

# **GREEN AUDIT REPORT**

## **2020-2021**



**GOESWAR COLLEGE**  
**GOESWAR, BAKSA-781366 ASSAM**

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## ACKNOWLEDGEMENT

To meet the challenges of environment related disruptions, the University Grants Commission of India launched a “Green Campus Clean Campus” mission for all higher educational institutions of the country a few years back. The Goreswar College therefore committed to create an ecologically sound college campus by implementing some eco-friendly practices. The present report is the first Green Audit Report of the College which looks forward to identify the environment related issues in the College campus and to monitor the environmental management practices adopted by the College. A few suggestions are also made to take environmental protection to higher levels in the College campus and its vicinity. It is hoped that the report will certainly receive due attention of the concerned authority and the College shall implement the green practices whatever suggested for better future of all stakeholders of the Goreswar College.

The Audit team is thankful to all the students, officiating members of Offices and faculty members of the college for their support and co-operation to compile and complete this report on time.



**Dr. Partha Pratim Baruah**  
Auditor  
Goreswar College Green Audit  
&  
Professor, Department of Botany  
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## **ABOUT GORESWAR COLLEGE, GORESWAR**

Goreswar College is one of the premier institutes of Higher Education in Baska District, Assam. It was established on the 29th day of August 1974 with the effort of some local visionary persons as an Arts College with 116 students which was later upgraded to the status of a Degree College from the session 1977-78. After coming under the fold of Deficit Grants-in-Aid system of Govt. of Assam in the years 1981, the College has been showing the mark of progress in all sides to the satisfaction of the students and guardians along with the education-enthusiasts of greater Goreswar area in last few decades.

With the 18 full-fledged departments under the three streams viz., Arts, Science and Commerce, Goreswar College continues to show its academic excellence for which the college was accredited with B grade by the National Assessment and Accreditation Council (NAAC) in the last assessment. The present student strength is more than 2000 against more than 50 teachers and 29 supporting staffs. Principal is the chief executive of the college.

## **GREEN AUDIT AT GORESWAR COLLEGE**

Participating in the “Green Campus, Clean Campus” mission launched by the University Grants Commission for all higher educational institution of India and in compliance with the ‘Environmental Consciousness’, a mandatory criterion (Criterion VII) of National Assessment and Accreditation Council (NAAC), the sustainability and sustainable development policies are kept on the agenda of Goreswar College. Green Audit is one of the steps taken up by the College in order to record, document, analyse and report the environmental constituents of the Campus through an impartial and inclusive method of auditing. It is anticipated that Green Auditing shall help the College in preserving the rich floral and faunal diversity in and around the campus; garnering interest and creating awareness among the stakeholders.

Goreswar College is committed to responsible stewardship of resources and to demonstrate leadership in sustainable academic practices for a better tomorrow with the policy goals of Green audit as follows:

- Identification and documentation of the eco-friendly practices for a sustainable college campus

- Increasing awareness among all stakeholders for sustainable use of available resources.

To achieve the aforementioned goals, the present audit endeavours towards the following objectives:

- ❖ To identify current and emerging environmental issues.
- ❖ To prepare a status report on environmental compliances.

## **AUDIT STAGE**

Green auditing in Goreswar College began with the formation of the Green Audit team incorporating faculty members and researchers of Gauhati University and Goreswar College. The audit team visited the campus on regular basis and monitored different facilities from the audit perspectives and, simultaneously made the assessment of the status of the green cover of the Institution followed by waste management practices etc. Data collection was done by onsite visit through structured questionnaires in different sectors such as water, waste, biodiversity status. The data were collated accordingly and analyzed to prepare this Green Audit report of Goreswar College.

## **LAND USE AND LAND COVER**

The College campus is a flat piece of land with a total area of 20 bigha 2 katha. A few patches of plantations were there which the team feels a good initiative of the College authority. Regular plantations since the inception of the College make it lush green campus. The trees not only support as sound barriers, but also house a wide spectrum of epiphytic flora and fauna. Organized plantations in the campus are seen along each and every academic building which is a commendable green practice of the College. Some areas are demarcated as garden which needs maintenance. A small forest patch and two ponds make the campus habitable for a few water birds. The drainage system seems to be good in the campus.

### **Observations and suggestions**

- One forest patch and a few locations are identified which can be converted as conservation sites within the college campus
- Disturbance is prominent in green areas/gardens which needs care.
- Avenue trees do not get attention, hence suggest to take initiatives for maintenance.
- The drainage links are marked.

### **WATER AUDIT**

Water auditing is a way to conduct a study on balance between demand and supply of potable and usable water including the quality of the available water. Water audit is therefore considered as an effective management tool for minimizing losses, optimizing various uses leading to conservation of water.

#### **Water Management**

The source of water used in the Goreswar College is the ground water. Ground water is pumped out through water pumps every day for regular use in day-to-day college activities, gardening, laboratory, lavatory uses and along with the use in canteen. The water management plan was missing. No signages were seen for conservation of water. The water quality analysis revealed that all parameter were under permissible limit as prescribed by the different agencies.

#### ***Observations and suggestions***

- The College is less concerned for judicious use of water.
- Only little wastage of water was marked.
- Display signage for water conservation need to be fitted in all prominent places to make the stakeholders aware on the matter.
- The waste water from canteen and kitchens are not suitably controlled.
- Rain water harvesting mechanism is not seen which needs to be installed soon.

## AUDITING FOR WASTE MANAGEMENT

The college generates paper, plastic and organic wastes of different quantum. Though the bio-medical waste is almost nil, little e-waste were recorded to be dumped over in the Campus. Little chemical and organic waste was generated in the Laboratories of the Chemistry, Botany and Zoology Departments which was unattended.

**Table 1: waste management practices adopted**

Sl No.	Practice/Strategies adopted	Response	Quantification if any
1	Organised collection of organic waste	No	NA
2	Leaf Litter disposal	Yes	occasional
3	Vermi composting Unit	No	NA
4	Use of Plastic/plastic wares	In use	high
5	Segregation of waste as per Govt. directives	No	NA
6	Dustbins proper place	No	NA
7	Awareness programme organized	Yes	Regular

### Observations suggestions

1. Though the college is committed to keep the campus clean and green, Segregation practice was not adopted to separate different wastes.
2. Proper dustbins were also not in place.
3. As the campus generate a good amount of litters, one vermicompost unit may be installed.
4. E-Waste disposal policy may be formulated soon.



## HEALTH AUDIT

A healthy ecosystem directly means a healthy livelihood. Hence, to ascertain a healthy society inside the college campus and to create awareness among the individuals in taking actions against the growing strain on Earth's natural ecosystem, the Goreswar College fraternity took few initiatives through several events in past couple of years.

**Table 2 : List of Programmes conducted in and around the college campus**

Sl. No.	Name of Programme
1.	5 Tree Plantation Programme at Goreswar College Campus
2.	2 Literary and Quiz Competition
3.	Observed World AIDS Day
4.	Swachh Bharat Abhiyan and Dustbin Distribution
5.	2 Environmental awareness Programme
6.	2 NSS Volunteers Training Programme

## **BIODIVERSITY AUDIT**

Biodiversity is the key to a healthy ecosystem and it provides humans with raw materials for consumption and production. As our culture is closely connected to biodiversity through the expression of identity, through spirituality and through aesthetic appreciation, any loss or deterioration in the condition of biodiversity may affect human wellbeing particularly in North Eastern region which is located between two biodiversity hotspot, Himalaya and Indo Burma. The main objective of biodiversity audit is therefore to document different biodiversity components within the College campus.

The Goreswar College campus is Spreading over a plot of 20 bigha 2 katha (as per land record) land out of which around 62 % area are under green coverage including ponds and open space which houses different varieties of natural fauna and flora. A few plants are introduced to enhance the aesthetic beauty of the campus.

The Goreswar College campus houses a good number of animals from each different phylum which on the other hand, indicates a good health of the campus. In the present study, 62 species were reported in the college campus belonging to different phylum and classes which includes 3 amphibian, 10 reptile species, 22 fishes and 10 birds. It is very interesting to note that the college campus provides a sound nesting ground for some avian and mammalian species.

The College campus is an evergreen beautiful area with a variety of trees, bushes and grasses. The aesthetic beauty of the campus has been enhanced by introducing a few ornamentals and economically important plants. All the plants provide good ecological services in maintaining a green College campus in and around Goreswar township. Altogether 68 species of plants belonging to herb, shrub and tree categories are recorded so far which includes few ferns, gymnosperms and angiosperms, A few fruit trees enhance the aesthetic beauty of the campus.

### **Suggestions and Recommendations**

- The Goreswar College campus supports a good number of plants and animals of which a few are ecologically, aesthetically and culturally important.
- The dedicated garden areas need to be monitored regularly to enhance the aesthetic beauty of the campus.
- Boundary areas may be systematically planted.

## AUDIT SUMMARY

This report on “Green Audit” of Goreswar College for the year 2020-2021 was prepared with an objective to highlight and prepare a statement on the green practices followed by the College. The present Green Auditing began with the assessment of the status of the green cover of the college followed by water audit and, waste management practices etc. The audit team prepared the report based on the data provided by the local team through spot visit. The garden in front of administrative building and avenue trees aligned with the buildings enhance the aesthetic beauty of the college campus. Little disturbances within the dedicated green areas/gardens were observed that need monitoring and intervention. Boundaries of the college are almost covered with plantation which performs as sound barrier for the campus. Water quality is good and may be used. Display signage for water conservation and regular monitoring practice seems to be missing, where attention requires from the authority. In order to carry forward the commitment to keep the campus waste free, installation of dustbins need to be started in phase manner. It is also noted that no visible segregation practice exists to separate different wastes which need active attention though the college organise different awareness programme on Swachhata and maintenance of healthy environment.

As the Biodiversity plays a key role in providing numerous irreplaceable services to any community, biodiversity audit is one of the best practices for sustainability of an institute. The Goreswar College campus houses around 62 numbers of animals and 68 species of plants It is also interesting to note that the college campus provides sound nesting ground to a few avian and mammalian species. The evergreen trees provide a good ecological service in maintaining a green campus

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## **2020-2021**

**Printed at Gauhati University Press**

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## ACKNOWLEDGEMENT

Following the University Grants Commission's mission on "Green Campus Clean Campus" for all higher educational institutions of the country, the Goreswar College, Goreswar is inclined to create an ecologically sound campus by implementing some eco-friendly practices in last few years. The present report is the 2nd Green Audit Report of the College which looked forward to identify the environment related issues in the College campus and to monitor the environmental management practices adopted by the College. A few suggestions are here made to take environmental protection to higher levels in the College campus and its vicinity. The Principal, Goreswar College deserves the appreciation for his initiative in conducting the Green Audit for the college along with IQAC team. The Audit team is thankful to all the students, officiating members of Offices and faculty members of the college for their support and co-operation in collating data for the report.



**Dr. Partha Pratim Baruah**

Auditor

Goreswar College Green Audit

&

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Gauhati University, Guwahati-781014, Assam



## ACKNOWLEDGEMENT

The Green Audit Report is the result of the collective effort of all those who have participated in the process. The report is a product of the Green Audit team and the management of the institution. The Green Audit team consists of the Green Audit Committee and the Green Audit Cell. The Green Audit Committee is the highest authority in the institution and is responsible for the overall Green Audit process. The Green Audit Cell is the executive body and is responsible for the implementation of the Green Audit process. The Green Audit process is a continuous process and requires the participation of all stakeholders in the institution. The Green Audit process is a tool for the institution to assess its environmental performance and to identify areas for improvement. The Green Audit process is a process of self-reflection and self-improvement. The Green Audit process is a process of learning and growth. The Green Audit process is a process of achieving excellence in environmental management. The Green Audit process is a process of creating a green culture in the institution. The Green Audit process is a process of making a difference. The Green Audit process is a process of being green.

Principal  
Goeswar College  
Karnal  
Dr. Ramesh Chandra  
2  
Dr. Ramesh Chandra  
Dr. Ramesh Chandra

## **ABOUT GORESWAR COLLEGE, GORESWAR**

Goreswar College is one of the prominent and oldest institutes of Higher Education in Baska District, Assam. It was established on the 29th day of August 1974 by a team of selfless and untiring social workers and lovers of education of the greater Goreswar locality. Betna Siksha and Krishi Unayan Sangha (Betna Education and Agriculture Development Organization) were the major pioneering forces in the venture that provided funds to develop the required initial infrastructure for the college to start with 116 students in HS Section. Later, it rose to the status of a Degree College from the session 1977-78. After coming under the fold of Deficit Grants-in-Aid system of Govt. of Assam in the years 1981, the College has been showing the mark of progress in all sides to the satisfaction of the students and guardians along with the education-enthusiasts of greater Goreswar area in last five decades. The serene beauty and eco-friendly campus of the College with beautiful garden and play ground is conducive to the pursuit of academic activities. The college has been under provincialized scheme of Govt. of Assam w.e.f. 1st December 2005. The sustained endeavour and efforts of the College towards quality education and the focus on all round development of the economically weaker section of the society is commendable. More 2000 thousand students are studying in the college. The college was accredited with B grade by the National Assessment and Accreditation Council (NAAC) in the last assessment.

### **GREEN AUDIT AT GORESWAR COLLEGE**

Participating in the “Green Campus, Clean Campus” mission launched by the University Grants Commission for all higher educational institution of India and in compliance with the ‘Environmental Consciousness’, a mandatory criterion (Criterion VII) of National Assessment and Accreditation Council (NAAC), the sustainability and sustainable development policies are kept on the agenda of Goreswar College. Green Audit is one of the steps taken up by the College in order to record, document, analyse and report the environmental constituents of the Campus through an impartial and inclusive method of auditing. It is anticipated that Green Auditing shall help the College in preserving the rich floral and faunal diversity in and around the campus; garnering interest and creating awareness among the stakeholders. Goreswar College is therefore committed to the following policy goals of Green audit:

- Identification and documentation of the eco-friendly practices for a sustainable college campus
- Increasing awareness among all stakeholders for sustainable use of available resources.

To achieve the aforementioned goals, the present audit endeavours towards the following objectives:

- ❖ To identify current environmental issues.
- ❖ To monitor environmental management practices.
- ❖ To create awareness among the various stakeholders of the College.

## **AUDIT STAGE**

Green auditing in Goreswar College began with the formation of the Green Audit team incorporating faculty members and researchers of Gauhati University and Goreswar College. The audit team visited the campus on regular basis and monitored different facilities from the audit perspectives and, simultaneously made the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies, etc. Data collection was done by onsite visit through structured questionnaires in different sectors such as water, waste, biodiversity status. The data were collated accordingly and analyzed to prepare this Green Audit report of Goreswar College. The Audit team was led by Prof. Partha Pratim Baruah and assisted by IQAC team of the College.

## **METHODOLOGY ADOPTED**

The methodology adopted to conduct the Green Audit of Goreswar College had the following components

- On site field visits by the Green Audit Team at and when necessary.
- Data collections were done through distribution of structured questionnaires.
- The water quality analysis was done at the PHE Department of Govt of Assam.
- Different standard taxonomic and ecological protocols were followed to document and estimate the floral and faunal account for biodiversity audit.

## **POST AUDIT STAGE**

### **LAND USE AND LAND COVER**

Located within a thinly populated area in Goreswar, the College campus is a flat piece of land with having little undulation in the topography amidst the lush green and sylvan serenity. The present survey revealed that the college campus has been accommodated in a total area of 20 bigha 2 katha land managed with a master plan with having demarcated and dedicated spaces for 2 ornamental garden, 4 tree plantation plot, one Micro forest patch, two ponds and two multi sports play grounds. Regular plantations make it lush green campus. The drainage system seems to be good in the campus as surface run off dictates towards the ponds within the campus and the nearby waterbodies.

### **Observations**

- Eco-friendly Initiatives on tree plantation and initiative in creation of Micro-forest is the commendable green initiative of the College.
- Disturbance seems to reduced or nil in dedicated green areas/gardens.
- Avenue trees including sound barriers is getting attention.
- The drainage links are suitably managed to dictate excess surface runoff towards the ponds inside the campus with a view to recharge ground water.

## **Suggestions and Recommendations**

- Monitoring and maintaining the gardens shall enhance the aesthetic beauty of the College.
- Care needs to be taken to saplings as well as avenue trees.
- The college needs to take appropriate step to conserve and protect the shelter of a few water birds which make home inside the campus.

## **WATER AUDIT**

As water is an essential natural resource, it is therefore, necessary to examine the quality and usage of water in the campus. Water audit improves the knowledge and documentation of the distribution system, identifies the problem of seepage and leakage leading to reduce water losses, generate ideas for possible recycling of water and the use of rain water. Above all, such auditing improves financial performance of an institute in long run.

### **Water Management**

The source of water used in the Goreswar College is the ground water. A total of 4000 L of water is pumped out through water pumps every day (Table 1) for regular use in day-to-day college activities, gardening, laboratory, lavatory uses and along with the canteen.

**Table 1: Source and usage**

Sl no	Parameters	Response
1	Source of water	Ground water
2	No of Wells	NA
3	No of Hand pumps	Two
4	No of Overhead tanks	4
5	No of water pumps used	4
6	Horse power- water pumps	1.0 HP -3; 0.5 HP- 1
7	Depth of well (boring)	200 ft for submersible
8	Water level	Normal
9	Type of water tanks	Reservoir
10	Capacity of Tank/ reservoir (Total)	5000 L
11	Quantity of water pumped every day	4000 L per day
12	Indication of water wastage with reasons	<i>Excessive Overflow from water tanks/ leakage from taps</i>
13	Water usage for gardening	Only 500 L per day
14	Use of waste water	No
15	Fate of wastewater from labs	Not attended
16	Any wastewater treatment for lab water	No
17	Whether any green chemistry method practiced in Labs	NA
18	Rain water harvest available?	Initiative has taken
19	No of units and amount of water harvested	NA
20	No of leaky taps	few
21	Amount of water lost per day	Around 1000 L
21	water management plan used	Not seen
22	water saving techniques followed	Substantially less
23	Signage for reminding peoples to turn off tap	No
24	Cleaning of the reservoirs	Very Rare

## WATER QUALITY ASSESSMENT

Water samples were collected randomly from the sources and analyzed for various physico-chemical parameters. All parameters were found under permissible limits as prescribed by different agencies. The College IQAC is monitoring the same on regular basis.

## **Observations**

- The College is now concerned for judicious use of water.
- Awareness for saving water is relatively higher amongst the teachers.

## **Suggestions and recommendations**

- Awareness campaigns can be held in the campus for the fresh students to save water every year.
- Periodical maintenance of water taps/ water pipes/reservoirs should be done in order to prevent the leakage of water through taps.

## **AUDITING FOR WASTE MANAGEMENT**

Any activities in an establishment create waste and the prime question is how efficiently it could be handled to avoid of any kind of health problems out of it. A college can generate three types of wastes viz., solid waste, liquid waste and hazardous waste. Solid waste again can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. The auditor diagnoses the prevailing waste disposal policies of the college and suggests the best way to combat the problems.

### **Status of Waste Generation**

The college generates paper, plastic and organic wastes in different occasions. The quantum of generation of organic waste is found to be more in hostels and canteens than that of in Academic Departments and Administrative blocks. Waste in academic departments was negligible and whatever generated are systematically disposed of through the sweeping mechanism. Though the bio-medical waste is almost nil, little e-waste were recorded to be dumped over in the Campus. A little chemical and organic waste was generated in the Laboratories of the Chemistry, Botany and Zoology Departments. The faculty members were actively engaged in segregating and disposing of waste whatever generated. The litters including regularly fallen twigs and leaves from the plants and trees were found to be dumped over there.

## Waste Management

The college is committed to keep the campus clean and green. Segregation practice has not adopted to separate different wastes. Installation of dustbins has been started in a phase manner. Signages are missing to aware the stack holders to use dustbins for disposing any waste. During a survey carried out among the stockholders of Goreswar College by the Green Audit Team, a majority of the respondents (75 %) were confident about their understanding of waste and their obligation in disposing of the same

**Table 2: waste management practices adopted**

Sl No.	Practice/Strategies adopted	Response	Quantification if any
1	Organised collection of organic waste	Yes	On Regular basis
2	Leaf Litter disposal	No	NA
3	Vermi composting Unit	In the pipe line	NA
4	Use of Plastic/plastic wares	In use	Little
5	Segregation of waste as per Govt. directives	No	NA
6	Dustbins proper place	Yes	Not sufficient
7	Dustbin clearing	Yes	On daily basis
8	Solid waste recycling process	No	NA
9	Awareness programme organized	Yes	Regular

## Observations

1. Plastic materials are still in use though in smaller quantities.
2. Frequency for garbage and litter collection is sufficient.
3. Dustbins are placed in different prime locations, but insufficient in number.



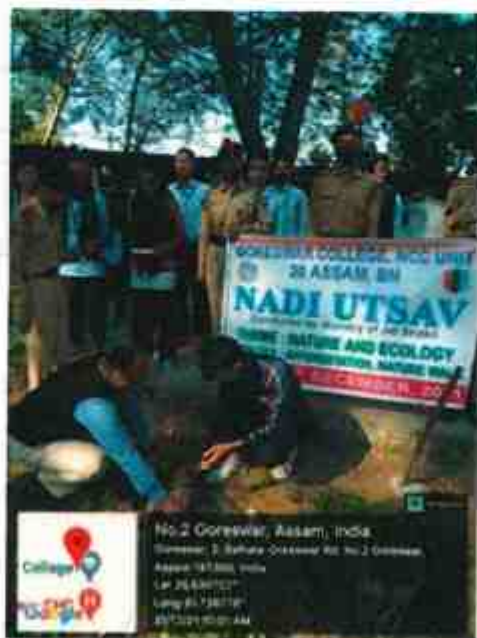
## Suggestions and Recommendations

- The practice of using biodegradable materials should be encouraged.
- Vermi composting facilities should be operationalized soon to avoid dumping of organic litters here and there.
- Numbers of dustbin need to be increased. Proper segregation method must follow to avoid unnecessary hazards.

## HEALTH AUDIT

A healthy ecosystem directly means a healthy livelihood. Hence, to ascertain a healthy society inside the college campus and to create awareness among the individuals in taking actions against the growing strain on Earth's natural ecosystem, the Goreswar College fraternity took few initiatives through several events in past couple of years.

**Table 5 : List of Programmes conducted in and around the college campus**



**Plate 7 : Awareness Programme & Plantation drive in the college campus**

## **ENERGY AUDIT**

Energy use is clearly an important aspect of campus sustainability and thus, requires no explanation for its inclusion in the assessment. In Goreswar College, energy is mainly used to manage and run the 1) lighting's load, 2) laboratory equipment 3) office equipment 4) air conditioners, 5) water cooler 6) fan, 7) water pump and 8) Cleaning and construction gadgets. The primary source of the energy for Goreswar College is the electricity received from Assam Power Distribution Company Limited supplied through an 19.0 KW connected load under the Consumer No. 077000024175 under the HT IV Bulk Category (Government Education). The College has also 1 Diesel run generator sets of 25 KVA capacities which are mainly used for Examination purposes. LPG are utilised in Canteen, laboratories and Hostels only.

### **Energy efficiency assessment**

The Energy efficiency assessment was conducted for the load connected to the mains supply of college buildings. The entire campus including common facilities is equipped with LED lamps and LED tube lights. All computers are set to automatic power saving mode when not in use.

A good habit of the stakeholders was observed that all the electrical appliances including the bulbs are usually shut down when not in use, more specifically during the vacations excluding a few essential points which are essential to illuminate the campus. Monitoring mechanism exists in put-on and put-off the electrical appliances is a laudable eco-friendly effort of the College. As the energy consumption rate is on higher side, the College must think for energy conservation practices along with exploring of green energy in future.

### **Suggestions and recommendations**

- Augmentation of solar power will make the college self-sufficient in energy consumption and production.
- Old and non-efficient electrical gadgets are to be replaced as far as practicable.

## BIODIVERSITY AUDIT

As the Biodiversity plays a key role in providing numerous irreplaceable services to any community, biodiversity audit is one of the best practices for sustainability of an institute. The main objective of present biodiversity audit is therefore to document different biodiversity components within the College campus. The outcome of such audit will certainly be helpful in designing different conservation measures that need to be taken for a better and self-sustaining ecosystem in the campus.

## FAUNAL DIVERSITY

The Goreswar College campus houses a good number of animals from each different phylum which on the other hand, indicates a good health of the campus. In the present study, 70 species were reported in the college campus belonging to different phylum and classes. It is very interesting to note that the college campus provides a sound nesting ground for some avian and mammalian species.

**A few faunal species are** *Chirixalus simus*, *Kaloula assamensis*, *Hoplobatrachus tigerinus*, *Hemidactylus frenatus*, *Chamaeleo zeylanicus*, *Calotes versicolor*, *Naja naja*, *Xenochrophis piscator*, *Ptyas mucosa*, *Bungarus fasciatus*, *Corvus sp.*, *Passer domesticus*, *Columba livia domestica*, *Apus apus*, *Coturnix coturnix*, *Anser anser*, *Alcedo atthis*, *Funambulus palmarum*, *Canis lupus familiaris*, *Prionailurus bengalensis*, *Rattus norvegicus*, *Mus domesticus* etc.

## FLORAL DIVERSITY

The College campus is an evergreen beautiful area with a variety of trees, bushes and grasses. The aesthetic beauty of the campus has been enhanced by introducing a few ornamentals and economically important plants. All the plants provide good ecological services in maintaining a green College campus near the Goreswar area. Altogether 70 species of plants belonging to herb, shrub and tree categories are recorded of which a few are listed here.

Malvaceae	<i>Hibiscus rosa-sinensis</i>	'Joba' (Ass.)
Apocyanaceae	<i>Alstonia scholaris</i>	'Chatiana' (Ass.)
	<i>Catharanthus roseus</i>	'Nayan-tora' (Ass.)
	<i>Plumeria rubra</i>	'Champa/ Gulancha' (Ass.)
	<i>Rauvolfia tetraphylla</i>	'Sarpagandha' (Ass.)
	<i>R. serpentina</i>	'Sarpagandha' (Ass.)
	<i>Tabernaemontana divaricata</i>	'Kathanda' (Ass.)
	<i>Cascabela thevetia</i>	'Karabi' (Ass.)
Solanaceae	<i>Datura metel</i>	'Dhatura' (Ass.)
Verbenaceae	<i>Duranta repens</i>	'Duranta' (Ass.)
	<i>Premna latifolia</i>	'Dhop' (Ass.)
	<i>Vitex negundo</i>	'Pasatia tita' (Ass.)
Papilionaceae	<i>Clitoria ternatea</i>	'Aparajita' (Ass.)
	<i>Dalbergia sissoo</i>	'Sisoo' (Ass.)
	<i>Erythrina arborascens</i>	'Kanchan' (Ass.)

Caesalpiniaceae	<i>Cassia fistula</i>	'Sonaru' (Ass.)
	<i>C. nodosa</i>	'Radha-chuda' (Ass.)
	<i>C. siamea</i>	'Casia' (Ass.)
	<i>C. sophera</i>	'Medelua' (Ass.)
	<i>Delonix regia</i>	'Krishna-chuda' (Ass.)
Mimosaceae	<i>Acacia auriculiaeformis</i>	'Acacia' (Ass.)
	<i>A. arabica</i>	'Taruwa Kadam' (Ass.)
	<i>Rosa indica</i>	'Golap phul' (Ass.)
Moraceae	<i>Artocarpus heterophyllus</i>	'Kathal' (Ass.)
	<i>Ficus benghalensis</i>	'Borgoch' (Ass.)
	<i>F. elastica</i>	'Rabar goch' (Ass.)
	<i>F. hispida</i>	'Dimoru' (Ass.)
Clusiaceae	<i>Mesua ferrea</i>	'Nahar' (Ass.)
Sapotaceae	<i>Mimusops elengi</i>	'Bokul' (Ass.)
Anacardiaceae	<i>Lannea coromandelica</i>	'Jiya' (Ass.)
	<i>Mangifera indica</i>	'Aam' (Ass.)
Myrtaceae	<i>Eucalyptus reginifera</i>	'Surabhi goch' (Ass.)
	<i>Psidium guajava</i>	'Madhuri-aam' (Ass.)
	<i>Syzygium jambolamum</i>	'Jam' (Ass.)
Rubiaceae	<i>Ixora corymbosa</i>	'Rongial' (Ass.)

	<i>Mussaenda</i> sp.	'Musenda' (Ass.)
Rutaceae	<i>Azadirachta indica</i>	'Mahanim' (Ass.)
	<i>Citrus aurantium</i>	'Kamala Tenga' (Ass.)
	<i>Murraya koenigii</i>	'Nara-singha' (Ass.)
Rhamnaceae	<i>Zizyphus mauritiana</i>	'Bogori' (Ass.)
Combretaceae	<i>Terminalia arjuna</i>	'Arjun' (Ass.)
	<i>T. chebula</i>	'Silikha' (Ass.)
Nyctaginaceae	<i>Bougainvillea spectabilis</i>	'Kagas-phul' (Ass.)
	<i>Mirabilis jalapa</i>	'Godhuli Gopal' (Ass.)
Cactaceae	<i>Opuntia dillenii</i>	'Sagarphena' (Ass.)
Casuarinaceae	<i>Casuarina equisetifolia</i>	'Casuarina' (Ass.)
Asclepiadaceae	<i>Calotropis gigantea</i>	'Aakon' (Ass.)
Acanthaceae	<i>Justicia adhatoda</i>	'Bahak-tita' (Ass.)
	<i>J. gendarrusa</i>	'Amar goch' (Ass.)
Asteraceae	<i>Helianthus annuus</i>	'Surjyamukhi phul' (Ass.)
	<i>Tagetes patula</i>	'Narji phul' (Ass.)
Sapindaceae	<i>Cardiospermum halicacabum</i>	'Kopal-phuta' (Ass.)
Euphorbiaceae	<i>Emblica officinalis</i>	'Amlokhi' (Ass.)
	<i>Euphorbia neriifolia</i>	'Siju' (Ass.)
Lamiaceae	<i>Leucas linifolia</i>	'Durum phul' (Ass.)

	<i>Ocimum basilicum</i>	'Tulasi' (Ass.)
Amaranthaceae	<i>Amaranthus spinosus</i>	'Kata-khutura' (Ass.)
Apiaceae	<i>Centella asiatica</i>	'Bor-manimuni' (Ass.)
	<i>Hydrocotyle rotundifolia</i>	'Saru-manimuni' (Ass.)

### Observations

- The College maintains a green environment. It is commendable.
- Beautiful and well-maintained gardens enhance the aesthetic beauty of the campus.
- The trees and bushes are providing nesting support to some specific indigenous wildlife. It is a specific sign of calm and quite eco- friendly environment of the campus.

### Suggestions and Recommendations

- The plant species should be conserved in a proper way to support and to achieve more biodiversity values in future.
- The dedicated garden areas need to be monitored regularly to enhance the aesthetic beauty of the campus.

## AUDIT SUMMARY

This report on “Green Audit” of Goreswar College for the year 2021-2022 was prepared with an objective to highlight and prepare a statement on the green practices followed by the College. The present Green Auditing began with the assessment of the status of the green cover of the college followed by water audit, waste management practices and energy conservation strategies etc. The audit team visited different facilities at the College campus, monitored different appliances/utilities and documented the relevant consumption patterns. The Faculty members, staffs and learners were interviewed through structured questionnaires to get details of usage, frequency, or general characteristics of different appliances. Data collection was done by onsite visit also through questionnaires in all sectors related to environmental quality. The data thus collated were analyzed to prepare this audit report of Goreswar College, Goreswar.

The college is located on a huge plot of land of 20 bigha and 02 katha. Regular plantations since the inception of the College make it lush green campus. The garden in front of administrative building and avenue trees aligned with the buildings enhance the aesthetic beauty of the college campus. Little disturbances within the dedicated green areas/gardens were observed that need monitoring and intervention. Regular monitoring and trimming/pruning is therefore suggested at and when necessary. Cultivation of common fruits highlight the best eco-friendly initiatives of skill development programmes for the students with the leadership of a few faculty members inside the college campus.

The college authority must be proactive in conserving water and the awareness of Stakeholders on water conservation. Display signage for water conservation and regular monitoring practice seems to be missing, where attention requires from the authority. The initiative of rain water harvesting in each building are made and channels were connected to a few water reservoirs for using gardening purposes. The drainage system of the college is so arranged that run off water dictates towards the ponds within the campus.

Further, in order to carry forward the commitment to keep the campus waste free, installation of dustbins has been started in phase manner. It is also noted that no visible segregation practice exists to separate different wastes which need active attention.



But, it is good to see that majority of stakeholders were confident about their understanding of waste and their obligation in disposing of material. Plastic materials are still in use, of course, in small quantities which need to be reduced.

In order to encourage students to respect the environment and think about conservation, the college in collaboration with NSS Cell and NCC regularly organise different awareness programme on Swachhata and maintenance of healthy environment, A couple of cleanliness drive and plantation programmes were also organised in and around the Goreswar College campus during last couple of years.

Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. Energy is mainly used in this college campus for 1) lighting's load, 2) laboratory equipment, 3) office equipment, 4) air conditioners, 5) water cooler 6) Fan, 7) water pump and 8) cleaning and construction purposes. The main source of electricity in Goreswar College is Assam Power Distribution Company Limited. The Energy efficiency assessment was conducted for the load connected to the mains supply of college buildings including canteen. The entire campus including common facility centres are equipped with LED lamps and LED tube lights which can be considered as one of the best practices of energy saving. A good practice was noted that all the computers are set to automatic power saving mode when not in use. Monitoring mechanism exists in put-on and put-off the electrical appliances is a laudable eco-friendly effort of the College. Solar installation needs augmentation to cater the entire campus.

As the Biodiversity plays a key role in providing numerous irreplaceable services to any community, biodiversity audit is one of the best practices for sustainability of an institute. The Goreswar College campus houses a good number of animals and trees which indicates the commitment of the college towards green environment for the future generation.

The report contains some suggestions and recommendations in each category to be implemented to improve the existing environment-related practices of Goreswar College.

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# **GREEN AUDIT REPORT**

## **2021-2022**

**Printed at Gauhati University Press**



# **GREEN AUDIT REPORT**

## **2022-2023**



**GORESWAR COLLEGE**  
**GORESWAR, BAKSA-781366 ASSAM**

# **GREEN AUDIT REPORT**

## **2022-2023**



**GORESWAR COLLEGE**  
**GORESWAR, BAKSA-781366 ASSAM**

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## ACKNOWLEDGEMENT

Environmental disruptions and changes in climate teach us to adopt sustainable development policies in every aspect of our life. To meet the challenges, the University Grants Commission of India has also launched a “Green Campus Clean Campus” mission for all higher educational institutions of the country. Considering the importance of the same, the National Assessment and Accreditation Council (NAAC) perhaps made “Environmental Consciousness” as one of the mandatory criteria for grading educational institutes.

The Goreswar College, Goreswar is therefore committed to create an ecologically sound campus by implementing some eco-friendly practices. The present report is the recent Green Audit Report of the College which looked forward to identify the environment related issues in the College campus and to monitor the environmental management practices adopted by the College. A few suggestions are also made to take environmental protection to higher levels in the College campus and its vicinity. It is hoped that the report will certainly receive due attention of the concerned authority and the College shall implement the green practices whatever suggested for better future of all stakeholders of the Goreswar College.

Dr. Pramod Medhi, Principal, Goreswar College deserves the appreciation for his initiative in conducting the Green Audit for the college. The Audit team is thankful to all the students, officiating members of Offices and faculty members of the college for their support and co-operation to compile and complete this report on time. Special thanks are due to Dr. Bhaba Kr. Sharma, Academic In charge, Goreswar College for their sincere support during the audit process in collating data for the report.

**Dr. Partha Pratim Baruah**

Auditor

Goreswar College Green Audit

&

Professor, Department of Botany

Gauhati University, Guwahati-781014, Assam

1. The first step in the green audit process is to identify the scope of the audit. This involves determining the boundaries of the organization and the areas to be audited. The scope should be defined in terms of the organization's activities, products, and services, as well as the geographical area covered by the audit.

2. The second step is to gather information about the organization's current environmental performance. This can be done through a variety of methods, including interviews with staff, review of documents, and observation of activities. The information gathered should be used to identify areas of concern and to establish a baseline for the audit.

3. The third step is to conduct the audit. This involves a systematic review of the organization's environmental performance against the criteria established in the scope of the audit. The audit should be conducted in a fair and objective manner, and the findings should be documented in a report.

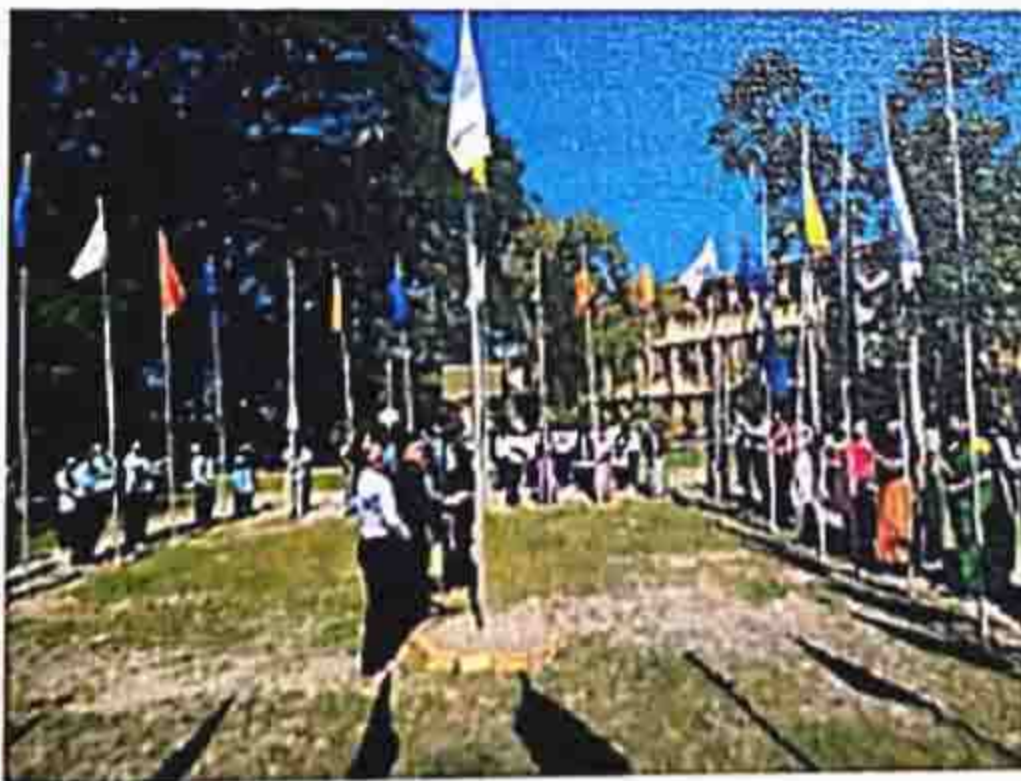
4. The fourth step is to analyze the findings of the audit. This involves identifying the causes of any environmental problems and determining the actions that need to be taken to address them. The analysis should take into account the organization's resources and capabilities, as well as the requirements of applicable laws and regulations.

5. The final step is to implement the actions identified in the audit. This involves developing a plan of action and putting it into effect. The organization should monitor its progress and report on its performance to stakeholders. The green audit process should be repeated periodically to ensure that the organization continues to improve its environmental performance.

## **ABOUT GORESWAR COLLEGE, GORESWAR**

Goreswar College is the sole premier institute of Higher Education in the North-eastern part of Baska District, Assam. It was established on the 29th day of August 1974 by a team of selfless and untiring social workers and lovers of education of the greater Goreswar locality. Betna Siksha and Krishi Unayan Sangha (Betna Education and Agriculture Development Organization) was a major pioneering force in the venture that provided funds to develop the required initial infrastructure for the college after it had functioned from temporary sites for some time at the beginning. Started as an Arts College with the P.U. (pre-university now Higher Secondary) course in 1974 with 116 students, it rose to the status of a Degree College from the session 1977-78.

After coming under the fold of Deficit Grants-in-Aid system of Govt. of Assam in the years 1981, the College has been showing the mark of progress in all sides to the satisfaction of the students and guardians along with the education-enthusiasts of greater Goreswar area in last five decades. The serene beauty and eco-friendly campus of the College with beautiful garden and play ground is conducive to the pursuit of academic activities. The college has been under provincialized scheme of Govt. of Assam w.e.f. 1st December 2005.



**Plate 1 : The Goreswar College Campus**



With the 18 full-fledged departments under the three streams viz., Arts, Science and Commerce, Goreswar College continues to add new feathers in its cap so far as its academic excellence is concerned. The sustained endeavour and efforts of the College towards quality education and the focus on all round development of the economically weaker section of the society is commendable. The college was accredited with B grade by the National Assessment and Accreditation Council (NAAC) in the last assessment.

More than 2000 students enrolled in UG and HS programmes along with Diploma and Certificate courses at Goreswar College in last three years against the 65 faculty members including librarian and the 29 supporting staffs, Principal is the chief executive of the college

## **GREEN AUDIT AT GORESWAR COLLEGE**

Participating in the "Green Campus, Clean Campus" mission launched by the University Grants Commission for all higher educational institution of India and in compliance with the 'Environmental Consciousness', a mandatory criterion (Criterion VII) of National Assessment and Accreditation Council (NAAC), the sustainability and sustainable development policies are kept on the agenda of Goreswar College. Green Audit is one of the steps taken up by the College in order to record, document, analyse and report the environmental constituents of the Campus through an impartial and inclusive method of auditing. It is anticipated that Green Auditing shall help the College in preserving the rich floral and faunal diversity in and around the campus; garnering interest and creating awareness among the stakeholders.

Goreswar College is committed to responsible stewardship of resources and to demonstrate leadership in sustainable academic practices for a better tomorrow with the policy goals of Green audit as follows:

- Identification and documentation of the eco-friendly practices for a sustainable college campus
- Increasing awareness among all stakeholders for sustainable use of available resources.
- Collection of baseline data on different components of environment before converting into threat to the college and the society.

To achieve the aforementioned goals, the present audit endeavours towards the following objectives:

- ❖ To identify current and emerging environmental issues.
- ❖ To monitor environmental management practices.
- ❖ To create awareness among the various stakeholders of the College.
- ❖ To prepare a status report on environmental compliances.



**Plate 2: Lush green Environment of Goreswar College**

## **AUDIT STAGE**

Green auditing is the process of identifying and determining whether the College maintains eco-friendly and sustainable practices. As an effective ecological tool, it helps to create a culture of sustainability as an administrative policy throughout an organization and it needs to be implemented through regular identification, quantification, documenting, reporting and monitoring of environmentally important components.

Green auditing in Goreswar College began with the formation of the Green Audit team incorporating faculty members and researchers of Gauhati University and Goreswar College. The audit team visited the campus on regular basis and monitored different facilities from the audit perspectives and, simultaneously made the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies, etc. Data collection was

done by onsite visit through structured questionnaires in different sectors such as water, energy, waste, biodiversity status. The data were collated accordingly and analyzed to prepare this Green Audit report of Goreswar College. The Audit team was led by Prof. Partha Pratim Baruah, Department of Botany, Gauhati University and Chairperson, Gauhati University Green Audit Committee (2019-2022).

## **METHODOLOGY ADOPTED**

The methodology adopted to conduct the Green Audit of Goreswar College had the following components

- On site field visits by the Green Audit Team at and when necessary.
- Data collections were done through distribution of structured questionnaires amongst different stakeholders and interviews with the executives, official staffs and general students.
- The water quality analysis was done at the PHE Department of Govt of Assam.
- Different standard taxonomic and ecological protocols were followed to document and estimate the floral and faunal account for biodiversity audit.

## **POST AUDIT STAGE**

### **LAND USE AND LAND COVER**

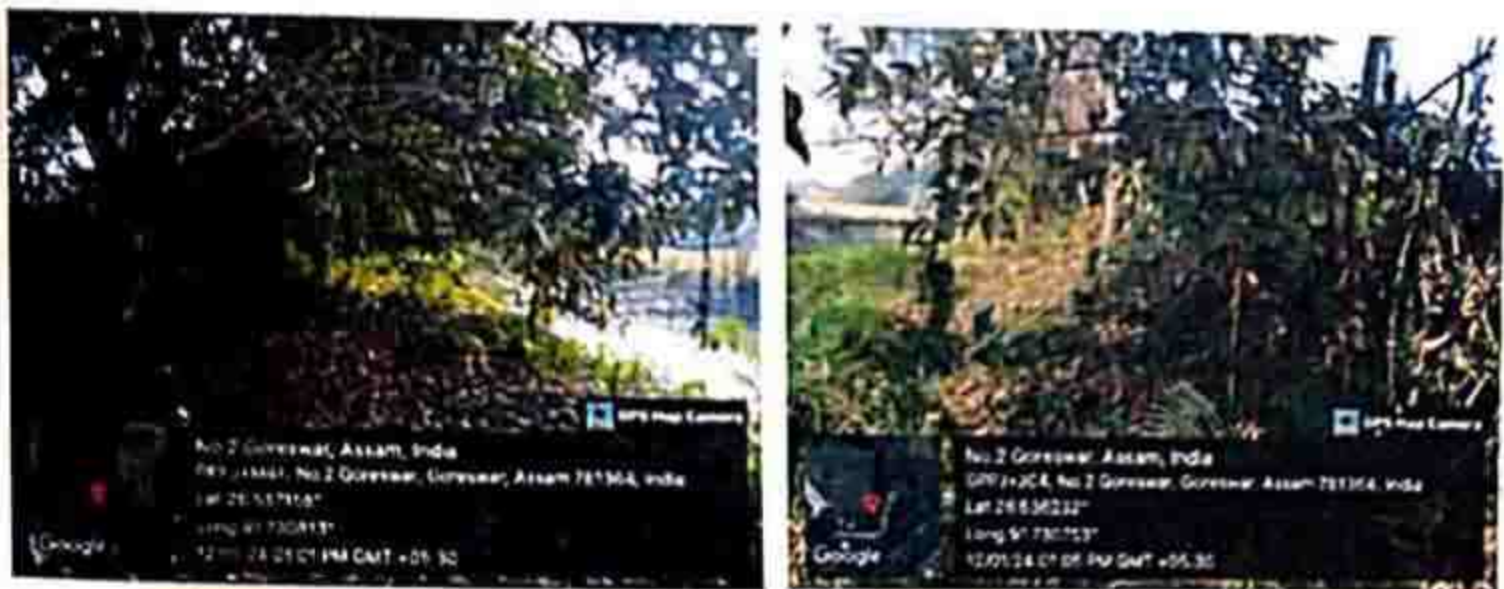
Located within a thinly populated area in Goreswar, the College campus is a flat piece of land with having little undulation in the topography amidst the lush green and sylvan serenity. The present survey revealed that the college campus has been accommodated in a total area of 20 bigha 2 katha land managed with a master plan with having demarcated and dedicated spaces for 4 ornamental garden, 4 tree plantation plot, one Micro forest patch, two ponds and two multi sports play grounds. Regular plantations since the inception of the College make it lush green campus. The trees not only support as sound barriers, but also house a wide spectrum of epiphytic flora and fauna. Organized plantations in the campus are seen along each and every academic building which is a commendable green practice of the College. The drainage system seems to be good in the campus as surface run off dictates towards the ponds within the campus and the nearby waterbodies.

## Observations

- Eco-friendly Initiatives on tree plantation and creation of Micro-forest and water bird conservation site are the commendable green initiatives of the College.
- Disturbance is less in dedicated green areas/gardens.
- Avenue trees including sound barriers get attention.
- The drainage links are suitably managed to dictate the harvested rain water and excess surface runoff towards the ponds inside the campus with a view to recharge ground water.

## Suggestions and Recommendations

- A task force is to be constituted for monitoring and maintaining the gardens.
- Timely pruning of avenue trees and sound braking trees is suggested to increase aesthetic beauty of the campus.
- Post plantation of saplings needs to be monitored.



**Plate 3 : Pond and part of micro forest in the campus**

## WATER AUDIT

As water is an essential natural resource, it is therefore, necessary to examine the quality and usage of water in the campus. Water auditing is a way to conduct a study on balance between demand and supply of potable and usable water including the quality of the available water. Water audit is therefore considered as an effective management tool for minimizing losses, optimizing various uses leading to conservation of water. Water audit improves the knowledge and documentation of the distribution system, identifies the problem of seepage and leakage leading to reduce water losses, generate ideas for possible recycling of water and the use of rain water. Above all, such auditing improves financial performance of an institute in long run.

### Water Management

The source of water used in the Goreswar College is the ground water. A total of 2000 L of water is pumped out through water pumps every day (Table 1) for regular use in day-to-day college activities, gardening, laboratory, lavatory uses and along with the canteen.

**Table 1: Source and usage**

Sl no	Parameters	Response
1	Source of water	Ground water
2	No of Wells	NA
3	No of Hand pumps	Two
4	No of Overhead tanks	4
5	No of water pumps used	4
6	Horse power- water pumps	1.0 HP -3; 0.5 HP- 1
7	Depth of well (boring)	200 ft for submersible
8	Water level	Normal
9	Type of water tanks	Reservoir
10	Capacity of Tank/ reservoir (Total)	5000 L
11	Quantity of water pumped every day	2000 L per day
12	Indication of water wastage with reasons	<i>Overflow from water tanks/ leakage from taps</i>

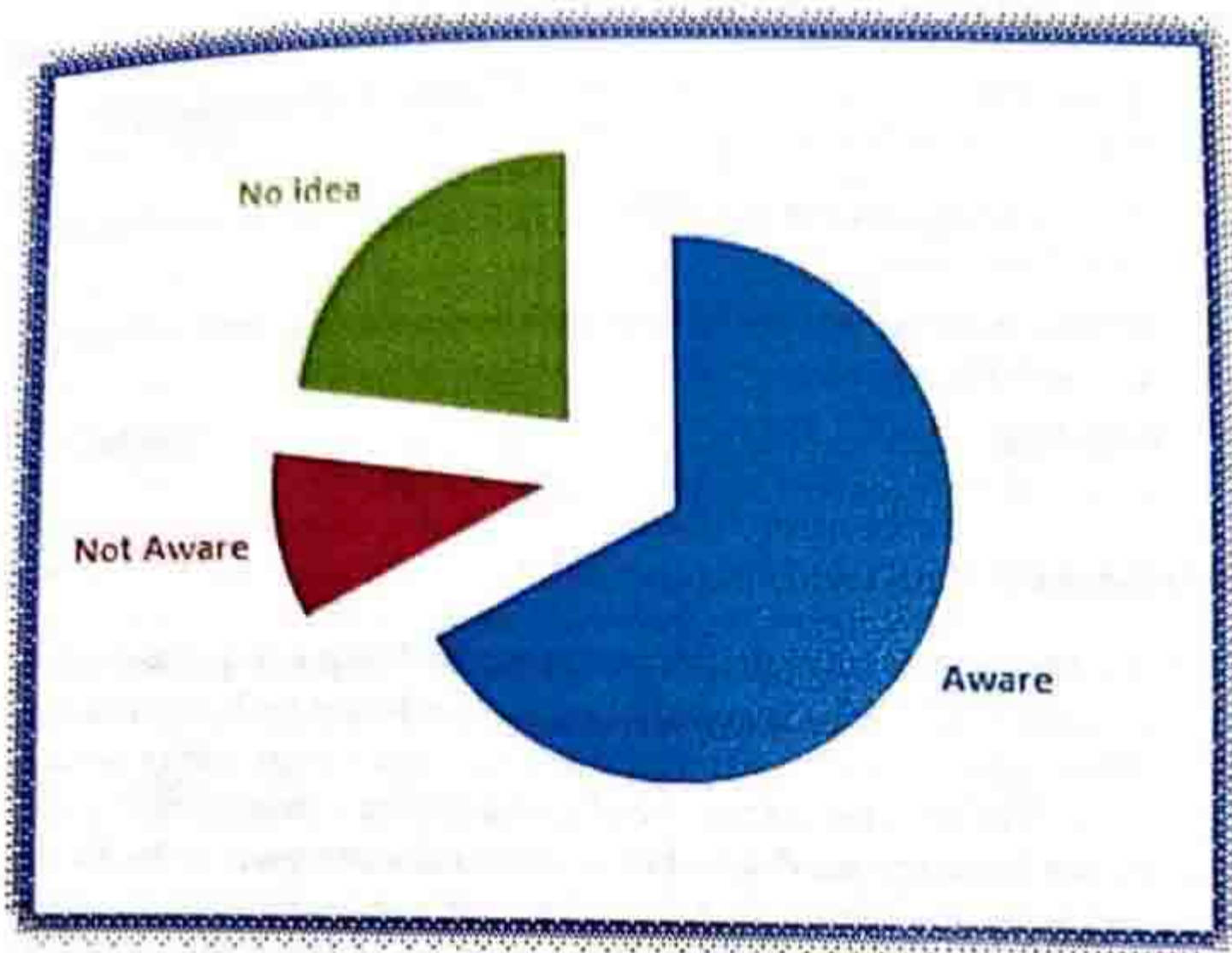
13	Water usage for gardening	800 L per day
14	Use of waste water	No
15	Fate of wastewater from labs	Not attended
16	Any wastewater treatment for lab water	No
17	Whether any green chemistry method practiced in Labs	NA
18	Rain water harvest available?	Yes
19	No of units and amount of water harvested	One Capacity 2000 L
20	No of leaky taps	few
21	Amount of water lost per day	Around 250 L
21	water management plan used	Not seen
22	water saving techniques followed	Substantially less
23	Signage for reminding peoples to turn off tap	Yes, but insufficient
24	Cleaning of the reservoirs	occasionally

## WATER QUALITY ASSESSMENT

Water samples were collected randomly from the sources and analyzed for various physico-chemical parameters (Table 2). All parameters were found under permissible limits as prescribed by different agencies.

**Table 2: Water quality analysis report**

Sl No	Parameters	Values
1	pH	7.37
2	Total Hardness (mg/l)	63 -69
3	Alkalinity (mg/l)	28
4	Turbidity (N.T.U)	1.5
5	Total Dissolved Solids (mg/l)	114.3
6	Chloride	12.76
7	Residual Chlorine (mg/l)	Nil
8	Calcium (mg/l)	24.023
9	Magnesium (mg/l)	--
10	Bacteriological count	Nil



**Fig 1 : Awareness among the stakeholders regarding water conservation**

### ***Observations***

- The College is concerned for judicious use of water.
- Awareness for saving water is relatively higher amongst the stakeholders.
- Though little wastage of water was marked, attention should pay to reduce it to zero.
- Display signage for water conservation and regular monitoring less which need to be fitted in all prominent places to make the stakeholders aware on the matter.
- The waste water from canteen and kitchens are not suitably controlled.
- Rain water harvesting mechanism has installed recently.



## **Suggestions and recommendations**

- A proper water consumption monitoring system could be engaged to make zero water loss in future.
- Automated sensors can be installed in order to prevent the over flow of water from tanks.
- Awareness campaigns can be held in the campus for the fresh students to save water every year.
- Periodical maintenance of water taps/ water pipes/reservoirs should be done in order to prevent the leakage of water through taps.

## **AUDITING FOR WASTE MANAGEMENT**

Any activities in an establishment create waste and the prime question is how efficiently it could be handled to avoid of any kind of health problems out of it. Pollution from waste is aesthetically unpleasing and results in generation of large amounts of litters in our surroundings. A college can generate three types of wastes viz., solid waste, liquid waste and hazardous waste. Solid waste again can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Further attention must be taken against hazardous waste that is likely to be a threat to health of the environment. As unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water, and produce greenhouse gases contributing to global climate change respectively, management of waste is utmost necessary. The auditor diagnoses the prevailing waste disposal policies of the college and suggests the best way to combat the problems.

## Status of Waste Generation

Due to huge footsteps of students and teachers, the college generates paper, plastic and organic wastes. The quantum of generation of organic waste is found to be more in hostels and canteens than that of in Academic Departments and Administrative blocks. Waste in academic departments was negligible and whatever generated are systematically disposed of through the sweeping mechanism. Though the bio-medical waste is almost nil, little e-waste were recorded to be dumped over in the Campus. A little chemical and organic waste was generated in the Laboratories of the Chemistry, Botany and Zoology Departments. The faculty members were actively engaged in segregating and disposing of waste whatever generated. No pretreatment mechanism was seen in action. The litters including regularly fallen twigs and leaves from the plants and trees were found to be dumped over in a compost pit. A table is given here to show an estimated generation of different types of waste on monthly basis in the Goreswar College premises based on interview and data received through a structured questionnaire.

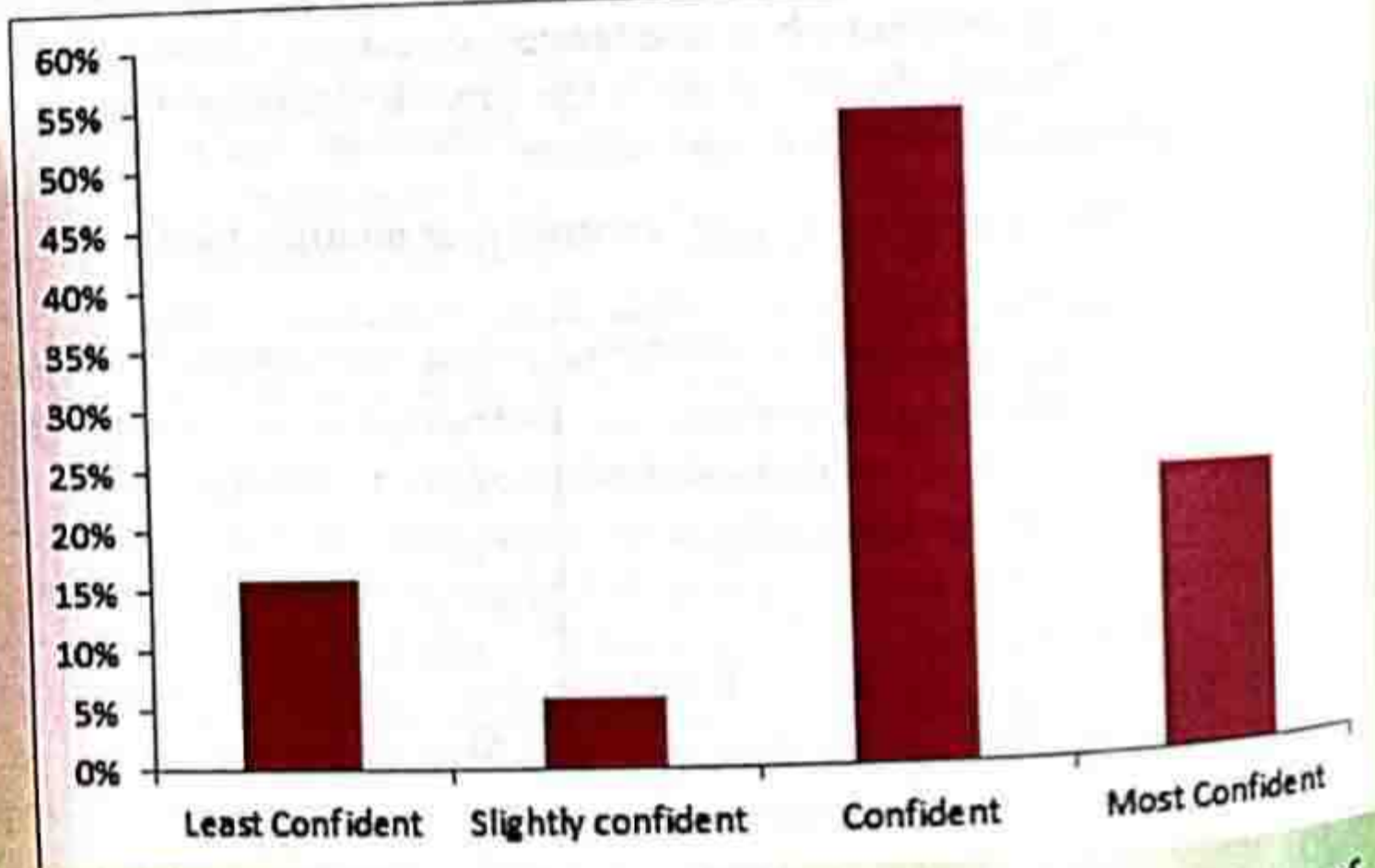
**Table 3 : Waste generated on the campus (per monthly basis)**

Sl.no.	Stakeholders	Types of solid waste	Average waste generated/month
1	Academic Department	Paper waste	0.4 kg
		Plastic waste	0.2 kg
		Organic waste	0.8 kg
		E-waste	0.05 kg
		Biomedical waste	Nil
2	Administrative Office	Paper waste	10.5 kg
		Plastic waste	0.5 kg
		Organic waste	2.5 kg
		E-waste	0.45 kg
		Biomedical waste	Nil
3	Canteens	Paper waste	1.2 kg
		Plastic waste	2.0 kg
		Organic waste	32 kg
		E-waste	Nil
		Biomedical waste	Nil

## Waste Management

The college is committed to keep the campus clean and green. Segregation practice has been adopted to separate different wastes. Installation of dustbins has been started in a phase manner. A few Signages have already installed to aware the stack holders to use dustbins for disposing any waste. This is a commendable initiative of the College. Installation of vermi composting unit is in the pipe line which the auditors feel another commendable approach to mitigate the organic waste including the leaf litters in the college.

During a survey carried out among the stockholders of Goreswar College by the Green Audit Team, a majority of the respondents (83 %) were confident about their understanding of waste and their obligation in disposing of the same (Fig. 3).



**Fig 2: Opinion of stakeholders regarding waste disposal mechanism of Goreswar College**

**Table 4: waste management practices adopted**

SI No.	Practice/Strategies adopted	Response	Quantification if any
1	Organised collection of organic waste	Yes	On Regular basis
2	Leaf Litter disposal	Yes	On regular basis
3	Vermi composting Unit	Yet to be established	NA
4	Use of Plastic/plastic wares	In use	Little
5	Segregation of waste as per Govt. directives	Yes	Insufficient
6	Dustbins proper place	Yes	Not sufficient
7	Dustbin clearing	Yes	On daily basis
8	Solid waste recycling process	No	NA
9	Awareness programme organized	Yes	Regular

### Observations

1. Academic Departments do not generate large quantities of waste.
2. Plastic materials are still in use though in smaller quantities.
3. Frequency for garbage and litter collection is sufficient.
4. The College has no E waste disposal mechanism whatever generated.
5. Dustbins are placed in different prime locations, but insufficient in number.
6. The waste disposal initiative of Goreswar College is reflected in management programs and efforts of the ground staffs.

### Suggestions and Recommendations

- Goreswar College campus needs to be declared as a total plastic-free campus.
- The practice of using biodegradable materials should be encouraged.
- Vermi composting facilities should be operationalized soon to avoid dumping of organic litters here and there.

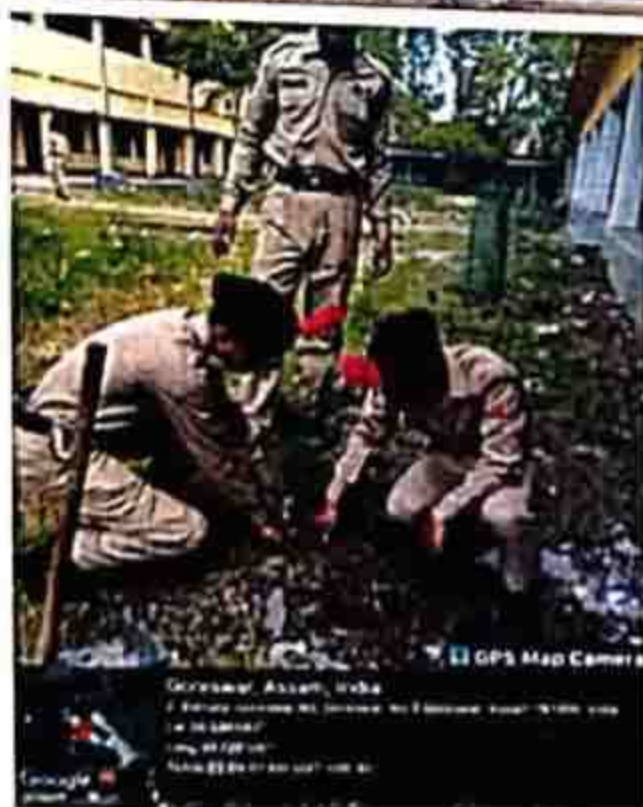
- Numbers of dustbin need to be increased. Proper segregation method must follow to avoid unnecessary hazards.
- E-Waste disposal policy may be formulated soon.

## HEALTH AUDIT

A healthy ecosystem directly means a healthy livelihood. Hence, to ascertain a healthy society inside the college campus and to create awareness among the individuals in taking actions against the growing strain on Earth's natural ecosystem, the Goreswar College fraternity took few initiatives through several events in past couple of years.

**Table 5 : List of Programmes conducted in and around the college campus**

Sl. No.	Name of Programme	Date	Organised By
1.	Tree Plantation Programme at Goreswar College (Science Building)	22-09-2018	Extension Education Cell
2.	Tree Plantation Programme at Goreswar College	24-09-2018	NSS, Goreswar College
3.	Literary and Quiz Competition	25-09-2018	Extension Education Cell
4.	Observed World AIDS Day	01-12-2018	NSS, Goreswar College
5.	Swachh Bharat Abhiyan and Dustbin Distribution	10-05-2019	NSS, Goreswar College
6.	Tree Plantation Programme at Goreswar College	30-08-2019	NSS, Goreswar College
7.	Literary and Quiz Competition	28-11-2019	Extension Education Cell
8.	Observed World AIDS Day	01-12-2019	NSS, Goreswar College
9.	Environmental awareness Programme	26-02-2021	Extension Education Cell, Goreswar College
10.	Environmental awareness Programme	26-03-2021	Extension Education Cell, Goreswar College
11.	Tree Plantation Programme	05-04-2021	Extension Education Cell, Goreswar College
12.	NSS Voluntrers Training Programme	05-03-2021 to 09-03-2021 March 2021	NSS Goreswar College
13.	Tree Plantation Programme	28-04-2022	Extension Education Cell, Goreswar College



**Plate 4 : Awareness Programme & Plantation drive in the college campus**



**Plate 5 : Swacchhata activities in the College Campus**

## **ENERGY AUDIT**

As per Energy Conservation Act, 2001; the Energy Audit must include verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption. The scope of the energy audit hence includes the collection of all relevant data, documents, electricity bills, log books relating to electricity use & operations etc., inspection of the buildings & installations and then, to analyze the data to evaluate and assess energy use and also, to suggest measures for reducing energy use and improvement of performance. The present audit therefore aimed to cover the aggregate consumption of electrical and natural gas energy in Goreswar College covering all academic and administrative blocks and hostels. Energy use is clearly an important aspect of campus sustainability and thus, requires no explanation for its inclusion in the assessment.

## Source and consumption of Energy

In Goreswar College, energy is mainly used to manage and run the 1) lighting's load, 2) laboratory equipment 3) office equipment 4) air conditioners, 5) water cooler 6) fan, 7) water pump and 8) Cleaning and construction gadgets.

The primary source of the energy for Goreswar College is the electricity received from Assam Power Distribution Company Limited supplied through an 19.0 KW connected load under the Consumer No. 077000024175 under the HT IV Bulk Category (Government Education). The College has also 1 Diesel run generator sets of 25 KVA capacities which are mainly used for Examination purposes. LPG are utilised in Canteen, laboratories and Hostels only.

**Table 6: Energy consumption in Goreswar College**

Annual Electrical Energy consumption (2023-2024)	:	INR 15,000.00 per month (In terms of money)
LPG requirement per year	:	36 Nos
Fuel (Diesel)	:	72 L / year (Average 6.0 L./month)
Fuel (Petrol )	:	--
Water Pump	:	04 (1.0 HP -3; 0.5 HP- 1)
No of energy efficient		
AC	:	02 Nos
Refrigerator	:	01 Nos
Xerox machine	:	03 Nos
Online UPS	:	08 Nos.
Fan	:	216 Nos
Percentage replacement of		
Non- energy efficient machines in last 2 years:	:	58%
No of LED/CFL installation at present:	:	Bulb/Tube-180
Percentage of increase of LED installation in last 2 years	:	100%
Building energy performance index	:	2.66 kWh/m <sup>2</sup> /year



### Energy efficiency assessment

The Energy efficiency assessment was conducted for the load connected to the mains supply of college buildings including hostels. The entire campus including common facilities is equipped with LED lamps and LED tube lights. All computers are set to automatic power saving mode when not in use.

A good habit of the stakeholders was observed that all the electrical appliances including the bulbs are usually shut down when not in use, more specifically during the vacations excluding a few essential points which are essential to illuminate the campus. Monitoring mechanism exists in put-on and put-off the electrical appliances is a laudable eco-friendly effort of the College.

To compensate for the rising power requirement, solar street panels are installed in some strategic locations of the campus which could be considered as another best practice of utilisation green energy in the College campus. As the energy consumption rate is on higher side, the College must think for energy conservation practices along with exploring of green energy in future.

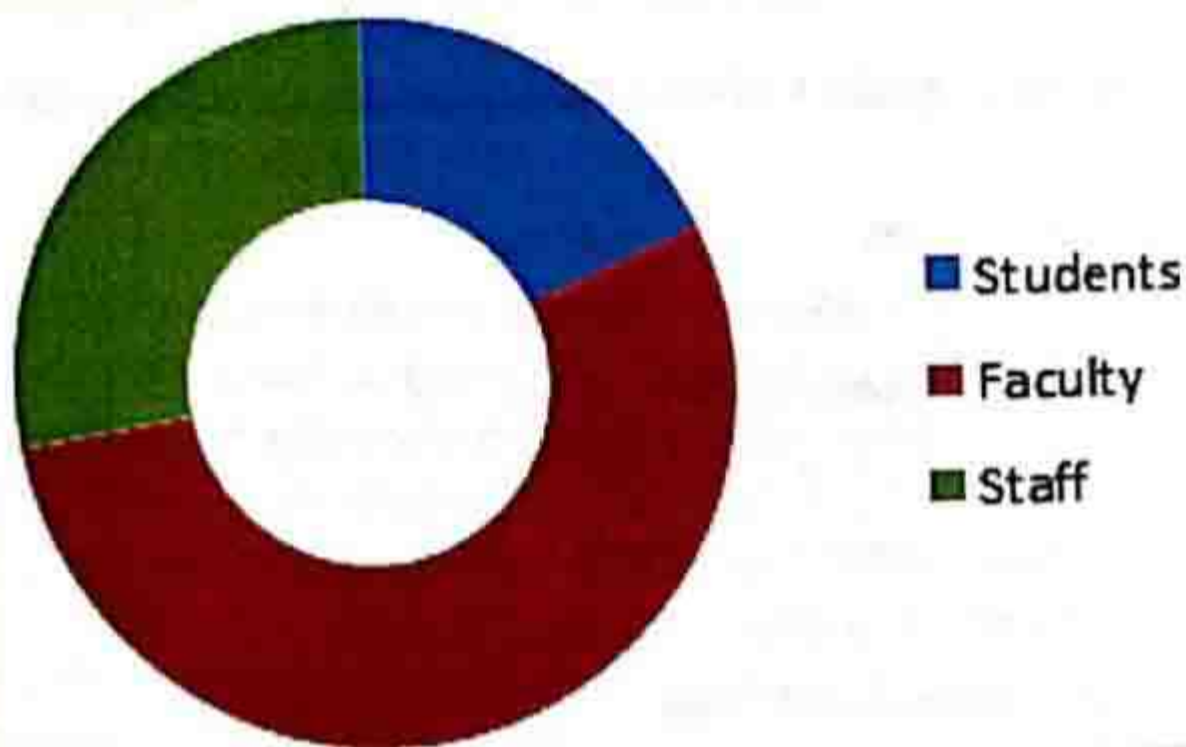


Fig 3: Stake holders' involvement in energy conservation

## **Suggestions and recommendations**

- Augmentation of solar power will make the college self-sufficient in energy consumption and production.
- Old and non-efficient electrical gadgets are to be replaced as far as practicable.
- 5 stars rated Acs, Fans and other electrical appliances should be used in the campus to reduce further loss of energy.
- Cleaning of tube lights and bulbs to be done periodically to remove the dust over it.
- Regular maintenance of electrical gadgets be done.

## **BIODIVERSITY AUDIT**

Biodiversity is the key to a healthy ecosystem. Morton & Hill (2014) in a biodiversity book published by the "Commonwealth Scientific and Industrial Research Organisation (CSIRO)" nicely mentioned 5 core values of biodiversity, viz. economic, ecological, recreation, cultural and scientific values. Biodiversity provides humans with raw materials for consumption and production. Ecologically biodiversity take part in functioning of ecosystems that supply oxygen, clean air and water, facilitating pollination in plants, control of pest, wastewater treatment and many ecosystem services. Scientific intervention may disclose a wealth of systematic ecological data that help us to understand the natural activities and necessities in the context of human behavior. Many recreational pursuits rely on the biodiversity of region, such as bird-watching, hiking, camping and fishing. The tourism industry also depends on biodiversity. Above all, our culture is closely connected to biodiversity through the expression of identity, through spirituality and through aesthetic appreciation. Any loss or deterioration in the condition of biodiversity can compromise all the values outlined above and affect human wellbeing particularly in North Eastern region which is located between two biodiversity hotspot, Himalaya and Indo Burma.

As the Biodiversity plays a key role in providing numerous irreplaceable services to any community, biodiversity audit is one of the best practices for sustainability of an institute. The main objective of biodiversity audit is therefore to document different biodiversity components within the College campus, to observe ecosystem structures and functions along with regular monitoring to check the new

addition and analysis of biotic interactions amongst different components of biotic resources. The outcome of such audit will certainly be helpful in designing different conservation measures that need to be taken for a better and self-sustaining ecosystem in the campus.

The Goreswar College campus is Spreading over a plot of 20 bigha 2 katha (as per land record) out of which around 68 % area are under green coverage including ponds and open space which houses different varieties of natural fauna and flora. A few plants are introduced to enhance the aesthetic beauty of the campus.

## FAUNAL DIVERSITY

The Goreswar College campus houses a good number of animals from each different phylum which on the other hand, indicates a good health of the campus. In the present study, 78 species were reported in the college campus belonging to different phylum and classes. Altogether 3 amphibian, 10 reptile species, 22 fishes and 09 birds were recorded during the audit period. Mammalian diversity is poor and is represented by only 8 species. Invertebrates includes several species of Arthropods including butterflies and grasshoppers (21), Annelida (2) and Mollusca (3). It is very interesting to note that the college campus provides a sound nesting ground for some avian and mammalian species.

**Table 7: Fauna of Goreswar College**

### (Invertebrates)

#### Phylum: Arthropoda

1. **Common name:** Honey bee  
**Scientific name:** *Apis mellifera*
2. **Common name:** Indian Millipede  
**Scientific name:** *Xenobolus carnifex*
3. **Common name:** Pantropical jumping spider  
**Scientific name:** *Plexippus paykulli*
4. **Common name:** Huntsman spider  
**Scientific name:** *Heteropoda venatoria*
5. **Common name:** Cockroach

- Scientific name: *Periplaneta americana*
6. Common name: European mantis (Grasshoper)  
Scientific name: *Mantis religiosa*
7. Common name: House cricket  
Scientific name: *Acheta domesticus*
8. Common name: Dragonfly  
Scientific name: *Anisoptera*
9. Common name: Spotted demon (Butterfly)  
Scientific name: *Notocrypta feisthamlii*
10. Common name: Common spotted flat (Butterfly)  
Scientific name: *Celaenorrhinus leucocera*
11. Common name: Leopard lacewing (Butterfly)  
Scientific name: *Cethosia cyane*
12. Common name: Common yeomen (Butterfly)  
Scientific name: *Cirrochroa tyche*
13. Common name: Dark evening brown (Butterfly)  
Scientific name: *Melanitis phedima*
14. Common name: Tiger hopper (Butterfly)  
Scientific name: *Ochus subvittatus*
15. Common name: Dark yellow banded flat (Butterfly)  
Scientific name: *Celaenorrhinus aurivittata*
16. Common name: Orange oakleaf (Butterfly)  
Scientific name: *Kallima inachus*
17. Common name: Yellow pansy (Butterfly)  
Scientific name: *Junonia hierta*
18. Common name: Indian black ant  
Scientific name: *Camponotus compressus*
19. Common name: Crazy yellow ants  
Scientific name: *Anoplolepis gracilipes*
20. Common name: Red weaver ant  
Scientific name: *Oecophylla smaragdina*

21. Common name: Pharaoh ant

Scientific name: *Monomorium pharaonis*

Phylum: Arnelida

1. Common name: Indian earthworm

Scientific name: *Pheretima posthuma*

2. Common name: Indian leech

Scientific name: *Hirudinaria granulosa*

Phylum: Mollusca

1. Common name: Giant African snail

Scientific name: *Lissachatina fulica*

2. Common name: Apple snail

Scientific name: *Pomacea canaliculata*

3. Common name: Milky slug

Scientific name: *Deroceras agreste*

Vertebrates

Phylum: Chordata

Class: Amphibia

1. Common name: Assam tree frog

Scientific name: *Chirixalus simus*

2. Common name: Assamese balloon frog

Scientific name: *Kaloula assamensis*

3. Common name: Indian bullfrog

Scientific name: *Hoplobatrachus tigerinus*

Phylum: Chordata

Class: Reptilia

1. Common name: House lizard

Scientific name: *Hemidactylus frenatus*

2. Common name: Indian Chameleon

Scientific name: *Chamaeleo zeylanicus*

3. Common name: Garden lizard

Scientific name: *Calotes versicolor*

4. **Common name:** Indian cobra  
**Scientific name:** *Naja naja*
5. **Common name:** Bengal krait  
**Scientific name:** *Bungarus caeruleus*
6. **Common name:** Bronze-backed tree snake  
**Scientific name:** *Dendrelaphis tristis*
7. **Common name:** Checkered keelback  
**Scientific name:** *Xenochrophis piscator*
8. **Common name:** Ornate flying snake  
**Scientific name:** *Chrysopelea ornata*
9. **Common name:** Indian rat snake  
**Scientific name:** *Ptyas mucosa*
10. **Common name:** Banded krait  
**Scientific name:** *Bungarus fasciatus*

**Phylum:** Chordata

**Superclass:** Osteichthyes

1. **Common name:** Olive barb/ Puthi  
**Scientific name:** *Systemus sarana*
2. **Common name:** Banded gaurami / Kholihona  
**Scientific name:** *Trichogaster fasciata*
3. **Common name:** Climbing perch **Local name:** Kawoi  
**Scientific name:** *Anabas testudineus*
4. **Common name:** Gangetic leaffish **Local name:** Gedgedi  
**Scientific name:** *Nandus nandus*
5. **Common name:** Ceylon snakehead **Local name:** Chengeli  
**Scientific name:** *Channa orientalis*
6. **Common name:** Spotted snakehead **Local name:** Goroi  
**Scientific name:** *Channa punctata*
7. **Common name:** Striped snakehead **Local name:** Houli  
**Scientific name:** *Channa striata*
8. **Common name:** Stinging catfish **Local name:** Hingi

- Scientific name: *Heteropneustes fossilis*
9. Common name: Walking catfish Local name: Magur  
Scientific name: *Clarias batrachus*
10. Common name: Striped dwarf Local name: Hingora  
Scientific name: *Mystus vittatus*
11. Common name: Long whiskers Local name: Aari  
Scientific name: *Sperata seenghala*
12. Common name: Fresh water catfish Local name: Borali  
Scientific name: *Wallago attu*
13. Common name: Flying barb Local name: Dorikona  
Scientific name: *Esomus danricus*
14. Common name: Mola Local name: Moa  
Scientific name: *Amblypharyngodon mola*
15. Common name: Elongate glassy Local name: Chanda  
Scientific name: *Chanda nama*
16. Common name: Bata labeo Local name: Bhangon  
Scientific name: *Labeo bata*
17. Common name: Black rohu Local name: Koliajora  
Scientific name: *Labeo calbasu*
18. Common name: Striped spiny eel Local name: Tura  
Scientific name: *Macragnathus pancalus*
19. Common name: Humped feather back Local name: Chital  
Scientific name: *Chitala chitala*
20. Common name: Bronze feather back Local name: Kandhuli  
Scientific name: *Notopterus notopterus*
21. Common name: Rohu Local name: Rou  
Scientific name: *Labeo rohita*
22. Common name: Ocellated Puffer Fish/ Gongatup  
Scientific name: *Tetradon cutkutia*

**Phylum:** Chordata

**Class:** Aves

1. **Common name:** Crow  
**Scientific name:** *Corvus*
2. **Common name:** Cuckoo  
**Scientific name:** *Cuculidae*
3. **Common name:** Parrot  
**Scientific name:** *Psittaciformes*
4. **Common name:** House sparrow  
**Scientific name:** *Passer domesticus*
5. **Common name:** Domestic pigeon  
**Scientific name:** *Columba livia domestica*
6. **Common name:** Common Swift  
**Scientific name:** *Apus apus*
7. **Common name:** Common Quail  
**Scientific name:** *Coturnix coturnix*
8. **Common name:** Greylag Goose  
**Scientific name:** *Anser anser*
9. **Common name:** Kingfisher  
**Scientific name:** *Alcedo atthis*

**Phylum:** Chordata

**Class:** Mammals

1. **Common name:** Indian palm squirrel  
**Scientific name:** *Funambulus palmarum*
2. **Common name:** Indian pariah dog  
**Scientific name:** *Canis lupus familiaris*
3. **Common name:** Bengal cat  
**Scientific name:** *Prionailurus bengalensis*
4. **Common name:** Domestic goat  
**Scientific name:** *Capra hircus*



5. **Common name:** Indian cow  
**Scientific name:** *Bos indicus*
6. **Common name:** Rhesus macaque  
**Scientific name:** *Macaca mulatta*
7. **Common name:** Brown rat  
**Scientific name:** *Rattus norvegicus*
8. **Common name:** House mouse  
**Scientific name:** *Mus domesticus*

## FLORAL DIVERSITY

The College campus is an evergreen beautiful area with a variety of trees, bushes and grasses. The aesthetic beauty of the campus has been enhanced by introducing a few ornamentals and economically important plants. All the plants provide good ecological services in maintaining a green College campus near the Goreswar area. Altogether 76 species of plants belonging to herb, shrub and tree categories are recorded and enlisted below.

<u>Family</u>	<u>Scientific Name</u>	<u>Local/Vernacular Name</u>
<u>Pteridophyta</u>		
Selaginellaceae	<i>Selaginella kraussiana</i>	'Silaginela' (Ass.)
Polypodiaceae	<i>Diplazium esculentum</i>	'Dhekia' (Ass.)
	<i>Cyclosorus</i> sp.	'Bih Dhekia' (Ass.)
<u>Gymnosperms</u>		
Cycadaceae	<i>Cycas circinalis</i>	'Nag-Panchami' (Ass.)
Abietaceae	<i>Araucaria</i> sp.	'Arocaria' (Ass.)
<u>Dicotyledons</u>		
Malvaceae	<i>Hibiscus rosa-sinensis</i>	'Joba' (Ass.)
Apocyanaceae	<i>Alstonia scholaris</i>	'Chatiana' (Ass.)
	<i>Catharanthus roseus</i>	'Nayan-tora' (Ass.)
	<i>Plumeria rubra</i>	'Champa/ Gulancha' (Ass.)
	<i>Rauvolfia tetraphylla</i>	'Sarpagandha' (Ass.)

	<i>R. serpentina</i>	'Sarpagandha' (Ass.)
	<i>Tabernaemontana divaricata</i>	'Kathanda' (Ass.)
	<i>Cascabela thevetia</i>	'Karabi' (Ass.)
Solanaceae	<i>Datura metel</i>	'Dhatura' (Ass.)
Verbenaceae	<i>Duranta repens</i>	'Duranta' (Ass.)
	<i>Premna latifolia</i>	'Dhop' (Ass.)
	<i>Vitex negundo</i>	'Pasatia tita' (Ass.)
Papilionaceae	<i>Clitoria ternatea</i>	'Aparajita' (Ass.)
	<i>Dalbergia sissoo</i>	'Sisoo' (Ass.)
	<i>Erythrina arborascens</i>	'Kanchan' (Ass.)
Caesalpinaceae	<i>Cassia fistula</i>	'Sonaru' (Ass.)
	<i>C. nodosa</i>	'Radha-chuda' (Ass.)
	<i>C. siamea</i>	'Casia' (Ass.)
	<i>C. sophera</i>	'Medelua' (Ass.)
	<i>Delonix regia</i>	'Krishna-chuda' (Ass.)
Mimosaceae	<i>Acacia auriculiformis</i>	'Acacia' (Ass.)
	<i>A. arabica</i>	'Taruwa Kadam' (Ass.)
	<i>Rosa indica</i>	'Golap phul' (Ass.)
Moraceae	<i>Artocarpus heterophyllus</i>	'Kathal' (Ass.)
	<i>Ficus benghalensis</i>	'Borgoch' (Ass.)
	<i>F. elastica</i>	'Rabar goch' (Ass.)
	<i>F. hispida</i>	'Dimoru' (Ass.)
Clusiaceae	<i>Mesua ferrea</i>	'Nahar' (Ass.)
Sapotaceae	<i>Mimusops elengi</i>	'Bokul' (Ass.)
Anacardiaceae	<i>Lannea coromandelica</i>	'Jiya' (Ass.)
	<i>Mangifera indica</i>	'Aam' (Ass.)
Myrtaceae	<i>Eucalyptus reginifera</i>	'Surabhi goch' (Ass.)
	<i>Psidium guajava</i>	'Madhuri-aam' (Ass.)
	<i>Syzygium jambolanum</i>	'Jam' (Ass.)
Rubiaceae	<i>Ixora corymbosa</i>	'Rongial' (Ass.)
	<i>Mussaenda sp.</i>	'Musenda' (Ass.)
Rutaceae	<i>Azadirachta indica</i>	'Mahanim' (Ass.)
	<i>Citrus aurantium</i>	'Kamala Tenga' (Ass.)
	<i>Murraya koenigii</i>	'Nara-singha' (Ass.)
Rhamnaceae	<i>Zizyphus mauritiana</i>	'Bogori' (Ass.)
Combretaceae	<i>Terminalia arjuna</i>	'Arjun' (Ass.)
	<i>T. chebula</i>	'Silikha' (Ass.)
Nyctaginaceae	<i>Bougainvillea spectabilis</i>	'Kagas-phul' (Ass.)
	<i>Mirabilis jalapa</i>	'Godhuli Gopal' (Ass.)
Cactaceae	<i>Opuntia dillenii</i>	'Sagarphena' (Ass.)
Casuarinaceae	<i>Casuarina equisetifolia</i>	'Casuarina' (Ass.)
Asclepiadaceae	<i>Calotropis gigantea</i>	'Aakon' (Ass.)
Acanthaceae	<i>Justicia adhatoda</i>	'Bahak-tita' (Ass.)
	<i>J. gendarrusa</i>	'Amar goch' (Ass.)

Asteraceae	<i>Helianthus annuus</i>	'Surjyamukhi phul' (Ass.)
	<i>Tagetes patula</i>	'Narji phul' (Ass.)
Sapindaceae	<i>Cardiospermum halicacabum</i>	'Kopal-phuta' (Ass.)
Euphorbiaceae	<i>Emblica officinalis</i>	'Amlokhi' (Ass.)
	<i>Euphorbia neriifolia</i>	'Siju' (Ass.)
Lamiaceae	<i>Leucas linifolia</i>	'Durum phul' (Ass.)
	<i>Ocimum basilicum</i>	'Tulasi' (Ass.)
Amaranthaceae	<i>Amaranthus spinosus</i>	'Kata-khutura' (Ass.)
	<i>Mentha sp.</i>	'Padina' (Ass.)
Apiaceae	<i>Centella asiatica</i>	'Bor-manimuni' (Ass.)
	<i>Hydrocotyle rotundifolia</i>	'Saru-manimuni' (Ass.)
Lauraceae	<i>Cinnamomum tamala</i>	'Tej-pat' (Ass.)

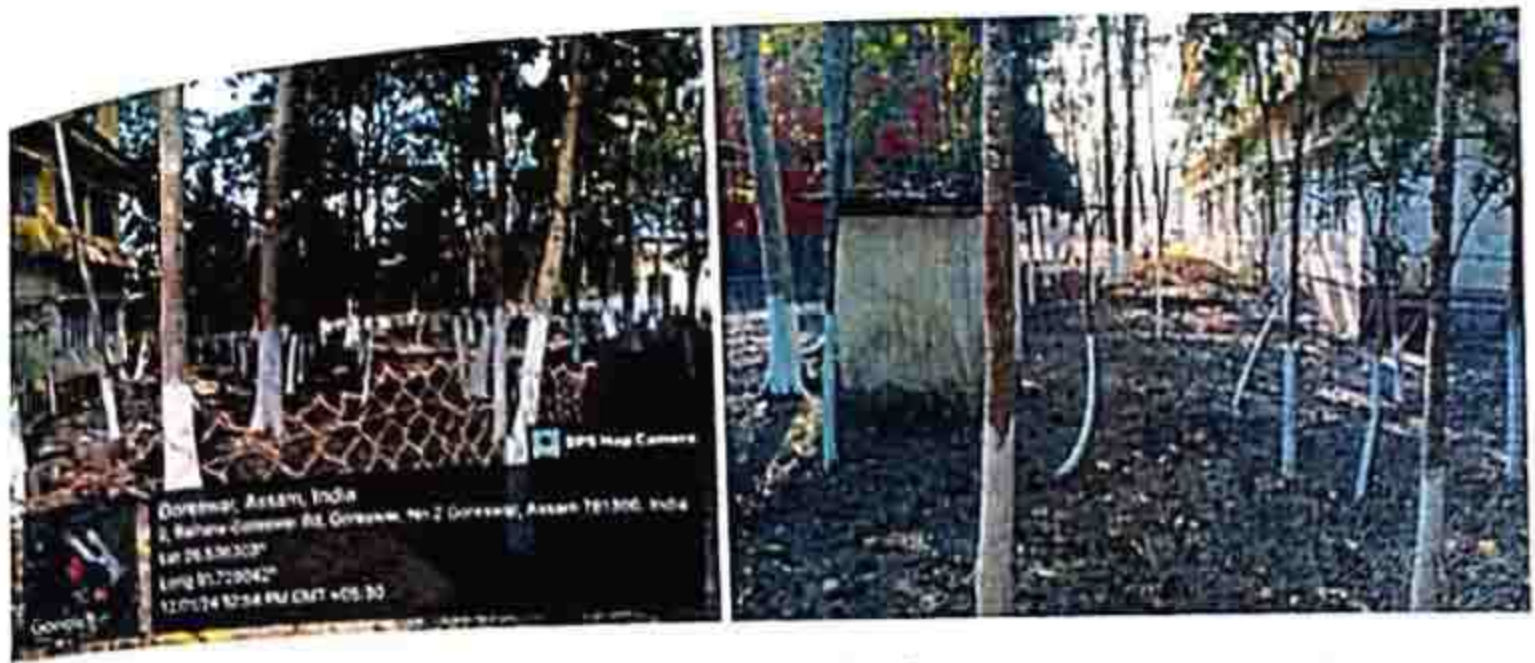
### Monocotyledons

Arecaceae	<i>Cocos nucifera</i>	'Narikol' (Ass.)
	<i>Phoenix sylvestris</i>	'Khejur' (Ass.)
Araceae	<i>Acorus calamus</i>	'Boch' (Ass.)
Liliaceae	<i>Aloe vera</i>	'Sal-kuwari' (Ass.)
	<i>Dracaena sp.</i>	'Jom-Lakhuti' (Ass.)
Musaceae	<i>Musa sapientum</i>	'Manohar Kal' (Ass.)
Cannaceae	<i>Canna indica</i>	'Parijat' (Ass.)
Pandanaceae	<i>Pandanus sp.</i>	'Keteki' (Ass.)
Hydrocharitaceae	<i>Hydrilla verticillata</i>	'Hydrila' (Ass.)
Poaceae	<i>Cynodon dactylon</i>	'Dubari Ban' (Ass.)

### Observations

- The College maintains a sound green environment. It is commendable.
- Beautiful and well-maintained gardens enhance the aesthetic beauty of the campus.
- The trees and bushes are providing nesting support to some specific indigenous wildlife. It is a specific sign of calm and quite eco- friendly environment of the campus.

Greenery in the campus not only help in cleaning air through sequestration of CO<sub>2</sub> and maintaining humidity, but also motivating students for maintaining and nurture nature.



**Plate 6 : Plant diversity in the campus**

### **Suggestions and Recommendations**

- The existing campus of Goreswar College supports a good number of plants and animals of which a few are ecologically, aesthetically and culturally important. All these plant species should be conserved in a proper way to support and to achieve more biodiversity values in future.
- The dedicated garden areas need to be monitored regularly to enhance the aesthetic beauty of the campus.
- Boundary areas may be systematically planted in consultation with a horticulturist or botanist.
- Students may be encouraged to take care of the plants and the campus.

### **AUDIT SUMMARY**

This report on “Green Audit” of Goreswar College for the year 2022-2023 was prepared with an objective to highlight and prepare a statement on the green practices followed by the College. The present Green Auditing began with the assessment of the status of the green cover of the college followed by water audit, waste management practices and energy conservation strategies etc. The audit team visited different facilities at the College campus, monitored different appliances/utilities and documented the relevant consumption patterns. The Faculty members, staffs and learners were interviewed through structured questionnaires to get details of usage, frequency, or general characteristics of different appliances. Data collection was done by onsite visit also through questionnaires in all sectors related to

environmental quality. The data thus collated were analyzed to prepare this audit report of Goreswar College, Goreswar.

The college is located on a huge plot of land of 20 bigha and 02 katha and the campus is systematically arranged based on its master plan with dedicated spaces for few ornamental gardens, micro forest patch, tree plantation patches, 02 ponds and two multi sports play grounds. Regular plantations since the inception of the College make it lush green campus. The garden in front of administrative building and avenue trees aligned with the buildings enhance the aesthetic beauty of the college campus. Little disturbances within the dedicated green areas/gardens were observed that need monitoring and intervention. Boundaries of the college are almost covered with plantation which performs as sound barrier for the campus. Regular monitoring and trimming/pruning is therefore suggested at and when necessary. Cultivation of common fruits highlight the best eco-friendly initiatives of skill development programmes for the students with the leadership of a few faculty members inside the college campus.

The Goreswar College extract @ 2000 L ground water per day to fill up the 04 water reservoirs of the capacity 8000 L. It was noted that wastage of water is very meager which was also reflected in the consciousness of the stakeholders. Till now the potable water quality was within the permissible limit as prescribed by different agencies. The authority is proactive in conserving water and the awareness of Stakeholders on water conservation is commendable as well. Display signage for water conservation and regular monitoring practice seems to be missing, where attention requires from the authority. The initiative of rain water harvesting in each building are made and channels were connected to a few water reservoirs for using gardening purposes. The drainage system of the college is so arranged that run off water dictates towards the ponds within the campus. Though no fault was found, it is suggested for periodical maintenance of water taps/ water pipes/reservoirs to prevent the loss of water.

In the college, more paper and plastic wastes were recorded to be generated in the Administrative Blocks and from the Canteen whereas, organic waste was found to be more in the canteen and hostel premises. No report was found on generation of bio-medical waste. The e-waste generation is though little in the campus, disposal mechanism is yet to be ascertained. The college has a centralized collection mechanism for any kind of waste excluding the litters and biomass generated due to shedding from trees and weeding in the campus. As the college a good number of fruit and other ornamental tree, installation of vermi-composting or otherwise conventional composting in a designated site is suggested with a structured monitoring

mechanism. Further, in order to carry forward the commitment to keep the campus waste free, installation of dustbins has been started in phase manner. It is also noted that no visible segregation practice exists to separate different wastes which need active attention.

But, it is good to see that around 83 per cent of stakeholders were confident about their understanding of waste and their obligation in disposing of material. Academic Departments do not generate large quantities of waste. Plastic materials are still in use, of course, in small quantities. It is hence suggested that Goreswar College campus is to be declared as a 'Complete Plastic-Free Campus'.

In order to encourage students to respect the environment and think about conservation, the college in collaboration with NSS Cell and NCC regularly organise different awareness programme on Swachhata and maintenance of healthy environment, A couple of cleanliness drive and plantation programmes were also organised in and around the Goreswar College campus during last couple of years.

Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. Energy is mainly used in this college campus for 1) lighting's load, 2) laboratory equipment, 3) office equipment, 4) air conditioners, 5) water cooler 6) Fan, 7) water pump and 8) cleaning and construction purposes. The main source of electricity in Goreswar College is Assam Power Distribution Company Limited. The Energy efficiency assessment was conducted for the load connected to the mains supply of college buildings including canteen. The entire campus including common facility centres are equipped with LED lamps and LED tube lights which can be considered as one of the best practices of energy saving. The percentage replacement of non-energy efficient machines/gadgets in last 2 years was 58 per cent and the percentage of increase LED installation in last 2 years was almost 100 per cent.

A good practice was noted that all the computers are set to automatic power saving mode when not in use. Monitoring mechanism exists in put-on and put-off the electrical appliances is a laudable eco-friendly effort of the College. Solar installation needs augmentation to cater the entire campus.

As the Biodiversity plays a key role in providing numerous irreplaceable services to any community, biodiversity audit is one of the best practices for sustainability of an institute. The Goreswar College campus houses around 79 numbers of animals under different phylum. The campus accommodates around 3 amphibians, 10 reptiles, 10 birds and 8 mammals. Invertebrates present in the campus includes several species of butterflies, grasshoppers, earthworms, leech, Many species of other insects like bees, wasps, ants, bugs, beetles, spiders etc. Harboring of rich

faunal diversity indicates a good health of the campus. It is also interesting to note that the college campus provides sound nesting ground to a few avian and mammalian species.

The campus is evergreen with 76 species of trees, shrubs and herbs including grasses. A few ornamental and economically important plants are introduced into the campus not only to beautify the campus but also to add values to it. Since plants provide a good ecological service in maintaining a green campus these should be conserved in a proper way to support and to achieve more biodiversity values in future.

The cultivation of fruit and horticultural crops is a commendable green and environment friendly initiative of the college to encourage budding citizens to nurture nature. These plantations not only help in cleaning air through sequestering CO<sub>2</sub> and maintaining humidity, but also motivating students for organic cultivation and entrepreneurship.

In spite of having budgetary and management constraints that limits the effectiveness of green practices, Goreswar College has put every effort to streamline all those practices to make and convert it into an eco-friendly and aesthetic campus.

The report contains some specific suggestions and recommendations in each category to be implemented to improve the existing environment-related practices of Goreswar College.

\*\*\*

# **GREEN AUDIT REPORT**

## **2022-2023**



**Designed & Printed at Gauhati University Press**





Date.....

# GREEN AUDIT CERTIFICATE

**This is to certify that the Goreswar College, Baksa, Assam has conducted the Green Audit for the year 2021-2022 to highlight and assess the impact of green initiatives for maintaining the campus eco-friendly.**



**Principal  
Goreswar College  
Goreswar, Baksa, Assam**

**(Prof. P. P Baruah)  
Chairperson, Green Audit committee  
Gauhati University**




Date.....

# GREEN AUDIT CERTIFICATE

This is to certify that the Goreswar College, Baksa, Assam has conducted the Green Audit for the year 2020-2021 to highlight and assess the impact of green initiatives for maintaining the campus eco-friendly.

Principal  
Goreswar College  
Principal  
Goreswar College  
Goreswar, Baksa, Assam

  
(Prof. P. P Baruah)  
Chairperson, Green Audit committee  
Gauhati University



Date.....

# GREEN AUDIT CERTIFICATE

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Principal  
Goreswar College  
Goreswar, Baksa, Assam

(Prof. P. P Baruah)  
Chairperson, Green Audit committee  
Gauhati University