SARUPATHAR COLLEGE, SARUPATHAR,
GOLAGHAT–785601 (ASSAM)

GREEN & ENVIRONMENT AUDIT REPORT

2023-2024



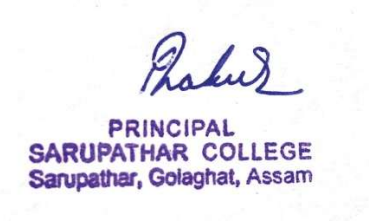
Prepared by

IQAC in Collaboration with Eco-Club and Green & Environment Audit Cell
Sarupathar College

Forword by Principal

Sarupathar College, the oldest higher educational institute in the Doyang- Dhansiri Velly of Golaghat district, has been entrusted with the noble job of imparting knowledge throughout the communities since its inception. As a higher education institute, our college is deeply concerned about the changing state of the environment around the world, as well as global calls for its protection and preservation. In this regard, we have adopted the motto "*Go Green: Clean Campus Green Campus"* in which we strive to make our college campus a green campus by adhering to all environmental regulations. For many years, our institution has fostered a genuine concern for the environment by conducting regular plantation drives, cleanliness drives, and organizing environmental awareness campaigns both on and off campus.

The current Green and Environment Audit for the academic year 2023-2024 is another substantial effort on our part to account for our efforts to achieve Go Green targets. I am optimistic about the audit report, which will undoubtedly guide us in the right direction.



Dr. Prapti Thakur
Principal
Sarupathar College

CERTIFICATE:
GREEN AND ENVIRONMENT AUDIT: 2023-2024

Date: 1st February, 2025

This is to certify that

Sarupathar College, PO: Sarupathar, Golaghat, Pin -785601, Assam

has been assessed by us for comprehensive study of environmental impact on institutional working framework to fulfill the requirement of

Green and Environment Audit.

The environmental preservation initiatives undertaken by Sarupathar College, Sarupathar, were validated in the report submitted and deemed to be encouraging.
The efforts made by the College administration, IQAC, faculty, and students on campus and in communities nearby in terms of environmental health and sanitation, waste management, energy conservation, and greenery are truly appreciated and noteworthy.

Dr. Pavitra Chutia, Principal,
Barpathar College, Golaghat, Assam

Principal
Barpathar College
Barpathar

Mr. Ritu Paban Borah, AFS,
DFO, Social Forestry Division,
Golaghat, Assam

Divisional Forest Officer
Social Forestry Division
Golaghat

Acknowledgement

We would like to thank the Principal and all other staff members for calling us for this audit, as they were very helpful and provided us with all the input we needed. We appreciate the assistance of all teaching, non-teaching, and student personnel in carrying out this audit.

Dr. Pavitra Chutia, Principal,
Barpathar College, Golaghat, Assam

Principal
Barpathar College
Barpathar

Mr. Ritu Paban Borah, AFS,
DFO, Social Forestry Division, Golaghat, Assam

Divisional Fores.
Social Forestry Division
Golaghat

Green and Environment Audit Team

This audit was carried out by a group of scientists and specialists assisted by a team of faculty members of Sarupathar College. The Committee prepared an audit questionnaire based on various statutory and regulatory requirements. The committee collected and analysed the information provided by the institution. Overall, the audit reveals a healthy environment inside the College premises.

The committee has made both short-term and long-term recommendations for improving environmental conditions to higher levels, and all College stakeholders have affirmed that they would pay close attention to and capitalize on recognized potential for improvement. The Committee members are listed as follows:

1. Dr Pavitra Chutia, Principal, Barpathar College, Golaghat, Assam
2. Mr. Ritu Paban Borah, AFS, DFO, Social Forestry Division, Golaghat Assam
3. Dr Prapti Thakur, Principal & Chairperson, IQAC - Advisor,
4. Dr Ridip Khanikar- Coordinator, IQAC
5. Mr. Pranjal Dutta- Member
6. Mr. Krishna Konwar - Member
7. Mr. Bipul Das - Member
8. Dr Tanisha Gogoi - Member

CONTENTS

1. Introduction:

The expression *Green* refers to things that are environmentally friendly or do not harm the environment. 'Green Auditing" refers to the "methodical identification, quantification, recording, documenting and analysis of components of environmental diversity and expressing the same in socioeconomic terms" . Green auditing, an umbrella phrase, is sometimes known as 'Environmental auditing'. Understanding the objectives, causes, future scope, benefits, and advantages of green auditing is crucial for its successful implementation.

Green and environment auditing is the comprehensive identification, quantification, recording, reporting, and analysis of any institutions ecologically diverse elements. It seeks to examine the ecological behaviours within and outside of the institutions that will have an effect on the ecosystem. The focus was on assessing the use of energy, electricity, and water, as well as the management of liquid waste, solid waste, hazardous waste, and e-waste. A database of plants on campus is also being created to determine how much CO2 is absorbed and O2 released.

The Indian government, under its National Environment Policy (2006), has mandated that all organizations conduct green audits or environmental evaluations. The Supreme Audit Institution (SAI) established the environmental audit procedure based on the criteria given in the Controller and Auditor General of India's Manual of Standard Orders (MSO) issued in 2002. The University Grants Commission has declared the "Green Campus, Clean Campus" mission necessary for all higher education institutions. As environmental sustainability becomes a more pressing concern for the country, higher education institutions play an increasingly vital role in addressing it. As a result, in recognition of the importance of environmental responsibility, NAAC (National Assessment and Accreditation Council), an autonomous body under UGC, has included the idea of Environmental Audit in accreditation methodology for State and Central Universities as well as colleges. Sarupathar College has undertaken a

Green/Environmental/Energy Audit of its campus at Sarupathar, Golaghat, Assam.

1.1 About the College

Established on November 14th in the year 1970 with Mr. Muhi Kanta Tamuly as its Principal, Sarupathar College is the outcome of toil and hardship of a host of leading personalities of the greater Sarupathar area, who had been longing to see the light of higher education in this outlying remote part of the country. The dream was realized with conviction when the college was brought under deficit grants by the Assam government in 1981. Thus, a new era dawned on this premier educational institution not without tremendous perils and sacrifice faced by some of the founder teachers and well-wishers. Today the college owes much to the local community who had contributed so much to see the college where it stands today. At the same time the college stands faithful to its commitment by giving her very best in the field of higher education. On the other hand, the introduction of the Commerce Stream in the year 1985 was another feather to the cap. The college got permanent affiliation under Dibrugarh University up to degree level in 1994-1995 and was declared, along with the other colleges of Assam, a provincialized college in December, 2005. Though it is a degree college, the institution has also been providing facilities for studies in higher secondary courses in both Arts and Commerce stream.

This institution is venturing into new frontiers in a quest for quality enhancement accommodating co-curricular activities, besides its general curriculum. Now the college has successfully completed 45 years of its existence and is able to meet the needs and aspirations of the people of the Dhansiri Sub-Division in particular and other areas in general. The college bears the responsibility of uplifting the socio-economic development of the backward, rural and inter-state bordering region. It is our humble anticipation that the college will open up new vistas of learning for the students by providing ample opportunities in all possible fields for unraveling the hidden talents of the students. Dr. Prapti Thakur is the current Principal of the College.

1.2 Campus Infrastructure (Imagery)




1.3 Vision and Mission of the college

Mission

To materialize our vision of all round development of the students as well as the surrounding areas the institution has

undertaken the following missions.

Academic:

1. To provide value-based education
2. To provide opportunity for quality higher education to the deprived and marginalized section of the society in this area.
3. To develop competitive environment among the students with good value system and prepare them to confront the contemporary challenging world.
4. To provide opportunities for unravelling the talents of our students in the sphere of games and sports
5. To develop the college into an information hub for the rural population where information technology is not easily accessible.
6. To promote environmental awareness among the local population and enrich nature by plantations.
7. To boost the cultural environment by providing platforms to the students in the areas of singing and performing arts.
8. To address the issue of conflict management by hosting friendly exchange programmes among the cross-border communities.
9. To promote women empowerment by organizing various programmes time and again.
10. To impart nationalist sentiments among the students that will promote national unity and integrity.

Administrative:

1. To make the administration more transparent, accessible and shared.
2. To convert the entire process of admission, feedback, attendance etc from the traditional process to online process.
3. To generate more revenues from own sources to maintain the existing facilities properly.
4. To establish in-house production centre with the help of the students of vocational courses.

Vision

Sarupathar college believes it to be its utmost priority to develop the mind, body and intellect of the students and thereby bring in all round development of selfhood. This institution belongs to a remote and rural area and thus it is a primary concern to make it a rural institution of excellence. It endeavours to bring in prosperity and disseminate knowledge among this rural region which is mostly lagging behind in economic and literary spheres. The demographic pattern of students in this institution shows an assimilation of diverse ethnic and cultural identities. Consequently, it becomes a place of cross-cultural integrity and the student community is encouraged to respect all cultural identities while trying their best to work for the upliftment and preservation of their

own cultural traditions. The institution aims at imparting knowledge, discipline and human values to its students coming from different walks of life and thereby makes them good citizens who can contribute towards nation building. The goal of this institution is to make higher education easily accessible and affordable for the country folk of the surrounding who are leading tough agrarian lifestyle.

1.4 Green and Environmental Policy of the college:

Sarupathar College has developed a Green and Environment Policy that demonstrates its insistence to environmental protection and development. The College's environment policy upholds the following key principles.

i. Promote environmental sustainability.
ii. Maintaining a green and clean campus
iii. Raising environmental awareness.
iv. Proper Drainage System
v. Effective solid, electronic, and liquid waste management.
vi. Water conservation through rainwater harvesting.
vii. Plastic-free Campus
viii. Promote efficient and sustainable energy.
viii. Foster a wet and aquatic culture on campus.
x. Wildlife spacing
xi. Green and Environmental Auditing

2. Green and Environment Audit

2.1 Goals and Objectives of Green and Environment Audit

The institute has undertaken the green and environment audit with specific goals,

i. To identify and document green practices at the college.

ii. To examine the strengths and limitations of green practices.

iii. To review the facilities for various types of waste management.

iv. To raise environmental awareness.

v. To identify and assess environmental concerns.

vi. To analyse and offer solutions to problems identified in the survey.

vii. To encourage students and staff to make the best long-term use of existing resources.

2.2. Objectives of Audit:

The audit aims to:

i. Establish a goal, vision, and mission for green practices on campus.

ii. Continuous assessment for improving green practice performance and evaluation.

iii. Prepare an Environmental Assessment Report describing the green initiatives implemented by various departments, support services, and administration buildings.

iv. Examine present environmental practices, such as resource utilization and waste management.

2.3. Focus Area of Study:

The current Green and Environment Audit focuses on green and pro-environment initiatives, awareness drives, plantation drives, aquatic practices, concern for wildlife, creation of safe places for birds, snakes, and wild bees, and so on, carried out by the college on campus.

3. Methodology

i. Environmental Auditing Process
ii. Planning
iii. Choosing Audit Area,
iv. Onsite Visit,
v. Survey and Analysis,
vi. Evaluating Audit

4. Water Quality Assessment and Management

4.1 Rain water harvesting system:

Sarupathar College is very passionate about harvesting rainwater on campus and using it for multiple purposes. To retain rainwater, the college set up a water reservoir that connects to the roof tops of its



4.2 Ground water collection & Treatment

Sarupathar College has used ground water as the primary supply of water on campus. Ground water is drilled through motors, stored in water reservoirs, and used for a variety of uses. It serves as the main source of drinking water as well as other everyday needs such as plantation, building and road construction, and campus greenery maintenance.


4.3 Testing of drinking water for harmful bacteria, chemical and Physical psarameters

Drinking Water Analysis:

The institution requested that the Public Health Engineering Department (PHE), Sarupathar Co-District, Government of Assam, assess the drinking water quality on the college premises. The main water sources on campus are:

1. **Ground water through boring:**

Sample Reference: Sarupathar College
Sample Source: Sarupathar College
Sample Type: DTW, Treated
Collected Date: 7-11-2024
Received on: 12-11-2024

Table:

Serial No.	Parameters	Results	Desirable Limit	Permissible Limit in the absence of alternate source
1	Colour	5	5	15
2	Odour	Agreeable	Agreeable	No relaxation
3	Taste	Agreeable	Agreeable	No relaxation
4	Ph	7.84	6.5-8.5	No relaxation
5	Turbidity	0.00	01	5
6	Free Residual Clorin	0.00	0.2	No relaxation
7	Nitrate-Nitrogen	0.00	45	No relaxation
8	TDS	208	500	2000

9	Chloride	19.852	250	1000
10	Total Alkalinity	44	200	600
11	Sulphate		200	400
12	Total Hardness	70	200	600
13	Calcium		75	200
14	Magnesium		30	100
15	Total Iron	0.00	.3	1
16	Total Arsenic	0.00	0.01	No relaxation
17	Floride	0.29	1.0	1.5
18	Microbiological Analysis	Negative	Negative	No relaxation

5. ANIMAL WELFARE

Sarupathar College is an ideal spot for various animals to live. Dogs, cats, squirrels, birds, insects, turtles, and other aquatic animals have all been found on campus, both wild and domestic. The Animal Welfare Association of Sarupathar College, in partnership with the Prapti Foundation, cares for the animals on campus. Sarupathar College has made several arrangements for animals, such Snake World, Charai

Chuburi, Bor Pukhuri, Padum Pukhuri, Shil Pukhuri, and so on. These all demonstrate the institutions' commitment to the welfare of animals.

Here is a list of the animals (wild and domestic) found on campus

Sl. No	Name of Animals	Numbers
1	Dog	5+
2	Cat	3+
3	Squirrel	10+
4	Bird Species	30+
5	Insects	100+
6	Turtle	02+
7	Aquatic Animals Species	50+
8	Butterfly Species	20+
9	Other flora and fauna	100+

6. Snake World

Sarupathar College's campus is a secure haven for both venomous and non-venomous snakes. A special area is being set aside for snakes near the Pudum Pukhuri. The snake species accessible at the campus are mainly Xenochrophis piscator (ঢোঁৰা সাপ), King Cobra (ফেঁটী সাপ), Banded Krait, Dhunduli Feti and Ptyas mucos (মচোৱা গোম সাপ), Coelognathus radiata (ধুন্দুলীফেঁটী সাপ), Bungarus fasciatus (শংখচূড় সাপ) and so on.

7. Silence zone in the College

Sarupathar College maintains a silence zone on its campus and restricts the use of motor vehicles during working hours. There are separate common parking stations for teachers, staff, and students to prevent noise pollution on campus.

8. Human Health and Safety Management

8.1 Health Awareness Programmes

One of the most focused services that the organization has been providing for the past few years is conducting health awareness and check-up camps. Every first Saturday of the month, the institution hosts a free health camp for teachers, staff members, students, and local residents near the college campus. Sarupathar College collaborates with Community Health Centre (CHC) Sarupathar to arrange free medical camps in its adopted villages. Furthermore, the college offers a Certificate Course in Yoga, which is open to everyone. The Student Union's sports department provides fitness camps for a variety of sports

for both boys and girls. The women's cell raises awareness and distributes sanitary pads to female college students.

8.2 Blood Donation Camps (Good Quality Photographs):

During the year, the Red Ribbon Club (RRC), NSS Unit, and NCC Unit of Sarupathar College organize multiple blood donation camps in collaboration with the Blood Centre S.K.K Civil Hospital, Golaghat.

Photrographs of the Blood donation camps:



8.3 Periodic Health Check-Up

Here are a few photographs from Sarupathar College's monthly health check-ups on campus and in adopted villages.



8.4 Yoga/Meditation for staff and students

Photographs of Yoga/Meditation classes and training for staff and students provided by the College on its campus in 2023-24.




8.5 Fire safety and first aid box

Photographs of fire safety and first aid boxes located in strategic locations throughout the College campus.




9. Waste Management

Waste generates a considerable quantity of litter, which contributes to health concerns. Institutional operations create a variety of wastes that must be properly handled, stored, collected, and disposed of in order to minimise dangers to the environment and public health. The College has made several trash control efforts and endeavours. On the College campus, wastes from various sources are meticulously separated for appropriate disposal. Diverse garbage containers are designated for the collection of various types of waste. The Institute places a premium on environmental health and has contributed to the sustainability of future generations throughout the years. Institutional wastes are often classified into three primary categories: solid, liquid, and e-waste. As shown below, several methods were applied to sort and dispose of these wastes. Sarupathar College and the Sarupathar Municipality Board (SMB) have signed a Memorandum of Understanding to facilitate the process. The SMB collects rubbish from the college campus every month and disposes of it properly.

9.1 Solid Waste Management

Pollution from garbage is unpleasant and contributes significantly to litter in our neighbourhoods, which may cause health concerns. Biodegradable, non-biodegradable, and hazardous waste are the three forms of solid waste. Food trash, canteen garbage, and toilet waste are all examples of biodegradable waste. Plastic, tins, and glass bottles are all examples of non-biodegradable garbage. Hazardous trash includes cleaning chemicals, acids, and laboratory chemicals. Hazardous trash includes cleaning chemicals, acids, and laboratory chemicals. Each department at Sarupathar College, as well as administrative offices,

generates garbage that is deposited in the department's small waste bin. Each building has multiple dustbins from which cleaning personnel collects rubbish.

Vermi-composting units located within the college campus successfully convert biodegradable wastes to fertiliser. This fertiliser is utilised in the college's fruit orchard and flower garden. Sarupathar College actively opposes the usage of plastic on campus, especially single-use plastics. The college campus has been designated a "Plastic-Free Zone." The College generates a significant amount of paper trash. Paper wastes from Academic Blocks, Libraries, Exam Conduction, Administrative Offices, and Hostels are carefully piled in specified areas and then disposed of properly via vendors. The College supports the use of digital platforms for communication and document exchange in order to lessen reliance on paper.

9.2 Liquid waste management

Hostel sewage and canteen effluent waste are the most common liquid wastes created on campus. Following are the measures taken for liquid waste management:

1. Septic tanks are situated across campus and collect waste water from the toilets.
2. During dry seasons, the waste water from the College Canteen is collected and utilised to irrigate the flower beds. The college do not have any sewage treatment plant yet.

9.3 E-waste management

Sarupathar College has a highly effective system in place to dispose of E-waste from diverse sources. Computer labs, academic and administrative offices all produce e-waste. Lab instruments, circuits, desktops, laptops and accessories, printers, charging and network cables, Wi-Fi devices, cartridges, sound systems, display units, UPS, Biometric Machine, scientific instruments, and so on are all examples of e-waste. All of these wastes are put to the best possible use. All of the equipment that cannot be reused or repurposed is disposed of by approved suppliers. For technological upgrades, the Buy-Back option is chosen over a fresh purchase. Furthermore, Sarupathar College has recently came to an arrangement with a Calcutta-based company called ***Hulladeck Recycling Pvt. Ltd.*** to dispose of e-wastes for recycling and reuse. As a part of its e-waste management efforts, the College has created an e-waste park on campus called ***Srijan Kanon: Re-craft Park***, which uses e-waste to produce amusement and awareness about e-waste management.

10. Energy Consumption and Management

Energy is a basic requirement for economic development in almost all major sectors of Indian economy i.e., agriculture, industry, transport, commercial, residential (domestic) and educational institutions. Consequently, consumption of energy in different forms has been steadily rising all over the country, which has maintained a steady growth pattern in the past and the trend is likely to continue in future as well. This has increased the dependence of the state on fossil fuels and electricity. The Government of India enacted the Energy Conservation Act, 2001 in October 2001, became effective from 1st March, 2002. The Act provides for institutionalizing and strengthening delivery mechanism for energy efficiency programs in the country and provides a framework for the much-needed coordination between various Government entities. Sarupathar College, Sarupathar an educational institute in Golaghat district of Assam taking voluntary objective of reducing energy intensity in the College Campus.

Sarupathar College has tried to lower its energy bills throughout the years by focussing on non-traditional sources of energy, particularly solar power, which is a completely clean and inexhaustible energy source. Solar for educational establishments is an excellent concept because it reduces the price of delivering electricity. For this goal, the institution has erected a 30 KW solar park and 14 solar-powered street lights on campus. Furthermore, to reduce energy consumption, Sarupathar College has replaced traditional energy-consuming incandescent bulbs with LED bulbs and tube lights in its classrooms, offices, libraries, and hostels. Every year, an expert team conducts an energy audit to hold the institution accountable for its energy consumption.

10.1 Use of solar panels for energy conservation

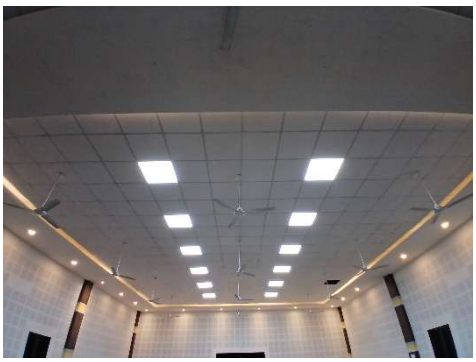
Photographs of 30 KW solar park installed in the College

10.2 Use of LED bulbs in the college campus

Photographs of LED solar park installed in the College





10.3 Use of common or public vehicle instead individual vehicle to conserve fossil fuel

Here are some photographs of the e-rikshaws that stand in front of the college premises for students, faculty, and office staff.




11. Tree Diversity of the college

Table: Plants available in the college campus

Sl. No.	Local name	Total (Nos.)
1	Eucalyptus	2
2	Bogan Series	1
3	Kadam	10
4	Mango	40
5	Coconut	10
6	Elephant Apple	2

7	Amalaki	7
8	Guava	5
9	Xilikha	5
10	Jalpai	6
11	Pine	9
12	Dalim	2
13	Kathal	2
14	Teak	60
15	Bhumura	2
16	Krishnasura	3
17	Radhasura	16
18	Sachi	3
19	Chandan	20
20	Arjun	5
21	Bogi Jamun	1
22	Kali Jamun	4
23	Khejuri	1
24	Jari	1
25	Debadaru	13
26	Bakul	20
27	Atlas	1
28	Rain Tree	25
29	Sisu	3
30	Betel Nut	7
31	Neem	20
32	Ajar	3
33	Banana	10
34	Papaya	4
35	Saw	4
36	Soursop	3

37	Sonaru	4
38	Lemon Farm	20
39	Simalu	1
40	Raghu	1
41	Bhelow	1
42	Piscidia Piscipula	1
43	Pterospermum	1
44	Pamlakhi	3
45	Ecasia	1
46	Helos	1
47	Bogori	1

12.Faunal Diversity:

The college is bestowed with a complimentary location, surrounding environment as well as great floral diversity which ensure a rich faunal diversity to the college. The different species of insects, amphibians, reptiles, birds and mammals contributed to the diversity of fauna in the campus and plays an important role in the ecosystem. The college faunal diversity is prosperous with nearly various species of odonates, butterflies, amphibia, lizards, snakes and birds.

List of odonates, butterflies, amphibia, lizards, snakes and birds found in College Campus

Sl. No	**Local Name**	**English Name**	**Scientific Name**
1	Gui	Bengal monitor	Varanus bengalensis
2	Jethi	Wall lizard	Hemidactylus flavivirdis
3	Neol	Common Mongoose	Herpestes edwardsi
4	Tezpia	Common Indian skink	Calotes versictor
5	Panivekuli Bamun vekuli	Water frog Large frog	Ranna limnocarrasis Ranna trigrina
6	Pat beng	Common tree frog	*Polypedates* *Leucomystax* hyla *arborea*
7	Suk vekuli	Common toad	bufo melanostictus
8	Apple Snail	Fresh water Snail	Pilla stobusa
9	Kumjelekua	Snail and snail	Cryptozonebistrialis Schatina pulica
10	Bandor	rhesus monkey	Macaca mulatta
11	Kesu	Earthworm	pheretima posthuma
12	Uisiringa	House Cricket	Acheta domestica

13	Kola poruwa	Weaver ant	myrmicaria oecophylla smaragdina
14	Mojali poruwa	Slender ant	*Tetraponera Rufonigra*
15	Amroli poruwa	Green tree ant	Oecphyllas maragdina
16	Gandhi Puk	Gandhi Kira	Leptocorisavaricornis
17	Kumoti	Mole Cricket	Scapteriscusborellii
18	Jonakiparuwa	Fire Flies	Lampyridae spp.
19	Poitasura	Cockroach	Periplaneta american
20	Mou Makhi	Honey bee	Apis mdica Apis donseta
21	Kodu	Hornet	Vespa affinis
22	Kerketuwa	Squirrel	Sciurus vulgaris
23	Borol	Psocoptera	Psocoptera
24	Jeeya	Dragonfly	Libellula forensis
25	Kola jeeya	Odonata	Sympetnum vulgatum
26	Gagini	Mantis	Mantis religiosa
27	Ooii	Termite	Hemimetabolous neopteram
28	Maakhi	Fly	Musca domestich
29	Guboruwa	Beetle	Coleoptera
30	Bisa	Caterpillar	Pyrrharctiaisabella
31	FutukiPokhila	Red admiral	Vanessa atalanta
32	Pokhila	Butterfly	Lepidoptera
33	Mokora	House Spider	Achaearaneatepidariourm
34	Moumakhi	Honey bee	Apiscerna indica
35	Kekura	Crab	Decapoda
36	Fetishap	Cobra	Ophiophagus hannah
37	Hundorishap	Ornate snake	Chrysopelea ornate
38	Rajfeti	King cobra	Ophiophagus hannah
39	Mosuwa gum	Indian rat snake	Ptyas mucosa
40	Bamunishap	Striped keelback	Amphiesmastolatum

41	Karholashap	Bronze-backed tree snake	Dendrelaphiscaudolineatus
42	DhoraShap	Checkered keelback	Dendrelaphistrists
43	Rohu	Rohu	rohita
44	Common crap	Common crap	Cyprinus carpio
45	Grass crap	Grass crap	Ctenopharyngodon idella
46	Kawoi	Climbing peach	Anabas testudineus
47	Silver Crap	Silver Crap	Hypophthalmichthys molitrix
48	Puthi	Swamp Brab	Puntius sophor, puntim ticto
49	Magur	Walking Catfish	Clarias *batrachus*
50	Singi	Stinging Catfish	Heteropneustes fussilis
51	Goroi	Spotted snakehead	Channa gachua
52	Borali	Sheat Fish	Wallago attu
53	Singora	Striped dwarf catfish	mystus vittatus mystm teagna
54	Kholihona	Indian paadise fish	Trichogaster fasciata
55	Misa mas	Prawn	Dendrobranchiata
56	Pabho	Pabda	Ompokbimaculatus ompok pabda
57	Kanduli	Feather back	Notopterus notoptea
58	Laupatia	Indian glass brab	Chela atpar
59	Selkona	Large razorbelleyminow	Salmostomarbacalia
60	Darikona	Flying brab	Esomus daniconius
61	Moa	Pale carplet	Amblyphayngodon mola
62	Seniputhi	Gunther' barb	Puntius sarana
63	Chanda	Chanda Nama	Elongate glassy perchlet
64	Chengeli mas	Assamese snake head	Channa stewarti
65	Kusia	Eel	Monopterus cuchia
66	Borolia	Jaya	Aspidoparia jaya
67	Kuhi	Orangefinlabeo	Labeo calbasu
68	Kopou	Dove	Chinensis streptopelia chineasis

69	Kuli	Koel	Eudynamys scolopacea
70	Kakoihira	Common hoopoe	Hoopoes
71	Dohikotora	Orienta magpie robin	Copsychussaularis
72	Panikaouri	Darter	Anhinga melanogaster
73	Bortukula	Lesser Adjutant Stork	Leptoptilos javanicus
74	Bogoli	Large egret	Egretta gularis
75	Bogoli	Cattle egart	Bubulcus ibis
76	Sorali	Indian whistling Duck	Dendrocygna javanica
77	Hamukvonga	Open billed strok	Anastomus oscitans
78	Kopou	Indian Ring Dove	Streptopelia decaocto
79	Phesu	Black drongo	Dicrurus adsimilis
80	Baduli	Bat	Rousettus leschenaulti
81	Pathiya	Talorbird	Orthotomus sutorius
82	Kauri	Crow	Corvus splendens
83	Phesa	Owl	Tyto alba
84	Bhatou	Parrot	psittacula krameri
85	Masrooka	Kingfisher	Alcedo atthis
86	Gharsirika	Sparrow	Passaer domesticus
87	Halika	Mynah	Acridotheres tristis
88	Tiposi	Common tailorbird	Orthotomus sutorius

Table: List of plantation program in the college campus

Sl. No	Name plantation program	Duration/Date	Name of plants	Total (Nos.)
1	Celebrations of World Bicycle Day	03-06-2023	Plantation of fruit trees	10
2	World Environment Day 2023	05-06-2023	Fruit trees	50

3	Amrit Btikshya Andolan	14-08-2023	Neem tree	20
4	NSS foundation Day	24-09-2024	Mahogany	10
5	Gandhi Jayanti as Swachhata Divas	02-10-2024	Krishnachura Tree	20
6	Observation of Earth Day, by Day Observation Cell, IQAC	22-04-2023	Mango, Krishnachura Tree	15
7	Amrit Btikshya Andolan and Plantation Drive conducted jointly by college authority, Teachers' Unit, Students Union and NSS	08-08-2024	Mahogany, Sachi	16

13. Carbon Stock of the College Campus

Table: Height and Girth of individual Tree available in the college campus

SN.	Scientific name/Local name	Girth at breast height (cm) (Include the only trees Girth ≥30cm)	Approx. height of Trees (m)	Approx. Age (years)
1	Eucalyptus	150	35	20
2	Bagan Series	140	30	18
3	Kadam	90	18	10
4	Mango	60	12	8
5	Coconut	90	25	20
6	Elephant Apple	50	12	8
7	Amalaki	28	16	6
8	Guava	15	10	3
9	Xilikha	32	25	12
10	Jalpai	30	22	10
11	Pine	12	12	6
12	Dalim	6	5	3
13	Kathal	6	7	3

14	Teak	65	30	8
15	Bhumura	60	30	8
16	Krishnasura	30	10	6
17	Radhasura	8	7	2
18	Sachi	10	5	4
19	Chandan	6	5	4
20	Arjun	35	15	10
21	Bogi Jamun	20	12	8
22	Kali Jamun	22	12	9
23	Khejuri	35	10	15
24	Jari	40	35	25
25	Debadaru	30	18	8
26	Bakul	25	12	12
27	Atlas	11	6	3
28	Rain Tree	6	5	2
29	Sisu	40	35	14
30	Betel Nut	8	10	5
31	Neem	5	8	4
32	Ajar	10	8	4
33	Banana	15	8	2
34	Papaya	10	7	2
35	Saw	20	19	8
36	Soursop	15	15	10
37	Sonaru	20	12	12
38	Lemon Farm	5	4	4
39	Simalu	30	25	13
40	Raghu	35	28	15
41	Bhelow	34	25	12
42	Piscidia Piscipula	25	15	15
43	Pterospermum	28	20	16

44	Pamlakhi	8	10	5
45	Ecasia	4	6	4
46	Helos	4	5	3
47	Bogori	20	18	10

14. List of Awareness programmmes organised by the college under different banner

Table: List of Awareness programmes

SN.	Name of programmes conducted	Date/duration	Nos. of participants
1	Celebration of World Environment Day and Plantation Drives jointly by college authority, Teachers' Unit, Students Union and NSS	05-06-2023	150
2	Celebrations of World Bicycle Day and distribution of saplings in adopted villages by Bicycle Club, IQAC	03-06-2023	50
3	Amrit Btikshya Andolan conducted jointly by college authority, Teachers' Unit, Students Union and NSS	17-09-2023	133
4	Observation of NSS Foundation Day and Campus Cleanliness Drive	24-09-2023	50
5	Observation of Gandhi Jayanti as Swachhata Divas by NSS	02-10-2023	130
6	Observation of World Turtle Day by Day Observation Cell, IQAC	23-05-2023	78
7	Observation of World Water Day by Day Observation Cell, IQAC	22-03-2023	38
8	Observation of Earth Day, by Day Observation Cell, IQAC	22-04-2023	27
9	Amrit Btikshya Andolan and Plantation Drive conducted jointly by college authority, Teachers' Unit, Students	08-08-2024	120

	Union and NSS		
10	Celebrations of World Bicycle Day and distribution of seedlings in adopted villages by Bicycle Club, IQAC	03-06-2024	37
11	Observation of NSS Foundation Day and Campus Cleanliness Drive	24-09-2024	46
12	Observation of Gandhi Jayanti as Swachhata Divas by NSS	02-10-2024	150
13	Observation of World Turtle Day by Day Observation Cell, IQAC	23-05-2024	35
14	Observation of World Water Day by Day Observation Cell, IQAC	22-03-2024	67

15. Carbon footprint

14.1 Carbon Emission by Transportation

Sl. No.	Fuel Used	Types of Transport	Persons	Numbers of Persons	A	B	C	D= C/B	E	F
					Nos. of Vehicle Used	mileage	Av. distance in KM	Fuel Consumed per Day per Vehicle in ltr	Total workig days	Emission factor
1	No Fuel	Bicycle	Students							
			Non Teaching Staff							

2	Petrol	Two Wheeler	Students	456	225		20	2		2.67
			Non Teaching Staff	12	12		10	1		2.67
			Teaching Staff	25	25		5	1	285	2.67
3	Petrol	Four Wheeler	Teaching Staff	7	7		30	4	285	2.67
4	Diesel	Auto	Students	0	0		0	0		2.67
		Bus	Students	0	0		0	0		2.67
			Teaching Staff	0	0		0	0	285	2.67

14.2 Carbon Emission by Electricity

Parameter	Emission Factor (A)	Unit in KWH (B)	Total emission (C= A x B)
Electricity	0.82	45.0	36.9
Total KgCO2Eq. Emission by Electricity			

14.4 Reduction of Carbon Emission by Solar Power Plant

Parameter	Emission Factor	Unit in KWH	Total reduction of emission
Solar PowerPlant	0.82	30 kW	

14.5 Reduction of Carbon Emission due to absorption of CO2 by Tree Plantation

Particulars of Flora	Numbers	Carbon absorption by one tree Kg Per year
Full grown Tree	55	6.8
Semi Grown Tree	151	3.4

Quarter grown plants	143	1.7
Total Carbon dioxide absorption by trees		

16. Suggestion and Recommendation.

1. Rainwater harvesting storage tanks to be increased to collect complete volume of rainfall and with suitable treatment it can be reused foreseeing future needs of water. Further, rainwater pits can be prepared at appropriate places identified with the assistance of Department of Geology and restoration activities may be initiated to sustain the health of ponds and wetlands around the campus.

2. The wastes generated can be used for promoting organic farming activities within the campus and the products can be used in hostels and canteens, with a plan to ensure the availability of organic food in the canteen and hostels for future.

3. Give preference to the most energy efficient and environmentally sound appliances available.

4. Vehicle pooling should be promoted both among students and faculty and use of bicycles should be promoted.

5. Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.

6. Green habitat concept should be adopted for all the building construction activities in future, which may help a long way in reducing energy usage, increasing aesthetic appeal of the buildings and class rooms, besides reducing carbon foot print.

7. Require that every staff and student member recognises their responsibility to ensure that the

commitments in the Environmental Policy are properly put into practice conduct environmental awareness workshops as a part of program.

9. An environmental policy document has to be prepared with all the recommendations of Auditors.
10. Install a water meter to record water usage in the college premises.

17. Conclusion

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics. The College authority, IQAC and Eco-club of Sarupathar College promotes conservation of natural resources. The college makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggest some more ways in which the college can work to improve its practices and develop into a more sustainable institution.

Annexure I: Certificates on Bacteriological, chemical and physical parameters of Drinking water

GOVT. OF ASSAM

SUB-DIVISION LEVEL LABORATORY

PUBLIC HEALTH ENGINEERING DEPARTMENT

Sarupathar Sub-Dividion, Sarupathar - 785601, Dist. Golaghat (Assam)
Near Sarupathar Town Water Supply Scheme. E-mail : sdllphed@gmail.com

Laboratory Code : AS/GOL/S.PAT/SDL

Date 12/11

WATER SAMPLE TESTING REPORT

Test Report No. SDLL/SPR/PHE/2024/PVT-51 Issue Date 12/11/2024

Issued to Sarupathar College Date

Customer Reference No. PVT-51 Sample Description Sarupathar Town, ward no. 10

Sample Type OTW, Treated water Sample Collected on Date 07/11/2024

Sample Collected by Dr. Prapti Thakur Sample Received on Dated 07/11/2024

Sample Location Sarupathar college, Sarupthar Sample Quantity 1000ml

Date of Analysis Started 07/11/2024 Date of analysis Completed 11/11/2024

Type of Analysis : Physical : ✓ Chemical : ✓ Bacteriological : ✓ Temperature 25.2 °C

Sl. No.	Parameter	Protocol used	Method	IS 10500 : 2012 (second revision)			Unit
				Desirable Limit	Max PermissibleLimit (in absence of better alternate source)	Result	
1.	Colour	IS 3025 (Part 4)	Visual Method	5	15	5	Hazen
2.	Odour	IS 3025 (Part 5)		Agreeable	No relaxation	Agreeable	-
3.	Taste	IS 3025 (Part 8)		Agreeable	No relaxation	Agreeable	-
4.	pH	IS 3025 (Part 11)	Electrometric	6.5-8.5	No relaxation	7.84	-
5.	Turbidity	IS 3025 (Part 10)	Nephelometric	01	5	0.00	NTU
6.	Free Residual Clorin	APHA 4500-Cl B	Iodometric	0.2	No relaxation	0.00	Ppm
7.	Nitrate-Nitrogen	IS 3025 Part 34	Chromotropic Acid	45	No relaxation	0.00	Ppm
8.	TDS	IS 3025 Part 16	Gravimetric	500	2000	208	Ppm
9.	Chloride	IS 3025 Part 32	Argenometric	250	1000	19.852	Ppm
10.	Total Alkalinity	IS 3025 Part 23	Indicator	200	600	44	Ppm
11.	Sulphate	IS 3025 Part 24	Turbidity	200	400	—	Ppm
12.	Total Hardness	IS 3025 Part 21	Titrimetric	200	600	70	Ppm
13.	Calcium	IS 3025 Part 40	EDTA Method	75	200	—	Ppm
14.	Magnesium	APHA 3500-MgB	Calculation Method	30	100	—	Ppm
15.	Total Iron	APHA 3500- FeB	Phenanthroline	.3	1	0.00	Ppm
16.	Total Arsenic	IS 2088	SDDC Method	0.01	No relaxation	0.00	Ppm
17.	Fluoride	APHA 4500-F D	SAPDNS Method	1.0	1.5	0.29	Ppm
18.	Microbiological Analysis	H2s Strip Method	H2s Vial	Negative	No relaxation	-ve	

Remarks :

Note :
1. The results given above are related to the sample as received and tested in this laboratory. Reliability of sample lies with the sender.
2. For confirmatory Microbiological Test, Fresh sampling may require after observing the proper sampling procedure.
3. The sample meant for chemical / Biological analysis must reach to Laboratory within the 6 hours.
4. The Test Samples meant for chemical analysis will be disposed of after 3 days from the date of Iasue of test report unless until specifically requested by the customer for retaining over a loger period.

Assistant Chemist
SDLL, PHE, Sarupathar
ASST. CHEMIST
SUB-DIVISION LEVEL
LABORATORY, SARUPATHAR

END OF TEST REPORT

Sd/-
I/c
SDLL, PHE, Sarupathar
In-Charge
SUB-DIVISION LEVEL
LABORATORY, SARUPATHAR
PHE SUB-DIVISION

Annexure II: Latest Energy consumption bill

...ution Company Limited
...TRICAL SUB-DIVISION/IRCA: IRCA Jorhat
CIN: U40109AS2003SGC007242
GSTIN: 18AABCL1354J1ZJ
ELECTRICITY BILL

ITUWTSA NEW DELHI 2024

website : www.apdcl.org — Centralized Customer Care Number : 1912

Consumer Name: Sarupathar Colege	Consumer Number: 175000001625	Bill Amount: 59257.00
Address: SARUPATHAR JORHAT	Old Consumer Number: 64000003404	Due Date: 26-Oct-2024
	DTR Number: M123N000	Bill Number: 900063038
	Polo Number: 000	Bill Period: 01-Sept-2024 To 30-Sept-2024
PAN No:	Connected Load in KW: 45.00	Bill Date: 11-Oct-2024
Contact Number : 9101716805	Contracted Demand in KVA: 53.00	Number of Days: 30.00
Email: sprcollege@yahoo.co.in	Load Security: 141586.00	Meter Status: Running
Tariff Category: HT IV BULK SUPPLY (OTHERS)	Meter Number: 8784837	Billing Status: NORMAL
	Supply Voltage Level: Supply Voltage Level 11 KV	

Meter Reading Details

Reading Type	Meter Number	MF	Previous Reading in KWh	Previous Export in KWh	Current Reading in KWh	Current Export in KWh	Difference Reading in KWh	Difference Export in KWh
KWH(Normal)S	8784837	20.000	88.920	0	331.190	0	242.270	0

Unit Consumed	PF Penalty/Rebate	LT Metering Penalty	DTR Penalty	HT Rebate	Voltage Rebate	Voltage Penalty	Billable Units in KWh
Normal(S) I 4845.400	-149.720	145.360	0	0	0	0	4841.040

Recorded Demand (in KVA)	1.10	Maximum Demand (in KVA)	22.00	Billing Demand (in KVA)	53.00	Average Power Factor	100.00
Power on Hours	673.00	Freeze Amount	0	Oxygen Plant Rebate	0	Availability Percentage	1.39

Unit Adjustment

Non-TOD	TOD-NORMAL	TOD-PEAK	TOD-NIGHT	Solar Unit Adjusted	Remaining Excess Unit
0	0	0	0	0	0

Billing Details

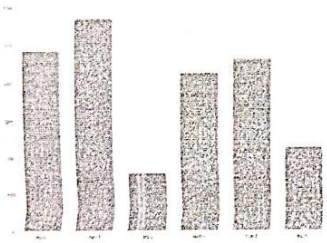
Current Demand	Outstanding Amount	Adjustment Amount	Solar Rebate	Net Bill Amount
59256.64	0	0	0	59257.00

Load Security Interest/Refund of Rs.0.00 has been credited.

In Words: Rupees Fifty Nine Thousands Two Hundred Fifty Seven Only

PLEASE PAY YOUR BILL ON TIME AND HELP US TO SERVE YOU BETTER

Energy Consumption (Last 6 Month's Bill)



Consumption & payment history of last 6 electricity bills
(Bill#1 being the latest bill prior to this current bill)

	Bill#1	Bill#2	Bill#3	Bill#4	Bill#5	Bill#6
Unit Consumed	5689.28	1596.56	4276.15	4645.81	2313.31	2448.40
Bill Amount (in Rs.)	68004.00	28453.00	53411.00	57416.00	34185.00	35893.00
Payment (in Rs.)	68004.00	28453.00	53411.00	57416.00	34185.00	35893.00

Charges Breakup

Details	Units	Rate	Amount
Energy Charge(Normal)S	4841.040	9.39	45457.370
Total Energy Charge			45457.370
Energy Charge ReEstimated			0
Demand/Fixed Charge (KVA)	53.000	210.00	10977.530
FPPPA Charge		0	0
Rooftop Solar Adjustment	0	5.33	0
Electricity Duty		5.00 %	2821.740
Government Subsidy		0	0
Overdrawal Penalty			0
Meter Rent		0	0
Charges for dishonoured cheque			0
Arrear Principal			0
Arrear Surcharge			0
Current Surcharge			0
Adjustment Amount			0
Rebate if paid before due date			0
Payable amount before due date			59257.000
Payable amount after due date			59257.000

Checked by: Prepared by: 40010510 Signature with seal

MD: Maximum Demand
KWh: Kilo Watt Hour
LT: Low Tension
HT: High Tension

MF: Multiplying factor of the meter
Transformer M D Charge : Transformer Maintenance & Depreciation Charge
FPPPA Charge: Fuel & Power Purchase Price Adjustment Charge

PRINCIPAL
SARUPATHAR COLLEGE
Sarupathar, Golaghat, Assam

E&OE Page 1 of 1

Annexure III: Photographs showing glimpses of activities done by the College


SUDHIR
CPCB IV+
সুৰক্ষিত খোৱাপানী
PURE DRINKING WATE
Aquaguard
NRL
10KG

ENERGY AUDIT REPORT: 2023-24

SARUPATHAR COLLEGE, GOLAGHAT (ASSAM)

PREPARED BY:

IQAC, SARUPATHAR COLLEGE IN COLLABORATION WITH
OFFICE OF THE CO-DISTRICT ENGINEER
SARUPATHAR ELECTRICAL SUB-DIVISION,
SARUPATHAR, ASSAM-785601

ENERGY AUDIT CERTIFICATE

This is to certify that an "ENERGY AUDIT" for SARUPATHAR COLLEGE, PO: SARUPATHAR, GOLAGHAT, PIN -785601, ASSAM has been conducted in December, 2024 to assess energy costs, availability and reliability of supply of energy, energy conservation technologies and way to reduce energy consumption.

Energy Auditors **Signature & Seal**

1. Dr. Jayanta Barukial, Principal, DR College, Golaghat: .....

Principal
Debraj Roy College (Autonomous)
Golaghat, Assam

2. Mr. Raju Boraik, SDO, APDCL, Sarupathar Co-District:.....

Sub-Divisional Engineer
Sarupathar Electrical Sub-Division
APDCL Sarupathar

ENERGY AUDITING TEAM

SARUPATHAR COLLEGE

SL No	Name	Designation	Committee Role
1	Dr. Jayanta Barukial	Principal, DR College, Golaghat	Auditor
2	Mr. Raju Boraik	SDO, APDCL, Sarupathar Co-District	Auditor
3	Dr. Prapti Thakur	Principal Sarupathar College	Chairperson, IQAC
4	Dr. Ridip Khanikar	Assistant Professor	Co- Ordinator, IQAC
5	Mr. Bipul Das	Assistant Professor	Member
6	Mr. Ashim Gogoi	Electrician	Member

ACKNOWLEDGEMENT:

We are sincerely thankful to the Sarupathar College authority for giving us the opportunity to conduct energy audit in Sarupathar College campus. We express our sincere gratitude to all other concerned officials for their support and guidance during the conduct of this exercise.

Auditors

Dr. Jayanta Barukial, Auditor

Mr. Raju Boraik, Auditor

Sub-Divisional Engineer
Sarupathar Electrical Sub-Division
APDCL Sarupathar

Principal
Debraj Roy College (Autonomous)
Golaghat, Assam

CONTENTS

1. INTRODUCTION:

Energy is a basic requirement for economic development in almost all major sectors of Indian economy i.e., agriculture, industry, transport, commercial, residential (domestic) and educational institutions. Consequently, consumption of energy in different forms has been steadily rising all over the country, which has maintained a steady growth pattern in the past and the trend is likely to continue in future as well. This has increased the dependence of the state on fossil fuels and electricity. The Government of India enacted the Energy Conservation Act, in October 2001. The Energy Conservation Act, 2001 became effective from 1st March, 2002. The Act provides for institutionalizing and strengthening delivery mechanism for energy efficiency programs in the country and provides a framework for the much-needed coordination between various Government entities.

Sarupathar College, Sarupathar an educational institute in Golaghat district of Assam taking voluntary objective of reducing energy intensity in the College Campus for conducting Energy Audit. To conduct the energy audit, the audit team visited the campus on 25th of July, 2024 to collect data and to take some measurement for assessment of different energy consuming components.

2. Methodology for the Energy Audit:

The methodology for energy audit consists of preliminary audit, pre- audit and post audit stages.

i. Building a team for Energy Conservation Committee (ECC):

During preliminary audit and energy conservation committee is formed with Principal as the team leader. The idea of energy audit is a collective effort. It is essential that an energy conservation team is formed to carry forward the objective of energy audit.

ii. Walk in Audit:

After formation of ECC members along with energy auditor goes round the entire campus to take stock of various electrical power consuming devices including lighting system, fan and various blocks in the college campus.

iii. Assessment of actual operating load and scope for optimizing:

Review of existing electrical load in the campus.

Review of electrical load based on actual requirement

iv. Study of individual units and means to conserve electrical power:

Study of existing use of power

Review of unit wise electrical load based on requirement

Recommendation for saving electricity

v. Energy conservation in Air-conditioning and water pumping system:

Observation in use of power and water

Methods to save power and water

vi. Diesel Generator (DG) SET:

Existing standard of operation

Performance of DG set in terms of specific fuel consumption

vii. Data Collection:

Data collection was done in the sectors such as sources of energy and energy consumption pattern. College records and documents were verified to clarify the data received through survey and discussions.

viii. Site Tour

Site inspection was done along with staff. Questionaries were answered during the site tour.

ix. Review of Documents and Records

Documents such as electricity bills, fuel consumptions were collected and reviewed.

1. Energy Consumption Areas in Sarupathar College:

i. Two hostels,
ii. Two Administrative Bock
iii. Teachers' Cabin
iv. Academic Classrooms

v. Two Conference Halls
vi. Computer Lab
vii. Sankardeva Bhawan,
viii. KKHOU Centre,
ix. Library,
x. Auditorium,
xi. Canteen and
xii. Guest house.

2. Energy Scenario of Sarupathar College:

The total energy consumption and electricity bill paid during the financial year 2023-2024 has shown below.

Table: I

SL. NO	Data on power supply	Value
1	Connected Load (APDCL)	45KW
1.1	Contracted Demand	53kva
2	Installed capacity of DG set	1. 25Kva (1No) Make: Kirloskar Oil Engine Limited, Engine SL No.:47.3027/1101665 2. 10Kva (1 No) Make: Kirloskar Electric Engine No:04.2009/0500671 3. 58.5 Kva (1 No) Sudhir Power Limited Model: SPL-58.5 Sr.No.: 2408.BO902M
3	Annual electricity consumption (June 2023 to May 2024)	36858.41 kwh
4	Annual cost of electricity consumption.	Rs. 4,97,183.00
5	Annual cost of electricity consumption through DG set	Rs. 1,58,563.00
6	Total cost of electricity (utility + DG sets)	Rs. 6,55,746.00
7	Total numbers of building covered	14
8	Working hours (Academic and Administration building)	8 Hrs. (9 AM to 5 PM)
9	Working hours (Hostel building)	24 Hrs. x7 days
10	Working Days/ Week	6 Days
11	Whether sub-metering of electricity consumption for each building	No

5. Key Findings and Observations of Energy Usages:

The base of energy audit is that its findings are supported by documents and verifiable information. The audit process seeks, on a sampled basis, to track past actions, activities, events and procedures to ensure that they are carried out according to system requirements and in the correct manner. The essence of any energy audit is to find out how well energy management equipment is performing. Each of the components are crucial in ensuring that the organization's energy performance meets the goals set in its energy policy.

6. Present Energy Scenario:

At present the overall energy consumption is catered by the electricity supply from Assam Power Distribution Company Limited and own DG sets. Total Connected load of Sarupathar college is 45 KW and Contracted Demand is 53KVA. There are fourteen (14) Solar photovoltaic street light (60 watt) and total 3 numbers of DG sets (25kVA, 10kVA, 58.5kva) are used to supply power during load shading hours.

7. Experimental And Data Collection:

All required data is collected by the committee of Sarupathar College. In building, in every room, how much fans, tube light, Soller Street light, computer, instrument AC, etc. are there, is measured. According to survey following data is collected.

Table: II- Total Power Requirement of Various Department:

Department/Room	Ceiling Fan	LED Light	Tube Light	AC	Computer	Printer	Xerox machine	Projector/ Smart Board	CC Camera	Led Halogen Light	Soller Street Light
Principal office room	2		3	2	1	1			1		
Vice -Principal room	2		2						1		
Administrative building 1	5	1	4		4		2		1		
Administrative building 2	4	3	3			1	1		1		
Computer room	4	4			10				1		
Exam cell	2		2						1		
Library	15	14	1		6	1	1		3		
Class room 23 to29	28	16						7	7		
Class room 5 to 12	36	20	13					7	8		
Class room 21,22	18	6	6						4		
Class room 13,14	10	4	4					2	2		
Class room 31 to 39	20	4						4	3		
Digital Conference Cum Class room	8	10	0		1			1	4		
Conference room	8	7	2	2				1	2		
Boys common room	1	1							1		
Departmental Staff room 8 Nos. (Arts)	16	16	2		7	7					

Departmental stuff room (Commerce)	6	4									
IQAC room	4		3	1	3			1	1		
Canteen	5	10									
Boys hostel	9	40									
Girl's hostel	54	100	2						5		
Warden girls' hostel	2	6									
Girls common room	1	1	1								
Digital class room 7 Nos.	28	2	28		1						
Pavilion	5	20									
Auditorium	31	81	13						4		
Teachers' urinal M/F		4									
Canteen boy's hostel	4	5									
Canteen girl's hostel	4	4	2								
Bhupen Hazarika study center	2	2							1		
Guest house	10	7		4					1		
outside class room		17	15						30	10	14
Koshal Konwar Bhawan	18	20							2		
Sankardeva Bhawan	53	31							4		
Satra Bandhu	1	1							1		
Gym Boy's	1	3									
Gym Girls	1	3									
Principal Quarter	7	40		2							

Table: III- Average monthly power consumption in 2023-2024

SL NO.	Month	Consumption in kwh
1	June	3164.960
2	July	1637.900
3	August	5359.770
4	September	5237.280
5	October	4159.480
6	November	2981.920
7	December	1713.640
8	January	1401.760
9	February	1794.180
10	March	2448.400
11	April	2313.310
12	May	4645.810
Total		36858.41 kwh

Table: IV- Monthly Electricity bill paid in 2023-2024

Sl. No.	Month	Bill in Rupees
1	June	40660.00
2	July	26987.00
3	August	61247.00
4	September	63744.00
5	October	52653.00
6	November	40734.00
7	December	29307.00
8	January	25641.00
9	February	28716.00
10	March	35893.00
11	April	34185.00
12	May	57416.00
Total		4,97183.00

8. Water Pumping System:

The campus has total six (6) numbers of water pumps in working condition. Detail specification along with installed location are given below-

SL No.	Location	Capacity	Quantity	Type	Make/Model
1	Boys Hostel	1 hp	1	surface	LUBI SL No. 2002404
2	Girls Hostel	1hp	1	submersible	CROMPTON Model: 3W12AK1A THP
3	Garden	1hp	1	surface	POLYCAB MODEL: GALAXY
4	Wash room	1hp	1	surface	SILVER MODEL: SKY100X
5	Central	1hp	1	submersible	KSB
6	Principal Quarter	1hp	1	surface	CROMPTION MODEL: MINI CHAMP PLUS II

9. Recommendations for better Energy Efficiency:

Based on the analysis of the power consumption data, certain steps have been recommended for improving energy efficiency of this campus. Also, a number of general measures for energy efficiency have been listed.

a. Low Cost in Housekeeping:

- The windows should be cleaned so that ample sunlight can enter classes and the usage of daylight can be maximised.
- The ceiling fans should be cleaned.
- The switches of Ceiling fans and lights in the classrooms should be properly grouped so as to switch off the unwanted lights instead of operating all the tube lights and ceiling fans.
- Energy awareness camps to be conducted twice in a year in the campus to impart energy conservation knowledge to the students.

b. Training & Awareness:

Maintenance & operating staff should be trained / informed about the energy management issues & procedures. To implement an effective preventive maintenance program, the operational staff must be given comprehensive training on each type of equipment, regarding system fundamentals, use of reference material & manuals, maintenance procedures, service guidelines & warranty information. Proper maintenance schedules could be supplied to them for different equipment.

c. Other Savings:

New computers available in the market offer built in power saving modes. These monitors are called as Energy Star compliant monitors. However, it was found that most of the users are not aware of this facility. Therefore, steps should be taken to inform every one of this & any such future options. Switches for computers should be made more accessible, so that employee can turn off their terminals when not in use.

d. Medium Investment / Short term replacements:

Use of master switch outside each Room: Installation of master switch outside a room can make it easy for a person to switch off all the appliances of a room in case if someone forgets to switch off while leaving the room. This can help improving energy efficiency.

e. High Investment / Long term replacements:

Replacement of Overhead Electrical power supply line to Underground line. As the overhead line is passing through the areas where tree touching is common issue. Due to frequent faults in the overhead line, there are frequent power outages due to which the Diesel Generator is started frequently to maintain power supply in the campus. After changing the overhead line with underground cable, the reliability of power supply is maintained and the diesel engine usage can be minimised thereby improving the overall energy efficiency and saving of additional fuel cost.

10. Photographs:

(i) Solar Street Light:

(ii) Assam Power Distribution Limited (APDCL):

(iii) DG SET

(iv) New DG Set:

(v) Solar Energy: