

# **GREEN AND ENVIRONMENTAL AUDIT REPORT (2022-2023)**

**NAYAGRAM PANDIT RAGHUNATH MURMU  
GOVERNMENT COLLEGE  
NAYAGRAM, WEST BENGAL**

**CONSULTRAIN MANAGEMENT SERVICES,  
LAKE ROAD, KOLKATA**

**TROPICAL INSTITUTE OF EARTH AND  
ENVIRONMENTAL 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 Nayagram Pandit Raghunath Murmu Govt. College, Baligeria, Nayagram Block, Jhargram District, 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, 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)  
President, TIEER

(Dr. Pranab Sahoo)  
Asst. Professor &  
Secretary, TIEER

(Mrs. Sanchita Bhattachariya)  
ISO-Auditor & CEO, CMS

(Dr. Sudipta Kr. Maiti)  
Expert & Member, TIEER

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

# ENVIRONMENTAL AUDIT CERTIFICATE

## Academic Year: 2022-2023

This is to certify that Nayagram Pandit Raghunath Murmu Govt. College, Baligeria, Nayagram Block, Jhargram District, West Bengal has good and healthy eco-friendly environment created for saving Earth and Nature. Tropical Institute of Earth and Environmental Research associated with Consul-train Management Service are satisfied after Environmental Audit with moral support of Honorable Principal, 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)  
President, TIEER

(Dr. Pranab Sahoo)  
Asst. Professor &  
Secretary, TIEER

(Mrs. Sanchita Bhattachariya)  
ISO-Auditor & CEO, CMS

(Dr. Sudipta Kr. Maiti)  
Expert & Member, TIEER

## ACKNOWLEDGEMENT

We, The Environment Audit Team thank the management of Nayagram Pandit Raghunath Murnu Government College at Nayagram 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/ OIC 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.	<b>Dr. Binoy Kr. Chanda</b>	President, TIEER & Former IC, VU	Environment Science & Climatology
2.	<b>Dr. Pranab Sahoo</b>	Secretary, TIEER & Assistant Professor and HOD, Dept of Geography, S.B. Mahavidyalaya, Kapgari	Climate Change and Environment Management and Biogeography
3.	<b>Mrs. Sanchita Bhattachariya</b>	Consultant, Consultrain Management services, Kolkata, & Member, TIEER, ISO-9001,14001& 50001Cerfied Auditor.	Environment Management
4.	<b>Dr. Pijush Kanti Tripathi</b>	Associate Professor, Dept. of Geography, Haldia Govt. College	Ecology and Environment management
5.	<b>Dr. Sudipta Maiti</b>	Faulty, Dept. of Botany, Raja N.L. Khan Womens' College, Midnapore	Plants Diversity & Carbon stocking, Green Management
6.	<b>Dr. Mrinmoy Ghorai</b>	Assistant Professor in Zoology, Panskura Banomali college.	Fauna & Aqua animals and Biodiversity conservation
7.	<b>Dr. Chandan Karan</b>	Faculty, Dept. of Geography, S.B. Mahavidyalaya, Kapgari	Land use Survey, Technician for Lab test. and Map Designer
8.	<b>Sri Ananda Das</b>	Asst. Teacher & expert	Electro physics
9.	<b>Sri Sarat Chatterjee</b>	Surveyor & Assistant Researcher	Water and Air Quality Measurement
10.	<b>Sri Sanjib Mahata</b>	Surveyor & Expert in RS &GIS	Map Designer

## CONTENTS

Chapter No.	Title	Page No.
<b>1.0</b>	<b>INTRODUCTION</b>	<b>7-10</b>
<b>1.1</b>	<b>Goals &amp; Objectives</b>	
<b>1.2</b>	<b>About the College</b>	
<b>1.3</b>	<b>Purpose of Green and Environmental Auditing</b>	
<b>2.0</b>	<b>PRE –AUDIT STAGE</b>	<b>11-12</b>
<b>2.1</b>	<b>Methodology and Survey Schedules</b>	
<b>2.2</b>	<b>Site Visit</b>	
<b>2.3</b>	<b>Survey &amp; Data Collection</b>	
<b>3.0</b>	<b>AUDIT STAGE</b>	<b>13-30</b>
<b>3.1</b>	<b>Campus Survey and Enquiry</b>	
<b>3.2</b>	<b>Water Efficiency and Water Management</b>	
<b>3.3</b>	<b>Energy Efficiency and Energy Management</b>	
<b>3.4</b>	<b>Air Quality and Carbon Footprints</b>	
<b>3.5</b>	<b>Generation of Waste and Waste Management</b>	
<b>3.6</b>	<b>Auditing for Biodiversity &amp; Green Campus Management</b>	
<b>3.7</b>	<b>Reviews of Documents and Records</b>	
<b>3.8</b>	<b>Review of Policies</b>	
<b>3.9</b>	<b>Interviews</b>	
<b>4.0</b>	<b>POST AUDIT STAGE</b>	<b>31-37</b>
<b>4.1</b>	<b>Data analysis and Assessment</b>	
<b>4.2</b>	<b>Result and Findings</b>	
<b>4.3</b>	<b>Summary</b>	
<b>4.4</b>	<b>Environmental Education</b>	
<b>4.5</b>	<b>Common Recommendations</b>	
<b>4.6</b>	<b>Criteria Wise Recommendations</b>	
	<b>EXECUTIVE SUMMARY</b>	<b>38-39</b>

## 1.0 INTRODUCTION:

The term 'Green' stands for Resource balance, Quality environment, Recycled products and Ecofriendly 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.



### 1.1 Goals & Objectives:

It aims to analysis 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 out of Green and Environment 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
- ENERGY MANAGEMENT
- AIR QUALITY AND CARBON FOOTPRINT
- WASTE MANAGEMENT
- E-WASTE MANAGEMENT
- BIODIVERSITY

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 of the Nayagram Pandit Raghunath Murmu Government College at Nayagram campus. The committee has suggested short term as well as long-term suggestions for improved environmental conditions to a higher level and authorities and all stakeholders



of the College conform that they will give due attention and utilize opportunities for identified improvements.

## 1.2 About the College :

Nayagram Pandit Raghunath Murmu Government College at Nayagram. An appreciable approach of State Government is to decentralize higher education and enrich the thoughts & minds of the students of Junglemahal. This Govt. General Degree College has just started its journey in the year 2014 and is affiliated to Vidyasagar University, Midnapore . It started its academic function from the session june,2014. This College is proud of having qualified, dedicated faculty members, Office staffs and the securities. All the staffs are always engaged themselves motivating & inspiring students to build up their capacity in various desirable sections. Healthy ambience of this College campus maintained by the stakeholders is our best policy to achieve excellence not only in Teaching - Learning but also in other co-curricular fields. We are determined to make this Institution a center of excellence. To be Teacher in-

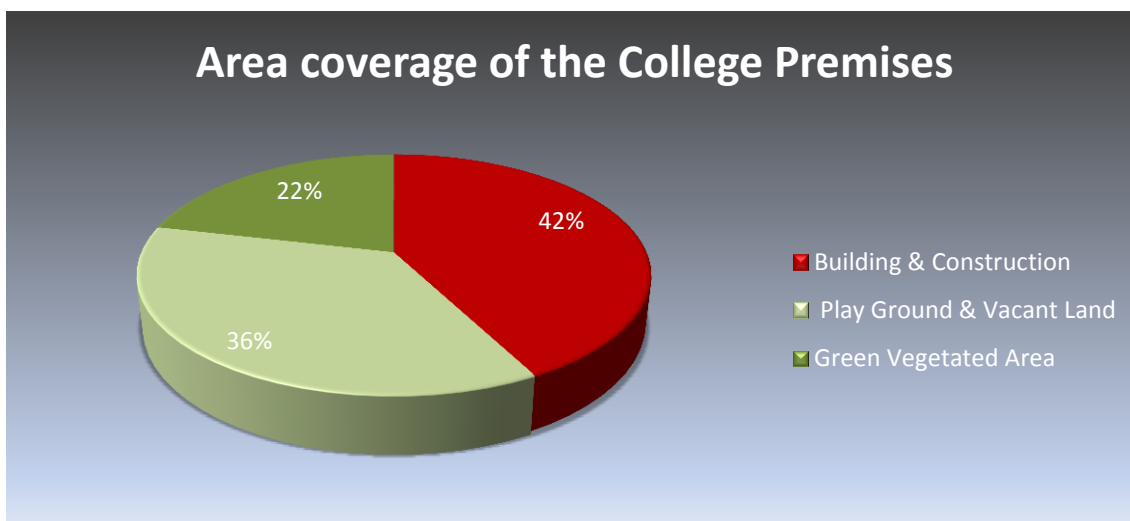


charge of this Institution and getting support from parents and local peoples. This Institution is going to be the destination of many poor, young talented minds in near future, I believe.

I would like to thank Higher Education Departments, Govt. of West Bengal and our stakeholders for unwavering commitment and their impeccable support. This has been a precursor in allowing us to raise our ladder to the next level and as well enabled us to realize our new thrust. It is our collective pleasure to invite our partners in government, industry and the community to engage with us in realizing our vision of "Aim high, Shoot high!". When you shoot, always aim for the moon so that if you miss this big target, at least your bullet will settle for one of the many stars. Remember a journey of a thousand miles starts with a single step. Let us walk this journey side by side with each other until we help you realize your career aspirations.

**Table 1 Area Coverage of the College Campus**

Area Coverage of College Premises:	Area in Percentage
Building & Construction	42.27
Play Ground & Vacant Land	36.33
Green Vegetated Area	21.4



**Fig. 1** Area Coverage of College Premises

## General Information:

Total area of the college campus – 7.57 acre

Building area: 3.20 acres,

Green & Vegetated area: 1.62 acres.

Play Ground & Vacant land area: 2.75 acre

Departments: 11(UG Departments)

Laboratories: 2

Students: 1504

Teaching & Non-teaching staff: 35

Others stakeholder: 6 (Security & Karmabandhus)

Total Stake holders: 1545

Auditorium /Seminar hall: 02

Digital class rooms/ smart classroom: 02

Gymnasium Hall: 01

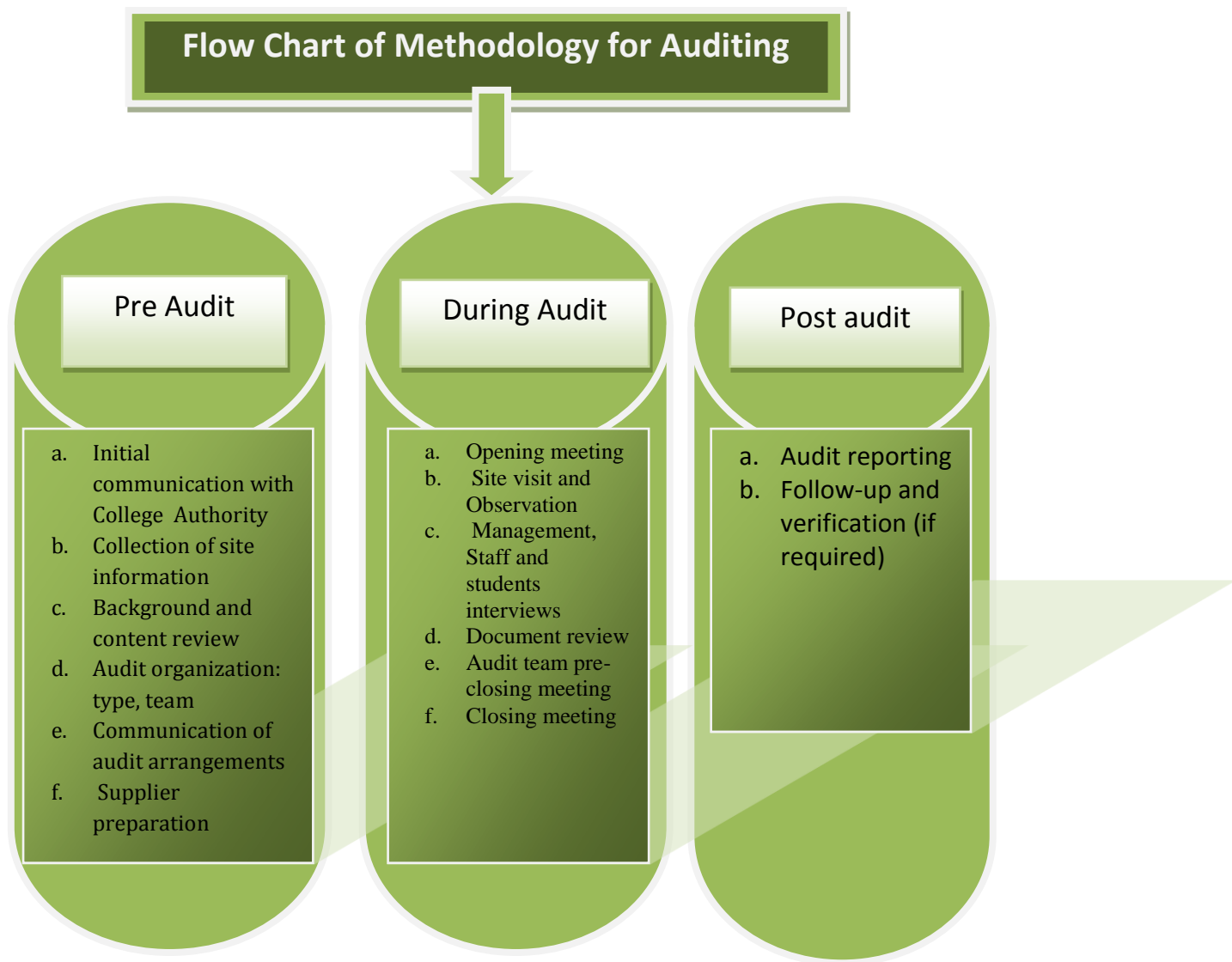
### 1.3 Purpose of Green and Environmental Auditing:

- To develop to more efficient resource management
- 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.



## 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, library, All Department, office rooms, parking grounds was 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 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, etc.
- Data collected by observation and interview.
- Assessment of the environmental condition through measurement



Survey of the  
Nayagram,  
India  
21-09-2023  
01:59pm

Ecofriendly College premises

## 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 from 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.



Survey of the  
Nayagram Pandit Raghunath Murmu Govt. College  
21-09-2023 01:19:41  
01:19:41



Campus Survey

### 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.

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 Produce and Waste Management
5. Biodiversity and Green Zone management

**Table-2 Total Stakeholders of the College**

<b>Students -</b>	1504 persons
<b>Teaching, Non-teaching and Other Stakeholders</b>	41persons
<b>Total</b>	1545 persons
Approximate no of visitor (per day)-	11 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.

<b>a</b>	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 16000Litre water has been supplied for that sector.
<b>b.</b>	Consumption of water	About 15800 Litre water per day
<b>c.</b>	Water wastage	The leakage and misuse of water is about 200 Litre 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.

**Table-3 Use of water for Different Purpose of College Premises**

Use of water for Different Purpose Per Day	Use in Percentage
<b>Drinking</b>	19
<b>Washroom</b>	60
<b>Cleaning</b>	8
<b>Gardening</b>	3
<b>Others</b>	9
<b>Overflow &amp; Leakage</b>	1

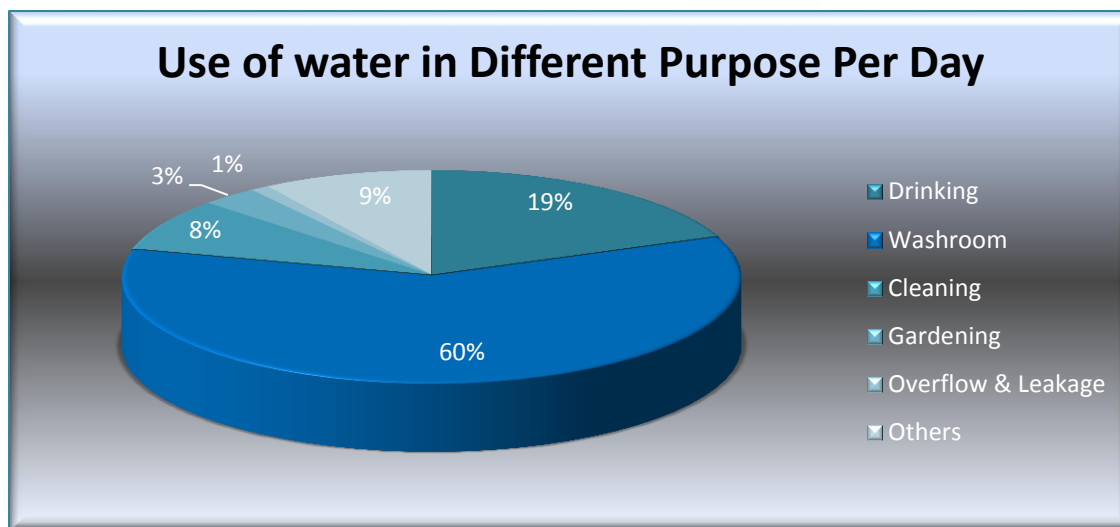


Fig.2 Use of water in Different Purpose per Day

### Taken Water management policy

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

\*H Taken management policy level above 60%

\*\* M denote- Taken management policy level 40%-60%

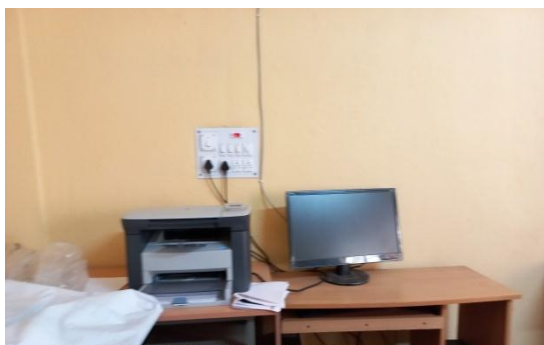
\*\*\* L denote-Taken management policy level below 40%

### Observation and 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.

### 3.3 Energy Efficiency and Energy Management:

a	Energy sources	<p>Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.</p> <p>An old incandescent Tube uses approximately 40W while an energy efficient light emitting diode (LED) uses only less than 24 W.</p>
b.	Energy consumption	<p>The useable energy is Conventional energy. The used Electricity energy is 36000 units which costing is Rs. 477057/- Per Year.</p> <p>The Maximum energy is consumed for Light &amp; Fan Section amounting to 38% of total consumption.</p>



Survey of Nayagram Pandit Raghunath Murmu Govt. Colle  
Nayagram, Medinipur Division 721125  
India  
21°59'7.8"N 87°1'16.5"E ±5.60m  
01:05pm



Observing the Electric power unit and Green generator

Table-4 Source of Energy in Percentage

Source of Energy	In Percentage
Conventional	100
Non-conventional	0

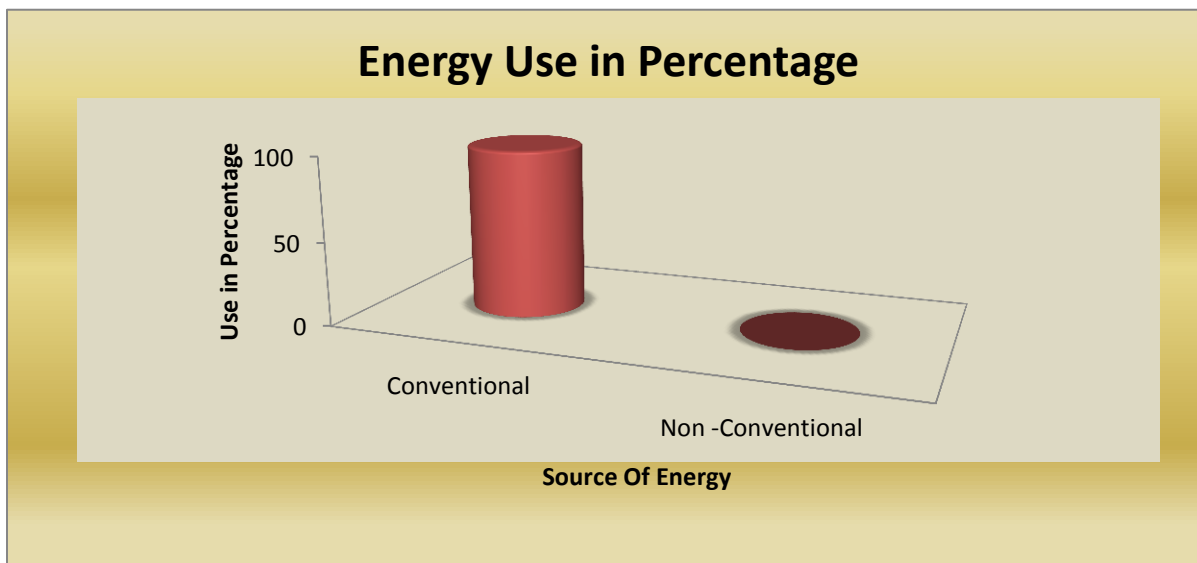


Fig. 3 Use of Energy

Table-5 Energy Consumption for different Purpose in Percentage

Energy Consumption for different Purpose	In Percentage
light and fans	38
AC	14
Computer and Laboratory	26
Street light	8
Pump	3
Others	11

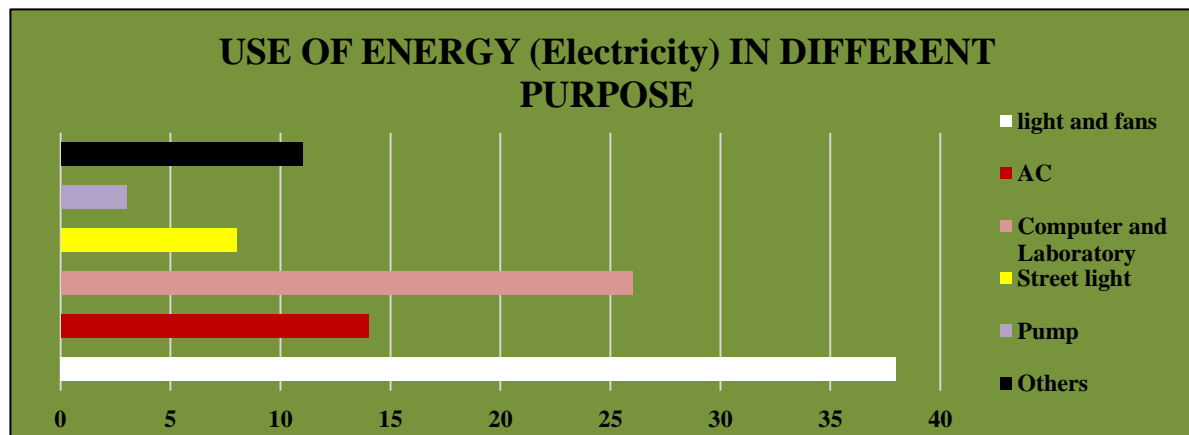


Fig. 4 Percentage of Energy Consumption in different Purpose



## Observation and Recommendations:

- a) 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.
- b) Installation of automatic lights with sensors can be considered.
- c) 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.
- d) 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.
- 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 (2022) 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<sub>2</sub> (ppm) in different location of the College Campus

Different location of the College Premises	Amount of CO <sub>2</sub> (ppm)
Principal office	440
Office	430
Geography Lab	415
Class room	410
Central Library	420
Conference Hall	440
Computer lab	450
Main gate	390

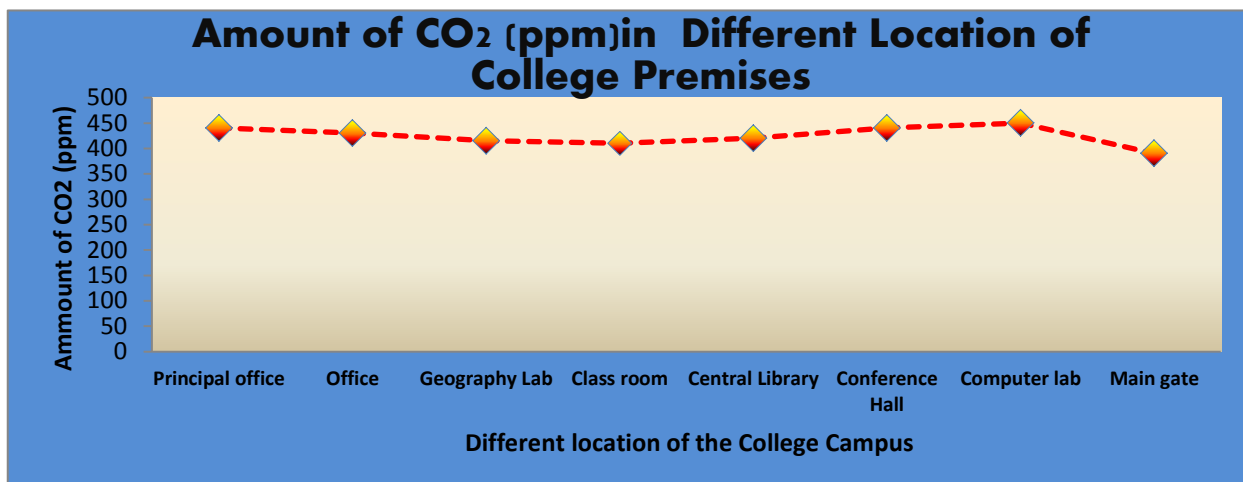


Fig. 5 Amount of CO<sub>2</sub> (ppm) in Different Location of the College Premises

Table-7 Amount of CO<sub>2</sub> ( ppm) in the air in different location,( College Campus) session 2022-2023

Amount of CO <sub>2</sub> (ppm) in the Air in Different places of the College Premises	Amount of CO <sub>2</sub> (ppm)
Outdoor	390
Indoor (Class room)	410
Indoor (Laboratories)	430

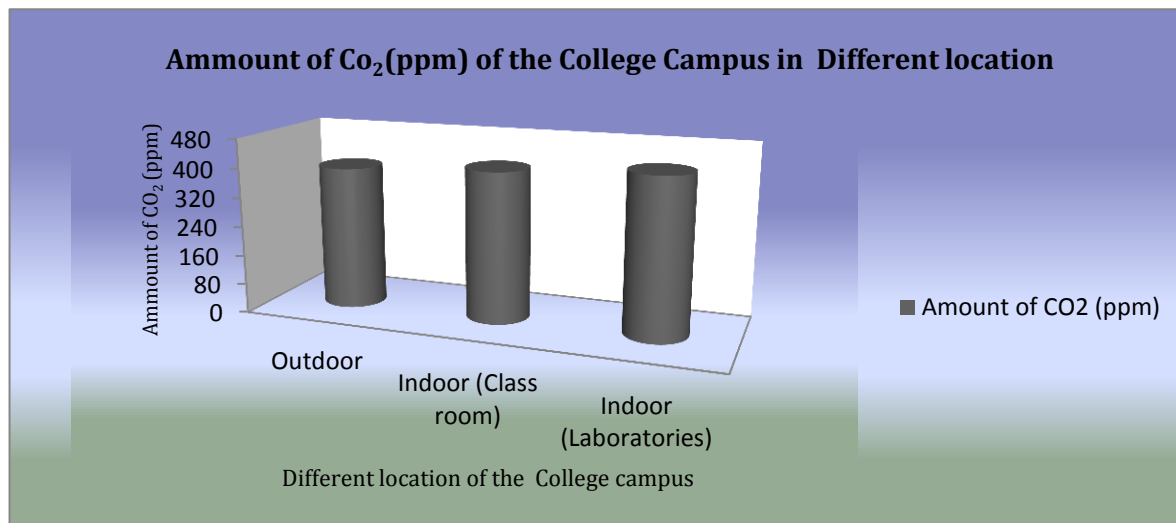


Fig. 6 Amount of CO<sub>2</sub> (ppm) of the Air in Different location of the College Premises

**Observation and 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 Exhaust fans in washrooms and chemistry lab.
- d) 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.

**3.5 Generation of Waste and Waste Management:**

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-8 Types of wastes**

Type of Wastage	Amount in Kg
Degradable	12
Non degradable	2

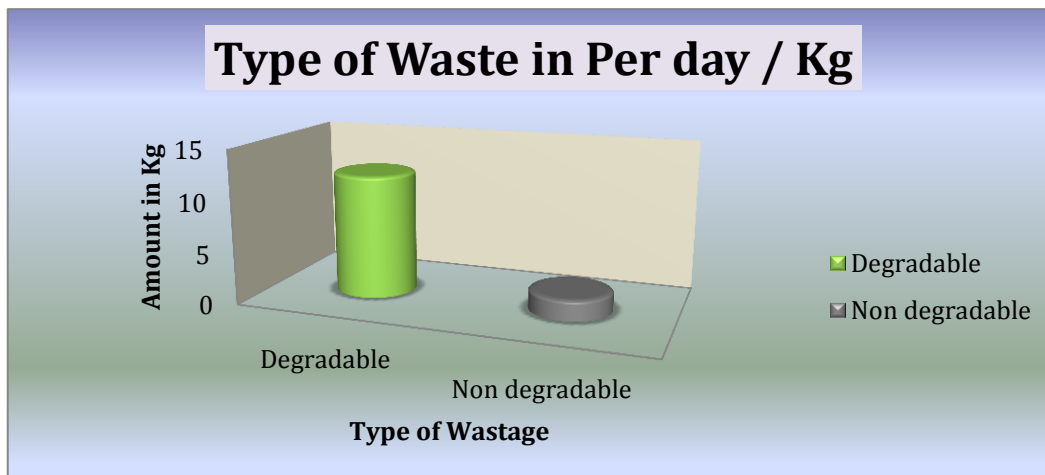


Fig. 7 Type and Amount of Waste

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-9 Source of Wastage in Different Sector (per day in Kg)**

Sectors	Degradable(12kg) in kg	Non-degradable (2kg) in kg
Garden	2.5	0.25
Office	7	1
Department & Class Room	2	0.5
Staff room	0.5	0.25

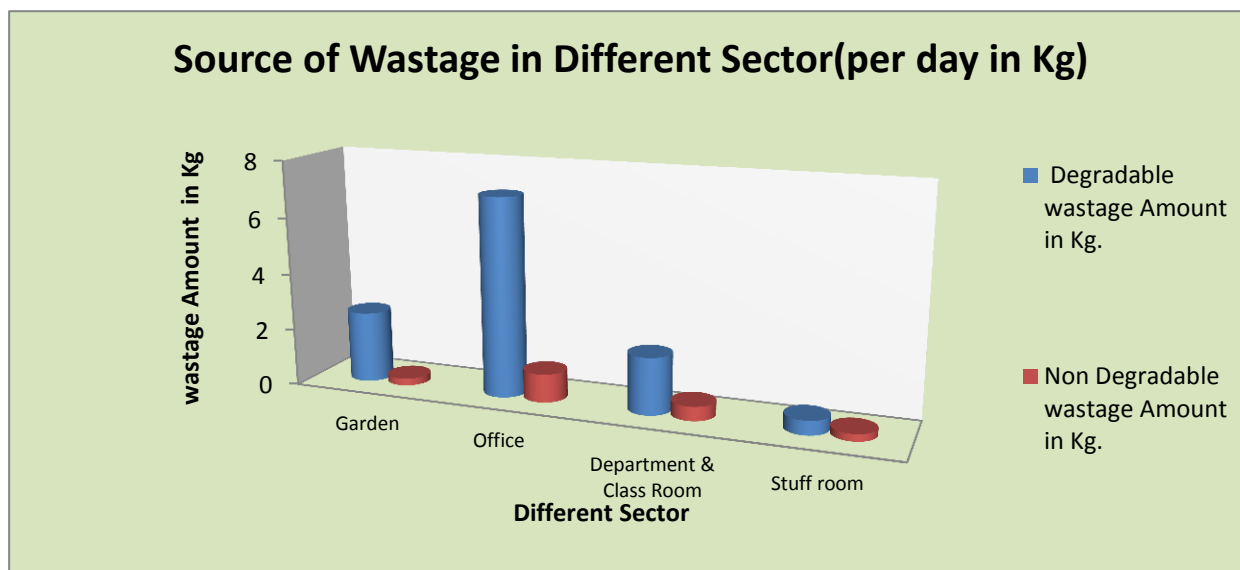


Fig. 8 Source and Amount of Wastage in Different Sector (per day in Kg)

**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:**

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	L
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%

No critical audit issue is there with respect to the waste management.

**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 48 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 21.40% area is under greenery and biodiversity zone 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 premises is rich.

## Biodiversity Study

Sl. No.	Botanical Name	Family	Common Name	Local Name	Remarks
1.	<i>Abroma augustum</i> (L.) L.f.	Malvaceae	Devil's cotton	Olot kambal	
2.	<i>Acacia auriculiformis</i> A.Cunn. ex Benth.	Fabaceae	Earleaf acacia	Akashmoni	Planted
3.	<i>Acalypha wilkesiana</i> Müll.Arg.	Euphorbiaceae	Copperleaf 1. Green, crinkled 2. Red, crinkled 3. Green, flat		Planted, ornamental
4.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Prickly chaff flower	Apang	
5.	<i>Adina cordifolia</i> (Roxb.) Brandis	Rubiaceae	Haldu	Karam	
6.	<i>Albizia lebeck</i> (L.) Benth.	Fabaceae	Siris tree	Shirish	Planted
7.	<i>Allophylus serratus</i> (Roxb.) Kurz	Sapindaceae	Toothed-leaf allophylus		
8.	<i>Aloe vera</i> (L.) Burm.f.	Asphodelaceae	Aloe vera	Gritakumari	Planted
9.	<i>Alternanthera ficoidea</i> Griseb.	Amaranthaceae	Joseph's coat		
10.	<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Amaranthaceae	Alligator weed	Mishti hingcha	
11.	<i>Alternanthera sessilis</i> (L.) DC.	Amaranthaceae	Sessile joyweed	Sancha	
12.	<i>Alysicarpus vaginalis</i> (L.) DC.	Fabaceae	Alyce clover		
13.	<i>Amaranthus viridis</i> L.	Amaranthaceae	Green amaranth	Ban nate	
14.	<i>Areca catechu</i> L.	Arecaceae	Betel palm	Supari	Planted
15.	<i>Aristolochia indica</i> L.	Aristolochiaceae	Indian birthwort	Isher mul	
16.	<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Jack fruit	Kanthal	Planted
17.	<i>Ayapana triplinervis</i> (Vahl) R.M.King & H.Rob.	Asteraceae	Water hemp	Ayapan	Planted
18.	<i>Azadirachta indica</i> A.Juss.	Meliaceae	Neem	Nim	
19.	<i>Bergera koenigii</i> L.	Rutaceae	Curry leaf	Kari-pata	Feral
20.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Red spiderling	Rakta punarnaba	
21.	<i>Ixora coccinea</i> L.	Rubiaceae	Jungle flame	Rangan	Planted, ornamental
22.	<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Black physicnut	Lal-bherenda, Lal-gabjarha	
23.	<i>Lannea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	Indian ash tree	Jiole	
24.	<i>Lantana camara</i> subsp. <i>aculeata</i> (L.) R.W.Sanders	Verbenaceae	Lantana	Saibani	
25.	<i>Leucaena leucocephala</i> (Lam.) de Wit	Fabaceae	Wildtamarind	Subabul	Planted, self-sown
26.	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Common leucas	Halkusa	
27.	<i>Litsea glutinosa</i> (Lour.) C.B.Rob.	Lauraceae	Indian laurel	Piplas	
28.	<i>Parthenium hysterophorus</i> L.	Asteraceae	Carrot grass	Parthenium	
29.	<i>Paspalum scrobiculatum</i> L.	Poaceae	Creeping paspalum	Kodo	
30.	<i>Passiflora foetida</i> L.	Passifloraceae	Stinking passionflower	Ban jhumko lata	
31.	<i>Pergularia daemia</i> subsp. <i>daemia</i>	Apocynaceae	Pergularia	Dudhilata	
32.	<i>Phoenix sylvestris</i> (L.) Roxb.	Arecaceae	Wild date palm	Khejur	
33.	<i>Phyllanthus reticulatus</i> Poir.	<a href="#">Phyllanthaceae</a>	Black-honey shrub	Jhinjha	

**Nayagram Pandit Raghunath Murmu Government College at Nayagram**  
**Green and Environmental Audit Report (2022-2023)**

34.	<i>Phyllanthus urinaria</i> L.	<a href="#">Phyllanthaceae</a>	Common leaf-flower	Bhui-amla	
35.	<i>Phyllanthus virgatus</i> G.Forst.	<a href="#">Phyllanthaceae</a>	Seed under leaf	Bhui amla	
36.	<i>Physalis angulata</i> L.	Solanaceae	Balloon cherry	Ban-tepari	
37.	<i>Pigea enneasperma</i> (L.) P.I.Forst.	Violaceae	Pink ladies slipper	Brindabani durba	
38.	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	Manilla tamarind	Jhilapi gach	
39.	<i>Platycladus orientalis</i> (L.) Franco	Cupressaceae	Oriental thuja	Jhau	Planted, ornamental
40.	<i>Psidium guajava</i> L.	Myrtaceae	Guava	Peyara	Planted
41.	<i>Pteris vittata</i> L.	Pteridaceae	Ladder brake		
42.	<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Indian kino tree	Rakta chandani	Planted
43.	<i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz	Apocynaceae	Indian snakeroot	Sarpagandha	Planted
44.	<i>Rosa</i> spp.	Rosaceae	Rose	Golap	Planted
45.	<i>Roystonea regia</i> (Kunth) O.F.Cook	Arecaceae	Royal palm	Botol palm	Planted
46.	<i>Ruellia prostrata</i> Poir.	Acanthaceae	Bell weed	Phatka gach	
47.	<i>Saccharum spontaneum</i> L.	Poaceae	Wild sugarcane	Kash, Chor- kharhka	
48.	<i>Scoparia dulcis</i> L.	Plantaginaceae	Sweet broom weed	Ban dhane	
49.	<i>Senna occidentalis</i> (L.) Link	Fabaceae	Coffee senna	Kalkasunde	
50.	<i>Senna tora</i> (L.) Roxb.	Fabaceae	Foetid cassia	Chakunda	
51.	<i>Sesbania javanica</i> Miq.	Fabaceae	Sesbania pea	Kundra	
52.	<i>Setaria flavida</i> (Retz.) Veldkamp	Poaceae	Yellow water crown grass		
53.	<i>Setaria viridis</i> (L.) P.Beauv.	Poaceae	Green bristle grass		
54.	<i>Shorea robusta</i> C.F.Gaertn	Dipterocarpaceae	Sal	Shal	
55.	<i>Sida cordata</i> (Burm.f.) Borss.Waalk.	Malvaceae	Flannel weed		
56.	<i>Sida rhombifolia</i> L.	Malvaceae	Arrowleaf sida	Lal berhela	
57.	<i>Solanum nigrum</i> L.	Solanaceae	Black nightshade	Kakmachi	
58.	<i>Solanum sisymbriifolium</i> Lam.	Solanaceae	Sticky nightshade	Bhiji-begun	
59.	<i>Spermacoce ocymoides</i> Burm.f.	Rubiaceae	Basil buttonweed		
60.	<i>Stephania japonica</i> (Thunb.) Miers	Menispermaceae	Tape vine	Patha	
61.	<i>Streblus asper</i> Lour.	Moraceae	Toothbrush tree	Shyaora	
62.	<i>Strobilanthes hirta</i> (Vahl) Blume	Acanthaceae	Hairy coneflower	Mushakani	
63.	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Black plum	Jam	
64.	<i>Tabernaemontana divaricata</i> (L.) R.Br. ex Roem. & Schult.	Apocynaceae	Cape jasmine	Tagar	Planted, ornamental
65.	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Combretaceae	Arjun tree	Arjun	Planted
66.	<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson	Menispermaceae	Heart-leaved moonseed	Gulanha, Agnikumari	
67.	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Malabar gulbel	Padma gulanha	
68.	<i>Tragia involucrata</i> L.	Euphorbiaceae	Indian stinging nettle	Bichuti	
69.	<i>Tridax procumbens</i> L.	Asteraceae	Tidax daisy	Murhki ganda	
70.	<i>Triumfetta rhomboidea</i> Jacq.	Malvaceae	Chinese bur	Ban-okra	



71.	<i>Urochloa distachyos</i> (L.) T.Q.Nguyen	Poaceae	Signal grass		
72.	<i>Urochloa reptans</i> (L.) Stapf	Poaceae	Creeping signal grass		
73.	<i>Zamia furfuracea</i> L.f. ex Aiton	Zamiaceae	Cardboard palm		Planted, ornamental
74.	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	Jujube	Narkela kul	
75.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Indian jujube	Kul	
76.	<i>Ziziphus nummularia</i> (Burm.f.) Wight & Arn.	Rhamnaceae	Wild jujube	Buda kul	

**Faunal Diversity-** The College has trees, waste land, low land, banana garden which are habitat of faunal components. So, wide varieties of fauna are supporting its 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. From conversation with faculty members, different stakeholders of the college, following information are collected.



Local Name	Scientific Name
1 Kecho	<i>Pheretimaposthuma</i>
2 Joke	<i>Hirudinariasp</i>
<b>Phylum: Arthropoda</b>	
1 Prajapati	<i>Papiliosp</i>
2 Moth	<i>Galleria sp</i>
3 Mougachi	<i>Apissp</i>
4 Jonaki	<i>Lampyrisnoctiluca</i>
5 Arsola	<i>Periplanetaamericana</i>
6 Vimrul	<i>Vespa orientalis</i>
7 Lalpipra	<i>Oecophyllasmaragdina</i>
8 Kakrabicha	<i>Buthussp</i>
9 Tetulbicha	<i>Scolopendrasp</i>
10 Kenno	<i>Julussp</i>
11 Pangapal	<i>Schistoceragregaria</i>
12 Anopilis masa	<i>Anopheles sp</i>
13 Culex masa	<i>Culexsp</i>
14 Ades masa	<i>Aedessp</i>
15 Gubrepoka	<i>Coprislunaris</i>
16 Pharing	<i>Orthetrump</i>
17 Wepoka	<i>Odontotermessp</i>
18 Machi	<i>Muskadomestica</i>

19	Makarsa	<i>Nephilasp</i>
<b>Phylum: Mollusca</b>		
20	Sthalsamuk	<i>Acatinafulica</i>
21	Jalsamuk	<i>Pilaglobosa</i>
22	Gugli	<i>Bellamyabengalensis</i>
23	Jhinuk	<i>Lamellidensmarginalis</i>
24	Kath joke	<i>Limaxsp</i>
<b>Class : Amphibia</b>		
1	Kuno bang	<i>Duttaphrynusmelanostictus</i>
2	Sona bang	<i>Ranatigrina</i>
<b>Class: Reptilia</b>		
1	Loudaga	<i>Ahaetullanasutas</i>
2	Jaldhora	<i>Xenochriphis piscator</i>
3	Matiali sap	<i>Elachistodonwestermanni</i>
4	Jamna sap	<i>Ptyasmucosus</i>
5	Godi sap	<i>Varanus sp</i>
6	Keute	<i>Najasp</i>
7	Tiktiki	<i>Hemidactylus flaviviridis</i>
8	Girgiti	<i>Calottes versicolor</i>
9	Kachhap	<i>Tryonix sp</i>
<b>Class : Aves</b>		
1	Charaipakhi	<i>Passer domesticus</i>
2	Tuntuni	<i>Orthotomus sp</i>
3	Satbhaya	<i>Turdoideseaudatus</i>
4	Doyel	<i>Copsychus saularis</i>
5	Bulbul	<i>Pycnonotus sp</i>
6	Kak	<i>Corvus splendens</i>
7	Shalik	<i>Acridotheres tristis</i>
8	Phinge	<i>Dicrurus adsimilis</i>
9	Kajalpakhi	<i>Lanius cristatus</i>
10	Kat thokra	<i>Dinopium bengala</i>
11	Baspati	<i>Merops orientalis</i>
12	Chotomachranga	<i>Alcedo atthis</i>
13	Sadabookmachranga	<i>Halcyon sp</i>
14	Tia	<i>Pistaculasp</i>
15	Gughu	<i>Streptopelia chinensis</i>
16	Paia	<i>Columba livia</i>
17	Dahuk	<i>Amaurornis phoeniceus</i>
18	Bak	<i>Ardeola grayii</i>
<b>Class : Mammalia</b>		
1	Katbirali	<i>Funambulus pennanti</i>
2	Neul	<i>Herpestes edwardsii</i>
3	Mechobiral	<i>Prionailurus viverrinus</i>
4	Katas	<i>Felis chaus</i>

5	Chucha	<i>Suncus murinus</i>
6	Indur	<i>Bandicotabengalensis</i>

**Table-10 Green Coverage of the College Premises**

Use of Area	Area in Percentage(%)
Native and Natural Vegetation	66
Plantation	12
Agro-Plants	8
Herbal Plants	2
Ornamental plants and flowers garden	3
Grass cover area	9



**Bee Nest and Biodiversity hot spot**

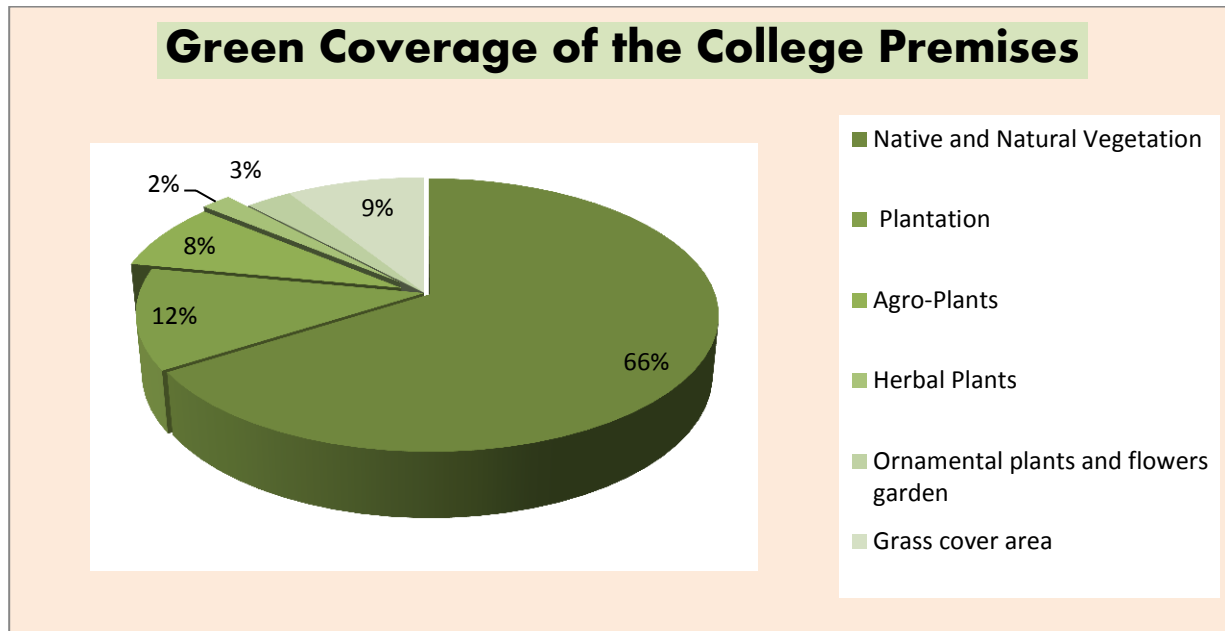


Fig. 9 Green Coverage of the College Premises

Table-11 The Avian fauna observed in the campus is enlisted below-

Table-12 The Mammalian checklist is as follows-

SL. NO	COMMONNAME	BENGALINAME	SCIENTIFICNAME	IUCN RED LIST
1	Fivestriped Palm Squirrel	Kath Berali	<i>Funambulus pennantii</i>	Least Concern (LC)
2	Free-ranging Cat	Biral	<i>Felis domesticus</i>	DD
3	Free-ranging Dog	Kukur	<i>Canis familiaris</i>	DD
4	Asian Palm Civet	Bham	<i>Paradoxurus hermaphroditus</i>	LC
5	Field Rat	Metho Indur	<i>Bandicota bengalensis</i>	LC
6	Grey Mongoose	Beji	<i>Herpestes edwardsii</i>	LC
7	House Mouse	Nengti Indur	<i>Mus musculus</i>	LC
9	Bengal Fox	Fox	<i>Vulpes bengalensis</i>	LC
10	Indian gray mongoose	Neul	<i>Herpestes edwardsii</i>	LC

\*NE: Not evaluated; LC: Least concerned; NA: Not accessed

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

### 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, parents and other stakeholders of the College. Discussions were also made with the 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 is 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( 16000 liter)
2.	Capacity of water storage (Daily)	➤ Reservoir and Overhead tanks- 16000 liter ➤ Total amount of used & misused water-16000ltr ➤ Total misuse of water-200 ltr
3.	Amount of used water per day	15500liter
4.	Misuse of water in daily	Leakage, overflow and Misuse-200 liter
5.	Maximum used of water per day - for washroom purpose	60% ( 9600 liter)
6.	Amount of water for used per day- Drinking Purpose	19 % (3000liter)
7.	pH level of drinking water	7.1
8.	TDS level of drinking water	120ppm -140ppm



Summary of Nayagram Pandit Raghunath Murmu Govt. College  
Nayagram, Medinipur Division 721125  
India  
21°59'8.484"N 87°5'16.434"E ±5.40m  
01:05pm



Nayagram Pandit Raghunath Murmu Govt. College  
Nayagram, Medinipur Division 721125, India

Source of water & Water Quality measurement

## b. Energy

- ❖ Electricity Consumption - 36000Unit, Rs.- 477057/- Per Year
- ❖ Fossil fuel consumption per Year:  
Diesel used for green Generator- 50 liter
- ❖ Number of Green Generators - 01
- ❖ Cost of generator fuel – Rs. 4500 /month

### Energy Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Source of energy ( conventional)	100 %
3	Total consumption of Electric Power	36000unit
4	The maximum use of conventional Electric Power	36000 unit
5	Maximum energy consumption in the purpose	Light and fans - 13680 Unit/year
6	Energy Consumption in Computer & Lab.	9360unit /year
9	Amount of diesel used for green generator	50 liter/Year
10	No. of AC use of energy	5040unit/year

## c. Wastes-

- Total Students - 1504 persons
- Other Stakeholders – 6 persons
- Total Stakeholders - 1545 persons
- Departments – 11

## D. Wastes Management Policy:

- 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 food, Vegetable, Paper plates- Disposal in Earthen pit and Compost pit.
- Waste water – washing, urinals, and bathrooms in soak pits.
- Glass waste – Broken glass wares from the labs by selling.
- Napkin & Clothes incinerators- Disposal in earthen pit



### Waste Audit and Assessment

Sl. No.	Object and Parameter	Observation and Finding
1	Degradable waste	12 (Kg/Day)
2	Non degradable	2 (Kg/Day)
3	Main Source of waste ( Organic)	office
5	Plastic waste management	Use of separate dustbin and Established of different waste unit

#### d) Green Campus-

Green cover of the campus- 1.62acre area

Free space including Playground- 2.75 acre area

**Crops cultivated in the campus:** Banana, Tapioca, Chilly, Cabbage, Tomato, Spinach, Brinjal, Cauliflower, Ladies finger, Pea and different seasons flowers are produced during different seasons in Hostels and Quarters Kitchen garden and College premises area.

Table 13 Biodiversity and Green Coverage

Sl. No.	Object and Parameter	Observation and Finding
1	Vegetation coverage area	21.40% ( 1.62 Acre)
2	Types of green coverage	<ul style="list-style-type: none"> <li>➤ Native and Natural Vegetation- 66%</li> <li>➤ Medicinal plants- 2%</li> <li>➤ Agro-plants- 8%</li> </ul>
3	Different types of Animal	<ul style="list-style-type: none"> <li>➤ Mammals -Squirrel, Rat, Free ranging Cat, Free ranging Dog, Field Rat, Bengal Fox etc.</li> <li>➤ Amphibian-Snake, Frogs</li> <li>➤ Birds- Crow, Common Moyna, Pigeon, etc.</li> <li>➤ Insects- Ants, Butterfly, Spider etc.</li> </ul>
4	Biodiversity and Green Management Programme	<ul style="list-style-type: none"> <li>➤ Awareness program arrange by- college among the students and Stuff through the year</li> <li>➤ Observation and celebration of environmental days</li> <li>➤ Installation of different trees and plants naming plate</li> </ul>

#### Campus farming

Organic vegetable cultivation as interim crop is another plan to be materialized soon. The department of Zoology has been consistently undertaking Fishes cultivation, and Botany department has been planting of flowers and ornaments trees in winter.

### e) Carbon Footprint-

- Number of Students & Staff using cycles – 940
- Number of persons using cars – 1
- Number of persons uses two wheelers – 20
- Number of students uses Buses - 50
- Number of persons using other transportations – 52
- Number of visitors per day – 11
- Average distance travelled by stake holders – 10 kms /day
- Expenditure for transportation per person per day – Rs.20 /-

### 4.3 SUMMARY:

- I. The environmental awareness initiatives are adequate.
- II. The College campus is plastic free and maintained the outdoor air quality.
- III. The installation of solar panels, organic vegetable cultivation, Vermi composting practices are inadequate.
- IV. There is NSS team of the College towards its environmental performance for Community development.
- 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. Programs on green initiatives have to be increased. Campus is declared “Clean Campus”
- VIII. Fully carbon foot prints and wastes free zone actions should be taken to maintain this.
- IX. Rain water harvesting systems, solar power generation, Bio Gas, Re-use of water environmental education programs have to be fully explored.

Implemented Air Quality management		
Sl No	Indicator	Weightage
1	Carbon & Smoke free	H
2	Exhaust fans & Ventilation	M
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	M
2	Energy efficiency Audit	M
3	Air Quality & Carbon foot print Audit	M

4	Wastes Audit	M
5	Green & Biodiversity Audit	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%

#### 4.4 Environmental Education:

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

- ❖ Increase the number of display boards on environmental awareness such as – save water, save electricity, no wastage of food/water, no smoking, switch off light and fan after use, plastic free campus etc.
- ❖ Activate the nature or green clubs
- ❖ Set up Organic vegetable garden, Honey farm, Mushrooms, Indigenous fish farm etc. for providing proper training to the students.
- ❖ Setting up Water recycle and Reuse project for Gardening purpose.
- ❖ Setting up of medicinal plant nursery, water management, vegetable cultivation, tree planting, energy management, landscape management programmed, and rain water harvesting and water re-use methods.
- ❖ Conduct exhibition and poster competition on Green and Clean campus for sustainable and healthy academic environment

#### 4.5 Common Recommendations

- ✓ Introduce UGC Environmental Science course to all students
- ✓ Conduct more seminars and group discussions on environmental education
- ✓ Students and staff can be permitted to solve local environmental problems
- ✓ Renovation of cooking system in the canteen to save gas and wooden fuel
- ✓ Installation of modern e-waste management unit
- ✓ Maintain of Indoor air quality
- ✓ Establish a solar pump house or solar submersible pump
- ✓ Adopt an environmental policy for the college
- ✓ Establish a purchase policy for environmental friendly materials
- ✓ Establish the crasser machine for plastic waste treatment
- ✓ Establish a biodiversity park

## 4.6 Criteria Wise Recommendations

### Water Audit

- .
- 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.
- Remove damaged taps and install sensitive taps is possible
- Establish water treatment systems.
- Awareness programs on water conservation to be conducted.

### Energy Audit

- ✓ Employment of more solar panels and other renewable energy sources.
- ✓ Conduct more save energy awareness programs for students and staff.
- ✓ 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.

### Waste Audit

- ❖ 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
- ❖ Establish the crasser machine for plastic waste treatment

### Green Campus Audit

- ✓ All trees in the campus should be named scientifically.
- ✓ Establish a biodiversity park
- ✓ Create more space for planting in vacant land.



- ✓ Develop the Herbal and medicinal plants garden for large area
- ✓ Establish a butterfly park.
- ✓ 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
- ✓ 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 system of carpooling among the staff and visitors to reduce the number of four wheelers coming to the college.
- ❖ Establish the indoor plants in OIC Chamber, office rooms ,computer lab and other laboratories to CO<sub>2</sub> management
- ❖ Providing more college bus services to the students and staff.
- ❖ Encourage students and staff to use cycles.
- ❖ Establish a more efficient cooking system to save gas.





## 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 Nayagram Pandit Raghunath Murmu Government College, Nayagram, 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 Nayagram Pandit Raghunath Murmu Government College, Nayagram, 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 programmes 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 7.57 acres out of which about 1.62 acre areas is covered by trees, plants etc. In the present audit report most of the aspects are covered such as tree plantation, awareness about environment programmes 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 Shri Netai Chandra Das, OIC, Nayagram Pandit Raghunath Murmu Government College, Nayagram, W.B. 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 Nayagram Pandit Raghunath Murmu Government College, Nayagram, W.B.