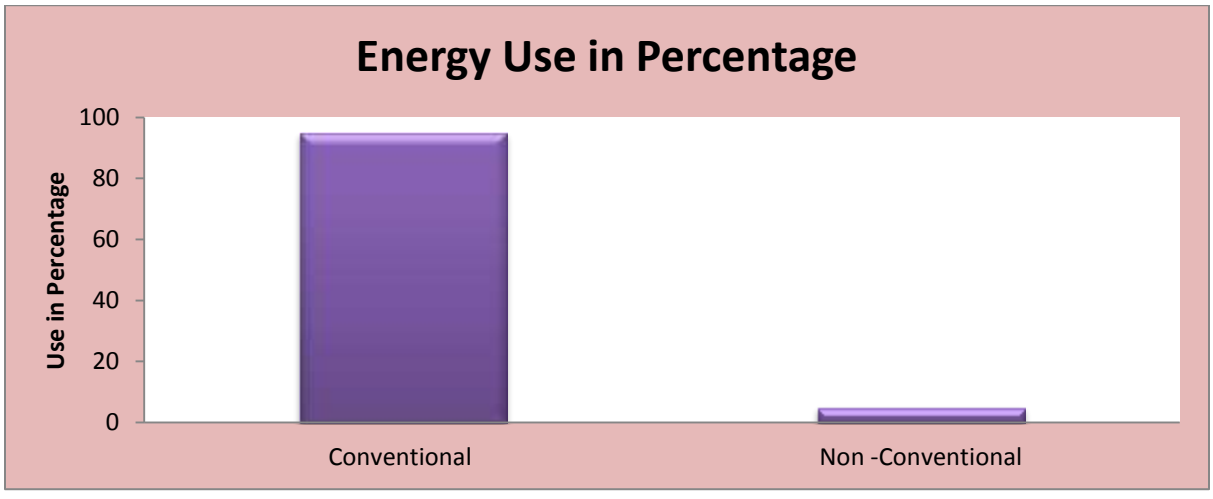


Fig. 3 Use of Energy in Percentage

Source of NCE

Table-5 Energy Consumption in different Purpose in Percentage

Energy Consumption in different Purpose	In Percentage
Automobile and ITI	44
light and fans	25
Computer and Laboratory	19
AC	7
Pump	3
Others	2

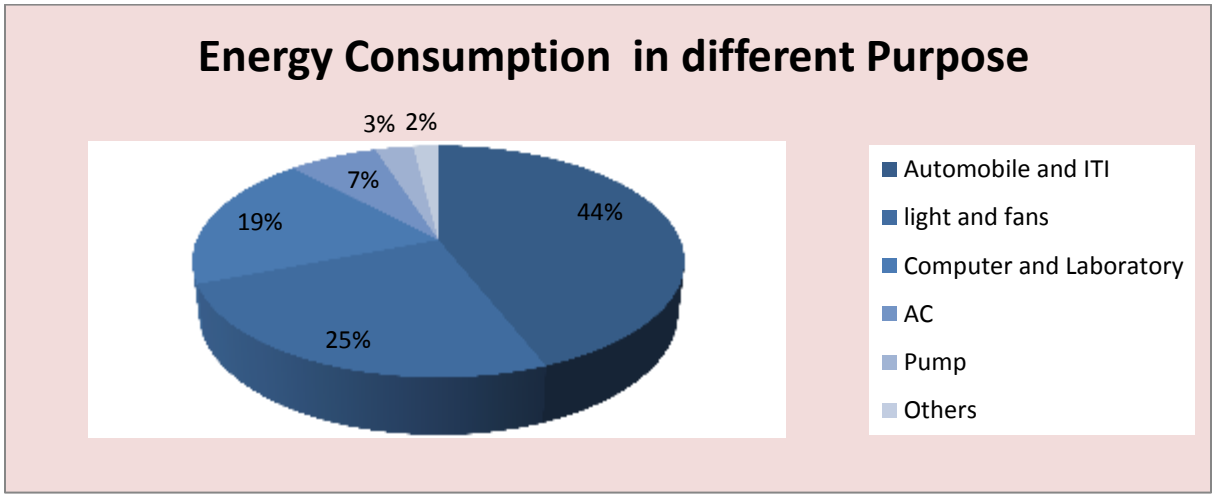


Fig. 4 Percentage of Energy Consumption in different Purpose

Recommendations:

a) Standard Operation Procedures (SOPs) should be prepared and followed for green purchasing wherein equipment's with star rating; those using eco-friendly materials; those with safe disposal policy or return to supplier after unused, can be considered.

b)For purchasing new electronic appliances, star rating provided by Bureau of Energy Efficiency (BEE) should be considered. The equipment which has maximum star ratings could be purchased, which will consume less energy, ensure environmental sustainability and also operate at low cost.

c) Every classroom and lab with central switch board should have a diagram linking place of tube light, fan etc. with corresponding switch. This will ensure that correct fitting is switched on/ off and can save time & unnecessary operation.

d) Installation of automatic lights with sensors can be considered.

e) Usage of light reflectors is recommended as the reflectors can spread light to relatively large areas.

f) Notices/ signage can be put up/ displayed near switches and on notice boards, informing students and staff to switch off all Departments & Sectors when not in use.

g) Use of large percentage renewable energy should be considered.

3.4 Air Quality and Carbon Footprints :

Commutation of stakeholders has an impact on the environment through the emission of greenhouse gases into the atmosphere consequent to burning of fossil fuels (such as petrol, Diesel, LPG Gas). The most common greenhouse gases are Carbon Dioxide, CFC, water vapor, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most leading greenhouse gas, comprising about 214ppm (2019) to the Earth's atmosphere. It undertakes the measure of bulk of carbon dioxide equivalents exhaled by the organization through which the carbon accounting is done. It is observed that the Outdoor air quality is Fresh and comfortable for breathing to human life.

Table-6 Amount of CO_2 (ppm) in different location of the College Campus

Different location of the College Premises	Amount of CO_2 (ppm)
Principal Office	480
Automobile & ITI	440

Indoor Stadium	430
Gymnasium	420
Girls Hostel	420
Staff Quarter	415
Canteen	425
Chemistry Lab	430
Computer Sci. Lab	470
Physics Lab	430
Geography Lab	440
Central Library	440
Car Parking Stand	420
Play Ground	410

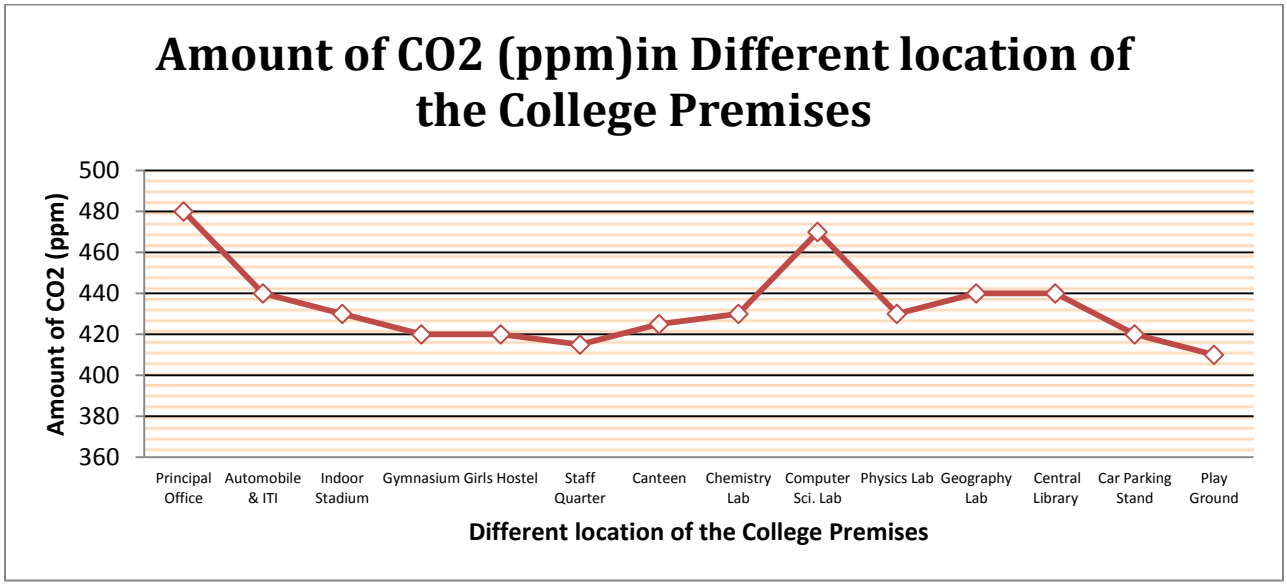


Fig. 5 Amount of CO2 (ppm) in Different Location of the College Premises

Table-7 Amount of CO_2 (ppm) in the air in different location,(College Campus) session 2021-2022

Amount of CO_2 (ppm) in the Air in Different places of the College Premises	**Amount of CO_2 (ppm)**
Outdoor	400
Indoor (Class room)	420
Indoor (Laboratories)	440

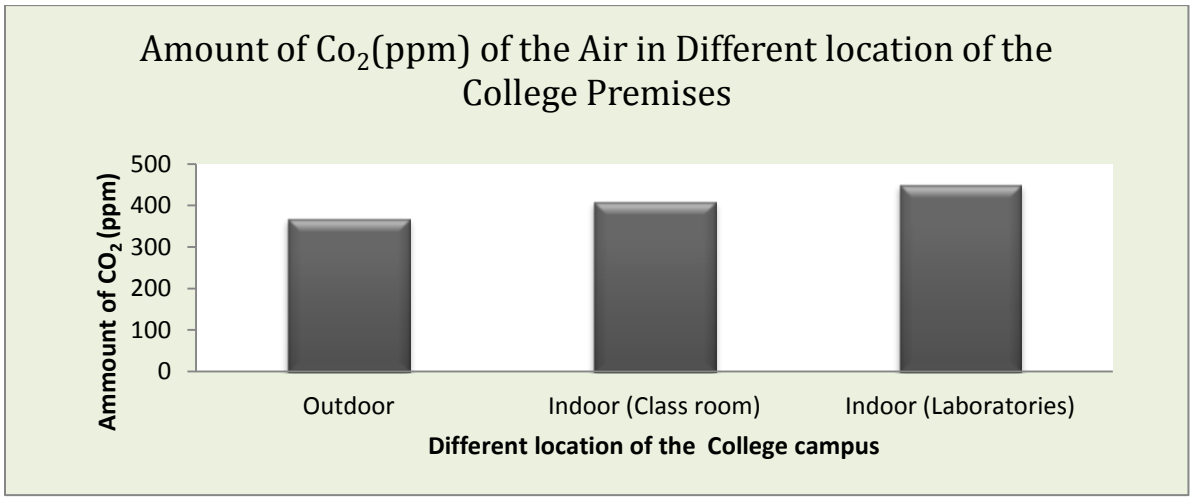


Fig. 6 Amount of Co_2(ppm) of the Air in Different location of the College Premises

Recommendation:

a) Ventilation is achieved by fans in the institute and air conditioners in Official and Lab. places.

b) Heating Ventilation and Air Conditioning (HVAC) system is not installed.

c) No indoor plants were observed in the entire institute. Indoor plants can be plotted not only for the aesthetic appearance but also for health benefits.

Air Quality Assessment

3.5 Generation of Waste and Waste Management:

Waste (or wastes) is useless or unusable materials or components which are discarded after principal use. Sometimes, it is a defective article and of no use. In modern outlook waste may be a valuable substance subject to an appropriate operation or action on the waste. With the context of waste management RRR (Reduce, Reuse and Recycle) model may be followed in appropriate fashion.

The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems. It is therefore essential that any environmentally responsible institution examine its waste processing practices. Keeping the objective of the audit the following study will be limited to the waste generated in an academic campus and surroundings.

Table-9 Types of wastes

Type of Wastage in Per Day	Amount in Kg
Degradable	48
Non degradable	5

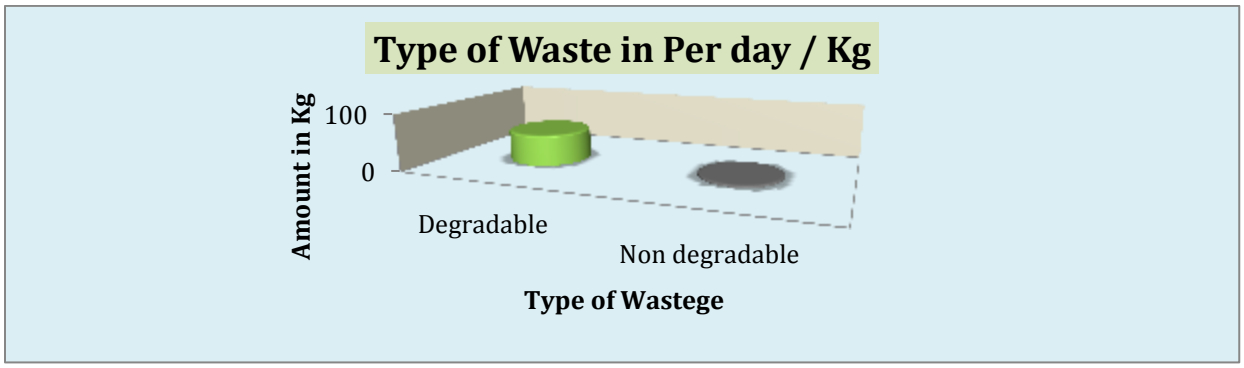


Fig. 8 Type and Amount of Waste per Day in Kg.

The following categories of wastes are generated in the College campus:

a) Solid waste - Waste generated through paper, plastic packaging causes nuisance. Some wastes are generated after various experiments, primarily, chemistry laboratory; broken test tube, glassware are the example.

b) Liquid waste - There are bio-chemical wastes generated through various chemical reactions and biological processes. Generally, these are being drained to nearby Surface water bodies contaminating water and soil. Appropriate means is suggested to adopt scientific liquid waste management practices. These are neutralization, bacterial control, and natural control through plantation.

Table-10 Source of Wastage in Different Sector (per day in Kg)

Source of Wastage in Different Sector(per day in Kg)	Degradable wastage Amount in Kg.	Non Degradable wastage Amount in Kg.
Quarter and Hostels	16	1
Canteen	5	0.5
Office	3	0.5
Laboratories	2	0.5
Forest and Garden	18	0.25
Others	4	2.25

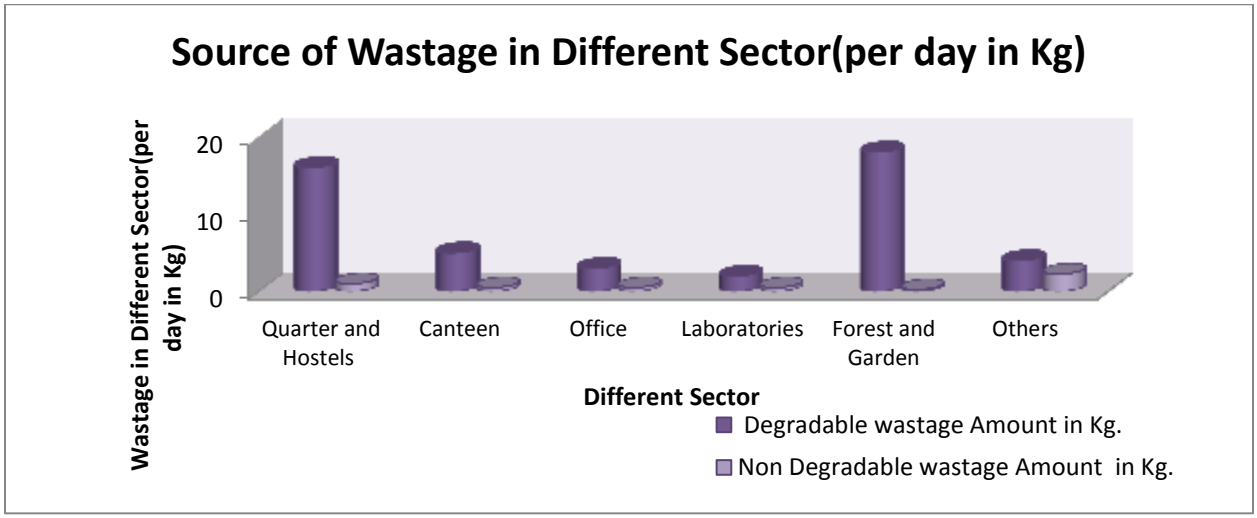


Fig. 9 Source and Amount of Wastage in Different Sector (per day in Kg)

Audit of Wastage management status in Different Sector


Wastage Management

The following are being emphasized during audit of waste management:
a) Name of the waste
b) Category of waste
c) Quantity of waste
d) Hazardous effect of the waste
e) Institutional action and mechanism for waste management

Compliance audit of waste issues:
At the present stage the institute is capable in managing their waste. They are complying with the essential requirements of waste management although suggestions are given for future improvements.

Performance Audit of Waste Issues:
No critical audit issue is there with respect to the waste management.

Implemented wastes management		
Sl.no	Factors/Indicators	Weightage
1	Plastic and Polythene free	M
2	Re-use of papers	H
3	Hazardous effect waste management	M
4	Removal of E-Wastes	M
5	Organic & food waste	M
6	Others solid wastes	M

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Awareness Slogan in college premises

3.6 Auditing for Biodiversity & Green Campus Management:

Unfortunately, biodiversity is facing serious threats from habitat loss, pollution, over consumption and invasive species. Species are disappearing at an alarming rate and each loss affects nature's delicate balance and our quality of life. In one year, a single mature tree will absorb up to pounds of Carbon dioxide from the atmosphere, and release it as Oxygen. The amount of oxygen that a single tree produces is enough to provide one day's supply of oxygen for people. So while you are busy studying and working on earning those good grades, all the trees on campus are also working hard to make the air cleaner for us. Trees on our campus impact our mental health as well; studies have shown that trees greatly reduce stress, which a huge deal is considering many students are under some amount of stress.

About 13% area is under greenery and biodiversity zone and 14% area is water bodies' also wet land. Biodiversity includes the genetic variability and diversity of life forms such as plants, animals, microbes etc. living in a wide range of ecosystems. Flora and fauna of College campus in Bajkul Milani Mahavidyalaya premises is rich.

Table 11 Area Coverage of the College Campus

Area Coverage of College Premises:	Area in Percentage
Building and Construction	33.00
Vegetation Cover	13.00
Playground and Fallow land	40.00
Water Bodies	14.00

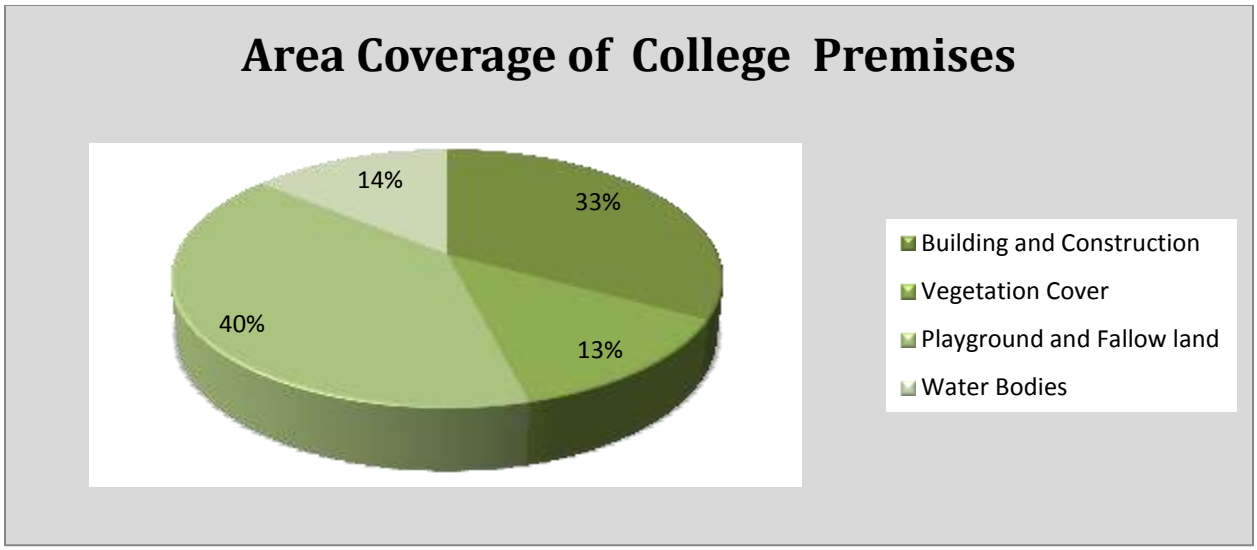


Fig. 10 Area coverage of the College Premises

Departmental visit

Biodiversity Study

Floral diversity - Bajkul Milani Mahavidyalaya has more than 12.5 acre of area. It is divided by different habitat, like aquatic, pond, pond bank, low land, water logging area, dumping area, open area, etc. They have planted different types of plants in different habitat since long. Being a college of coastal Bengal area, all types of cyclonic activities are affected here. Last two cyclone like Amphan (2018) and Yash (2019) have remarkable destruction here. It has been calculated that there are 180 numbers of trees are destroyed by the storm, Yash. Two old *Araucaria sp* tree situated in front of the main entrance, was fully destroyed by Yash. The college authority has divided their land in different form of plantation. They have Medicinal plant garden, Kitchen garden, Banana garden, Lemon garden, Fruit garden and Rose garden. Beside this they also have different plantation programme. Mango tree (*Mangifera indica*), Coconut tree (*Cocos nucifera*), Royal Plam tree (*Roystonea regia*), Akashmoni tree (*Acacia auriculiformis*) plantation programme had been taken regularly as college activities in different past years. It is remarkable that there is a Banyan tree (*Ficus benghalensis*) at the South west corner of the pond, near a *Ghat.* Perhaps it is the largest tree trunk (GBH-269 cm.) within the campus. It harbours huge faunal specimens.

It is found from a rapid ecological study on February 2023 in the campus that there are 36 Tree species (including Gymnosperm), 32 shrub species and 43 herb species (including aquatic species) (Table – 1 and Fig.-1).

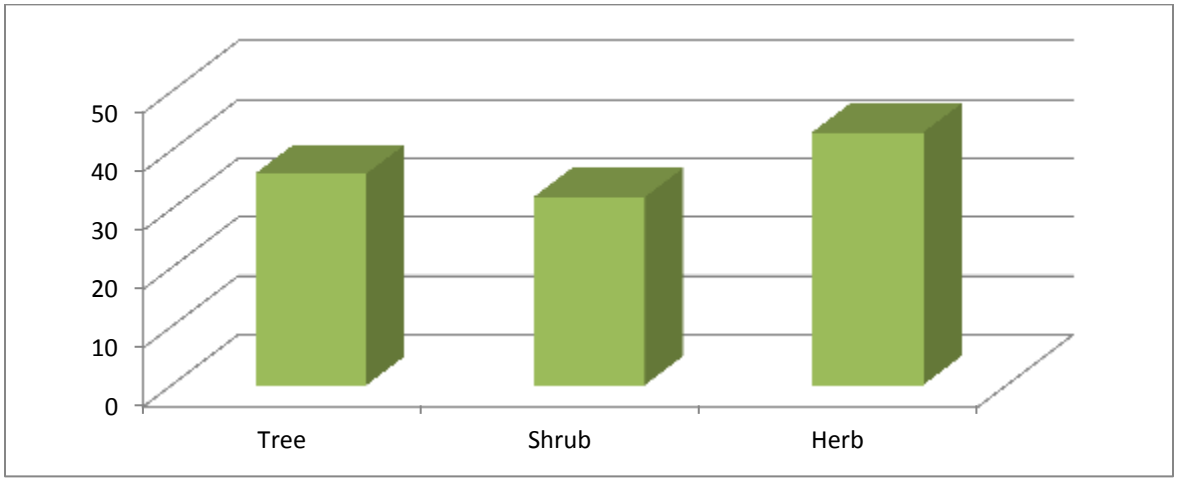


Fig.-1: Floral inventory of the college campus

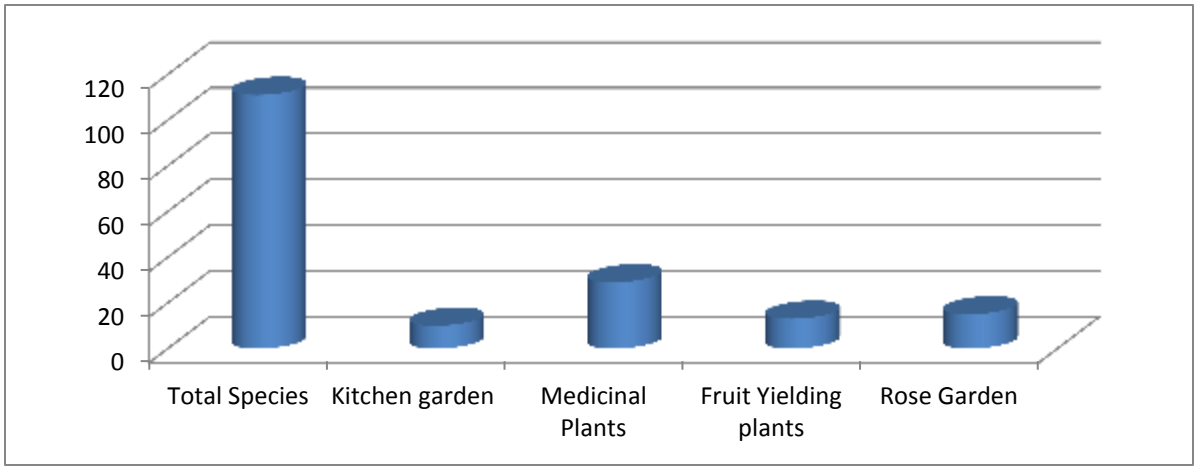
There are different types of plantation which are as follows-

Flower Garden – A large flower garden is found in front of main building decorated with statues of veteran educationist and freedom fighters. Rose is the main plants but different seasonal varieties also planted (Table – 2). Gymnosperm like *Cycas* sp. is planted here and also in pots. A flowering Sisal (*Agave Americana*) plant is indicating its old age. It seems that garden is fully maintained.

Kitchen Garden – There is a small kitchen garden in front of hostel. The area will be approximately 2-3 decimal. But there ten types of vegetables have been grown like, Tomato, Cauliflower, Capsicum etc. . There is large bush of sugarcane (*Saccharum officinarum*). There is a large banana garden just other side of the kitchen garden. It is quite large (15 dec. approx.) area. Different varieties of bananas are grown here (Table-3).

Medicinal Plants Garden – The College have a small patch (5 decimal approx.) of medicinal plant garden to introduce the valuable plant to the students. . There are 29 species till now (Table-4). There are few plots are blank. Very important species are there like *Aloe vera*, Asok, Ulatchandal, Sarpagandha, Aswaagandha, Citronella etc. Bahera, the another important medicinal plant (*Terminalia belerica*) is not in the garden but saw in front the main building.

Fruit bearing trees – It is very good sign that the campus has huge number of fruit bearing trees. Most of the trees are indigenous tree (Table-5). Like Guava, Lychee, Jam, Jamrul, Tal, Kanthal, etc. There are approximately thirteen fruit yielding tree species are found. A lemon garden is found behind the canteen. Different varieties of lemon are found. Following figure (Fig.-2) is showing a comparative diagram between total species and species of different gardens.



Quadrat analysis - Three quadrats have been studied within the campus (Table-6). It showed

that frequencies of trees are quite good (total 16 trees). Diversity of tree species is also remarkable. Timber yielding (*Acacia auriculiformis*, *Swetenia macrophylla),* fruiting bearing (*Mangifera indica*), avenue tree (*Roystonea regia*) etc. have been found.

Carbon stocking – We have studied 3 quadrats within the college campus. There are 16 trees are found within the quadrats. Total Carbon sequestration potential is 3820.5kg. It is assumed that the probability of carbon stocking is per tree is 238.78kg (Table-7).

Table -1: List of plants in Bajkul Milani Mahavidyalaya campus.
Tree

Sl. No.	Scientific Name	Local name	Family
1.	*Acacia auriculiformis*	Sonajhuri	Fabaceae
2.	*Albizia lebbeck*	Khiris	Fabaceae
3.	*Anthocephalus cadamba*	Kadam	Rubiaceae
4.	*Artocarpus heterophylla*	Jack Fruit	Moraceae
5.	*Azadirachta indica*	Neem	Meliaceae
6.	*Borassus flabellifer*	Tal	Arecaceae
7.	*Butea monosperma*	Palas	Fabaceae
8.	*Callistemon sp.*	Bottle brush	Myrtaceae
9.	*Casuarinas equsetifolia*	Jhau	Casuarinaceae
10.	*Citrus decumana*.	Batabilabu	Rutaceae
11.	*Cocos nucifera*	Narkol	Arecaceae
12.	*Couroupita guianensis*	Nagkesor	Lecythidaceae
13.	*Eugenia jambolana*	Kalojam	Myrtaceae
14.	*Ficus benghalensis* L.	Bot	Moraceae
15.	*Ficus glomerata*	Jaggadumur	Moraceae
16.	*Khaya anthotheca*	Lambu	Meliaceae
17.	*Litchi chinensis*	Lychee	Sapindaceae
18.	*Mangifera indica* L.	Amm	Anacardiaceae
19.	*Manilkara zapota*	Sofeda	Sapotaceae
20.	*Mimusops elangi*	Bakul	Sapotaceae

21.	*Murrya koenigii*	Kamini	Rutaceae
22.	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
23.	*Peltophorum pterocarpum*	Radhachura	Fabaceae
24.	*Polyalthea longifolia*	Debdaru	Annonaceae
25.	*Pongamea pinnata*	Karanj	Fabaceae
26.	*Psidium guajava*	Peyara	Myrtaceae
27.	*Ravenela madagascariensis*	Panthapadap	Strelitziaceae
28.	*Roystonea regia*	Cuban royal plam	Arecaceae
29.	*Swietenia macrophylla*	Mahogini	Meliaceae
30.	*Syzygium samarangense*	Jamrul	Myrtaceae
31.	*Tectona grandis*	Teak	Lamiaceae
32.	*Terminalia catappa*	Kat Badam	Starculaceae
33.	*Terminalia belerica*	Bahera	Combretaceae
34.	*Thevetia peruviana*	Karabi	Apocynaceae

Shrub

Sl. No.	**Scientific Name**	**Local name**	**Family**
1	*Aborma augustum*	Ulatchandal	Starculaceae
2	*Adenium sp.*		Apocynaceae
3	*Agave Americana*	Sisal	Asparagaceae
4	*Aschenomone aspera*	Sola	Fabaceae
5	*Asperagas racemosus*	Satamuli	Asperagaceae
6	*Cinnamomum tamala*	Tejpata	Lauraceae
7	*Cinnamomum zeylanicum*	Darchini	Lauraceae
8	*Citrus limetta*	Mosambi	Rutaceae
9	*Citrus limon*	Pati lebu	Rutaceae
10	*Cycas revolute*		Cycadaceae
11	***Datura stramonium.***	Dhutra	Solanaceae
12	*Duranta repens*	Hedge	Verbenaceae

13	*Euphorbia milii*		Euphorbiaceae
14	*Ficus glomerata*	Jaggyadumur	Moraceae
15	*Gymnema sylvestre*	Gurmar	Asclepiadaceae
16	*Hibiscus rosa sinensis*	Joba	Malvaceae
17	*Ixora coccinea*	Rangan	Rubiaceae
18	*Jatropha gossipifolia*	Gabjora	Euphobiaceae
19	*Justicia lupilana*	Bisalyakarani	Acanthaceae
20	*Mimosa pudica variety Pink*	Lajjawati	Fabaceae
21	*Mimosa pudica variety white*	Lajjawati	Fabaceae
22	*Moringa oleifera*	Sajne	Moringaceae
23	*Murraya paniculata*	Kamini	Rutaceae
24	*Musa paradisiacal*	Kacha kola	Musaceae
25	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
26	*Ocimum tenuiflorum*	Krishna tulsi	Lamiaceae
27	*Phyllanthus emblica*	Amlaki	Phyllanthaceae
28	*Rauvolfia serpentine*	Sarpagandha	Apocynaceae
29	*Rosa sp.*	Golap	Rosaceae
30	*Tabernemontana divaricata*	Tagar	Apocynaceae
31	*Terminalia bellirica*	Bahera	Combretaceae
32	*Trachyspermum ammi*	Ajowan	Apiaceae

Herb

Sl. No.	**Scientific Name**	**Family**
1	*Achyranthuys aspera*	Amaranthaceae
2	*Aloe vera*.	Liliaceae
3	*Andropogon aciculatus*	Poaceae
4	*Artemisia vulgaris*	Asteraceae

5	*Basella rubra*	Basellaceae
6	*Blumea lacera*	Asteraceae
7	*Brassica oleracea* var. botrytis	Brassicaceae
8	*Bryophyllum pinnatum*	Crassulaceae
9	*Capsicum annuum*	Solanaceae
10	*Carica papaya*	Caricaceae
11	*Cephalandra indica*	Cucurbitaceae
12	*Cleome viscosum*	Capparaceae
13	*Cosmos sp.*	Asteraceae
14	*Cucurbita Sp.*	Cucurbitaceae
15	*Curcuma amada*	Zingiberaceae
16	*Curcuma zedoaria*	Zingiberaceae
17	*Cyanodon dactylon*	Poaceae
18	*Cymbopogon citrates*	Poaceae
19	*Cyperus kyllinga*	Cyperaceae
20	*Dahlia pinnata*	Asteraceae
21	*Desmodium triflorum*	Fabaceae
22	*Digitaria sanguinales*	Poaceae
23	*Eclipta alba*	Asteraceae
24	*Eupatorium ayapana*	Asteraceae
25	*Heliotropium indicum*	Boraginaceae

26	*Lycopersicum esculantum*	Solanceae
27	*Nicotiana tabacum*	Solanaceae
28	*Oldanladia corymbosa*	Rubiaceae
29	*Oxalis corniculata*	Oxalidaceae
30	*Phyllanthus amaru*	Euphorbiaceae
31	*Salvia sp.*	Lamiaceae
32	*Scoparia dulsis*	Plantaginaceae
33	*Solanum melongena*	Solanaceae
34	*Strephania harnandifolia*	Menispermaceae
35	*Triamphetta rhomboida*	Malvaceae
36	*Wedelia chinensis*	Asteraceae
37	*Withania somnifera*	Solanaceae

Aquatic plants

Sl. No.	**Scientific Name**	**Family**
1.	*Alocasia esculanta*	Araceae
2.	*Commelina diffusa*	Commelinaceae
3.	*Enhydra fuctuens*	Asteraceae
4.	*Ipomoea aquatic*	Convolvulaceae
5.	*Jussiaea repens*	Onagraceae
6.	*Nymphea alba*	Nympheaceae

Gymnosperm

Sl.no.	Scientific Name	Family
1.	*Cycas* sp.	Cycadaceae

2.	*Thuja orientalis*	Cupressaceae

Table -2 : Plants of flower Garden

Sl. No.	Scientific name	Local name	Family
1	*Ixora coccinea*	Rangan	Rubiaceae
2	*Agave Americana*	Sisal	Asparagaceae
3	*Duranta repens*	Hedge	Verbenaceae
4	*Hibiscus rosa sinensis*	Joba	Malvaceae
5	*Euphorbia milii*		Euphorbiaceae
6	*Rosa sp.*	Golap	Rosaceae
7	*Adenium sp.*		Apocynaceae
8	*Cycas revolute*		Cycadaceae
9	*Thuja orientalis*	Jhau	Cupressaceae
10	*Aurocaria heterophylla*		Araucariaceae
11	*Murraya paniculata*	Kamini	Rutaceae
12	*Tabernemontana divaricata*	Tagar	Apocynaceae
13	*Cosmos sp.*	Cosmos	Asteraceae
14	*Dahlia pinnata*	Dahlia	Asteraceae
15	*Salvia sp.*	Salvia	Lamiaceae

Table - 3: Plants of kitchen garden

Sl. No.	Scientific name	Local name	Family
1.	*Lycopersicum esculantum*	Tomato	Solanceae
2.	*Solanum melongena*	Begun	Solanaceae
3.	*Carica papaya*	Papaya	Caricaceae
4	*Moringa oleifera*	Sajne	Moringaceae
5	*Alocasia esculanta*	Cochu	Araceae
6	*Basella rubra*	Pui	Basellaceae
7	*Capsicum annuum*	Lanka	Solanaceae
8.	*Cucurbita Sp.*	Kumro	Cucurbitaceae
9.	*Brassica oleracea* var. botrytis	Fulcopy	Brassicaceae

10.	*Musa paradisiacal*	Kacha kola	Musaceae

Table-4 : List of Medicinal Plants Present in Medicinal plant Garden

Sl. No.	**Scientific Name**	**Local name**	**Family**
1	*Aborma augustum*	Ulatchandal	Starculaceae
2	*Aloe vera*.	Ghritakumari	Liliaceae
3	*Artemisia vulgaris*	Nagdona	Asteraceae
4	*Asparagus racemosus*	Satamul	Asparagaceae
5	*Bryophyllum pinnatum*	Patharkuchi	Crassulaceae
6	*Cinnamomum tamala*	Tejpata	Lauraceae
7	*Cinnamomum zeylanicum*	Darchini	Lauraceae
8	*Curcuma amada*	Amada	Zingiberaceae
9	*Curcuma zedoaria*	Palo	Zingiberaceae
10	*Cymbopogon citrates*	Citronella	Poaceae
11	***Datura stramonium*.**	Dhutra	Solanaceae
12	*Eupatorium ayapana*	Ayapana	Asteraceae
13	*Ficus glomerata*	Jaggyadumur	Moraceae
14	*Gymnema sylvestre*	Gurmar	Asclepiadaceae
15	*Jatropha gossipifolia*	Gabjora	Euphobiaceae
16	*Justicia lupilana*	Bisalyakarani	Acanthaceae
17	*Mimosa pudica variety Pink*	Lajjawati	Fabaceae
18	*Mimosa pudica variety white*	Lajjawati	Fabaceae
19	*Nicotiana tabacum*	Tamak	Solanaceae

20	*Nyctanthes arbor-tristis*	Seuli	Oleaceae
21	*Ocimum tenuiflorum*	Krishna tulsi	Labiatae (Lamiaceae)
22	*Phyllanthus emblica*	Amlaki	Phyllanthaceae
23	*Rauvolfia serpentine*	Sarpagandha	Apocynaceae
24	*Saraca asoca*	Ashok	Ceasalpiniaceae
25	*Strephania harnandifolia*	Nimukho	Menispermaceae
26	*Terminalia bellirica*	Bahera	Combretaceae
27	*Trachyspermum ammi*	Ajowan	Apiaceae
28	*Wedelia chinensis*	Mahabringaraj	Asteraceae
29	*Withania somnifera*	Aswagandha	Solanaceae

Table -5: List of plants of fruit present in campus

Sl. No.	Scientific name	Common name	Family
1	*Artocarpus heterophylla*	Jack Fruit	Moraceae
2	*Borassus flabellifer*	Tal	Arecaceae
3	*Citrus decumana*.	Batabilabu	Rutaceae
4	*Cocos nucifera*	Coconut	Arecaceae
5	*Eugenia jambolana*	Kalojam	Myrtaceae
6	*Litchi chinensis*	Lychee	Sapindaceae
7	*Mangifera indica*	Aam	Anarcardiaceae
8	*Manilkara zapota*	Sofeda	Sapotaceae
9	*Mimusops elengii*	Bakul	Sapotaceae
10	*Psidium guajava*	Piara	Myrtaceae

11	*Terminalia catappa*	Kat Badam	Starculaceae
12.	*Citrus limon*	Pati lebu	Rutaceae
13.	*Citrus limetta*	Mosambi	Rutaceae

Table -6 : List of Quadrats studied within the college campus

Quadrat - 1

This place is in between two building and upper side of medicinal plant garden. Mostly the place is getting less sunlight. Trees are very old perhaps from the beginning time of the college. Any type of shrubs are not found here.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Mangifera indica*	206	14
2.	*Couroupita guianensis*	122	15
3	*Ravenela madagascariensis*	69	8
4	*Ravenela madagascariensis*	68	8
5	*Ravenela madagascariensis*	69	8

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1	*Hemigraphis hirta*	5
2.	*Cephlandra indica*	2

Quadrat – 2

The location of this quadrat is near the staff quarter. Staff quarter is situated near the main gate (gate no.-1). Low land and plantation of *Acacia* sp. are found. There are three mango trees near the quarters. It seems that few parts are water logging area in rainy season.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Acacia auriculiformis*	69	7
2	*Acacia auriculiformis*	56	6
3	*Acacia auriculiformis*	70	7
4	*Acacia auriculiformis*	32	5

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1.	*Stephania harnandifolia*	2
2.	*Alternanthera sessile*	2

3.	*perotis indica*	5
4.	*Boerhavia repens*	3
5.	*Cyanodon dactylon*	13
6.	*Mikania scandens*	2
7.	*Enhydra fluctuens*	5

Quadrat - 3

It is the northern side of the campus between the building and boundary wall. Whole area is a waste dumping zone. Plantation of Mahogini (*Swetenia macrophylla*) trees are found. There are different types of fruit trees also.

Tree Quadrat (10m x 10m)

Sl. No.	Scientific name	GBH (in cm)	Height (in m)
1.	*Swetenia macrophylla*	100	10
2.	*Swetenia macrophylla*	105	10
3	*Swetenia macrophylla*	72	9
4	*Swetenia macrophylla*	52	7
5	*Swetenia macrophylla*	64	8
6	*Mangifera indica*	42	6
7.	*Syzygium samarangense*	36	5

Shrub quadrat (5m x 5m) - Nil

Herb quadrat (1m x 1m)

Sl. No.	Scientific name	Number of individuals
1.	*Stephania harnandifolia*	2
2.	*Blumea lacera*	3
3.	*Cyanodon dactylon*	15

Table -7 : Carbon sequestration potential of trees of college campus

Sl. No.	GBH Class (in cm)	No. of Trees	Biomass (in Kg.)	Carbon stock (in Kg.)
1	50	3	318	159
2	50-100	10	6680	3340
3	100-150	2	3928	1964
4	200 - 250	1	7641	3820.5
			Total	**9283.5**

Faunal Diversity- The College has two ponds, huge trees, waste land, low land, banana garden which are habitat of faunal components. So, wide variety of fauna are supporting its rich biodiversity. The college campus is the feeding and breeding ground of the many animals. Different types of earth worm, insects (moths, butterfly, wasp, and bees), amphibian, reptilian, birds and mammals are found here and there in the college campus. There is one big, one small

size pond are present under the college premises. In those ponds there have many indigenous fresh water fishes which are nourished. From conversation with faculty members, different stakeholders of the college, following information are collected.

Faunal Diversity		
Phylum: Annelida		
Local Name		Scientific Name
1	Kecho	*Pheretimaposthuma*
2	Joke	*Hirudinaria*sp
Phylum: Arthropoda		
1	Prajapati	*Papilio*sp
2	Moth	*Galleria* sp
3	Moumachi	*Apis*sp
4	Jonaki	*Lampyrisnoctiluca*
5	Arsola	*Periplanetaamericana*
6	Vimrul	*Vespa orientalis*
7	Lalpipra	*Oecophyllasmaragdina*
8	Kakrabicha	*Buthus*sp
9	Tetulbicha	*Scolopendra*sp
10	Kenno	*Julus*sp
11	Pangapal	*Schistoceragregaria*
12	Anopilis masa	*Anopheles* sp
13	Culex masa	*Culex*sp
14	Ades masa	*Aedes*sp
15	Gubrepoka	*Coprislunaris*
16	Pharing	*Orthetrum*sp
17	Wepoka	*Odontotermes*sp
18	Machi	*Muskadomestica*
19	Makarsa	*Nephila*sp
Phylum: Mollusca		
20	Sthalsamuk	*Acatinafulica*
21	Jalsamuk	*Pilaglobosa*
22	Gugli	*Bellamyabengalensis*
23	Jhinuk	*Lamellidensmarginalis*
24	Kath joke	*Limax*sp
Fresh water fishes		
1	Ruimach	*Labeorohita*
2	Katlamach	*Catlacatla*
3	Mrigelmach	*Cirrhinusmrigala*
4	Bata mach	*Labeobata*
5	Kalbose	*Labeocalbasu*
6	Silver carp	*Hypophthalmichthysmolitrix*
7	Grass carp	*Ctenopharyngodonidella*

8	Cyprinuscarpio	*Cyprinuscarpio*
9	Balkurmach	*Glossogobiusgiuris*
10	Magurmach	*Clariasbatrachus*
11	Singimach	*Heteropneustesfossilis*
12	Latamach	*Channapunctatus*
13	Chang mach	*Channagachua*
14	Sholmach	*Channastriata*
15	Koi mach	*Anabasatestudineus*
16	Phaloimach	*Notopterusnotopterus*
17	Tilapia	*Oreochromismossambicus*
18	Pabdamach	*Ompokpabda*
19	Phutimach	*Puntiusticto*
20	Mourlamach	*Amblypharyngodonmola*
21	Techoka or Bostam pona	*Aplocheiluspanchax*
22	Kholsamach	*Colisa*sp
23	Pankalmach	*Mastacembelussp*
24	Dhariamach	*Esomusdanricus*
25	Chandamach	*Chanda*sp
26	Tangra	*Mystus*sp
Class : Amphibia		
1	Kuno bang	*Duttaphrynusmelanostictus*
2	Sona bang	*Ranatigrina*
Class: Reptilia		
1	Loudaga	*Ahaetullanasutas*
2	Jaldhora	*Xenochriphispiscator*
3	Matiali sap	*Elachistodonwestermanni*
4	Jamna sap	*Ptyasmucosus*
5	Godi sap	*Varanus*sp
6	Keute	*Naja*sp
7	Tiktiki	*Hemidactylusflaviviridis*
8	Girgiti	*Calottes versicolor*
9	Kachhap	*Tryonix*sp
Class : Aves		
1	Charaipakhi	*Passer domesticus*
2	Tuntuni	*Orthotomus*sp
3	Satbhaya	*Turdoideseaudatus*
4	Doyel	*Copsychussaularis*
5	Bulbul	*Pycnonotus*sp
6	Kak	*Corvussplendens*
7	Shalik	*Acridotherestristris*
8	Phinge	*Dicrurousadsimilis*
9	Kajalpakhi	*Laniuscristatus*
10	Kat thokra	*Dinopiumbenga*

11	Baspati	*Meropsorientalis*
12	Chotomachranga	*Alcedoatthis*
13	Sadabookmachranga	*Halcyon* sp
14	Lakhsmipancha	*Tyto alba*
15	Kuturepancha	*Athenebrama*
16	Kokil	*Eudynamysscolopacea*
17	Tia	*Pisttacula*sp
18	Gughu	*Streptopeliachinensis*
19	Paira	*Columba livia*
20	Dahuk	*Amaurornisphooniurus*
21	Bak	*Ardeolagrayii*
Class : Mammalia		
1	Katbirali	*Funambuluspennantii*
2	Neul	*Herpestesedwardsii*
3	Mechobiral	*Prionailurusviverrinus*
4	Katas	*Felischaus*
5	Khaksial	*Vulpesbengalensis*
6	Chucha	*Suncusmurinus*
7	Indur	*Bandicotabengalensis*
8	Nenhtiindur	*Musmusculus*
9	Badhur	*Pteropus*sp
10	Chamchika	*Pipistrellus tenuis*

Few suggestions for biodiversity management – The College has a lash green area with different ecological habitat for biotic components. Following suggestions are given for its better management.

- Name plates should be given to trees for their easy identification to students
- A board should be given in front of medicinal plant garden where use of every plant will be written there.
- A board should be given in front the pond where indigenous fish conservation is going on. The board will display about the type of fish conserved.
- If possible a bird watching area may be demarcated in front of hostel (North east corner of the campus)
- Rose garden may be converted to butterfly garden.

Table-17 Green Coverage of the College Premises

Green Coverage of the College Premises	Area in Percentage
Native and Natural Vegetation	27
Plantation	32
Agro-Plants	36
Medicinal Plants	5

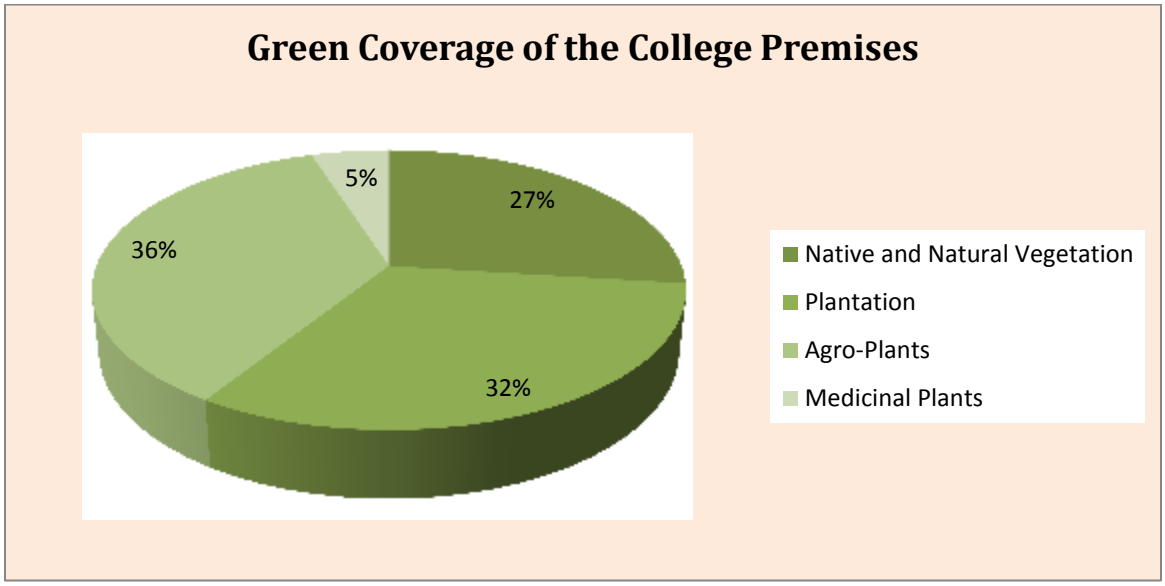


Fig. 11 Green Coverage of the College Premises

Implemented Biodiversity & Green Management		
Sl. No	Factors/ Indicators	Weightage
1	Plants Diversity	M
2	Birds and Insects	M
3	Mammals	M
4	Fishes and Amphibian	H
5	Fungus & Organisms	L

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

3.7 Reviews of Documents and Records:

Documents such as admission registers, registers of Engineering and water charge remittance, furniture register, laboratory equipment registers, purchase register, audited statements, and office registers were examined and data were collected. College calendars, college magazines, annual report of the college and NAAC self-assessment reports, UGC report etc. were also verified as part of data collection.

3.8 Review of Policies:

Discussions were made with the College management regarding their policies on environmental management. Future plans of the College were also discussed. The management would formulate a revised environment /green policy for the college in the light of green auditing. The purpose of the green audit was to ensure that the practices followed in the campus are to be in accordance with the Green Policy adopted by the institution.

3.9 Interviews:

In order to college information for green auditing different audit groups which are IQAC Cell, Dept. HOD, Teaching and non-teaching staff, students, Students Union, parents and other stakeholders of the College. Discussions were also made with the PTA office bearers to clarify doubts regarding certain points.

4.0 POST AUDIT STAGE :

4.1. Data Analysis and Assessment :

The base of any Green audit and Environmental audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner.

Although Green & Environmental audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. Each of the three components are crucial in ensuring that the organization's environmental performance meets the goals set in its green policy. The individual functioning and the success of integration will all play a role in the degree of success or failure of the organization's environmental performance.

4.2 Results and Findings:

a) Water -

Water Audit and Assessment:

Sl. No.	Object and Parameter	Observation and Finding
1	Source of water	➢ Underground(34000liter) ➢ Surface water(4000litre) ➢ Surface water bodies(1.75 acre)
2	Capacity of water storage (Daily)	➢ Reservoir and Overhead tanks-38000liter ➢ Total amount of used -37500ltr

		➢ Total misuse of water- 500 ltr
3	Amount of used water per day	37500 liter
4	Misuse of water in daily	Leakage, overflow and Misuse- 500 liter
5	Maximum used of water per day – Bathing and Washroom purpose	37% (13875liter)
6	Amount of water for used per day- Drinking Purpose	19% (7125 liter)
9	pH level of drinking water	6.8
10	TDS level of drinking water	80 ppm - 120ppm
11	Use of surface water	4000lt

b. Energy-

a) ❖Electricity Consumption – 59077 Unit (Conventional). Rs.576000/- Per Year
b) Conventional energy- 59077 Unit
c) Nonconventional energy-9600Unit (Production Capacity)
d) Payable cost of electricity – Rs.576000/- Per Year

❖ Fossil fuel consumption per Year:
   a. Number of Gas cylinders used for cooking purpose(Hostels& Canteen) – 22PC
   b. Number of Gas cylinders used in Chemistry Laboratory - 4PC
   c. Diesel used for green Generator- 40 liter

❖Number of Green Generators - 1 Unit
❖Cost of fuel for Generator – Rs. 3600/-Month

Energy Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Source of energy (conventional)	97%
2	Source of energy (Non-conventional)	Solar- 3%(9600Unit)
3	Total consumption of Electric Power	59077 Unit
4	The maximum use of Electric Power	Conventional - 95%
5	Maximum energy consumption in the purpose	Automobile & ITI – 25994unit AC-4135 unit
6	Energy Consumption in Computer & Lab.	11225 unit
7	No. of LPG Gas cylinder for coking purpose	22
8	No. of LPG Gas cylinder used in Laboratories	4
9	Amount of diesel used for green generator	40 liter
10	No. of Computers and use of energy	84 (110.88 Unit/Day)
11	No. of AC and use of energy	16(120 Unit/Day)

Energy consumption in different purpose, 2022-23		
1.	Automobile & ITI	25994 unit
2.	Lights & Fans	14779 unit
3.	Air Condition	4135 unit
4.	Lifting of water(HP pump)	1772 unit
5.	Computer & Dept. Lab	11225 unit
6.	Others(CCTV,TV, water cooler & others)	1181 unit

c. Wastes-

- Total Students – 3976 persons
- Other Stakeholders – 36 persons
- Total Stakeholders - 4210 persons
- Departments – 26
- Student Hostels - 01
- Office & Building - 05
- Canteen- 01
- Type of Wastes & Management: Biological Wastes Disposal by local authority & Bio-fertilizer Unit.
- E-wastes- computers, electrical and electronic parts – Disposal by selling
- Plastic waste- disposal by selling
- Solid wastes – Damaged furniture, Iron & Metal scraps- Disposal by Selling
- Food wastes – Waste Rice, Vegetable, Paper plates- Disposal to by local authority
- Chemical wastes – Laboratory waste treatment –Inadequate -No treatment
- Waste water – washing, urinals, and bathrooms in soak pits
- Glass waste – Broken glass wares from the labs to local authority
- Napkin & Clothes incinerators- Disposal to local authority

Waste Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Degradable waste	48(Kg/Day)
2	Non degradable	5(Kg/Day)

3	Source of waste (Organic)	Hostels, Canteen and Garden
4	Source of waste (Chemical Waste)	Zoology Lab., Chemistry Lab., Botany Lab. and Micro-Biology lab
5	Plastic waste management	Use of separate dustbin and Established of different waste unit

e) Green Campus-

Green cover of the campus- 13% area

Free space including Playground-40% area

Crops cultivated in the campus:

Chilly, Cabbage, Tomato, Spinach, Brinjal, Cauliflower, Ladies finger, Pea and different seasons flowers are produced during different seasons in Hostels Kitchen garden and College premises area.

Biodiversity observation

Table 18 Biodiversity and Green Coverage

Sl. No.	Object and Parameter	Observation and Finding
1	Vegetation coverage area	13 % Area
2	Types of green coverage	➢ Native and Natural Vegetation- 27 % ➢ Medicinal plants-5% ➢ Agro-plants-36% ➢ Plantatio-36%
3	Different types of Animal	➢ Mammals -Squirrel, Rat, Free ranging Cat, Free ranging Dog, Field Rat, Bengal Fox etc. ➢ Amphibian-Snake, Frogs ➢ Birds- Crow, Common Moyna, Pigeon, etc. ➢ Insects- Ants, Butterfly, Spider etc.
4	Biodiversity and Green Management Programme	➢ Awareness program arrange by- Dept. of Zoology and Dept. of Botany among the students and Staff through the year ➢ Observation and celebration of environmental days ➢ Maintain the ponds ecosystem & fishes cultivation

Aerial views and Green coverage area

Table 19 Green Coverage of the College Premises

Green Coverage of the College Premises	Area in Percentage
Native and Natural Vegetation	27
Plantation	32
Agro-Plants	36
Medicinal Plants	5

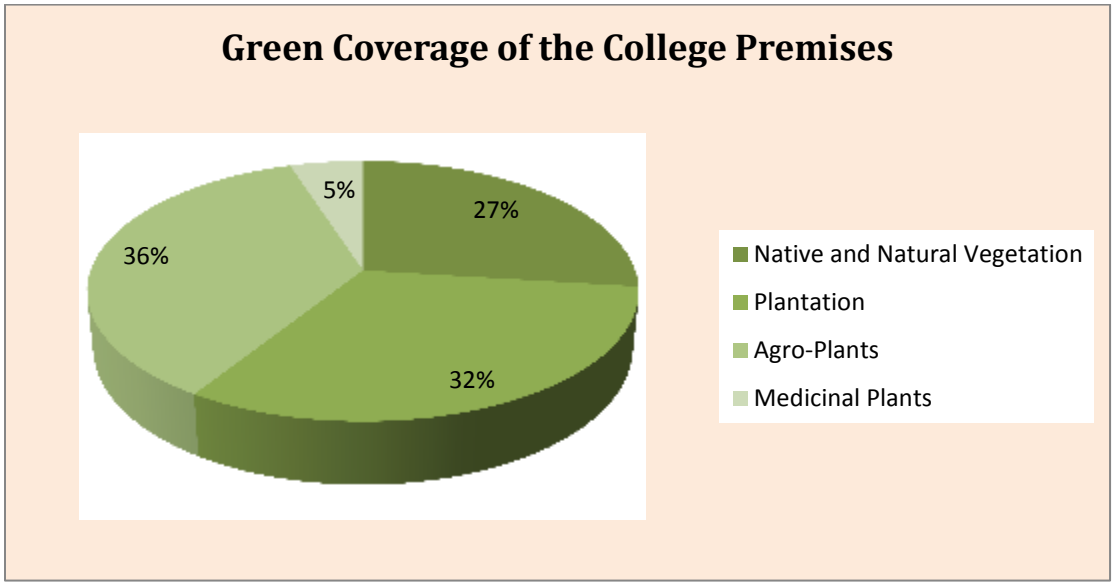


Fig. 12 Green Coverage of the College Premises

f) Carbon Footprint-

- Number of Students & Staff using cycles – 330
- Number of persons using cars – 4
- Number of persons uses two wheelers – 30
- Number of students uses Buses - 2113
- Number of persons using other transportations –260
- Number of visitors per day – 15
- Number of Students staying in the hostel – 14
- Number of Faculty and staff staying in the quarters – 00
- Average distance travelled by stake holders – 20 kms /day
- Expenditure for transportation per person per day – Rs. 30/-

4.3 SUMMARY:

I. The installation of solar panels, Fire extinguishers training, organic vegetable cultivation, Vermi composting practices are inadequate.
II. The College campus is plastic free and maintained the outdoor air quality.
III. The environmental awareness initiatives are adequate.
IV. The College campus is plastic free and maintained the outdoor air quality.
V. Indoor air quality of the laboratories is very uncomfortable and inhospitable.
VI. Use of notice boards and signs are inadequate to reduce over exploitation of natural resources.
VII. Fully carbon foot prints and wastes free zone actions should be taken to maintain this.
VIII. Rain water harvesting systems, solar power generation, Bio Gas, Re-use of water environmental education programs have to be fully explored.
IX.
X. There is Nature club of the College towards its environmental performance for Community development.
XI. Programs on green initiatives have to be increased. Campus is declared "Clean Campus"
XII.

Implemented Air Quality management		
Sl No	**Indicator**	**Weightage**
1	Carbon & Smoke free	H
2	Exhaust fans &Ventilation	L
3	Emission of GHGs	M
4	Indoor Plants	L

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

Major Audit Observations		
Sl. No	**Sectors/Indicators**	weightage
1	Water efficiency Audit	H
2	Energy efficiency Audit	L
3	Air Quality & Carbon foot print Audit	M
4	Wastes Audit	H
5	Green & Biodiversity Audit	H

* H denote- Taken management policy level above 60%
** M denote- Taken management policy level 40%-60%
*** L denote-Taken management policy level below 40%

4.4 Environmental Education:

The following environmental education program may be implemented in the College before the next green and environmental auditing:-

- Installation of different captions : No smoking, , switch OFF light and ON after use, plastic free campus etc.
- Training programs in solid waste management, liquid waste management, setting up of medicinal plant nursery, water management, vegetable cultivation, tree planting, energy management, landscape management, and rain water harvesting and water re-use methods.
- Conduct exhibition of recyclable waste products
- Activate the nature or green clubs
- Set up Organic vegetable garden, medicinal plant garden, Indigenous fish farm etc. for providing proper training to the students.

4.5 Common Recommendations

- ✓ Adopt an environmental policy for the college
- ✓ Introduce UGC Environmental Science course to all students
- ✓ Renovation of cooking system in the canteen to save gas
- ✓ Establish water, waste and energy management systems
- ✓ Establish a purchase policy for environmental friendly materials
- ✓ Conduct more seminars and group discussions on environmental education
- ✓ Students and staff can be permitted to solve local environmental problems

4.6 Criteria Wise Recommendations

Water Audit

- Drip irrigation for gardens and micro irrigation technology can be initiated.
- Establish water treatment systems.
- Remove damaged taps and install sensitive taps is possible.
- Establish the more water reuse unit in the Hostel & staff quarter's area.
- Awareness programs on water conservation to be conducted.
- Drip irrigation for gardens and micro irrigation technology can be initiated.
- Establish the re-use water management methods.

- Establish rain water harvesting systems for each building and each campus.
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Energy Audit

- ✓ Replace computers and TVs with LED monitors.
- ✓ More energy efficient fans, tubes and bulb should be replaced.
- ✓ Automatic power switch off systems may be introduced.
- ✓ Employment of more solar panels and other renewable energy sources.
- ✓ Conduct more save energy awareness programs for students and staff.

Waste Audit

- ❖ Practice of waste segregation to be initiated.
- ❖ Establish of a unit for chemical liquid wastes and Hazardous waste management
- ❖ A model Vermi composting plant to be set up in the Hostels, canteen and Quarters of Establish a Regular functional bio gas plant.
- ❖ A model solid waste treatment system to be established.
- ❖ Practice of waste segregation to be initiated.
- ❖ Establish of a unit for chemical liquid wastes and Hazardous waste management
- ❖ A model Vermi composting plant to be set up in the Hostels, canteen and Quarters of college campus.
- ❖ Establish an e-waste management unit

Green Campus Audit

- ✓ All trees in the campus should be named scientifically.
- ✓ Develop the Herbal and medicinal plants garden for large area
- ✓ Create more space for planting in vacant land.
- ✓ Establish a butterfly park.
- ✓ Not just celebrating environment day but making it a daily habit.
- ✓ Providing funds to nature club for making campus more green
- ✓ Establish an Orchid ex-situ zone .
- ✓ Develop the Fruits trees area for Birds conservation
- ✓ Grow potted indoor plants at verandah, class rooms and Laboratories.
- ✓ Create automatic drip irrigation system during summer holidays.
- ✓ Not just celebrating environment day but making it a daily habit.
- ✓ Providing funds to nature club for making campus more green
- ✓ Conducting competitions among departments for making students more interested in making the campus green.
- ✓
- ✓ Encouraging students not just through words, but through action for making the campus green
- ✓ Conducting competitions among departments for making students more interested in making the campus green.

Carbon footprint Audit

- ❖ Establish a more efficient cooking system to save gas

- Establish the indoor plants in office rooms ,computer lab and other laboratories to CO_2 management
- Providing more college bus services to the students and staff.
- Establish a system of carpooling among the staff and visitors to reduce the number of four wheelers coming to the college.
- Encourage students and staff to use cycles.
- Establish the indoor plants in office rooms ,computer lab and other laboratories to CO_2 management
- Providing more college bus services to the students and staff.

Audit Team

Aerial View of Entrance Gate in College premises

Executive Summary: 2022-23

Environmental Audit is a process of systematic, documented, periodic and objective evaluation of components of environmental diversity with the aim of safeguarding the environment and natural resources. The process starts with the systematic identification, quantification, recording, reporting and analysis of components of environmental diversity and is a means of assessing environmental performance (Welford, 2002). It aims to analyze environments within and outside of the concerned area, which will have an impact on the eco-friendly atmosphere. Green and Environmental audit is a valuable means for an institution to determine how and where they are using the most resources; the institution can then consider how to implement changes and take necessary management measures. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on their area of work. Environmental auditing and the implementation of mitigation measures is a win-win situation for the institution, the learners and the planet. It can also create health consciousness and promote to holistic approaches to environmental management, awareness, values and ethics. Green and Environmental auditing promote financial savings through efficiency of resource usage. It gives an opportunity for the development of ownership, personal and social responsibility for the students and teachers. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the institute 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.

In Bajkul Milani Mahavidyalaya, Purba Medinipur, W.B the audit process involved initial interviews with the teachers and staffs to clarify policies, activities, records and the cooperation in the implementation of mitigation measures. This was followed by collection of data through the questionnaires, review of records, observation and enquiry of practices and observable outcomes. In addition, the approach ensured that the management and staff are active participants in the Green and Environmental auditing process. The baseline data prepared for the Bajkul Milani Mahavidyalaya, Purba Medinipur, W.B. will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development. Existing data will allow the College to compare its programmers and operations with those of peer institutions, identify areas in the need of improvement, and prioritize the implementation of future projects.

The area of the College premises is 12.5 acre out of which about 1.625 acre areas is covered by trees, plants etc. and 1.75 acre areas is covered by surface water bodies and wetland In the present audit report most of the aspects are covered such as tree plantation, awareness about environment programmers, rain water harvesting and plastic free premises. The College has already taken some steps to protect the environment with help of teachers, staff and students under the guidance of Dr. Pijushkanti Dandapat Principal/TIC, Bajkul Milani Mahavidyalaya, Purba Medinipur, We expect that the management will be committed to implement the green and environmental audit recommendations. We are happy to submit this green and environmental audit report to the Bajkul Milani Mahavidyalaya, Purba Medinipur,W.B.

सत्यमेव जयते

Certificate

Where there is Rural Wellbeing
there is Universal Prosperity

This is to certify that Bajkul Milani Mahavidyalaya, Paschim Medinipur, West Bengal is now a Recognized Social Entrepreneurship, Swachhta & Rural Engagement Cell (SES REC) Institution. The Institution has successfully framed the SES REC Action Plan and constituted ten working groups for improving facilities in the Campus and the Community/Adopted Villages in the areas of Sanitation & Hygiene, Waste Management, Water Management, Energy Conservation and Greenery post COVID-19, along with the observation of three environment, entrepreneurship and community engagement related days to inculcate in faculty, students and community, the practices of Mentoring, Social Responsibility, Swachhta and Care for Environment and Resources.

Date of Issue: 29-08-2020

Dr. W G Prasanna Kumar
Chairman

Mahatma Gandhi National Council of Rural Education
Department of Higher Education, Ministry of Education
Government of India

Certificate No.: MoE/SES REC/WB1/*Paschim Medinipur*/46