GOUR MOHAN SACHIN MONDAL
MAHAVIDYALAYA

GREEN, ENERGY & ENVIRONMENT AUDIT REPORT (FY 2021-22)

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1 ACKNOWLEDGEMENT

TECHNO CONSULTANT team thanks the management of Gour Mohan Sachin Mandal Mahavidyalaya for assigning the project of Green, Environment & Energy Audit. We appreciate the co-operation extended to us for completion of the project. Our special thanks are extended to:

Principal- Dr. Abdullah Jamader Hasan
IQAC Co-Ordinator– Ms. Ranjini Guha

Also, our sincere thanks to teaching & non-teaching Staff of College for giving us necessary inputs to carry out this very vital project of Green Audit. We are also thankful to other staff members who were actively involved while collecting the data and conducting field assessments.

2 DISCLAIMER

TECHNO CONSULTANT Green Audit Team has prepared this report for Gour Mohan Sachin Mandal Mahavidyalaya based on input data submitted by the representatives of college complemented with the best judgment capacity of the audit team. It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report. If you wish to distribute copies of this report external to your Institute, then all pages must be included. TECHNO CONSULTANT, its staff and auditors shall keep this report confidential and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. TECHNO CONSULTANT also confirms that during this audit, no environmental monitoring was done with the help of instruments.

The entire report is compiled by Mr. Dev Deepta Nandy, Lead Auditor- ISO 14001:2015 (Environment Management System) IRCA Certificate No. 11606 dated 13th November 2006 & Team Member.
On Site audit was conducted on 23rd & 24th March 2022.

3 ABOUT GOUR MOHAN SACHIN MANDAL MAHAVIDYALAYA MAHAVIDYALAYA

Gour Mohan Sachin Mandal Mahavidyalaya was founded by Dr. Satyendranath Naskar, M.A.(Double), B.T., Ph.D., a torch-bearer in the field of education of the backward community, a renowned educationist, a social reformer and formerly Principal of this College (1968-1994). In the year 1968 Late Sachindranath Mandal, son of Late Gourmohan Mandal of the village Bireswarpur donated land and a substantial sum of money towards the establishment of this college in this remote rural area. Numerous other benevolent persons including Late Kazem Ali Molla also came forward and contributed labour, land and money for this purpose. But the early and tragic death of Sachindranath Mandal stopped the enthusiasm of the members of his family. But within a short period, his mother, widow, daughters, brothers, and nephews took up the challenge of building this College. The College was then named Gour Mohan Sachin Mandal Mahavidyalaya.

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The University of Calcutta granted affiliation in 1968 for B.A.(Pass) course and B. Com (Pass) course in 1978. Honours courses were started in Bengali, Political Science and Education in 1985. In 1995 Honours Course in History was opened. Honours in Accountancy was introduced in 1996 and Philosophy in 1998. Honours in English and Geography were introduced in 2002. The Science Department came into existence in 2000. The expansion of the science course in Zoology and Botany received University approval in 2006. Today there are courses like BA(Hons) in English, Bengali, History, Philosophy, Political Science, Education and Geography, Sanskrit, B. Com (Hons) in Accountancy and Finance, B.Sc. (Hons) in Mathematics and B.Sc. (General) in Physics, Chemistry, Mathematics, Botany, Zoology, Computer Science. Environmental Science, and Food and Nutrition. The College has introduced Music, Journalism & Mass Communication, Physical Education as general subjects from the academic session of 2012-13. The C.U. has granted fresh extension of Affiliation in Economics from this session 2013-14. The college runs a Study Centre of Netaji Subhas Open University and conducts vocational and career training courses in Amin Survey and Tailoring.

The College is at a stone's throw from Madhabpur Station on the Sealdah- Lakshmikantapur Railway Line. The environment of the surroundings is simply charming. The Calcutta – Kulpi Road runs past the College. The college is situated at about 40 bighas of completely elevated lands of its own. The Bireswarpur Post Office is located just adjacent to the hostel buildings.

3.1 Aims and Objects:

The college endeavours to educate the young boys & girls according to the best traditions of the country, while instructing them in modern arts, science and commerce.

3.2 Vision

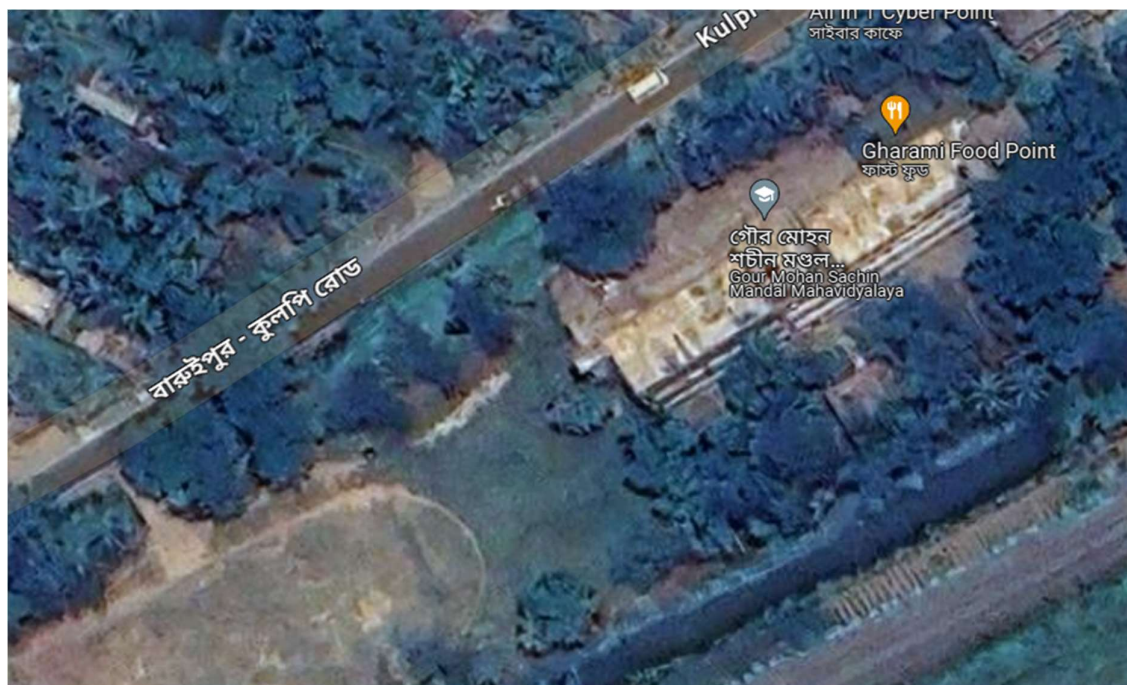According to David Taylor the four stages of success are:

a) know where you want to go

b) know where you are now

c) know what you have to do to get where you want to go

d) do it.

Gour Mohan Sachin Mandal Mahavidyalaya perceives education and the process of educating as a total integral contextual process which includes students, teachers, parents' administration and the environment.

The college therefore strives to impart quality and equitable education to many at affordable costs. Serving the cause of social justice, ensuring equity and increased access to arenas of higher education in the wider global scenario are the primary endeavours of the college. The college seeks to provide holistic education to diverse strata of students cutting across boundaries of caste, creed, religion and gender. The college believes innately that pleasure in the job puts perfection in the work. The college seeks to inculcate among the students the road to success.

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3.3 Mission

- To enrich the mind of the learner and to enable them to think analytically and to understand what is happening around them.
- To enable the learners to do productive work and access gainful employment including self-employment particularly contextual in the area's socio-economic reality of poverty and employment.
- To inspire the students to become national and global citizens through activites of NCC and NSS.
- To bolster community development through vocational courses and distance education programmes.
- To create an environment for inclusive growth through participation of all the stakeholders in the advancement of the college.

Map View of Gour Mohan Sachin Mandal Mahavidyalaya

3.4 The student and faculty strength of the college

Number	Gents	Ladies	Total
No of students	1181	1483	2664
No of teachers	49	27	76
No of Non-teaching staffs	23	5	28

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3.5 Physical Structure

Departments' Room	8
Classrooms	30
Girl's common room	1
Gymnasium	1
Staff Room	1
Principal Room	1
Smart Class Room	3
Boys Toilets	5
Ladies Toilets	4
Male Staff Toilet	4
Female Staff Toilet	3
Laboratories	8
Conference Hall/Seminar Hall	1
Meeting room	1
IQAC Room	1
Office Room	1
Guest Room	2
Library Reading Room	1
Library Stock Room	1
Union room	1
NSS Office	1
Canteen	1
NCC Room	1
Store Room	1
Generator Room	1

3.6 List of Departments

- Bengali
- English
- Education
- History
- Philosophy
- Political Science
- Sanskrit
- Sociology
- Journalism & Mass Communication
- Physical Education
- Music
- Physics
- Mathematics
- Chemistry
- Botany
- Zoology
- Food & Nutrition

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- ℵ Geography
- ℵ Economics
- ℵ Environmental Science
- ℵ Computer Science
- ℵ Commerce

3.7 Course Offered

Subjects offered by the Faculty of Arts:

- ℵ Advanced (Honours) Courses in Bengali, English, History, Political Science, Sanskrit and Education.
- ℵ General Degree Courses in Bengali, English, Geography, History, Journalism, Music, Political Science, Sanskrit, Philosophy, Physical Education, Sociology and Education.

Subjects offered by the Faculty of Science:

- ℵ Advanced (Honours) Courses in Mathematics, Geography, Chemistry, Botany, Zoology, Physics.
- ℵ General Degree Courses in Mathematics, Botany, Physics, Chemistry, Environmental Science, Zoology, Computer Science and Food & Nutrition.

Subjects offered by the Faculty of Commerce:

- ℵ Advanced (Honours) Courses in Accountancy.
- ℵ General Degree Courses in Economics & Accountancy.

4 SCOPE OF AUDIT

- ℵ To identify opportunities to sustainable development practices
- ℵ Assessment of environmental aspects within the facility
- ℵ Material management, savings and alternatives,
- ℵ Energy management and savings,
- ℵ Water management and economy of use,
- ℵ Waste generation, management, and disposal,
- ℵ Noise reduction, evaluation, and control,
- ℵ Air emissions and indoor air quality,
- ℵ Environmental emergency prevention and preparedness.

5 NAME OF AUDITEE

Sl. No.	Name of Auditee	Position/Department
1	Dr. Abdullah Jamadar Hasan	TIC
2	Ms. Piyali das	NAAC Co-ordinator
3	Ms. Ranjini Guha	IQAC Co-ordinator
4	Ms. Anupama Maitra	Associate Professor

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6 GREEN AUDIT & ITS OBJECTIVES

The green audits are tools that organizations use to identify their environmental impacts and assess their compliance with applicable laws and regulations, as well as with the expectations of their various stakeholders. It also serves as a means to identify opportunities to save money, enhance work quality, improves employee health, safety and morale, reduce liabilities and achieve other form of business values.

Green audit is a way to show that what type of carbon footprint are leaving on the planet by the organization, while also giving them ways to reduce it. Green audit involves the inspection of a organization to assess the total environmental impact of its activities, or of a particular product or a process. The main objectives of carrying out Green Audit are:

- To ensure development along with safeguarding the environment.
- To reduce energy consumption to foster environment.
- To ensure compliance with present legislations of the State and other legal requirements.
- To physically ensure installation of devices that reduce pollution and authentication of such devices by competent authority.
- To ensure optimum utilization of resources.
- To see whether provisions are made for liabilities arising out of unintentional pollution related damages and their compliance in cases so arose.
- To ensure that sufficient precaution has been taken by the organization to protect the employees of the organization from pollution resulting from it.
- To suggest improvement in the system to promote safe and clean environment.

Gour Mohan Sachin Mandal Mahavidyalaya has already done internal green assessment and annual reports published for continual improvements. This audit report contains observations and recommendations for improvement of environmental consciousness.

7 METHODOLOGY

To perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following areas to summarise the present status of environment management in the campus:

- Water Management
- Waste Management (solid, liquid & e-waste)
- Energy Management
- Management on Carbon Foot-print
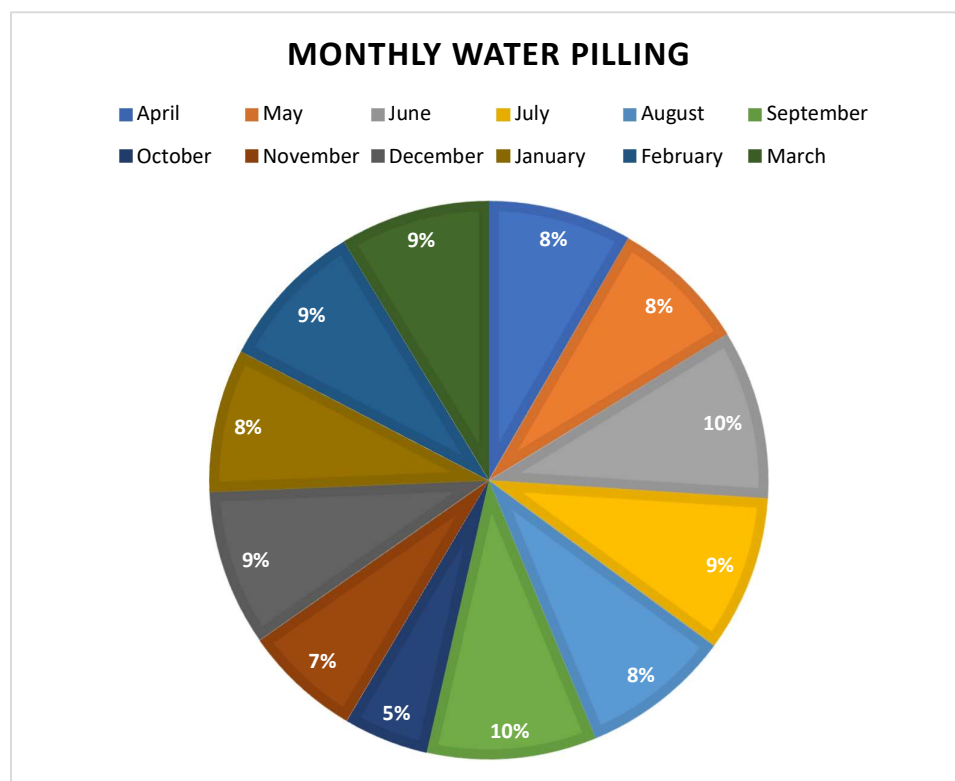- Ambient Air & Noise Monitoring
- Green area management

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8 OBSERVATIONS & RECOMMENDATIONS

8.1 Water Conservation

Water sources: 1 no bore well, 4 no of motors are installed & 5 nos Water tank with 1000 ltr. capacity installed on roof for storage of water.

Monthly water pulling at college:

Sl. No	Month	Water Pulling by pump (litre)
1	April	66000
2	May	63000
3	June	78000
4	July	72000
5	August	69000
6	September	78000
7	October	39000
8	November	54000
9	December	72000
10	January	66000
11	February	69000
12	March	69000
Total		**795000**

MONTHLY WATER PILLING

Legend: April, May, June, July, August, September, October, November, December, January, February, March

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Water Management Practices Adopted by the College:

- College adopted Rain Water Harvesting System to avoid wastage of rain water.
- College build Ground Water recharge. Rain water & Water overflowed by tank excreted into the pit by pipe.
- Aquagaurds installed by the institute for drinking purpose of students & staffs.
- College spread awareness "Save water" through poster at different places of college.
- College does not use ground water for gardening. Water taken from pond, inside the college.

Precautionary Measures

College should consider following precautionary measures for improving water management system.

- Appoint One or Two dedicated staff/peons in the concerned section should take responsibility of monitoring the overflow of water tanks.
- Spread awareness on "Save water" through poster at different places of college.
- "Please Tap Off" poster should be places at every Tap point.
- Plumbing system should be checked monthly to reduce leakages and wastages of water.
- Encourage Water Conservation among students and Staffs through camp or activity.

Recommendations

- Minimize wastage of water and use of electricity during water filtration process,
- Ensure that equipment is used for water purifier are serviced quarterly.
- Gardens may be watered by the water of Rain harvesting tank to save the pond water.
- May introduce Larvivorous (Guppy) fish at water bodies to control vectors.
- Half Yearly 1 camp/Program should be done to spread awareness for water conservation.
- Drinking water should tested from recognized laboratory.

8.2 Waste Management (Waste Generation and Disposal)

Waste management is an important part of Environment. It plays vital role for an eco-friendly & healthy campus. Regular basis waste collection makes the institute's environment clean and safe. In an institute, different types of wastes are generated, Like- Paper Waste, Food Waste, Wood Waste, Plastic Waste, E-Waste, Bio Medical Waste, Chemical Waste which collection and management are very difficult.

Sagar Mahavidyalaya allied with "Vital Waste", a recycling & waste management company to collect institutional waste & recycling it.

The following data provide the details of the waste generated and the disposal method adopted by the college.

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Category wise solid waste generation at college (kg/year)

Category of waste	Quantity (Kg)
Paper Waste	Data not available
Plastic Waste	
E Waste	
Metal Waste	
Glass Waste	
Wood Waste	
Kitchen Waste	

Type of waste particulars and disposal method in college:

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Direct selling
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Direct selling
Solid wastes	Damaged furniture, paper waste, paper plates, food wastes	Direct selling
Chemical wastes	Laboratory waste	Draining to local drain
Wastewater	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Direct selling
Canteen Waste	Waste Foods, Peels of vegetables	Vermicomposting

Waste Management Practices Adopted by the College:

- Waste bins are placed inside the college building.
- College is announced as "plastic free zone".
- College adopted vermicomposting system.
- College start "Swach Bharat Abhiyan Campaign" to keep the surroundings clean.

Recommendation

- Recommended to placed bins outside the college building.
- Reduce the absolute amount of waste.
- Advised to check quality of chemical waste from laboratory then treat as per requirement and then drain to local drainage system.
- Adopt hygienic disposal for biomedical waste.
- Contract with an agency for E-waste disposal.
- Spread awareness on waste segregation.
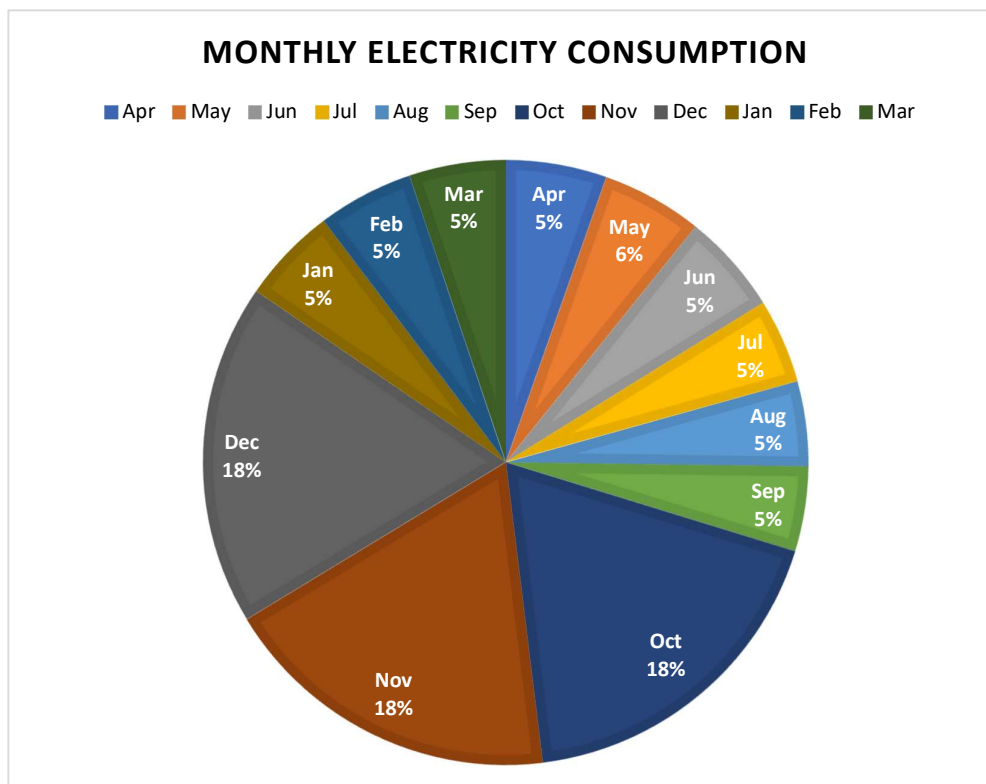- Keep a record of other wastes (like: paper, wood, plastic, food, glass etc.)

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8.3 Energy management

Source of Power

Electricity Power at institute is supplied by WBSEDCL (West Bengal State Electricity Distribution Company Limited).

Electricity Consumption details

Sl. No	Month	Electric power consumption (Unit)
1	April	732
2	May	732.67
3	June	732.67
4	July	616.33
5	August	616.83
6	September	616.83
7	October	2490.5
8	November	2485.33
9	December	2485.33
10	January	698.8
11	February	698.8
12	March	698.8
Total		**13604.9**

MONTHLY ELECTRICITY CONSUMPTION

Legend: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar

- Apr 5%
- May 6%
- Jun 5%
- Jul 5%
- Aug 5%
- Sep 5%
- Oct 18%
- Nov 18%
- Dec 18%
- Jan 5%
- Feb 5%
- Mar 5%

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Fossil Fuel Power

Details of major Fuel consuming Machines in college campus

Sr. no	Equipment	Number/year	Consumption/year
1	LPG for Lab	11	156.2 kg
2	LPG for canteen	38	539.6 kg
3	DG set	1	240 Liters

Energy Management Practices Adopted by the College:

- College installed Solar Panel at rooftop to reduce the consumption of electricity.
- College installed Green Generator.

Recommendation

- Appoint One or Two dedicated staff/peons in the concerned section should take responsibility of monitoring where electrical things are unnecessarily on.
- Gradually Replace of all the no-LED lights to LED lights.
- Energy saving awareness spread among the students & staffs by displaying boards at appropriate place.
- Replacement of existing electric fans with BLDC fans can significantly reduce power consumption.
- To use Common or public Vehicle instead of individual vehicle to conserve fossil fuel.

8.4 Analysis of carbon footprint

A carbon footprint is the total greenhouse gas (GHG) emissions caused by an individual, event, organization, service, place or product, expressed as carbon dioxide equivalent. It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs).
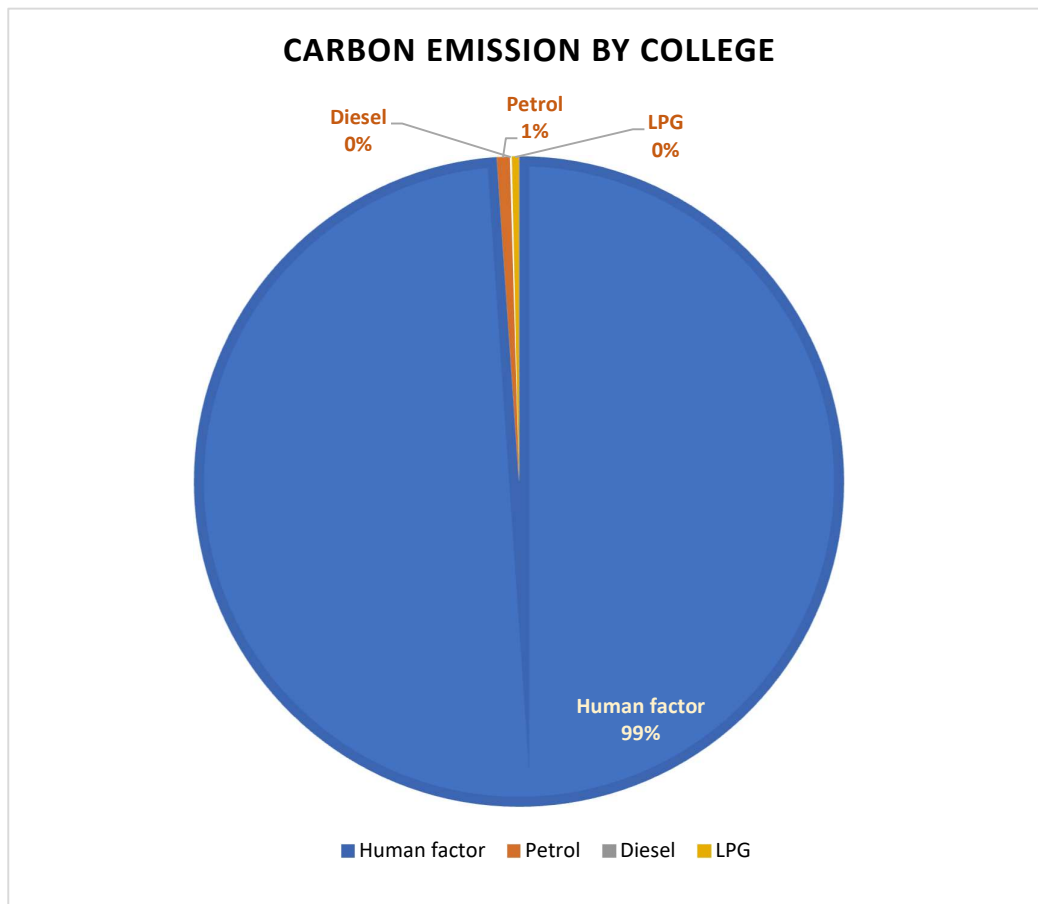
Release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon footprint. An understanding about the same of any institute where large number of anthropogenic activities are happening is important to assess the contribution of emission of gases that are responsible for Green House Effect. Auditing for carbon footprint of this College Campus was done using a detailed questionnaire, so that the impact of the community on global environment can be assessed.

Data required for carbon footprint

- No. of working days= 210
- College working time= 8 hours
- Total number of people per day (approx.) = 2730
- No. of two wheelers used= 13

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- No. of LPG cylinders used in Labs= 1
- No. of LPG cylinders used in canteen= 4

Emission factor	Emission CO_2	Annual emission CO_2 (kg)
Human factor	1.043 kg/day	597951.9
Petrol	2.3 kg / ltr.	3139.5
LPG	2.98 kg/ltr.	211.58
Diesel	2.7 kg/ltr.	648
Total	-	601950.98

CARBON EMISSION BY COLLEGE

Diesel 0%
Petrol 1%
LPG 0%
Human factor 99%

Legend: ■ Human factor ■ Petrol ■ Diesel ■ LPG

8.5 Ambient Air Management & Noise Monitoring

- No ambient air monitoring done by college. It is advised to start monitoring the quality of college air.
- Noise level is not monitored by the institute. It is advised to start monitoring the noise level of the institute.

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8.6 Green Area Management

Campus is located in the vicinity of different types of flora, fauna, medicinal plants & seasonal flowering plants. Various tree plantation programs are being organized yearly at college campus and surrounding villages through NSS team. College celebrated "World Environment Day". This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers.

List of Some Trees in college campus:

- Coconut Tree
- Krishnachura
- Jhau Plant
- Debdaru Plant
- Rose Plant
- Patabahari Plant
- Mango plant
- Hibiscus Plant
- Marigold Plant
- Dalia Plant
- Neem Plant
- Morogjhuti Plant
- Bottle Palm Plant
- Dopati Plant
- Teak Tree
- Tulsi plant
- Calendula plant
- Aswagandha plant
- Giloy plant
- Jasthimadhu plant
- Guava Plant
- Various Seasonal Flowering Plant
- Various vegetables plant

Green Management Practices Adopted by the College:

- College has 60% area reserved for plantation.
- College arranged camp twice or thrice in every year through NSS team.
- College Students celebrate "World Environmental Day" & plant trees on this day at inside and outside of the college.
- College starts social forestry.
- College segregates a place for medicinal plants.
- College established an "Environ Club" to organize environment related program.
- College starts organic farming.
- College organized campaign on environment to spread social awareness.

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Recommendations

- ℵ Use of recycled water shall be promoted in place of fresh water from pond.
- ℵ Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records.
- ℵ Keep continuing the programs on environment awareness.
- ℵ Constitute of a College Environmental Committee that will hold responsibility for the enactment, enforcement, and review of the Environmental Policy.
- ℵ College should conduct annual internal audit to review & action is taken on the basis of recommendation mentioned in audit report.
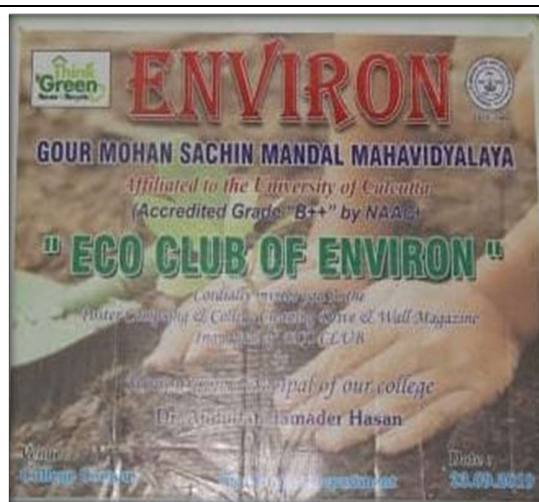- ℵ Green library may be established.

9 EMERGENCY PREPAREDENESS

- ℵ There was no emergency preparedness procedure, neither any emergency numbers displayed at prominent locations.
- ℵ College can start doing mock drills with expert organizations to overcome possible environmental disaster in future.
- ℵ Emergency numbers, like nearest police station, nearest hospital, ambulance, nearest fire brigade can be displayed at various strategic locations in the institute.

10 SOME PHOTOGRAPHS

Program on Environment Awareness
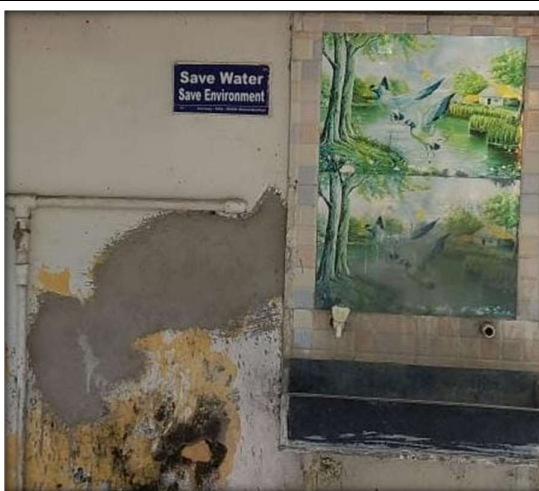

Environ Club Established by College

Water Body Maintained by College

Dustbin Placed to Collect Garbage

Campaign on Water Pollution Awareness

Good Practice to Save Water

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Medicinal Garden

College Garden

Farming Area of College

Green Area of college

11 CONCLUSIONS

This audit involved extensive consultation with all the teams, interactions with key personnel. Overall 60% of the campus is for landscaping. The audit has identified a few observations & some recommendations for making the campus premise more environment friendly. Few things that are important to initiate for better improvement. Overall, the College Campus is well-maintained from the environmental perspective. Report compiled & prepared by Mr. Devdeepta Nandy.

12 REFERENCES:

- ❖ The Environment [Protection] Act – 1986 (Amended 1991) & Rules-1986 (Amended 2010)
- ❖ ISO 14001:2015 standard.

****END OF REPORT****

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