GREEN AUDIT REPORT
2022-2023

OF

CHAKDAHA COLLEGE

CHAKDAHA, NADIA, WEST BENGAL,
INDIA, PIN-769004

CONDUCTED BY: EXTERNAL GREEN AUDIT TEAM

GREEN AUDIT TEAM

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DISCLAIMER

Green Audit

Green Audit Team has prepared this report on the basic of primary data collected from the different areas of the college. All reasonable care has been taken in its preparation; details contained in this report have been compiled in good faith based on information gathered

Prepared by **EXTERNAL GREEN AUDIT TEAM**

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ACKNOWLEDGEMENT

Green Audit Assessment Team thanks the Principal, Chakdaha College, Chakdaha for assigning the task of Green Audit of this college to us. We appreciate the cooperation that we got from all the faculties and students during the entire process. Our special thanks are due to the Principal Dr. Swagata DasMohanta for his warm support and encouragement throughout the process.

We are also thankful to the organization that helps in Sample Test & helping us in collecting different data and analysing them.

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EXECUTIVE SUMMARY

Chakdaha College, Chakdaha,Nadia,WB always believes in maintaining its standards in the matter of environment and quality consciousness. It has taken a number of initiatives to protect its environment with a pollution-free campus. Being an environmentally conscious college, the administration and the students of the college look after the environment carefully.

Eco campus is a concept implemented in many educational institutions, all over the world to make them sustainable because of their mass resource utilization and waste discharge into the environment. Waste minimization plans for the educational institute are now mandatory to maintain the cleanliness of the campus. To find out the environmental performance of the educational institutions and to analyze the possible solutions for converting the educational campus to an eco-campus the conduction of Green Auditing of the institution is essential. The green auditing of Chakdaha College enables us to assess the lifestyle, action, and its impact on the environment. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil and water, vegetation, waste management practices, and carbon footprint of the campus, etc. Initially, a questionnaire survey was conducted to know about the existing resources on the campus and resource consumption patterns of the students and staff in the college. To assess the quality of water and soil, water and soil samples were collected from different locations on the college campus and analysed for their parameters. Collected data was grouped, tabulated, and analyzed. Finally, a report pertaining environmental management plan with strengths, weaknesses, and suggestions on the environmental issues on campus is documented.

INTRODUCTION

About College

The November of 2021 marked the Golden Jubilee of Chakdaha College. With fifty years trailing behind it, the college today stands resolute and sturdy. Bearing the torch of education, it continues to work for the social and moral upliftment of its students. In its moment of inception in 1972, the college was born humbly and out of meagre means, conducting classes in a borrowed space and with a strength of only 76 students enrolled in merely 2 courses. The college has come a long way since then. Today it offers two sections via morning and day and a total of 17 courses which include 14 Honours and 3 General subjects. It is home to an overwhelming strength of nearly 8000 students. With 51% of the total strength being female, the college bears the marker of social progress in suburban Bengal. Further, the collection of nearly 28,000 books that the college library retains adds to its progressive spirit and motif.

ABOUT COLLEGE

Name of the College	Chakdaha College
Principal	Dr. Swagata Das Mohanta
Establishment	21.11.1972
Affiliated to	University of Kalyani
NAAC Accreditation	B+ with CGPA 2.55 (2nd Cycle)
UGC Recognition	2(f) and 12(B)
AISHE Code	C-7057
Financial Category	Grant-in-Aid
Type of College	Co-Education
Campus Area	Main Campus: 2.53 Acre; New Campus: 0.18 Acre Built-up area: 1.453 Acre
No. of UG Programmes	15 Major courses
Departments	Arts: 09; Commerce 01; Science 07
Intake Capacity	3804

Laboratory	Physics: 02 Chemistry: 03 Zoology: 03 Botany: 02 Mathematics: 01 Computer Science: 01 Geography: 01
Hostel	**Boys' Hostel for 14 SC/ST students** **Girls' Hostel: One under construction with UGC grant** **Construction for another one will be started with RUSA 2.0 Grant**
No. of Teaching Staff & Librarian	Principal: 1; FTT: 33, SACT: 66. Librarian: 02, Contractual Librarian: 01
No. of Office Staff	**31**
Communicating Address	Rabindranagar, P.O. & P.S. Chakdaha Dist. Nadia, Pin-741222, W.B.
E-mail & Phone	**chakdahacollege1972@gmail.com** **8967300985**

SATELLITE IMAGE OF CAMPUS OF CHAKDAHA COLLEGE

Vision

To impart quality higher education to students in and around Chakdaha through proper evaluation promotion, modernization and sustenance activities to create a self-dependent, benevolent society free of all superstitions.

Mission

- To make the college a leading higher education institute.
- To impart education in all contemporary basic fields with subject-wise specialization.
- To sustain as well as to enhance the quality of education.
- To help the neighbouring society in all feasible ways.
- To impart value-based education to make the student a responsible citizen in the future.
- To maintain transparency in all college activities.

GREEN AUDIT

The intention of organizing Green Audit is to upgrade the environmental condition in and around the colleges. It is carried out with the aid of performing tasks like waste management, energy saving, and others to turn into a better environmentally friendly institute.

GOALS OF GREEN AUDIT

- The objective of carrying out Green Audit is to secure the environment and cut down the threats posed to human health.
- To make sure that all rules and regulations concerning the environment are taken care of
- To assess the quality of the water and soil in the Chakdaha College campus.
- To monitor the energy consumption pattern of the college.
- To quantify the liquid and solid waste generation and management plans on the campus.
- Providing a database for corrective actions and future plans.
- To avoid the interruptions in the environment that are more difficult to handle and their correctionrequires high cost
- To suggest the best protocols for adding to sustainable development To identify the gap areas and suggest recommendations to improve the Green Campus status of the Chakdaha College

BENEFITS OF GREEN AUDIT

- Would help to prepare a plan to protect the environment.
- Recognize the cost-saving methods through waste minimization and management.
- Point out the prevailing and fourth-coming impacts on the environment.
- Ensures conformity with the applicable laws.
- Empower the organizations to frame a better environmental performance.
- It portrays a good image of an institution which helps build better relationships with thegroup of interested parties.
- Promotes the alertness for environmental guidelines and duties.

METHODOLOGY

To perform the green audit, the methodology included different tools such as the preparation of a questionnaire, physical inspection of the campus, observation, and review of the documentation, interviewing key persons, and data analysis, measurements, and recommendations.

An environmental audit has three phases - pre-audit stage, audit stage, and post-audit stage, accordingly the environmental audit was conducted.

PRE-AUDIT STAGE

Pre-audit stage involved the identification of target areas for environmental auditing. Accordingly, the following target areas were identified:

The study covered thefollowing areas to summarise the present status of environmental management on the campus

FOCUS AREA OF STUDY

- ✓ Water management
- ✓ Air Pollution Management
- ✓ Noise Pollution Management
- ✓ Energy use & conservation
- ✓ Waste Management
- ✓ Green Belt area & Bio-diversity
- ✓ Environmental Initiative

AUDIT STAGE

Green auditing in Chakdaha College began with the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies etc. The team monitored different facilities at the college, determined different types of appliances and utilities (lights, taps, toilets, fridges, etc.) as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff and learners were interviewed to get details of usage, frequency, or general characteristics of certain appliances. Data collection was done in sectors such as Energy, Waste, Greening, Carbon footprint, and Water use. College records and documents were verified several times to clarify

the data received through surveys and discussions. The environmental samples including water, and soil from various locations on the campus were collected and analyzed.

POST-AUDIT STAGE

The Post-Audit Stage includes the production of the final report, preparing an action plan to overcome the flaws, and to keep a watch on the action plan.

GREEN AUDIT REPORT

WATER MANAGEMENT

Water is a valuable natural resource for all living organisms. It is freely available depending on the climate and topographic features of a region. Although water is naturally freely available portable (drinkable) water is not available freely for human consumption. On our planet, 70% area is covered by water but only 3% of it is fresh water. Around 1.1 billion people in the world face a water crisis. Water pollution and wastage play a vital role in the water crisis. Water contamination is taking place at an alarming rate. Drinking or using contaminated water leads to many diseases or death. That is why it is important to ensure that drinking water is safe, clean, and free from bacteria and disease. It is also important to conserve protect and manage the water resources availability and usage so that it is sustainably used.

The source of water used in the College is two wells present on the campus. These wells are recharged with rainwater from the roof. A total of 8000 L of water is pumped out from the well every day.

TABLE 1 WATER MANAGEMENT SCENARIO

SL NO	PARAMETERS	RESPONSE
1	Source of water	Well
2	No of Wells	2
3	No of motors used	2
4	Horsepower — Motor	HP-2 HP-2
5	Depth of well —Total	200ft - Well no:1 220ft - Well no: 2
6	Water level (Average)	70ft - Well no:1 70ft- Well no: 2
7	Number of water tanks	9

8	Capacity of tank	Tank 1 1000 L Tank 2 1000 L Tank 3 1000 L Tank 4 1200 L Tank 5 1200 L Tank 6 1000 L Tank 7 1000 L Tank 81000 L Tank 9 1000 L Tank 10 1000 L
9	Quantity of water pumped every day	8000 L
10	Water users on the campus	Students, Teachers, Admiiinistrative staff
11	Any water wastage/why?	nil
12	Water usage for gardening	150 L /day
13	Wastewater sources	Labs, canteen, R.O (Reverse Osmosis) etc.
14	Use of wastewater	Reuse of wastewater generated by the Reverse Osmosis System garden or washroom
15	The fate of wastewater from labs	After neutralization, wastewater is used for groundwater recharge
16	Rainwater harvest available?	yes
17	No of units and amount of water harvested	03

18	Amount of water lost per day	Nil
19	Any leaky taps	No
20	Any wastewater treatment for lab water	After neutralization, wastewater is used for groundwater recharge but no treatment plant
21	Whether any green chemistry method practiced in labs	Yes, Semi-micro scale analysis is followed & Synthesis in green approach is taught
22	Any water management plan used?	Internal Water management audit conducted
23	Any water-saving techniques followed?	Conventional methods for example Put signs near the basins to remind students to turn off taps as soon as they wash their hands, Detect and repair leaks so that wastage of water will get reduce. Avoid flushing the toilet unnecessarily, Dispose of tissues, insects and other similar waste in the dustbins rather than the toilet. etc. are followed.
24	Are there any signs reminding people to turn off the water?	Yes with the help of poster

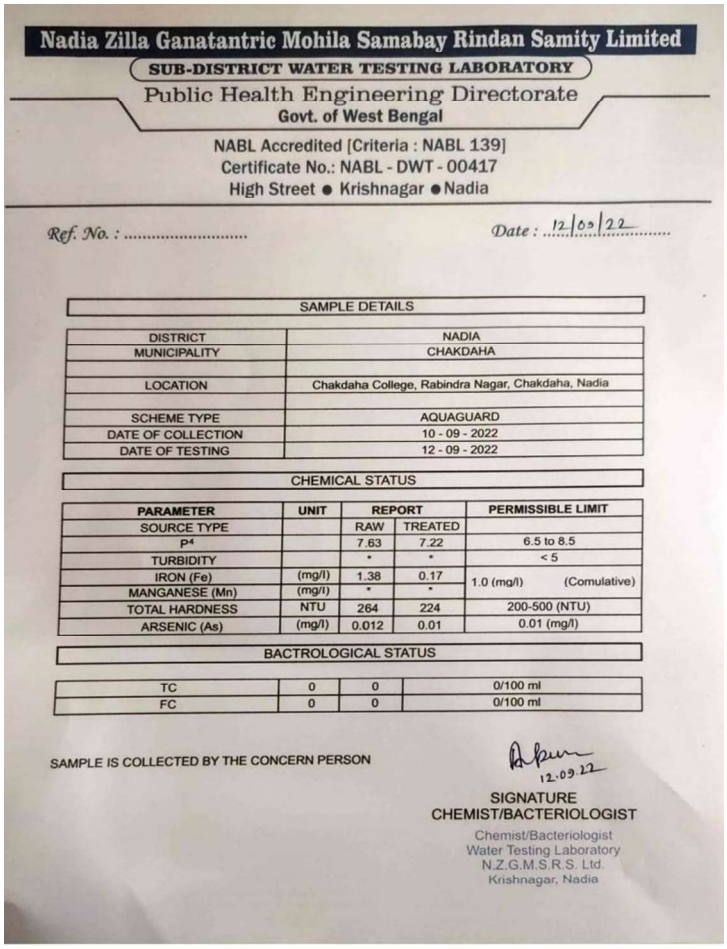
TABLE 2 WATER CONSUMPTION IN DIFFERENT ACTIVITIES ON COLLEGE CAMPUS

Activity	Water used per activity (in Litter)	No. of times Activity performed in a day	Average water used Person/Day	No. of people using water (On an average)	Total water consumption per Day
Hand and face wash	0.5--1 L	2	1-2 L	3000	3000 L
Drinking Water	0.2-0.4L	3	0.9 L	1500	1350 L
Toilet Flush	8-10L	1	10 L	40	400 L
Bath	30-40 L	1	30-40 L	5	175 L
Cooking & Washing Hostel and canteen	60-80 L	1 time in the Canteen & 2 times in Hostel	-	45	3150L
Gardening					150 L
Total					**8225L**

WATER QUALITY ASSESSMENT

COLLECTION OF WATER SAMPLES FOR TEST

WATER TEST REPORT



Nadia Zilla Ganatantric Mohila Samabay Rindan Samity Limited

SUB-DISTRICT WATER TESTING LABORATORY

Public Health Engineering Directorate

Govt. of West Bengal

NABL Accredited [Criteria : NABL 139]

Certificate No.: NABL - DWT - 00417

High Street ● Krishnagar ● Nadia

Ref. No. : ..... Date : 12/09/22

SAMPLE DETAILS

DISTRICT	NADIA
MUNICIPALITY	CHAKDAHA
LOCATION	Chakdaha College, Rabindra Nagar, Chakdaha, Nadia
SCHEME TYPE	AQUAGUARD
DATE OF COLLECTION	10 - 09 - 2022
DATE OF TESTING	12 - 09 - 2022

CHEMICAL STATUS

PARAMETER	UNIT	REPORT		PERMISSIBLE LIMIT
SOURCE TYPE		RAW	TREATED	
P[H]		7.63	7.22	6.5 to 8.5
TURBIDITY		*	*	< 5
IRON (Fe)	(mg/l)	1.38	0.17	1.0 (mg/l) (Comulative)
MANGANESE (Mn)	(mg/l)	*	*	
TOTAL HARDNESS	NTU	264	224	200-500 (NTU)
ARSENIC (As)	(mg/l)	0.012	0.01	0.01 (mg/l)

BACTROLOGICAL STATUS

TC	0	0	0/100 ml
FC	0	0	0/100 ml

SAMPLE IS COLLECTED BY THE CONCERN PERSON

12.09.22

SIGNATURE

CHEMIST/BACTERIOLOGIST

Chemist/Bacteriologist

Water Testing Laboratory

N.Z.G.M.S.R.S. Ltd.

Krishnagar, Nadia

SOIL QUALITY ASSESSMENT

Soil samples were collected from four locations of the campus and analysed for the basic parameters. The results are tabulated and presented in the table.

Parameter	Location 1 (flower garden)	Location 2 (ground)
pH	**7.3**	**7.1**
Total Kjeldhal Nitrogen (mg/kg)	**2.7**	**2.6**
Total organic carbon (%)	**1.4**	**1.1**
Phosphate (mg/kg)	**0.2**	**0.1**

AIR POLLUTION MANAGEMENT

The College has been continuously conducting awareness programmes for staff, students, and society for protecting and maintaining the environment. The awareness is also done by arranging programmes, and rallies on various issues related to the environment and health. The college students and faculty members are involved in the activities through NSS/NCC, but the audit team did not find any display board regarding air pollution on the college premises.

It was observed and revealed from data that the only possible sources of pollution in the college campus are as use of diesel/petrol vehicles, airconditioners, power generators, kitchen waste and other biodegradable waste from the canteen, use of electronic appliances and others. There is a very low chance of air pollution from outside as no commercial industrial activities are running near the campus, as the campus is rich in greenery. All the parameter of air pollution recorded below the average limit prescribed by the CPCB or WBPCB.

Every day there are 50 Two-wheelers and 05 four wheelers are coming to the college premises but there is no system observed to check for PUC certificate, Vehicle Exhaust Gas Analysis, and Vehicular movement noise and vibration pollution. The air pollution at the time of ignition off and on is more than it is in riding mode.

RECOMMENDATIONS

The College may consider these on top priority:-

1. World Environment Day is to be celebrated in college premises every year on 5th June and wholecollege students and staff shall get involved and take OATH for ENVIRONMENT CONSERVATION not only in college but also in every span of life.
2. The Chemistry, Botany, and Geography Department shall monitor the Ambient Air Quality as per the guidelinesof the “Air (Prevention and Control of Pollution) Act 1981”.
3. Exhaust gases shall be monitored, analysed, and checked regularly.
4. The parking zone of the college shall be neat & clean and the use of bicycles on campus to be promoted.

NOISE POLLUTION MANAGEMENT

It was observed that there are no industrial as well as sound generating activities near the university campus and it was revealed that due to a limited number of vehicles, the chances of noise pollution seem to be quite below of standard limit. It is recorded as 65db at day time.

A) SILENCE ZONES IN THE COLLEGE

Various display boards have been placed in the library and other places for awareness to maintainsilence in the college.

B) NOISE CONTROL IN THE COLLEGE

The college adopts a honking policy and prevents the use of any honking and noise on campus. Certain areas like the library and classrooms are declared as Silence Zone, and noise pollution is kept to aminimum on college campuses.

C) DG SET FOR POWER BACK-UP

The college had DG set as power backup and used it whenever there is a power cut-off due to load shading or maintenance of electricity on the college campus. It is observed that acoustics is not done on DG Set for noise pollution reduction. The exhaust gases are not monitored, tested, and analyzed to know the pollution load.

RECOMMENDATIONS

The College administration may consider it on top priority

1. Noise Level Monitoring shall be done as per the guidelines of “Noise Pollution (Regulation and Control) Rules 2000”.
2. Vehicular exhausts shall be examined regularly in the college as per the Central Motor Vehicle Act1988.
3. Vehicular movement shall be restricted by putting a boundary limit and beyond that limit bicycleusage shall be promoted to all students and staff.

ENERGY USE AND CONSERVATION

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances, natural gas, and vehicles. Energy use is an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

OBSERVATIONS

Following Energy Sources are used in the college

- ✓ Electrical
- ✓ Diesel
- ✓ Solar Power

Energy Audit Report

Table below shows the energy consumption pattern of the college during the survey. The average yearly electricity bill amount of the college is recorded as Rs. 267631.

TABLE 3 POWER CONSUMPTION PATTERN OF CHAKDAHA COLLEGE

Uses	Number	Power Consumption whenever in used
FAN (70 W)	354	24780
TUBE LIGHT (40 W)	333	13320
LED LAMP (12 W)	07	84
LED LAMP (15 W)	16	240
LED LAMP (18 W)	118	2124
C.F.L (90 W)	25	2250
HALOGEN (100 W)	04	400

WALL FAN (70W)	34	2380
FRIDGE (300 W)	01	300
1.5T A.C (1500 W)	09	13500
2T A.C (2000 W)	04	8000
DESKTOP (250 W)	40	10000
LAPTOP (100 W)	10	1000
PRINTER (400 W)	20	2000
TABLETOP PROJECTOR (300 W)	01	300
LED DISPLAY (120 W)	02	240
XEROX (700 W)	03	2100
MOTOR (2 H.P) 1492Watt	02	2984
PUMP 373 Watt	01	373
OVERHEAD PROJECTOR (500 W)	02	1000
LED TUBE 20	02	40
2 FEET TUBE (11 W)	12	132
TOTAL POWER CONSUMPTION (Average)		62767

RECOMMENDATIONS

The College administration may consider on top priority

1. Energy Consumption for each building should be estimated to design the energy conservationplan.
2. Energy-saving equipment should be installed in the classroom.
3. Instead of out-sourcing the Annual Maintenance of Electrical Equipment college concerndepartment staff shall take that responsibility
4. Energy-saving awareness shall be achieved by displaying the boards in the appropriate place
5. Encourage natural ventilation and illumination by alteration in the building structures whenevergoing for new constructions

WASTE DISPOSAL AND MANAGEMENT

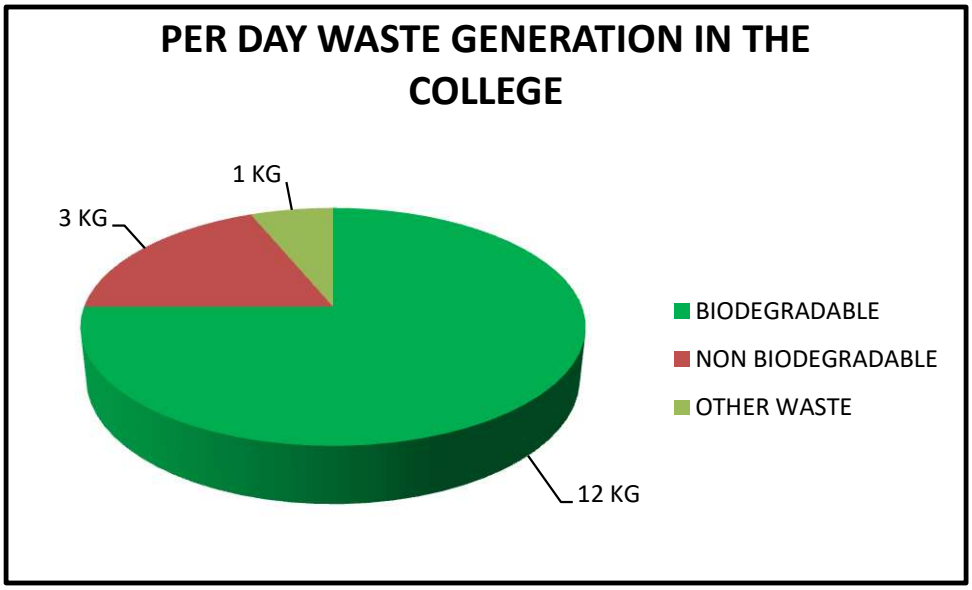
Both biodegradable as well as non-biodegradable wastes are generated from various departments/sections of the college as below in the table

DIFFERENT TYPES OF WASTE GENERATED IN THE COLLEGE AND THEIR DISPOSAL

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic	Wherever possible recycle otherwise Direct selling
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers, etc	Direct selling
Solid Wastes	Damaged furniture, paper waste, paper plates, food wastes	Reuse after maintenance or Chakdaha Municipality collect it
Chemical wastes	Laboratory waste	Neutralise with various process
Wastewater	Washing, urinals, bathrooms	Soak pits

Solid Waste

The waste is generated by all sorts of routine activities carried out in the College that include paper, plastics, glass, metals, foods, etc. The waste is segregated at each level and source. Theadministrative supervisor in each block ensures that the waste on each floor is collected at designated time intervals. The block safai workers on each floor collect, clean, segregate and compile the waste in the dustbins (Green and Blue) provided on each floor. Chakdaha municipality regularly collects waste from the college.



Liquid Waste Management

- Maintain leakproof water fixtures.
- Continued employment of a caretaker to take immediate steps to stop any water leakage through taps, pipes, tanks, toilet flush, etc.
- Reuse of wastewater generated by the Reverse Osmosis (RO) system in washrooms or gardens.
- Non-hazardous liquid west generated from the Chemistry laboratory will be used for groundwater recharge
- To minimise the laboratory chemical waste in sewerage, the following initiatives have been taken:
    - Reduce the solution concentration from higher to lower. e.g., we use N/100 or N/50 or N/20 order solution in lieu of conventional N/10 order solution.
    - Reduce the volume of aliquot from 25 ml to 10 ml or 5 ml during titration.
    - Perform the experiment in a group of students (4-6) instead of individuals.
    - Avoid toxic chemicals as practice as possible to perform the experiment in

other ways.

- Focus on a green approach to perform the experiment using safer chemicals.

E-Waste Management:

Flip flops, memory chips, motherboards, compact discs, cartridges, etc generated by electronic equipment such as Computers, Phones, Printers, and Photocopy machines are recycled properly instead of buying a new machine buyback option is taken for technology upgradation.

GREEN BELT AREA & BIO-DIVERSITY

The Green Belt Area is meant for the conservation of nature and aesthetic value of the college premises. The Green Area in the college includes the plants, greenery, and sustainability of the campus to ensure that the buildings conform to green standards This also helps in ensuring that the Environmental Policy is enacted, enforced, and reviewed using various environmental awareness programmes.

OBSERVATIONS

The campus is located in the vicinity of approximately 60 types (species) of flora and fauna. Various tree plantation programs are being organized during July and August at the college campus and surrounding areas through the NSS unit. This program helps encourage an eco-friendly environment that provides pure oxygen within the institute and awareness among the residents around the college. The plantation program includes various types of indigenous species of ornamental and medicinal.

TABLE 4 TYPES OF TREES PLANTED WHICH ARE ENVIRONMENT FRIENDLY

SL NO.	COMMON/LOCAL NAME	SCIENTIFIC NAME	FAMILY	NO. OF PLANTS
1.	Aam	*Mangifera indica*	Anacardiaceae	01
2.	Aamada	*Curcuma amada*	Zinziberaceae	01
3.	Aparajita	*Clitoria ternatea*	Fabaceae	01
4.	Areca palm	*Dypsis lutescens*	Arecaceae	03
5.	Aswagandha	*Withania somnifera*	Solanaceae	01
6.	Aswattha	*Ficus religiosa*	Moraceae	01
7.	Arjun	*Terminalia arjuna*	Combretaceae	01
8.	Bael	*Aegle marmelos*	Rutaceae	01
9.	Bakul	*Mimusops elengi*	Sapotaceae	04
10.	Bisohori	*Alternanthera bettzickiana*	Amaranthaceae	01
11.	Bougainvillea	*Bougainvillea glabra*	Nyctaginaceae	01
12.	Bohera	*Terminalia bellirica*	Combretaceae	01
13.	Ceylon Gold	*Phildendron erubescens*	Araceae	11
14.	Chhatim	*Alstonia scholaris*	Apocynaceae	01
15.	Christmas tree	*Araucaria cookii*	Araucariaceae	02

SL NO.	COMMON/LOCAL NAME	SCIENTIFIC NAME	FAMILY	NO. OF PLANTS
16.	Croton	*Croton* spp.	Euphorbiaceae	05
17.	Darchini	*Cinnamomum verum*	Lauraceae	01
18.	Debdaru	*Polyalthia longifolia*	Annonaceae	22
19.	Dhobi tree	*Mussaenda philippica*	Rubiaceae	02
20.	Dracaena	*Dracaena fragrans*	Asparagaceae	04
21.	Elaichi	*Elettaria cardamomum*	Zingiberaceae	01
22.	Ghritakumari	*Aloe vera*	Asphodelaceae	08
23.	Halud	*Curcuma longa*	Zingiberaceae	01
24.	Haritaki	*Terminalia chebula*	Combrataceae	01
25.	Harjora	*Cissus quadrangularis*	Vitaceae	02
26.	Jaba	*Hibiscus rosa-sinensis*	Malvaceae	02
27.	Jhau	*Thuja occidentalis*	Cupressaceae	25
28.	Jamrul	*Syzygium samaragense*	Myrtaceae	01
29.	Jarul	*Lagerstroemia speciosa*	Lyphraceae	04
30.	Kadam	*Neolamarckia cadamba*	Rubiaceae	01
31.	Kalmegh	*Andrographis paniculata*	Acanthaceae	03
32.	Kamini	*Muraiya paniculata*	Rutaceae	112

SL NO.	COMMON/LOCAL NAME	SCIENTIFIC NAME	FAMILY	NO. OF PLANTS
33.	Karobi	*Nerium oleander*	Apocynaceae	07
34.	Kathal	*Artocarpus heterophyllus*	Moraceae	01
35.	Lambu	*Khaya anthotheca*	Meliaceae	05
36.	Litchu	*Litchi chinensis*	Sapindaceae	01
37.	Nayantara	*Catharanthus roseus*	Apocynaceae	11

38.	Neem	*Azadirachta indica*	Meliaceae	02
39.	Oyster Plant	*Tradescantia spathacea*	Commelinaceae	03
40.	Pathorkuchi	*Kalanchoe pinnata*	Crassulaceae	05
41.	Pepe	*Carica papya*	Cariceae	02
42.	Peyara	*Psidium guajava*	Myrtaceae	01
43.	Raktochandan	*Pterocarpus santalinus*	Fabaceae	01
44.	Ramtulsi	*Ocimum gratissimum*	Lamiaceae	05
45.	Rangon	*Ixora coccinea*	Rubiaceae	17
46.	Sarpagandha	*Rauvolfia serpentina*	Apocynaceae	01
47.	Satamuli	*Asparagus racemosus*	Asparagaceae	01
48.	Segun	*Tectona grandis*	Verbenaceae	03
49.	Tejpata	*Laurus nobilis*	Lauraceae	01
50.	Thankuni	*Centella asiatica*	Apiaceae	04
51.	Trailing Daisy	*Sphagneticola trilobata*	Asteraceae	20
52.	Tulsi	*Ocimum tenuiflorum*	Lamiaceae	10
53.	Vasak	*Justicia adhatoda*	Acanthaceae	01
54.	White Etna	*Dieffenbachia seguine*	Araceae	03

SL NO.	COMMON/LOCAL NAME	SCIENTIFIC NAME	FAMILY	NO. OF PLANTS

Note: Grasses could not be taken under consideration for their innumerability. Total number of plant species identified as 54 and total number of plants in the campus is recoded as 331.

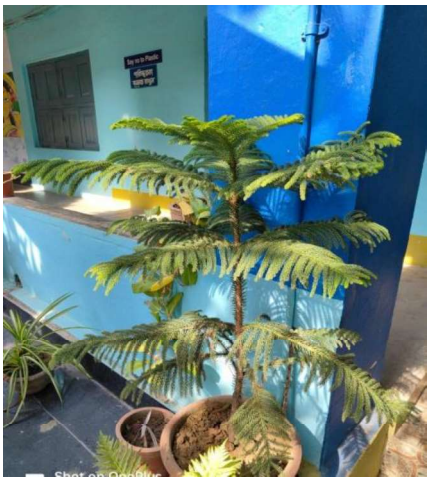
KATHAAL

AAM

DIFFENBACHIA

KARABI

JHU



AUROCARIA

JABA

GUAVA

RANGAN

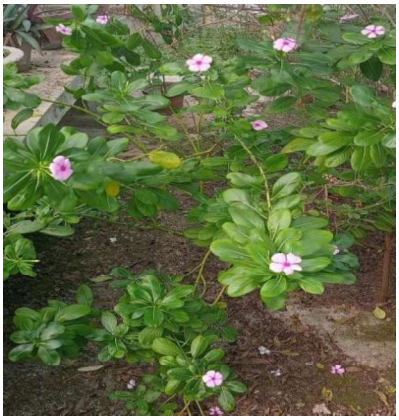
SEGUN

PEPE

KAMINI

DEBDARU

CEYLON GOLD

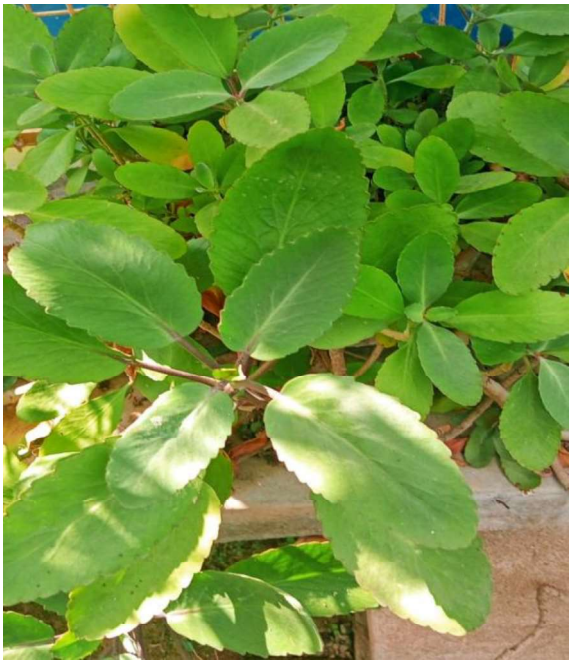


NAYANTARA

HORITAKI

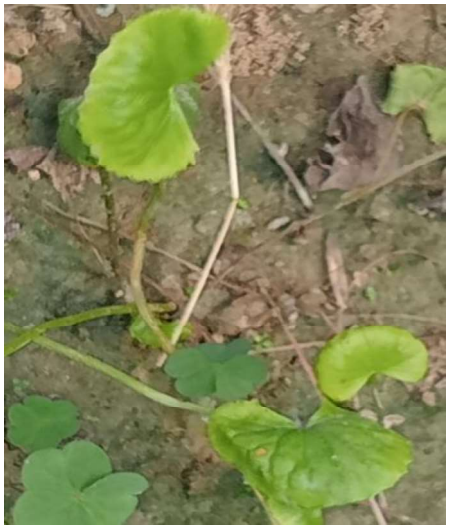
AAMADA

BISOHORI



PATHORKUCHI

GHRITIKUMARI



THANKUNI

BHIRNGORAAJ

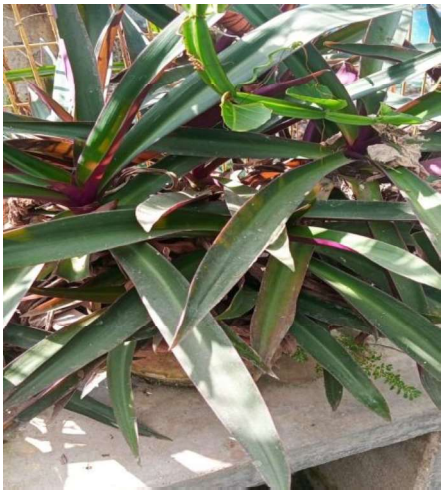
BOROELACHI

DRACAENA

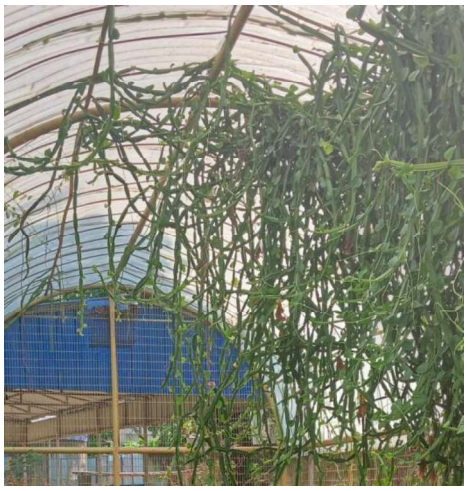
MUSSAENDA

LAMBU

JARUL



RHOEO



HARJORA

NEEM

LIST OF ANIMALS

TABLE 5 LISTS OF ANIMAL IN AND AROUND CHAKDAHA COLLEGE

	AMPHIBIANS	
SL NO.	**COMMON NAME**	**SCIENTIFIC NAME**
1	*Asian Common Toad*	*Duttaphrynus melanostictus*
2	*Indian Balloon Frog*	*Uperodon globulosus*
3	*Chunam Tree Frog*	*Polypedate smaculatus*
4	*Indus Valley Bullfrog*	*Hoplobatrachus tigerinus*
	Reptiles	
5	*Gharial*	*Gavialis gangeticus*
7	*Oriental Garden Lizard*	*Calotes versicolor*
8	*White-spotted Supple Skink*	*Riopa albopunctata*
9	*Common Dotted Garden Skink*	*Riopa punctata*
10	*Common Water Monitor*	*Varanus salvator*
11	*Bengal Monitor*	*Varanus bengalensis*
12	*Yellow Monitor*	*Varanus flavescens*
13	*Buff Striped Keelback*	*Amphiesma stolatum*
14	*Chequered Keelback*	*Fowlea piscator*
15	*Oriental Rat Snake*	*Ptyas mucosa*
16	*Banded Krait*	*Bungarus fasciatus*
17	*Indian Cobra*	*Najanaja*
18	*Russell's Viper*	*Daboia russelii*
	Birds	
19	*Common Hawk-Cuckoo*	*Hierococcyx varius*
20	*Large Hawk-Cuckoo*	*Hierococcyx sparverioides*
21	*Lesser Coucal*	*Centropus bengalensis*
22	*Greater Coucal*	*Centropussinensis*
23	*Chestnut-winged Cuckoo*	*Clamator coromandus*
24	*Plaintive Cuckoo*	*Cacomantis merulinus*
25	*Asian Koel*	*Eudynamys scolopaceus*
26	*Indian Cuckoo*	*Cuculus micropteru*
27	*Streak-throated Woodpecker*	*Picus xanthopygaeus*
28	*Blue-throated Barbet*	*Psilopogon asiaticus*
29	*Red-breasted Parakeet*	*Psittacula alexandri*
30	*Rose-ringed Parakeet*	*Psittacula krameri*
31	*Collared Scops-Owl*	*Otuslettia*
32	*Indian Scops-Owl*	*Otus bakkamoena*

33	*Chestnut-headed Bee-Eater*	*Merops leschenaulti*
34	*Blue-tailed Bee-Eater*	*Merops philippinus*
35	*White-throated Kingfisher*	*Halcyon smyrnensis*
36	*Stork-billed Kingfisher*	*Pelargopsis capensis*
37	*Common Kingfisher*	*Alcedoatthis*
38	*Spotted Dove*	*Spilopelia chinensis*
39	*Red Collared-Dove*	*Streptopelia tranquebarica*
40	*Rock Pigeon*	*Columba livia*
41	*Little Ringed Plover*	*Charadrius dubius*
42	*Black-winged Stilt*	*Himantopus himantopus*
43	*Little Egret*	*Egretta garzetta*
44	*Great Egret*	*Ardea alba*
45	*Medium Egret*	*Ardea intermedia*
46	*Lesser Whistling-Duck*	*Dendrocygna javanica*
47	*Blue-throated Flycatcher*	*Cyornis rubeculoides*
48	*Ruby-cheeked Sunbird*	*Chalcoparia singalensis*
49	*Purple Sunbird*	*Cinnyris asiaticus*
50	*House Sparrow*	*Passer domesticus*
51	*Common Myna*	*Acridotheres tristis*
52	*Black Drongo*	*Dicrurus macrocercus*
53	*Common Tailorbird*	*Orthotomus sutorius*
54	*Large-billed Crow*	*Corvus macrorhynchos*
	Mammals	
55	*Northern Plains Grey Langur*	*Semnopithecus entellus*
56	*Five-striped Palm Squirrel*	*Funambuluspennantii)*
57	*Domestic Cattle*	*Bostaurus*
58	*Domestic Goat*	*Capra hircus*
59	*Domestic Cat*	*Feliscatus*
60	*Golden Jackal*	*Canisaureus*

ANIMAL BIODIVERSITY IN AND AROUND CHAKDAHA COLLEGE

Mammals Population

Domesticated goat- *Capra hircus*

Gray langur- *Semnopithecus* sp.

Dog- *Canis familiaris*

Cow- *Bos indicus*

Indian ox- *Bos taurus*

Bird Population

Black hooded oriole- *Oriolus* sp.

Green Bee Eater- *Merops orientalism*

Babbler- *Argya striata*

Cormorant- *Phalacrocorax* sp.

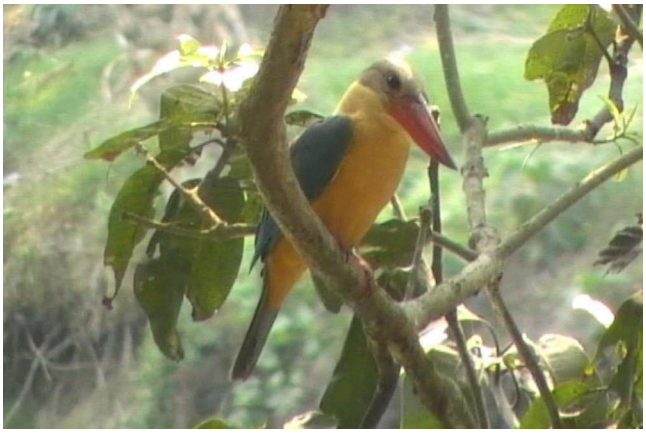
House Sparrow- *Passer domesticus*

Black hooded oriole- *Oriolus* sp.

White breasted waterhen - *Amaurornis* sp.

Common myna- *Acridotheres* sp.

Sunbird- *Leptocoma* sp.



Kingfisher- *Alcedo* sp.

Reptile Population

Indian cobra- *Naja naja*

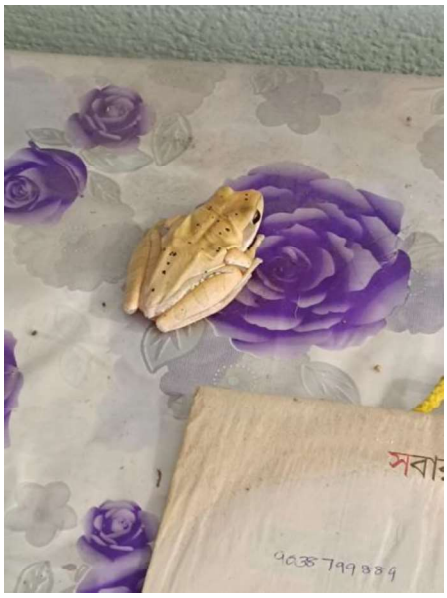
Common wolf snake- *Lycodon aulicus*

Rat snake- *Ptyas mucosa*

Common krait- *Bungarus caeruleus*

Buff striped keelback- *Amphiesma stolata*

Invertebrate Animal Population



Striped tree frog – *Polypedates* sp.

Larva of *Badamia* sp.

Blue tiger butterfly (*Tirumala limniace*)

ENVIRONMENTAL AWARENESS INITIATIVES

The college students and staff are aware of the various environmental issues and the various green measures to be adopted. Various awareness programme are conducted regularly in this regard

Mitigation and Management Practices

At present following practices for environmental protection are also being adopted by the college:

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Green campus initiatives

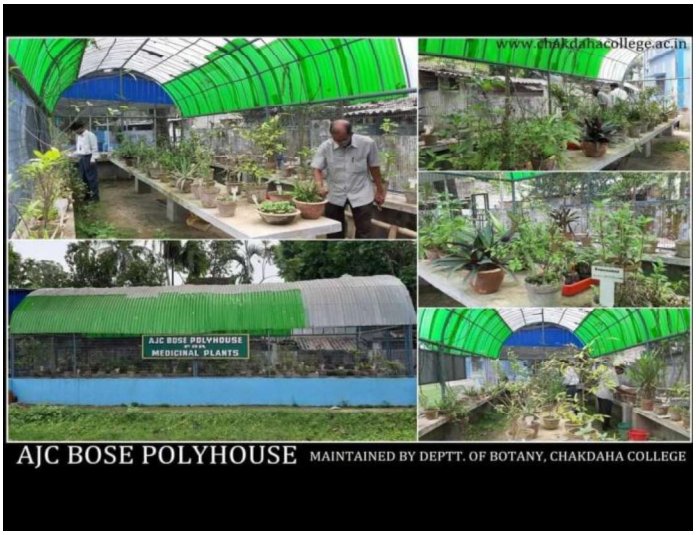
The college commits to enriching healthy habitats and maintaining the symbiotic relationship of the institution with nature by

- Organizing annual tree plantation drives
- Encouraging student societies to hold tree-planting events on various occasions
- Poster free campus
- Initiation of medicinal plant garden

The campus landscape is a vital part of the life of a campus, providing space for study, play, outdoor events, relaxation, and aesthetic appreciation. Green campus landscapes aim to manage runoff, help recharge groundwater, and clean and cool the air on campus.

PLANTATION PROGRAMME IN CAMPUS

MEDICINAL PLANT GARDEN



GREEN CAMPUS

Clean Air Initiatives

We encourage our students and staff to use public transportation. The entry of automobiles inside the campus is restricted to discourage the use of private vehicles. We have decided to declare 21st November (Foundation day of the College) as No Vehicles Day

OBSERVATION OF NO VEHICLES DAY

Smoking Free Campus

In compliance with the framework provided by the National Tobacco Control Programme (NTCP) 2007-2008, the college prohibits smoking and the use of other tobacco products. As a step in this direction, smoking and use of tobacco in and around the campus is strictly prohibited.

PLASTIC-FREE CAMPUS

Plastic Free Campus

Chakdaha College has been observing most of its duties in environmental management since its inception. In view of the Government of India's resolution to ban all single-use plastics due to the hazardous impact of plastic use and pollution, the college administration strictly bans the use of single-use plastics in its premise to make it a 'Plastic Free and decided to place the poster on this matter to aware the stakeholders.

Energy Conservation Efforts:

The college uses star-rated Electrical and electronics equipment which saves energy. LED Bulbs/ Tube-light, 4-5 star Rated Air Conditioners.

USE OF LED LIGHT

Practice of alternative Sources of Energy:

A rooftop solar PV system of capacity 10kWp has been installed on a Net-metering basis on 5.07.2021 at our Chakdaha College campus on the rooftop of the Science Building with the full financial support from West Bengal Pollution Control Board, W.B. Renewable energy must play major role in the energy mix for achieving sustainable energy security in the years ahead. The power generated from SPV panels during the daytime can be utilized for powering captive

loads and for feeding excess power if any to the grid. RTS plant ensures fruitful utilization and economic value of idle rooftops

ROOFTOP SOLAR PV SYSTEM

Water Conservation Measures

Chakdaha College has committed itself to the effort to replenish the groundwater table by practicing rainwater harvesting. This practice helps in the replenishment and recharge of the groundwater. Rainwater from the different college buildings is taken to the wells for groundwater recharge. The entire distribution system is well supervised by the college administration to ensure that there are no leakages and wastages of water through Leakages.

SOAK PIT FOR COLLECTING RAINWATER FOR RECHARGING GROUNDWATER

POSTER COMPETITION ON SAVE WATER TO SAVE LIFE ON THE EARTH

AWARENESS PROGRAMME ON SOLAR POWER AND EMPLOYMENT OPPORTUNITIES ON IT 6.04.2022

CELEBRATION OF WORLD ENVIRONMENT DAY AND PLANTATION ON 05.06.2022

Beyond Campus Environmental Promotion and Sustainability Activities:

Chakdaha College firmly adheres to the policy of environment conservation and regularly organizes on- and off-campus activities that demonstrate our college's obligation to contribute to the sustainability of the environment. The college has conducted various Programs that have issues impacting the environment of the world in the areas near our college. The following are the key components of the institution's policy of beyond-the-campus environmental promotional activities

- Encourage stakeholder awareness of environmental issues to prevent resource abuse and pollution
- Involve students and staff in activities related to the conservation, restoration and protection of the environment and wetlands.
- Observe days of environmental importance to connect students to nature
- Encourage and organize tree plantation drives outside the campus and at students' residences.
- Organize online or offline awareness sessions for better reach of the concepts of biodiversity conservation to a wider populace
- Visit Biodiversity Heritage Centres to educate the students about biodiversity, species, and ecosystem diversity.

Recommendations

A green audit of any academic institution reveals ways by which the institute can reduce energy consumption, water use, and reduction in emission of carbon dioxide into the environment. It is a process to look into and ask ourselves whether the college also contributing to the degradation of the environment and if so, in what manner and how can be minimized this contribution and bring it down to zero and preserve our environment for future generations. This process of green audit enables us to assess our lifestyle, and actions and assess its impact on the environment. Green auditing is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. In the era of climate change and resource depletion, it is necessary to verify the processes and convert it into green and clean ones.

- Focus on assessing the consumption of energy, electricity, and water as well as disposal of liquid waste, solid waste, hazardous waste, and e-waste, and an inventory of trees in the campus is also prepared to check how much CO_2 is sequestered and O_2 is released.
- The college can follow No Vehicle Day every month to save fuel consumption.
- Various awareness programmes will be helpful to motivate all the staff members for optimized sustainable use of available resources.
- The long-term goal of the environmental audit program is to collect baseline data on environmental parameters and resolve environmental issues.
- To prepare an Environmental Statement Report on green practices followed by different departments, support services, and administration.
- As an outcome efforts will be made to reduce carbon footprints by using electrical vehicles in the campus, and green computing in the administration and examination.
- The Green Audit Report on the environment must reach the public so that it would succeed in reducing environmental issues and its popularization among stakeholders.

- If possible an environmental audit report must be published annually by the university.