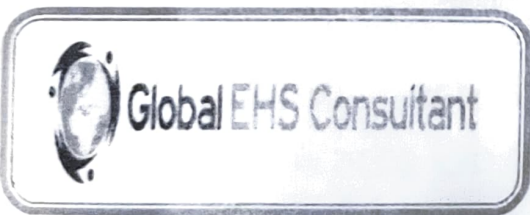
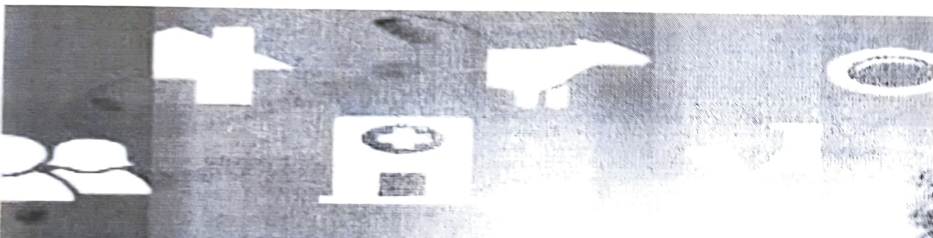


GREEN AUDIT REPORT

MURALIDHAR GIRLS' COLLEGE

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As part of NAAC Assessment Compliance



Global EHS Consultant

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Final Green Audit Report

Attested
K. Banerjee
Principal
Muralidhar Girls' College

16-12-2022

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Attested


Principal

Muralidhar Girls' College



Global EHS Consultant

CERTIFICATE

PRESENTED TO

Muralidhar Girls' College

Affiliated to Calcutta University

P-411/14 Gariahat Road Ballygunge Kolkata-700029

Has been assessed FY 2021-22 by Global EHS Consultant Pvt.Ltd for the comprehensive study of environmental impacts on institutional working framework to fulfill the requirement of

GREEN AUDIT

The green initiatives carried out by the institution have been verified on the report

Submitted and was found to be satisfactory.

The efforts taken by the management and the faculty towards environment and sustainability are appreciated and noteworthy.

Date: 16th Dec 2022

Global EHS consultant, Kolkata, West Bengal, India

Attested

K. Brin
Principal

Muralidhar Girls' College

ACKNOWLEDGEMENT

We would like to express a deep sense of gratitude to the authorities of Muralidhar Girls' College, P-411/14, Gariahat Road, Ballygunge, Kolkata-700029 for giving us opportunity to carry out the Green Audit of the college campus. We also acknowledge with much appreciation the crucial role of faculty members and Principal of this college during the preparation of audit report.

The green audit aims to analyze environmental practices within Muralidhar Girls' College, West Bengal campus which will have an impact on the eco-friendly atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of college environment. It was initiated with the motive of inspecting the effort within the institutions whose exercises can cause threat to the health of inhabitants and the environment. Through the green audit, a direction is provided as how to improve the structure of environment and there are several factors that have determined the growth of the green audit.

Muralidhar Girls' College, P-411/14, Gariahat Road, Ballygunge, Kolkata-700029 has assigned Global EHS Consultant, Kolkata to conduct green audit as per the Criteria 7 of NAAC. Global EHS Consultant (GEHSC), Kolkata is the foremost provider of country-specific and industry-academic specific EHS (environment, health, and safety) regulatory analysis. GEHSC, Kolkata is a research and advisory firm with country experts and partners over outside India. GEHSC, Kolkata has delivered critical business and regulatory intelligence to corporate managers and decision-makers around India.

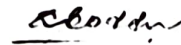
Dr. Susanta Podder (Grad IOSH, PhD, M. Tech, Lead Auditor of ISO 14001, ISO 45001, and ISO 9001) Chief advisor of Global EHS Consultant, Kolkata and Adjunct Associate Professor, Lincoln University, Malaysia along with Ms. Lopamudra Das (Associate Environmental Auditor) visited Muralidhar Girls' College campus on **16.12.2022** and carried out the assessment FY – 2021-22.

The aim of the Green Audit is to survey the existing environmental practices and to assess the significance of the features found to facilitate the development of Environment Action Plan (EAP) with clear, long-term objectives and the program for implementation.

The overall environment of the college campus is being safe guarded with various activities. The utilization of the renewable resources is being observed through rainwater harvesting unit, reuse of wastewater and green coverage across the college campus.

Waste Management is also effectively managed through safe disposal systems of wet and dry waste. Apart from the implementation of the above, the college management has also been very keen on involving students continuously in creating awareness through several activities.

For Global EHS Consultant, Kolkata



(Dr. Susanta Podder)

Grad IOSH, PhD, M. Tech,

Lead Auditor of ISO 14001, ISO 45001, and ISO 9001

Chief advisor of Global EHS Consultant, Kolkata

Attested

Principal
Muralidhar Girls' College

CONCEPT AND CONTEXT

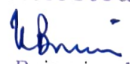
CONCEPT

The National Assessment and Accreditation Council, New Delhi (NAAC) has made mandatory from the academic year 2016 onwards that all Higher Educational Institutions should submit an Annual Green or Environment Report. Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. Moreover, it is part of Corporate Social Responsibility (CSR) of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

In view of the NAAC circular regarding Green auditing, the college management decided to conduct an internal environment assessment study by a competent internal professional auditor. The green audit aims to examine environmental practices within and outside Muralidhar Girls' College campus which impact directly or indirectly on the atmosphere. Green audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of college environment. It was initiated with the intention of reviewing the efforts within the college whose exercises can cause risk to the health of inhabitants and the environment.

Through the green audit, a direction as how to improve the structure of environment and inclusion of several factors that can protect the environment can be commenced.



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Principal
Muralidhar Girls' College

CONTEXT

In India, the process for environmental audit was first mentioned under the Environment Protection Act, 1986 by the Ministry of Environment of Forest and Climate Change (MOEFCC) on 13th March, 1992. As per this act, every person owning an industry or performing an operation or process needs a legal consent and must submit an environmental report or statement.

In view of the NAAC circular regarding environment auditing, the College Management decided to conduct an internal environment assessment study by a competent internal professional auditor headed by Prof.(Dr)Kinjalkini Biswas, Principal of Muralidhar Girls' College. The college first started green audit in the year 2016 and accredited with grade 'B++'.

The term 'Environmental Audit' or 'Green Audit' means differently to different people. Terms like 'assessment', 'survey' and 'review' are also used to describe similar activities. Furthermore, some organizations believe that an 'environmental audit' addresses only environmental matters whereas others use the term to mean an audit of health, safety and environment-related matters. Although there is no universal definition of Green Audit, many leading companies/institutions follow the basic philosophy and approach summarized by the broad definition adopted by the International Chambers of Commerce (ICC) in its publication of Environmental Auditing (1989).

The ICC defines Environmental Auditing as:

"A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects."

The outcome of audit should be established with concrete evidence that the measures undertaken and facilities in the college under green auditing. This audit focuses on the Green Campus, Waste Management, Water Management, Air Pollution, Energy Management & Carbon Footprint etc. being implemented by the college.

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INTRODUCTION

Now days, the educational institutions are becoming more thoughtful towards the environmental aspects and as a result new and innovative concepts are being introduced to make them sustainable and eco-friendly. To preserve the environment within the institution, a number of viewpoints are applied by the several educational institutes to solve their environmental problems such as promotion of saving the energy, waste recycle, water consumption reduction, water harvesting and many more.

The activities carried out by the institution can also create adverse environmental impacts. Green audit is defined as an official inspection of the effects an institution has on the environment. Green Audit is conducted to evaluate the actual scenario at the institution campus. Green audit can be a useful tool for a college to determine how and where they are using the most of the energy or water or resources; the college can then decide how to implement changes and make savings. It can also be used to determine the nature and volume of waste, which can be used for a recycling project or to improve waste minimization plan.

Green auditing and the application of mitigation measures is a win-win situation for all the institutions, the learners and the mother earth. It can also result in health awareness and can promote the environmental awareness, values and beliefs. It provides a better understanding to staff and students about the Green impact on institution. Green auditing also upholds financial savings through reduction of resource usage. It gives an opportunity to the students and teachers for the development of ownership of the personal and social responsibility. The audit process involves primary data collection, site walk with the team of College including the assessment of policies, activities, documents and records.

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Principal
Muralidhar Girls' College

Overview of the College

History

Muralidhar Girls' College began as a girls' school with a small number of students in 1919. The founder was Sri Muralidhar Bandhopadhyay, Principal of Sanskrit College, a well-known scholar and educationist, whose dream was to inspire young women as ideals of national tradition and culture. His dream was fulfilled later on July 8th, 1940 when the school developed into Ballygunge Girls College with the distinguished educationist Sri Nalini Mohan Shastri as Principal. In 1945, the college was permanently affiliated to the University of Calcutta and a year later it was renamed Muralidhar Girls' College as a mark of respect to the founder's memory. His worthy son, Sri Hironmoy Bandhopadhyay, IAS, Ex Vice-Chancellor, Rabindra Bharathi University became Vice President of the College Governing Body and arranged a grant of 3 lakh from the Government of India for the construction of a 3 storied building on Gariahat Road where the college has since been housed. The college is at present enlisted in the UGC panel of recognized colleges in West Bengal under section 2(f) & 12(B) of the UGC Act. It is also registered under West Bengal Societies Registration Act, 1961. The total land area of the college is 0.25253 acre over which it has undisputed ownership. The total constructed area is 3134.5 square meters.

Overview

Muralidhar Girls' College situated at the heart of the city is one of the premier institutes of women's education in Kolkata, West Bengal. The college started with a humble beginning in 1940, soaring high steadily through a span of 80 years in academics as well as in NCC and NSS establishing itself as a heritage institution. The college received B++ grade by UGC-NAAC in September 2016. As a significant mark of achievement, 2016 marks the receipt of the prestigious RUSA grant of 2 crores for the development and betterment of the college. This reputed college in Kolkata provides various Arts and Science courses affiliated under the University of Calcutta and is particularly attentive towards the empowerment of girl students. A 3 year (job-oriented) degree course under the University of Calcutta, Tourism and Travel Management (TTMV) caters for jobs in all government and non-government sectors. CBCS system which is currently followed in the college is a modern, well-structured and efficiency building method of learning. It is systematically distributed over six semesters. Students get the opportunity to have higher skills specific to their chosen subject which will make them more

Attested


Principal

Muralidhar Girls' College

suitable to fit better in this competitive market. The college has opened honours in core science subjects like Chemistry and Mathematics from academic session 2017-18. Physics and Microbiology have received affiliation from the University of Calcutta from 2017-18 as general subjects thus strengthening the science wing of the college. College sponsored career and market oriented add on courses that have utility for job, self-employment and empowerment of the students are conducted for their benefit. Last year, 95% students benefitted from the Kanyashree Prakalpa. Apart from this, numerous other scholarships like Minority, SC/ST/OBC, Udayan etc are catered to. Abiding by the CU rules, there is a sports quota for national, state or district level performers who are provided with various facilities. The college organizes conferences, workshops, and placement training sessions for the betterment of the students. The NCC and NSS units are active at local, state and national levels. College sports, functions and prize distribution ceremonies are organized every year. Committees such as the Discipline Committee, Anti-Ragging Committee, Internal Complaints Committee, Grievance Redressal Cell etc address the concerns of the students. IGNOU (Indira Gandhi Open University) study centre in this college fulfills the higher educational aspirations of our students and paves the way for an inclusive knowledge society for all. The motto of the college 'Atmadeepa Bhava' is the guiding principle of self enlightenment and journey of search of oneself that the college stands for. Sincerity and honesty when coupled with the right amount of tenacity always ends with something good for an individual, for the college and for the country, as our students are the future citizens who will mark the world with their footsteps. The motto teaches them to introspect their actions both past and present-introspection of what they are, what their wrong doings are so that they can watch, analyze and come out with a solution of making better decisions in the future. So introspection, diagnosis and action taken are the keywords emphasized in their steps for a successful forward march.

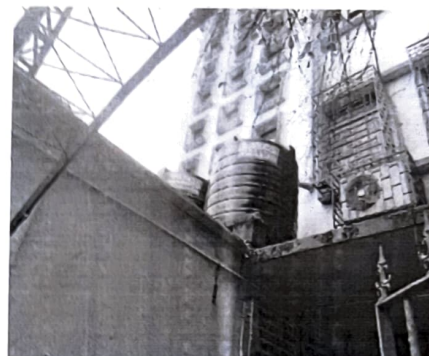


Attested
M. B. S.
Principal
Muralidhar Girls' College

FACILITIES

Harvested Rainwater

The college has established two rainwater harvesting tanks of approx. 1000 L each which is a good initiative facilitating reuse and recycle water in the campus.



Solar Energy

The college has established renewable panel of 5 KWP which is a great initiative for generation of clean electricity during energy shortage smoothly in the campus.

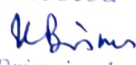


Muralidhar Girls' College Solar Panel - An Initiative to save Energy

Waste Segregation Bin

The college has kept separate waste bins both for hazardous and organic waste inside campus thus educating students for proper waste management.



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Plastic-Free Campus

The canteen which provides students with hygienic and healthy food and also the college campus is totally maintained free from single-use plastic which is another good initiative by the college.



Vending Machine

The college has implemented sanitary vending machine this year which is a great initiative for the female population of the college.



Gym


The college has well equipped gym for fitness both for girls and boys. NCC students use gym corner the most.



Medical Unit

The college has a medical facility for students as well as for teachers and staffs attended by Dr. Suchandra Das (M.B.B.S-Cal) for emergency purposes equipped with first-aid box and a proper sick room.



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Labs

The science building of the college has well-equipped labs of department such as chemistry, physics, geography, computer science etc with facilities of computers, equipment and instruments as well. Students get good exposure of practical knowledge of their subject in perspective of theoretical aspects as well.



Library

The college library has almost 43,000 books on all subjects taught in the college where 60 students can accommodate at a time. The stock of books has undergone considerable expansion and exhaustive collection adequately which meets the varied requirements of all students and teachers. Great care is taken to create quiet and tranquil atmosphere inside the room. Every department has a separate seminar library.



BioSafety Cabinet

The microbiology department of the college has arranged a biosafety cabinet to prevent contamination during laboratory work.



Nature Club

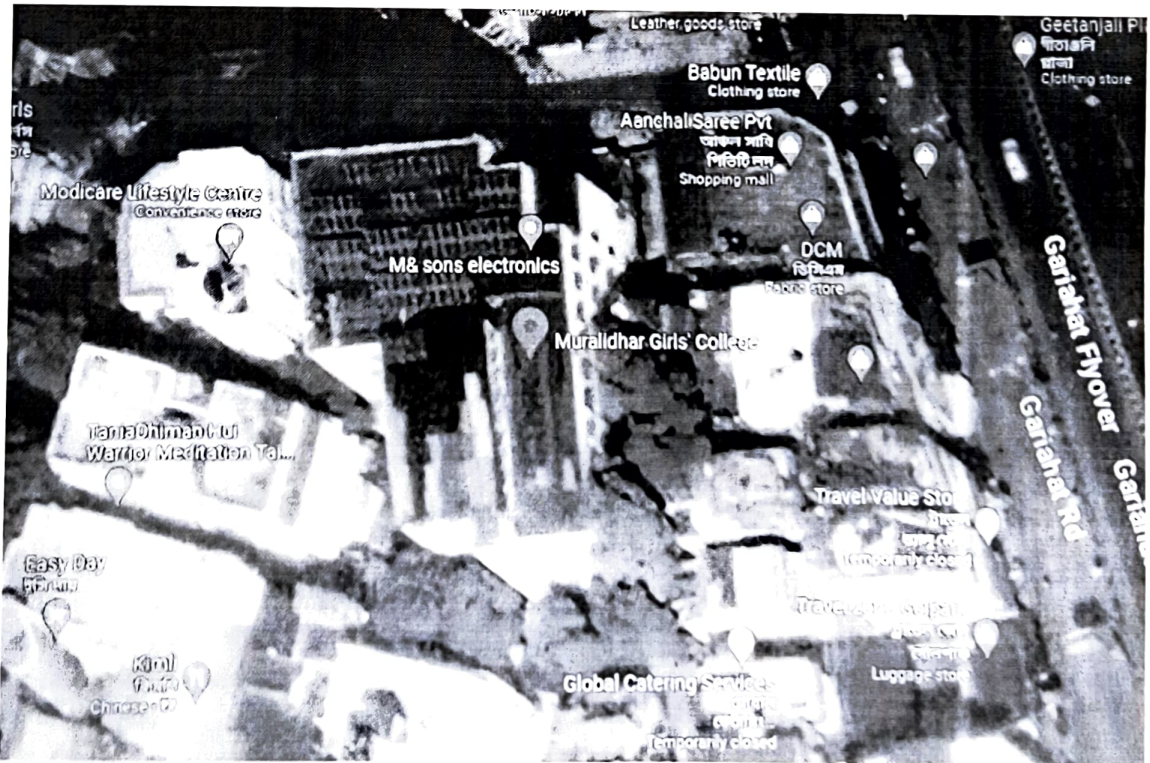
“Go Green” is the nature club of the college which considers care for nature as a co-curricular activities of the students with mission to nurture environment regenerate, maintain and preserve lands and water through single, self-reliant, low impact lifestyle through sustained contribution and conservation effort.

Attested
Ubrim
Principal
Muralidhar Girls' College

COURSES OFFERED

ENGLISH	BENGALI	SANSKRIT	EDUCATION	HISTORY
PHILOSOPHY	POLITICAL Sc	SOCIOLOGY	JOURNALISM & MASS COMM.	BOTANY
CHEMISTRY	ECONOMICS	GEOGRAPHY	MATHEMATICS	PSYCOLOGY
FILM STUDIES	TOURISM & TRAVEL MANAGEMENT	MICROBIOLOGY	STATUSTICS	SKILL ENHANCEMENT COURSE

Google Map View of the College



Attested
Ushmi
Principal
Muralidhar Girls' College

Vision Mission & Objectives of College

VISION

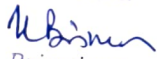
The vision of the college is the empowerment and enlightenment of women through value-based and quality education so as to foster informed global minds. The institution also has a proactive role in enabling the girl student for income generation and sensitizing them to international issues, so that they become truly equipped global citizens.

MISSION

The mission of the college is succinctly expressed through motto "ATMADIPO BHABO". The institution aims at holistic development of unexplored potential of students. The mission of the institution is consonant with the Millenium Development Goal (MSD)-"Promote gender equity and empower women" (UNDP, Human Development Report 2002) and the National Education Policy to extend equal socio-technological opportunities to all students of the college.

OBJECTIVES

- To empower the students to know and ask for their rights to education, health, shelter, food and clothing.
- To empower the students to fight against every form of indiscrimination.
- To enable students to take decisions and accept responsibilities.
- To cater to the needs of the society through capacity building of the students.
- To empower the students scientifically through Information and Communication Technology (ICT) enabled education to face global challenges.
- To empower the students with necessary socio-political awareness so that they become effective members of the civil society.
- To inculcate in the students moral, social, secular and ethical values.
- To sensitize and educate the students about environment and sustainable development.
- To create a healthy, competitive academic environment by continuous upgradation of teaching-learning process through research and ICT advancements.

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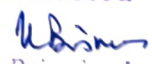
Green Audit Cell

On behalf of Muralidhar Girls' College

NAME	POSITION
Dr. Kinjalkini Biswas	Principal
Dr. Shampriya Chowdhury	Convenor
Dr. Suvasree Dutta (Dasgupta)	IQAC Co-Ordinator
Dr. Sangita Das Chowdhury	State-Aided Teacher
Sri. Sontu Bugh	Assistant Professor(Botany Department)
Dr. Bandana Das	Assistant Professor(Mathematics Department)
Smt. Rita Nag & Kaberi Roy	Graduate Laboratory Instructor & Office Staff

On behalf of Global EHS Consultant Pvt. Ltd

NAME	POSITION	QUALIFICATIONS
Dr. Susanta Podder	Lead Auditor	Ph.D, M.Tech, Lead Auditor ISO 14001, 45001, 9001
Lopamudra Das	Co-Auditor	M.Sc in Environmental Management

Attested

Principal
Muralidhar Girls' College

Executive Summary

Green auditing is an essential step to identify and determine whether the college practices are sustainable and ecological. It is a snapshot in time in which one assesses campus performance in complying with applicable environmental laws and regulations. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. It is actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardizes all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert it in to green and sustainable. Green audit provides an approach for it. It also increases overall awareness among the individuals working in college towards an eco-friendly environment.

This is the second attempt to conduct a green audit of Muralidhar Girls' College campus for fulfillment of NAAC criteria. Audit criterion is environmental cognizance, waste minimization and management, biodiversity conservation, water conservation, energy conservation and environmental legislative compliance by the campus. A questionnaire is used during audit. This audit report contains observations and recommendations for improvement of environmental consciousness.



Attested
[Signature]
Principal
Muralidhar Girls' College

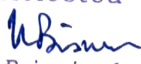
Environment & Green Audit- Analysis

The whole world is on the road to sustainable development. Environment conservation is the top priority among the list as every human activity has its own impact on their surroundings. Hence be it a college or room will disturb the balance the environment. Engineers are increasingly expected to play leadership roles when it comes to sustainable development, working to solve global challenges such as the depletion of resources, pollution, ecosystem damage and the effects of rapid population growth. It is very important to do a detailed study about the effects on the environment. This is conducted under the name of Environment or Green Audit which is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of the college. It aims to analyze environmental practices within and outside of the college which will have an impact on the eco-friendly atmosphere. The objectives of the green audit can be listed as follows:

- Environmental education through systematic environmental management approach
- Improving environmental standards and enhancement of university profile
- Benchmarking for environmental protection initiatives
- Sustainable use of natural resource in the campus.
- Financial saving through a reduction in resource use
- Curriculum enrichment through practical experience
- Development of ownership, personal and social responsibility for the university campus and its environment
- Developing an environmental ethic and values systems in young people

To conduct a walkthrough audit to check the suggestions implemented by the MOEFCC and suggest for further improvements. To verify all the points with actual measurements and gave suggestions for improvement.

Demands for energy, drinking water, clean air, safe waste disposal facilities and transportation issues are increasing day by day. In this audit report of the year 2021-2022 we aim to identify the areas of positive development done by the college and to point out the suggestions for improvements.

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Environmental Policy

Muralidhar Girls' College, P-411/14 Gariahat Road, Ballygunge, Kolkata-700029, West Bengal shows its sensitivity towards the environment by establishing its environmental policy.


Aims of the Policy

The policy aims to eliminate or reduce all forms of environmental pollution and encourages all faculty members, staff, students and other stakeholders to do the same. The college always raises awareness of environmental issues among its staffs, students or stakeholders, especially plastic pollution and encourages initiatives leading towards a clean environment. Its academic departments, NSS unit, NCC Cell works towards this aim collectively. The policy promotes the 3R's for waste in the following order: Reduce, Reuse and Recycle and provide convenient waste collection points and guidance for the disposal of -----

- Paper
- Cardboard
- Glass
- Plastic
- Electrical items
- Hazardous waste
- E-waste.

The college aims to minimize the consumption of water & electricity and mainly solid waste disposal and thereby contribute to the proper use of the natural resource by the following ways:

- Encourage to report leaks and rectifying them promptly.
- Progressively replacing/supplementing water-taps in staff-room, washroom etc. if needed.
- Exploring options for using waste water by establishing a separate reservoir in science building.
- Established rainwater harvesting schemes in the campus.
- Progressive replacement of light bulbs with energy efficient ones.
- Encouraging staff, mainly students to turn off electrical appliances when not in use.
- Minimizes the consumption of electricity where opportunities arise.
- Conserving energy by promoting the use of daylight.
- Conducting frequent preventive and corrective maintenance.

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Steps Taken and Mechanism


- The college adapts health, safety, and an environment based codes of practice and relevant guidance and complies with legislation.
- The college has planned for Solar panel systems on the campus.
- The college campus is completely free from smoke, plastic bags and cups.
- Waste bins are placed at appropriate locations to maintain a clean and tidy campus.
- Green initiatives are taken by developing medicinal plantation through adequate plantation by the college (NSS Unit and the maintenance cell).
- The arrangement to set off the fire causing environmental damage by setting the fire extinguishers at different places on the premises.

Audit Scope

The audit is carried out for the green activities at Muralidhar Girls' College, P-411/14 Gariahat Road Ballygunge Kolkata-700029, West Bengal.

Audit Criteria

- Applicable guidelines of NAAC criteria
- Applicable Environmental Legislation
- Best Environmental Practices

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AuditObjective

In line with the audit definition, the objective of the audit is to have systematic, periodic, planned evaluation against objective evidences and reporting the results to the management as per the focus of the audit. Green Audit focuses on the basis of the environmental sustainability in terms of applicable environmental elements like Air, Water, Land, Flora, Fauna, Natural resources and Human being. The very objective of this audit is to evaluate the institutes green performance based on the focus indicators as stated above in view of the goal towards environmental sustainability, applicable legislation, environmental policies and standards. The green audit objectives can be stated as follows.

- To review the knowledge and awareness concerns of the institute for the journey of sustainability.
- To review the efforts made to protect the environment by preventing pollution and conserving the natural resources being used in the campus.
- To establish a baseline data to assess future sustainability and avoid heavy environmental tolls.
- To bring out a status report on environmental compliance.
- To assess the environmental performance and report it to management/authorities.

AuditMethodology

The scope of the audit is divided into various environmental areas like land use, water, effluent, sewage, energy etc. Each such area is analyzed based on the evidences produced by the college. The evidences are collected in form of discussions/interactions, documents and records, practical site conditions and

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photographs of it. Following the above methodology, we have hereby compiled our Audit Report with our observations. However, since this is the 2nd time green audit (first in the year 2016-2017) is being conducted, hence the study become smooth because of previous constraints, but if observations of this report are read and recommendations of this report are followed the benefits of the same shall accrue to the college & it would be much better streamlined to carry out green audit in future.

Audit Observations

The observations have been compiled based upon initial desk review of various communications and documents, and after visiting Muralidhar Girls' College as part of getting an initial idea on the work done, have identified the appropriate methodology and accordingly an initial inception report was prepared and submitted.

The pictures during Audit review meeting is below:



Attested
U. Binu
Principal
Muralidhar Girls' College

1.General Information :

This is the 2nd time a systematic way of monitoring the environmental eminence initiative taken by college for environmental protection.

Total permanent population of the college

Population	Total
-------------------	--------------

Students	1274
-----------------	------

Teachers	82
-----------------	----

Non-Teaching Staff 26

- Total built-up area of the college is around 1021.9526 square meters and the total constructed area is about 3134.5 square meters.
- 37 classrooms, 3 staff rooms, 2 office rooms, 1 auditorium and 1 conference room are available for study and official activity in the college.
- 17 sanitary facility is present in the college separate for male and female students of which 3 are for staff members.
- One central library is available with a good collection of books and magazines along with seminar library in all departments.
- Total area of the college under tree canopy is approximately 255.488 square meter of which 522.75 square meter fall under garden area of which more than 41 number of plants exist and 35 plant species are presently available.
- Two LED street lights are available in the college.
- 1000 L capacity of each two rainwater harvesting tanks are available in the college.
- The college campus is made plastic free zone by educating all college members.
- The college has an electronic data processing (EDP) unit which provides curricular facilities to the students of the different departments.
- The college campus has installed one computerized staff attendance system i.e. biometric machine system.
- Two water-coolers of 500 L capacity, 3 water purifiers and 3 overhead water tanks of 1500 L capacity each are available in the college.
- Arrangement to set off the fire that may cause accident and environmental damage by setting fire extinguishers at different places of the college premises.
- Swachh Bharat Aaviyaan initiatives are taken by NCC Cadets as well as by the college students to keep the college campus clean and tidy.

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Following things are found near college :

- Municipal Dump Yard- Not in vicinity of the institute
- Garbahe Heap- No garbage heaps
- Public Convenience- Yes, transport facility is available like bus, auto, rickshaw, taxi
- Sewer Line- 1 km within campus collecting in reservoir
- Stagnant Water- No stagnant water
- Open Drainage-No
- Industry (Name)- No
- Railway Station- Yes, nearby the college within 2 km
- Market/Shopping Complex- Available

2. Water Consumption & Management

Water is one of the most critical aspect for life and freshwater is a precious natural resource.

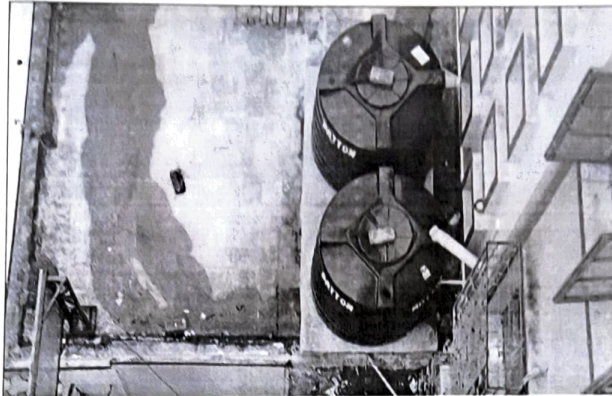
With continuous growth in population, per capita availability of utilizable water is going down, whereas the demand is ever increasing primarily due to life style changes and decreasing awareness on water management. It is clearly visible in the society that due to unsustainable use of water resources there is contamination and depletion of the natural water sources which is an alarming situation. Therefore, it becomes paramount to conserve protect and manage the water resources availability and usages so that it is sustainably used within the college campus.

The main source of water at the institute are three well-built overhead tanks of 1500 L capacity each and the water supplied from Kolkata Municipal Corporation (KMC) stored in underground reservoir. Water charge is paid along with KMC tax. 3000 L of water is pumped every day and heavy amount of water get used from washroom per day by the stakeholders of the college. Whole college campus has 35 water-taps of which only 200 L water used up per day and 2 water-taps in canteen of which 200 L of water used up per day. From rainwater harvesting tanks, approximately 1000 L of water is used for garden purpose. 500 L per day water get used from two water-coolers by the teachers and staff-members of the college. Waste water generate from lab, canteen and toilet go to underground sewage. The college has practiced green chemistry method i.e. toxic water storage in an underground chamber within the premise. The college has taken water saving initiative by creating awareness among students to close taps after use to conserve water.

Attested

Abin
Principal

Muralidhar Girls' College



Rainwater Harvesting Tanks (1000 L each)

Recommendations

Replace manual taps with auto push taps to reduce water wastage, more installation of rainwater harvesting tanks, maintenance and monitoring of valves to avoid overflow, leakage and spoilage, flow rate of taps should be checked, it should not be more than 2.5 litre/minute, lab grey water reservoir can be neutralised by introduction of bacteria species like *sphingomonas*, plants such as colacassia, *arundo donax*, *typha latifolia* etc. from mix with groundwater. More awareness on water conservation to be made inside campus. Installation of water meter and periodic water audit can be planned and initiated at regular intervals for monitoring of water consumption per capita.

3. Biodiversity Observation & Management

Green-belt observation is undertaken to have a look on how overall ecological environment of the college is maintained. Ideally it should be a periodic yearly activity and efforts of the all stakeholders should be involved. Here a broad definition of biodiversity has been considered, i.e. Biodiversity is all the different kinds of life forms available in a given area— all the variety of animals, plants, fungi, microorganisms like bacteria and large flora & fauna that make up our natural world. Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life.

Available land in the whole campus is around 255.488 square meters of which 522.75 square meter occupies the garden area. . Due to high crowds and shortage of enough space as the college is situated in residential area, it is very difficult to have proper green-belt for noise and pollution reduction within the campus.

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However, the college has total 41 plants and few trees with large canopy cover like Mango, Peepal, Simul, Bakul, Chhatim, Monkey puzzle tree which enhance maximum green cover. In addition, Nature Club of the college maintains some medicinal plants like Tulsi, Krishna Tulsi, Babui Tulsi, Kalmegh, Vasaka, Sarpagandha, Curry pata, Hadjora, Pudina, Ghritakumari giving rich green effect. The garden area is devoid of any threatened plant species. Approximately, 100 L of water is used every day in the garden area of the campus from rainwater harvesting tanks. Recently, the college has implant 25 ornamental plants and 5 ornamental palm tree for beautification.



Medicinal Plants

Green Cover around college

Recommendations

Localized plant species can be used more for plantation since they are more suitable to the local environment and habitat. Therefore it will become a habitat of the native birds, animals and insects and can help in biodiversity conservation and reclamation. Medicinal plants to be maintained properly for their appropriate growth and vigor.

4.Sewage Observation & Management

Sewage is generated by the use of water from sanitary purpose (200 L per day) from 17 washrooms and 3 washrooms from staff-room. The water usage through toilet get collected in septic tank which further connect to the municipal sewer line through underground & negligibe amount get mix with groundwater.

Recommendations

Specific water audit can be conducted to know the water inflow and out flow along with the losses, leakages, wastages etc. to plan actions for water conservation.

5.Solid Waste Observation & Management

Approximate 10 kg of solid wastes are produced from office, labs and canteen of the college. Maximum amount of biodegradable and non-biodegradable solid wastes which are generated are segregated and kept in different waste bins and then given to Municipality in weekly basis smoothly. The college authority has banned single use plastic usage since Covid times inside college campus and recycled paper is used in decorative purpose which is a great initiative.

Recommendations

Besides giving of solid wastes to Corporation, organic solid wastes can be treated through vermi-compost especially by earthworm and wax worm thereby reducing cost to Municipal Corporation as well as treated waste is a rich source for garden soil. Data of every day canteen waste can be taken up and can be displayed in the canteen board to educate the students and staff members about the wastage to aware about solid-waste effect in the environment and the human needs.

6.E-Waste Observation & Management

Since the organization is well established and equipped with the necessary and up-to-date electronic infrastructure, the e-waste generation like scraped computers, laptops, xerox machines are produced in a minimal amount. However, as a proactive initiative, an authorized vendor is identified for disposal of unused and expired e-waste i.e. the college has tie-up with renowned E-waste company, Hulladek Recycling Pvt.Ltd and also signed with "MOU" (Memorandum of Understanding) to provide management of electronic waste.

Recommendations

Immediate transfer of e-wastes to the authorized recycler should be ensured. E-waste listing and quantification in detail can be useful to reduce e-waste generation. Some small and usable e-waste can be recycled for decorative purpose of the college.

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7. Energy Observation & Management

Maximum energy consumption occurs from principal's room and staff-rooms of the college. Major source of electricity usage in the college campus include 7200 watt/month from 10 LED bulbs, 6400 watt/month from 250 ceiling fans, 2400 watt/month from 17 wall fans, 3,13,200 watt/month from 87 computers which run 3 hours continuously per day. Machineries like computer, AC and printer are kept in stand-by mode when not in use for only 2 hours. The college has adapted an energy conservation methods such as installation of solar panel of 5 KWP capacity to reduce impact of non-renewable energy and 2 LED Street lights (run approximately 6 hours per day × 2 days per month). One generator is available in the college campus. Not much energy consumption occurs from air conditioner, refrigerator, incubator, two digital balance, spectrophotometer, autoclave, pH meter, heater, television etc.

Recommendations

Maximum awareness by displaying messages about energy savings and use of natural lights and natural ventilation are promoted. More LED and eco-incandescent bulbs should be placed in the college campus for sufficient energy conservation. Periodic energy audits can be planned and initiated in regular intervals.

8. CarbonFootprint Observation and Management

Institute has started measuring GHG (Green House Gas) emission in terms of considering fuel consumption per students or staff of college. Carbon footprint is the total amount of Green House Gases (GHGs) emitted in terms of carbon dioxide by a person, institute. Carbon Footprint is typically given in tons of CO₂ equivalent per year. Maximum students (above 50) use public transportation, Principal use one car, more than 2 two-wheelers use by stakeholder and 1 LPG is use by the college authority.

Recommendations

Solar heater can be used to reduce impact on LPG. More implementation of energy-saving gadgets to reduce Co₂ emission from electricity. Increase in display of environment conscious poster/paintings/ slogans for spreading awareness

Attested



Principal

Muralidhar Girls' College

amongst students. Mass awareness by pasting energy-saving sticker, insist to share vehicles & arranging training programmes on environmental management system & nature conservation.

Other Environmental Awareness Initiatives

Green committee members of the college and NSS team work jointly together for "Green Cover and its Conservation" every year as well as in pandemic year. The college celebrates World Environment Day every year. The college take initiative on frequent environmental cleanliness and awareness campaign, arrange field visit for students to observe nature closely, distribution of saplings among students and staff members by NSS team to increase awareness and understand the importance of greenery, conduct nature tour for the students, Covid sensitization program from the college, conduct seminar/webinar/conference on environment topics. On the day of green audit inspection, the college arrange an awareness program on importance of environmental audit & role of students in green audit where more than 100 students attend the seminar. The students of Muralidhar Girls' College are very much aware of environmental activities done by NSS team & college authority and students made things by reusing plastic and waste products which is a good creativity.

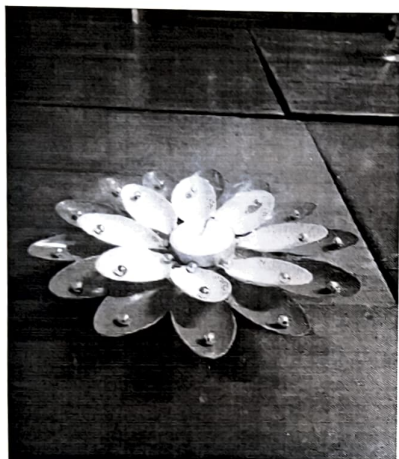


Seminar on E-Audit on Green Audit Inspection Day

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Principal
Muralidhar Girls' College

Muralidhar Girls'College students has created following materials from waste products which is really appreciable.



**Candle-stand with Basket with used
Used plastic spoon**



plastic



**Tree Stand With
Used glass bottle**

Conclusion

This audit involved extensive consultation with all the members of the campus, interactions with key personnel on wide range of issues related to Environmental aspects. The College has Environmental Committee for sustainable use of resources. The college is considering the environmental impacts of most of its actions and makes an intensive effort to act in an environmentally responsible manner. Even though the college does perform quite well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution. The audit team opines that the overall site is good maintained from environmental perspective.

Attested
U. Brin
Principal
Muralidhar Girls' College

Green audit report is one of the useful means of demonstrating an organization's commitment to openness and transparency. If an Organization believes it has nothing to hide from its stakeholders, then it should feel confident enough to make its green audit reports freely available to those who request them. As a basic rule, green audit reports should be made available to all stakeholders.