

Vivekananda Satavarshiki Mahavidyalaya

MANIKPARA, JHARGRAM
WEST BENGAL, 721513

GREEN AUDIT REPORT

ACADEMIC YEAR 2022-23

(Covering Sustainability, Environment, Water, Waste and Energy Management,
In-line with National Building Code 2016-Part II)



CONTENTS

- **ACKNOWLEDGEMENT**
- **CERTIFICATE**
- **EXECUTIVE SUMMERY**
- **INTRODUCTION**
- **OBJECTIVE OF STUDY**
- **METHODOLOGY**
- **THE PRE-AUDIT STAGE**
- **THE AUDIT STAGE**
- **THE POST AUDIT STAGE**
- **AUDIT GOALS OF THE COLLEGE**
- **AUDIT FRAMEWORK AND DETAILED FINDINGS**
- **SUGGESTION AND RECOMMENDATIONS**
- **CONCLUSION**



ACKNOWLEDGEMENT

Green Audit Team thanks the management of Vivekananda Satavarshiki Mahavidyalaya for assigning this important work of Green Audit. Our special thanks are to:

- Honourable Principal Dr. Uma Bhaumik.
- Teaching & Supporting Staff of Collage for giving us necessary inputs to carry out this very vital exercise of the audit. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

The Green audit conducted by the Vivekananda Satavarshiki Mahavidyalaya is an internal audit that aims towards looking after a healthy environment. The initiative is taken up to foster the concept of environmental sustainability. Sincere thanks to all for providing us necessary amenities and co-operation during the audit that helped in making the audit a success.





OPENING & CLOSING MEETING ATTENDANCE ROSTER

Name of the Institute: **Vivekananda Satavarshiki Mahavidyalaya**

Type of Audit: **GREEN AUDIT**

Date: 26/04/2023

NAME	DESIGNATION	OPENING MEETING Date: 26/04/2023	CLOSING MEETING Date: 26/04/2023
* Auditor /Technical Expert			
SUPRIYO KAYAL	LEAD AUDITOR		

Client			
Dr. Uma Bhaumik			
Tapas Hait			
Ashoke Mahata			
Subhendu Kar			
Tapas Das			

* Declaration for conflict of interest: "I reconfirm that there is no Relationship (as defined in 17021 Clause: 5.2) with the Client that poses any Conflict of Interest and / or unacceptable threat to impartiality. By signing the above attendance, they confirm for the same.



GREEN AUDIT

CERTIFICATE

This is to certify that a "GREEN AUDIT" for Vivekananda Satavarshiki Mahavidyalaya, At Jhargram, West Bengal, has been conducted in June'2023 to assess the green initiatives planning and efforts implemented in the college campus like Green Campus Management, Covering Sustainability, Environment, Water, Waste and Energy Management, in-line with National Building Code 2016-Part II. This green audit is also aimed to assess impact of green initiatives for maintenance of eco-friendly campus.

Place: Jhargram

Date: 26th April'2023



Mr. S. Kayal

Lead Auditor EMS & Energy (EnMS)

NBQP(OCI) registered Principal Auditor



1. EXECUTIVE SUMMARY

Rapid economic and urbanization development has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology included physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. It works on the several facets of 'Green Campus' including

- **Water Conservation,**
- **Tree Plantation,**
- **Waste Management,**
- **Alternative Energy and**
- **Mapping of Biodiversity.**

With this background, the specific objectives of the audit were to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards. It can make a tremendous impact on student health and learning Institute operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.



2. INTRODUCTION

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyse environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit can be a useful tool for an Institute to determine how and where they are using the **most energy or water or resources**; the Institute can then consider how to **implement changes and make savings**. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of green impact on campus. If self-enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is a natural and necessary outgrowth of a quality educational institution. Thus, it is imperative that the Institute evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

1. Green Audit is a systematic approach, Audit is conducted objectively.
2. Auditor obtains and evaluates evidence.
3. Evidence obtained and evaluated by the auditor concerns assertions about economic actions and events.
4. Auditor ascertains the degree of correspondence between assertions and established criteria.
5. Goal, or objective, of the audit is communicating the results to interested users.



About the college

Vivekananda Satavarshiki Mahavidyalaya was established in the year 1964 in commemoration of birth centenary of Swami Vivekananda. It was an outcome of a tremendous moral and financial support and farsightedness of some of the most sincere and enlightened local people. The college is situated amidst quiet natural surroundings in a small town called Manikpara, located between Kharagpur and Jhargram. Starting its journey with approximately 50 students of arts stream, 5 teaching and 2 non-teaching staff members in two rooms of a local high school, it now has its own sprawling campus over 18.86 acres of land acquired on lease from the State Government. Our college presently accommodates more than 1500 students enrolled in Arts, Science and Commerce streams, 51 teaching including full-time and SACTs (State Aided College Teacher), 15 non-teaching staff members and 1 Librarian, who strive together to ensure that Vivekananda Satavarshiki Mahavidyalaya emerges as one of the best performing colleges in this region. At present, the College offers degree courses in 13 honours subjects and 14 general subjects. Our college campus is surrounded by extensive greenery, providing the perfect ambience that is conducive for a healthy mind and body. It has been providing an opportunity for higher education in Arts, Science and Commerce streams to the first-generation learners of the extensive tribal belt of Jhargram district since many years. Some of our students have performed remarkably well at the University exams.



VISION & MISSION:

“The role of education towards the advancement of a society is of supreme importance. Empowering the poor and academically backward people of Manikpara and adjoining areas was the sole aim and objective of founding this college. In spite of the fact that our college faced different obstacles like financial crunch, lack of permanent posts, difficult transport and communication, it could still become functional towards delivering quality education to students, irrespective of their caste, creed, religion, gender or financial status of the students.

As the digital age is undergoing a phenomenal change with new technologies making our lives easier and faster than ever before, education system has also been fundamentally altered due to rapid advancements in teaching and learning methods. While adopting with the glamour of technological advancements, we still try our best to address the challenges posed to our educational system by the ever-changing technology like ICT.

Our college has been trying its best to go ahead with the development projects with the limited resources it has. We are grateful for the financial aid and guidance from Vidyasagar University, Government of West Bengal and U.G.C. We acknowledge the untiring efforts of our predecessors and are committed to fulfil their mission of providing opportunities for higher education to the students of this backward region with our utmost zeal.



3. OBJECTIVE OF THE STUDY

The main objectives of the green audit are to promote the environment management and conservation in the Institute campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards.

Later on, it is implemented as a measure to enhance a healthy environment to almost all the organizations. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit. Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

The main objectives of carrying out green audit are

- To aware students to real concern of environment and its sustainability
- To secure the environment and cut down the threats posed to human health
- To establish a baseline data to assess future sustainability by avoiding the interruptions in environment that are more difficult to handle and their corrections requires high cost.
- To bring out a present status report on environmental compliance.



4. METHODOLOGY

In order to perform green audit, the methodology included different techniques such as physical inspection of the campuses, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. The study covered the following area to summarize the present status of environment management in the campuses

- **Water Management**
- **Air Quality assessment and Management**
- **Electricity consumption and management**
- **Waste Management,**
- **Mapping of Biodiversity.**

The Green Audit taken up by the College had been divided into three stages

5. THE PRE-AUDIT STAGE

In the pre-audit stage,

Meetings provide an opportunity to support the capacity and objectives of the audit and enable discussions on the feasibility associated with the audit. The meeting provided the chance to gather information that the audit team can study before arriving on the site. The audit procedure and audit plan were handed over at this meeting and discussed in advance of the audit itself. In VIVEKANANDA SATAVARSHIKI MAHAVIDYALAYA, the planning of audit processes was discussed in the pre-audit meeting. Audit team was also selected in this meeting with the help of staff and the Institute management. The audit protocol and audit plan were handed over at this meeting and discussed in advance of the audit itself. The Management of the Institute has shown the commitment towards the green auditing during the pre-audit meeting. They were ready to encourage all green activities. It was decided to promote all activities that are environment friendly such as awareness programs on the environment, campus planting more trees on the



campus, etc., after the green auditing. The management of the Institute was willing to formulate policies based on green auditing report.

6. THE AUDIT STAGE

The Audit Stage team selection and the field works performed. Looking after the unique structure, location and ambiance of the Institute, the Green Audit Team focused on Material Issues pertaining to Institute which have the highest influence on the Green Attributes of the Institute. The Audit stage also focused on the Methodology adopted. Checklist approach is adopted for transparent evaluation of the topics and increase readability for independent reader. Discussions were made with the college management regarding their policies on environmental management.

College and its premises were visited and analysed by the auditor to gather information. Campus trees were counted and identified. library, office rooms and parking grounds were also visited to collect data. Number and type of vehicles used by the stakeholders were observed.

7. THE POST AUDIT STAGE

The base of any green 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 systems requirements and in the correct manner. Green audits form a part of a



process. Although they are individual events, the real value of green audits is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. Although green audits are carried out using policies, procedures, documented systems and objectives as a test, there is always an element of subjectivity in an audit. The post-audit stage ensures formulation of Draft findings and sent to management response. Since the audit is done internally, it was important to ensure management approval for the draft. After getting draft approval, the audit team went for final report formulation.

8. AUDIT GOALS OF THE INSTITUTE

The Institute, has created green monitoring team that aimed at performing the green audit of the institution. The main objectives of the audit are

- More efficient resource management
- To provide for basis for improved sustainability
- To create Green Campus
- To enable waste management through reduction of waste generation, solid waste and water recycling.
- Recognise the cost saving methods through waste minimising and managing.
- Point out the prevailing and fourth coming complications
- Impart environmental education through systematic environmental management approach and benchmarking for environment protection.



9. AUDIT FRAMEWORK AND DETAILED FINDINGS

The following audit framework is used for conducting Green Audit. The framework also lists of the findings and observations for every criterion.

Control objective	Control(s)	Audit Observation
<ul style="list-style-type: none"> WATER MANAGEMENT 	<ul style="list-style-type: none"> Repair sources of water leakage, such as dripping taps. 	<ul style="list-style-type: none"> Regular checking and maintenance of pipelines are done to control Water wastage.
	<ul style="list-style-type: none"> Encourage to decrease excess water usage. 	<ul style="list-style-type: none"> Though water is used nominal in the Institute, but to ensure a further minimal rate, placards and warnings are not set up in the Institute premise. That must be adopted at every water delivery Point.
	<ul style="list-style-type: none"> Install water recycling mechanism. 	<ul style="list-style-type: none"> Rain water of 3000 sq. feet has been stored, reused and recharge the found level water.
	<ul style="list-style-type: none"> Minimize wastage of water and use of electricity during water filtration process, if used, such as Aqua guard filter 	<ul style="list-style-type: none"> Institute has Aqua guard filter on each floor which gives safe drinking water. Also packaged drinking water using when necessary.
	<ul style="list-style-type: none"> Rainwater Harvesting project execution 	<ul style="list-style-type: none"> Already executed. They collect the rainwater from the roof and stored in tank (which is used in toilets, gardening) and excess rainwater is recharged at the ground through well.



<ul style="list-style-type: none"> • Make full use of all recycling facilities 	<ul style="list-style-type: none"> • Institute does not have any such recycling device to carry on the procedure. Primary segregation is carried out and partly paper, plastic and E waste is kept in E-waste bin provided by Pollution Control Board.
<ul style="list-style-type: none"> • Waste, green waste and non-recycled collected from gardens, offices and rooms. 	<ul style="list-style-type: none"> • Taken by Panchayet.
<ul style="list-style-type: none"> • Recycle or safely dispose of dry wastes, computers and electrical appliances. 	<ul style="list-style-type: none"> • Recycle or safely dispose of dry wastes, computers and electrical appliances is done at primary level is done.
<ul style="list-style-type: none"> • Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated 	<ul style="list-style-type: none"> • The Institute has set up separate two bins on each floor to ensure proper segregation and collection of the various wastes.
<ul style="list-style-type: none"> • Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment 	<ul style="list-style-type: none"> • Yes, the Institute is trying to dispose all wastes, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment; however, there is a lot of scope for improvement in current waste handling methods.



<ul style="list-style-type: none"> GREEN CAMPUS 	<ul style="list-style-type: none"> Encourage the faculties and students to plant trees in the garden. 	<ul style="list-style-type: none"> Encourage the faculties and students to plant trees in the garden. Existing plantation is not marked properly. However, more plantation can be adopted with more native trees.
	<ul style="list-style-type: none"> Establish a Garden in the campus 	<ul style="list-style-type: none"> Institute planning for garden.
	<ul style="list-style-type: none"> Disposal of the chemical waste generated from the laboratories in a scientific manner 	<ul style="list-style-type: none"> There is no as such treatment is given to the laboratories waste generated.
	<ul style="list-style-type: none"> Minimize the use of fertilizers and Pesticides in Institute ground & garden. 	<ul style="list-style-type: none"> Moderate amounts of bio-fertilizers are used in the Institute.
<ul style="list-style-type: none"> ENERGY MANAGEMENT 	<ul style="list-style-type: none"> Look in to the possibility of on-site micro-generation of renewable electricity. 	<ul style="list-style-type: none"> Institute has started to installed Solar wall Lights for outdoor and garden.
	<ul style="list-style-type: none"> Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs 	<ul style="list-style-type: none"> The Institute is using LED lights as much as practicable as well as CFL. College using fan and LED tube, Xerox machine, Computer printer, CC tv etc. 90% Bulbs are LED tubes., AC 1 nos and computer 15 nos. verified during audit.
	<ul style="list-style-type: none"> Ensure that all cleaning products used by Institute staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic 	<ul style="list-style-type: none"> Negligible amounts of washing liquids are used in the Institute and all the toilet cleaners are eco-friendly



Green Campus:

Total number of plants in the campus- 4700 numbers

Total number of Plants in the campus:-

Sl No	Particulars	Scientific name	Quantity
1	Mango	Mangifera indica	22
2	Blackboard Tree/Milk wood Tree	Alstonia scholaris	17
3	Teak Tree (Segun)	Tectona grandis	28
4	Indian Rosewood (Sisso)	Dalbergia sisso	18
5	Pine Tree	Polyathia longifolia	09
6	Lebbeck Tree	Albizia lebbeck	06
7	Java Plum	Syzygium cumini	02
8	Neem Tree	Azadirachta indica	03
9	Cashews Tree	Anacardium Occidentale	03
10	Akash Moni Tree	Acacia auriculiformis	02
11	Cook pine/Christmas Tree	Araucaria Columnaris	02
12	Indian banyan	Ficus benghalensis	01
13	Peepul Tree	Ficus Religiosa	01
14	Spanish Cherry	Mimusops elengi	01
15	Cananga Tree (Chapa)	Cananga Odorata	01
16	Jack fruit	Artocarpus Heterophyllus	02
17	Fig tree (Dumur)	Ficus Carica	01
18	Flame Tree	Delonix regia	02
19	Arjun Tree	Terminalia Arjuna	01
Total-			122
Eucalyptus tree -			4578

Water Management

The source of water used in the college are municipal water supply.



Sl. No.	Parameters	Response
1	No of wells	2
2	No of water tanks	3
3	Any wastage/why	Nil
4	Water used for gardening	5 cu.mt.
5	Waste water sources	washrooms
6	Rain water harvest available?	Yes
7	Any leaky taps?	Nil
8	Amount of water lost per day	Nil

Waste management

Waste management is important for an eco-friendly campus. In a college, different types of wastes are generated, its collection and management are very challenging. The following data provide the details of the waste generated and the disposal method adopted by the college.

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	E waste is kept in E-waste bin provided by Pollution Control Board.
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc.	Pick up by Panchayet
Solid wastes	Damaged furniture, paper waste, paper plates	Pick up by Panchayet
Waste water	Washing, urinals, bathrooms	Panchayet sewer line
Food waste	Food waste from canteen	Pick up by Panchayet





11. SUGGESTIONS AND RECOMMENDATIONS

A few recommendations are added to curb the menace of all management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of green campus and thus sustainable environment and community development. It has been shown frequently that the practical suggestions, alternatives, and observations that have resulted from audits have added positive value to management of the campus.

CRITERIA WISE RECOMMENDATIONS

Green Campus

- All trees in the campus should be named scientifically and name should be placed on each tree.
- Beautify the college building with indoor plants.
- Encouraging students for making the campus green.



- Conducting competitions among departments for making students, teaching-non teaching staffs more interested in making the campus greener.
- In order to increase the carbon credit and greenery of the campus, it is recommended to plant more indigenous and Fruit and medicinal plants species inside the campus like Amla, Kaju, Tulsi, Alovera and Ashwagandha etc.

Water management

- The college should arrange awareness programs for water conservation. The campaign should be on proper monitoring of water consumption patterns in the campus and can also conduct water quality monitoring during specific intervals.

Energy management

- The energy audit recommends to avoid the use of more energy consuming electrical appliances and to replace with more environment friendly and energy efficient appliances (for example five stars rated Air conditioner) in the college. The potential of renewable energy sources has to be explored. As the college has a very large roof area for installing solar panels so that it can be effectively used for generating power.
- It is recommended to install the following solar powered appliances in the campus;
- Solar powered street lights and LED display board.
- Observe a power saving day every year
- Conduct more save energy awareness programs for students and staff.
- Use energy efficient light-emitting diode (LED) bulbs instead of incandescent and CFL bulbs



- Maintain appliances and replace old appliances.
- Use computers and electronic equipment in power saving mode.

Waste management

- Try to avoid the use of plastic in the campus, and to encourage the use of biodegradable materials as alternatives. Ban on single use plastic such as carry bags, food packaging, bottles, straws, containers, cups and cutlery. Instead use steel plates. Avoid using paper cups and plate too.
- Leaf litter from the campus can be effectively used for aerobic/ vermi-composting, so that the composted material can also be used as good manure.
- Practice of waste segregation to be initiated.

Carbon footprint

- Increase a system of car-pooling among the staff to reduce the number of four wheelers coming to the college.
- Encourage students and staff member to use public transport as possible.
- College may set a day as “no own vehicle day” every month. The any day of every month must be dedicated for it. Teachers and students are not allowed to take their private vehicles on that day and are supposed to reach college via public transportation methods. The no own vehicle day is widely accepted among students and teachers and is hugely appreciated by the community.
- College also can promote car and bike pooling system. Teachers/ students coming from the same area share their vehicles to reach the college. This also reduces the number of private vehicles used in the college campus
- PUC (Pollution under control) certificate is required for all vehicles in the parking area.



12. CONCLUSION

The green audit assists in the process of testing performance in the environmental arena and is fast becoming an indispensable aid to decision making in a college. The green audit reports assist in the process of attaining an eco-friendly approach to the sustainable development of the college. A green audit report is a very powerful and valuable communications tool to use when working with various students who need to be convinced that things are running smoothly and systems and procedures are coping with natural changes and modifications that occur. The audit has identified several observations for making the campus premise more environment friendly. The recommendations are also mentioned with observations for campus team to initiate action. The audit team opines that the overall site is maintained well from environmental perspective, certain changes if implemented the college will be benefited by various environmental ways. **The audit was conducted to check following aspects**

- More efficient resource management.
- Provide basis for improved sustainability.
- Creating a green campus.
- Enable waste management through reduction of waste generation, solid- waste and water recycling
- Recognition of the cost saving methods through waste minimizing and managing.
- Point out the prevailing and forthcoming complications.
- Impart environmental education through systematic environmental management approach and Benchmarking for environmental protection.

Allow targets are fairly achieved in executed green audit report.



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End of Report

