

GREEN AUDIT REPORT

ASSESSMENT YEAR
2021-2022

Nagar Parishad Shivaji Mahavidyalaya



**MOWAD, NARKHED, MAHARASHTRA 441303, INDIA
(NAAC 'B' grade 2015)**

CONDUCTED BY :

ENVINZOA, NAGPUR

301, AQUA HABITAT, PLOT- 15, DURUGKAR LAYOUT, BELTHRODI ROAD, NAGPUR, 440027E
mail id- envinzoa@gmail.com, contact # 9372308382, 07020144956

CONTENTS

CERTIFICATE...3
DISCLAIMER...4
GREEN AUDIT COMMITTEE OF COLLEGE...5
PREFACE...6
ACKNOWLEDGEMENT...7
INTRODUCTION...7-8
ABOUT COLLEGE:...9
MISSION OF ENVIRONMENTAL POLICY...10
ENVIRONMENTAL POLICY OF THE COLLEGE...11
POLICY DOCUMENT ON GREEN CAMPUS ...12
CONSTITUTION FOR GREEN AUDIT :...13
GOOGLE EARTH IMAGE1...14
GOOGLE EARTH IMAGE2...15
GREEN AUDIT EXECUTIVE SUMMARY...16-17
LAND USE OBSERVATION...18
AIR QUALITY IN COLLEGE CAMPUS ...19-20
NOISE QUALITY ASSESSMENT REPORT ...20-22
WATER MANAGEMENT AND QUALITY ASSESSMENT REPORT ...22-25
SOIL QUALITY ASSESSMENT REPORT...25-27
TREE SPECIES DIVERSITY IN THE COLLEGE PREMISES...28
BIRDS AND LOWER ORDER FAUNA OBSERVED WITHIN AND AROUND THE COLLEGE PREMISES...29
GREEN CAMPUS...30-32
WASTE GENERATION...32-33
SOLID WASTE MANAGEMENT...33-35
ENERGY USE AND CONSERVATION...35-39
OVERALLOBSERVATIONS- 40-42
OVERALL RECOMMENDATIONS...43
AUDITOR FOR GREEN AUDIT...44

CERTIFICATION
Green Audit

★ ISO 14001 : 2015 certified



This is to certify that

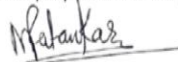
Nagar Parishad Shivaji Mahavidyalaya
Mowad 441303, Dist. Nagpur, Maharashtra, India

has conducted detailed
GREEN AUDIT
of their college campus and provided necessary data and
right credentials for **SCRUTINY**.

The relevant activities and appropriate measures
carried out by college on the basis of submitted responses of
questionnaire and presented report
Have been **CHECKED & REVIEWED** and found to be
SATISFACTORY.

The initiatives taken by faculty and students towards
a better **UNDERSTANDING** of environment and
a sensitive awareness towards its
CONSERVATION & SUSTAINABILITY
are highly acknowledged & commendable.

This audit process is completed and certification is done on **May 08, 2022**
Certificate # **EIZ/2022/05/AUD/GRN2/010**
and is valid through till next proposed audit on/after **May 07, 2023**.



Director
ENVINZOA
Nagpur



(Certificate issued on July 08, 2022 at Nagpur)

Note : The validity of this certificate is determined by the organization's compliance with Green Audit
recommendations as well as the system's maintenance and the surveillance audit.

envinzoa
com

environmentalists | entomologists | consultants

aqua habitat, durugkar layout, beltarodi road, nagpur 440027, india
dr.nitisha@gmail.com; director@envinzoa.com; +91 93723 08382; +91 70201 44956
www.envinzoa.com

DISCLAIMER

The Green Audit Team generated this report for Nagar Parishad Shivaji Mahavidyalaya, Mowad, Narkhed, Maharashtra 441303 (NAAC 'B' grade 2015) based on information provided by the College's representatives and the expert team's best judgment.

While every possible precaution was taken in its preparation, the information contained in this report was compiled in good faith based on the information available.

It is also stated that the recommendations are based on best judgments, and that no express or implied representation, warranty, or undertaking is made, and that Audit Team accepts no responsibility for any direct or consequential loss resulting from the use of the information, statements, or forecasts in the report.

Prepared by:

Nitisha V Patankar, Ph D

ENVINZOA, Nagpur

Green Audit Committee of college



**Principal
Dr. Kishor R. Zilpe**



**Dr. Satish R. Jadhao
Green Audit Coordinator**



**Prof. Sunil V. Narnaware
IQAC Coordinator**

Research Assistance

- 1) Ku. Rani Jain (BA II)
- 2) Jayesh Vaidya (B A III)

PREFACE

Nature offers all of us with free services. Environmental problems have worsened in recent years as a result of human activities and advances in science and technology, and the world is under immense strain as a result of population growth. The most widely discussed phenomenon, "Global warming," is causing the world to warm. Water, air, noise, and soil quality are all deteriorating beyond repair. It is necessary to recognise environmental degradation and adopt mitigation strategies for environmental protection in order to learn more about it. Sustainable development is gaining popularity around the world as a means of preserving the environment. Using resources wisely can help save the earth's valuable resources. The most effective way to conserve and safeguard natural resources is to measure environmental components.

Environmental auditing had begun in the early 1970s with provision of civil lawsuits for non-compliance with environmental regulations. Green auditing entails a site visit, sample collection, analysis, and reporting to the appropriate authorities. Industry and business are beginning to conduct audits in order to save natural resources. Academic institutions can also help with resource preservation and conservation on their own grounds.

In the present write up "Green Audit" report, outline existing scenario of campus is discussed. A summary of the report's contents would encourage everyone to think about preserving resources, demonstrate willingness to learn about their significance, take steps to reduce resource use, and set an example for others to follow the path of green practises in order to achieve the goal of sustainable development.

ACKNOWLEDGEMENT

We express our deep sense of gratitude to the Governing body and Local managing committee Ku. Pallavi Dilip Raut Chief Officer, Nagar Parishad Mowad and President of Mahavidyalay Samiti, Nagar Parishad Shivaji Mahavidyalaya, Mowad, Narkhed, Maharashtra 441303 and Dr. Kishor R. Zilpe, Principal of the college for their support in preparation of the report.

We would also like to acknowledge Prof. S V Narnaware IOAC Coordinator and Dr. S R Jadhoo, Green audit in-charge and members for their rendering services in preparing the draft.

INTRODUCTION

Auditing is a system of examining a college's internal controls for attaining goals. The most important steps of the auditing process include planning, on-site work, audit report production, and follow-up. Aside from providing education, the college is dedicated to environmental protection by lowering environmental consequences such as waste, water, and energy usage. The goal of the college is to achieve environmental sustainability through the adoption of more environmentally sound methods. The planning of a Green Audit entails a series of observation and verification stages that are carried out on-site. The planning process began with a discussion among committee members, followed by the formulation of objectives, the development of methodology, sampling, and the preparation of a final report that included a number of environmental sustainability efforts.

Objectives

Objectives are significant to enhance the vision marked which further converts in the measurement of environmental components for achieving goals. Earth's natural resources are important to support life, but its overexploitation can lead to disturbance of the natural balance. In present time, conventional auditing supported by Green Auditing may assist the college to manage environmental resources by effective environmental mitigation measures. The following objectives are systematic attempt to reach at a target which could guide us for

AUDIT PROCESS REPORT

★ ISO 14001 : 2015 certified

safe and clean environment for all.

1. To observe land use for various purposes.
2. To record and document flora and faunal diversity in the college premises.
3. To prepare an air quality observation report.
4. To analyse water samples for aesthetic parameters.
5. To record noise level in the college premises and outside area.
6. To study soil quality of the college campus.
8. To prepare report on E-waste disposal and management.
9. To study solid waste management practices in college campus.
10. To study electrical power consumption in college.

Benefits of Green Audit

There are many advantages of green audit to an Educational Institute:

1. It would help to protect the environment in and around the campus.
2. Recognize the cost saving methods through waste minimization, management and energy conservation.
3. Empower the organization to frame a better environmental performance.
4. It portrays good image of institution through its clean and green campus which helps building better relationships with the group of interested parties.

Finally, it will assist in creating a great impression for the future NAAC inspection through green activities.

**AUDIT PROCESS
REPORT**
About College

★ ISO 14001 : 2015 certified



Nagar Parishad Shivaji Mahavidyalaya, Mowad was established in the year 1997. It was accredited by NAAC Bangalore with B grade in Cycle 2 in the year 2015. The college has its own old and new building and beautiful campus of 3 Acres area.

The college actively participated in Swacha Bharat Abhiyan in association with its management Nagar Parishad Mowad.

The College has active N.S.S. units sanctioned by the university, which are doing tremendous job through organizing activities like blood donations, Cleanliness programme, tree plantations, health check-up, personality development etc.

The college has also adopted the 'Green Campus' system for environmental and sustainability. There are main three pillars i.e. zero environmental foot print. Positive impact on occupant health and performance and 100% graduates demonstrating environment literacy. The goal is to reduce CO2 emission, energy and water use. While creating an atmosphere where students can learn and be healthy the college administration works on the several facts of 'Green Campus' including Water conservation, tree plantation, waste

AUDIT PROCESS REPORT

★ ISO 14001 : 2015 certified

management, save paper work and energy consumption.

The college has Environment science as a compulsory subject for second year student only and active green audit committee.

VISION:

- “Selfless and substantial contribution to the society and nation building at large by making them potent to accept global challenges.

MISSION:

- “To empower the youth of rural and semi-urban area with the best of traditional education and all-important professional and carrier-oriented skills which are vital in the contemporary global scenario”.

ENVIRONMENT POLICY OF THE COLLEGE



NAGAR PARISHAD MOWAD'S
NAGAR PARISHAD SHIVAJI MAHAVIDYALAYA

Mowad, Th. Narkhed, Dist. Nagpur – 441 303 (MS)

Phone: 07105- 236274

(Permanently Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur)
recognized under 2f & 12B of the UGC Act, 1956. ISO 9001:2015 Certified)

e-mail: npsmm@rediffmail.com, website: www.npsmm.in

NAAC Re-accredited with 'B' Grade (Cycle-2)

Principal: Dr. Kishor R. Zilpe

Mob: 9422301764

No.NPSMM/ /2022

Date:01/07/2022

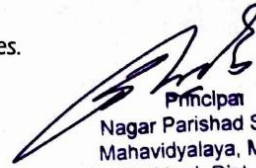


Environment Policy of the college

Nagar Parishad Shivaji Mahavidyalaya, Mowad, Narkhed, Maharashtra 441303 has made it a policy to include environmental conservation in decision-making at all levels by stakeholders and to ensure that everyone is aware of the importance of environmental and natural resource conservation.

Being environmental conscious administration, the management and the students of the college look after the environment carefully. Every year, during rainy season, tree plantation is carried out and carefully looked after it. Nagar Parishad Shivaji Mahavidyalaya, owns responsibility to preserve the work carried out on the campus related to the environment and encourages

1. A forestation and green campus concept,
2. Landscape and ecosystem restoration,
3. Soil and water conservation,
4. Water quality maintenance,
5. Waste management,
6. Sustainable energy resources,
7. Biodiversity nurturing
8. Noise pollution reduction in the campus
9. Climate change mitigation programs and initiatives.



Principal
Nagar Parishad Shivaji
Mahavidyalaya, Mowad
Ta. Narkhed, Dist. Nagpur



NAGAR PARISHAD MOWAD'S
NAGAR PARISHAD SHIVAJI MAHAVIDYALAYA

Mowad, Th. Narkhed, Dist. Nagpur – 441 303 (MS)

Phone: 07105- 236274

(Permanently Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur)
recognized under 2f & 12B of the UGC Act, 1956. ISO 9001:2015 Certified)

e-mail: npsmm@rediffmail.com, website: www.npsmm.in

NAAC Re-accredited with 'B' Grade (Cycle-2)

Principal: Dr. Kishor R. Zilpe

Mob: 9422301764

No.NPSMM/ /2022

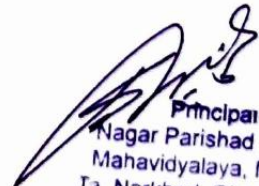
Date:01/07/2022



Mission of Environment Policy

Nagar Parishad Shivaji Mahavidyalaya, Mowad, Narkhed, Maharashtra policy is to protect the environment, create sustainable solutions, start-ups, encourage rural technology, and reduce energy usage in order:

- To raise student understanding of the need of natural resource protection and the creation of sustainable environments for national success.
- Adopting a fair, ethical, and environmentally conscious plan that covers everything from implementation to student education through institutions.
- To assist in the development of a society that is conversion orientated and lives in peace with environment.


Principal
Nagar Parishad Shivaji
Mahavidyalaya, Mowad
Ta Narkhed, Dist. Nagpur

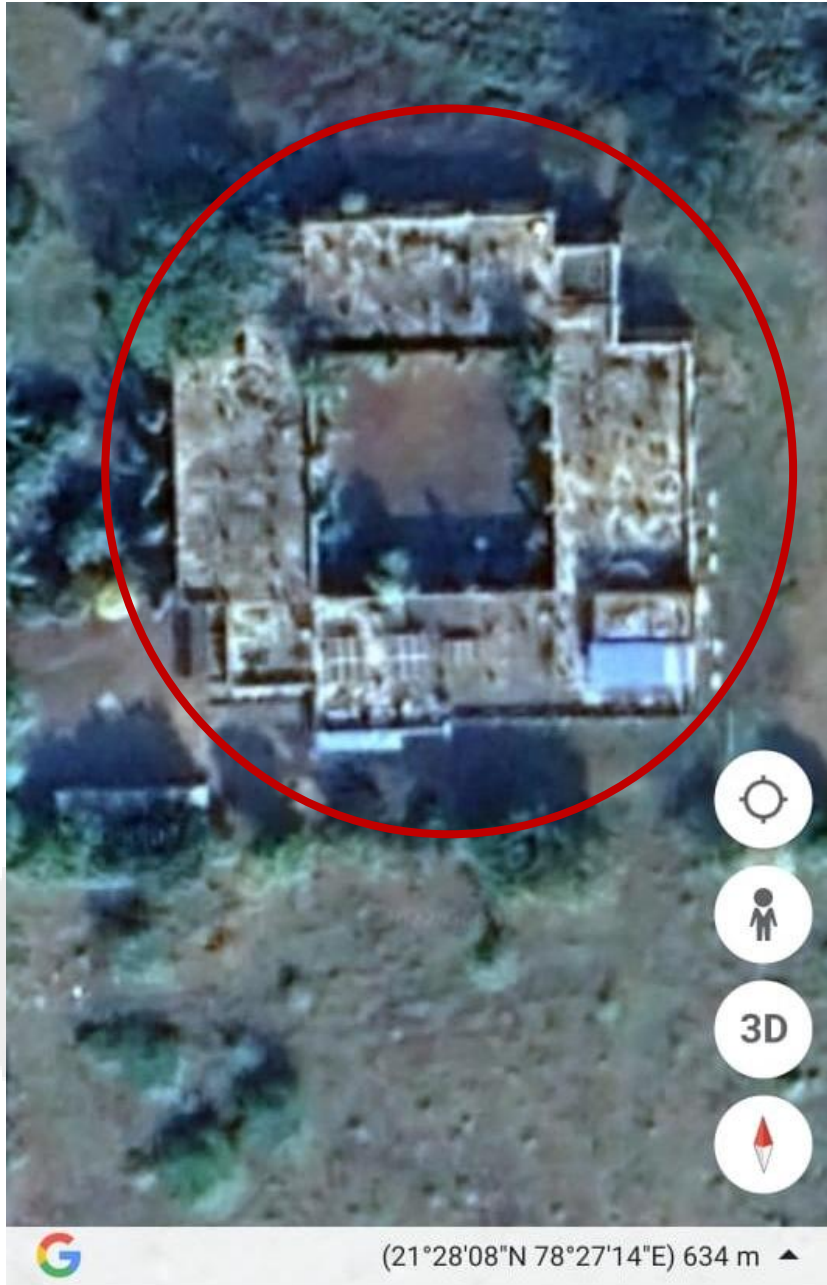
CONSTITUTION FOR GREEN AUDIT:-

The Green Audit is carried out as per the environmental policy of Nagar Parishad Shivaji Mahavidyalaya, Mowad and Green audit checklist. The aim of the audit is to check the existing practices and provide advice for the development of environmental policy and practice in the areas of:

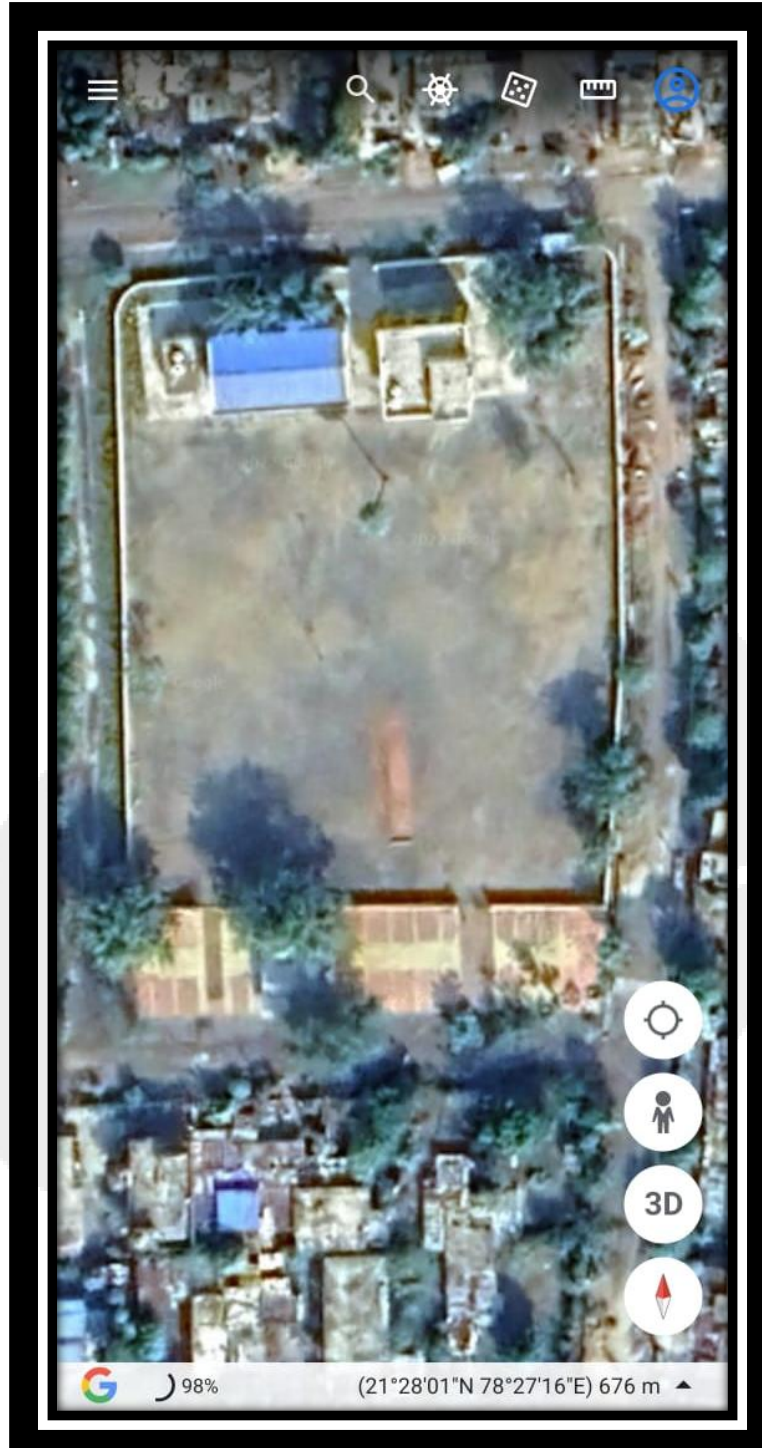
- Solid waste management
- E-waste management Water conservation and management
- Tree plantations
- Bio-diversity and threatened/ endangered species preservations
- Energy use and conservations
- Eco-friendly campus
- Green environment and clean campus



Google Earth Images



LATITUDE- 21°28'08"N (21.4689464)
LONGITUDE- 78°27'14"E (78.4539195)



Department of Physical Education

GREEN AUDIT EXECUTIVE SUMMERY REPORT

The rapid urbanization and economic development at local, regional and global level 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.

Nagar Parishad Shivaji Mahavidyalaya, Mowad is deeply concerned and unconditionally believes that there is an urgent need to these fundamental problems and reverse the trends. Being a premier institution of higher learning, the college has initiated 'The Green Campus' program that actively promote the various projects for the environment protection and sustainability.

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 include: physical inspection of the campus, observation and review of the documentation, interviewing key persons, data analysis, measurements and recommendations.

It works on the several facets of 'Green Campus' including Water Conservation, Tree Plantation, Waste Management, Paperless Work and Alternative Energy. With this in mind, the specific objectives of the audit are 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's health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit are based on the identified risks.

ABOUT COLLEGE IN BRIEF

1. Name of the Institute Nagar Parishad Shivaji Mahavidyalaya, Mowad
2. No. of Branches: 01
3. No. of Students: Intake UG- 237 PG- 0, Total: 237
4. No. of Faculty Members: 08
5. No. of Non-Teaching Members: 08
6. No. of Buildings- 02
8. Total campus area: 3.79 acer (15337.59 sq meter)
9. College building Spread Area: 1263.47 sq meter

	No. of Students	No. of Teachers	Non-teaching staff
Gents	113	06	08
Ladies	114	02	00

- a) Girls common room: 01
- b) Garbage collection bins: 06
- c) Labs: 01 (Computer Lab)
- d) Class rooms: 04
- e) Boys common room: 01
- f) First aid/Sick room: 01
- g) Drinking water coolers: 01

LAND USE OBSERVATION

The total area of Nagar Parishad Shivaji Mahavidyalaya is **12140.6 Sq. meter** out of which the built up area is **1263.47 Sq. meter** and open space & plantation area is **3035.142 sq. meters** and 4000 sq. meters, respectively. Based on finding, it can be concluded that college campus covered with vegetation is adequate to curb pollutants from the air.

Build Up Area of the Institute	1263.47 Sq. meter
Area of Plantation	0.75 acre ie. 3035.142 Sq. meter
Total Area	12140.6 Sq. meter



Plantation within College

AIR QUALITY IN COLLEGE CAMPUS

1. Temperature

Average Temp of Summer	42-45 °C
Average Temp of Winter	10-15 °C
Average Temp of Rainy Season	20-25 °C

The climate of Mowad is hot and dry. December is the coldest month.

Air Quality: Air quality in the academic institute is very important for health of the students, faculty and staff of the institute. The air pollution sources in the college campus are wind storm, pollen grains, natural dust, vehicular emissions, generators, Etc.

Ventilation Study:

Sr. No.	Location	Temp. (°C) (Max/Min)	Humidity (%) (Max/Min)	Local Air Velocities (m/s)					
				1	2	3	4	5	Average
1.	Class room	29.0°C	79.5%	3	3	3	3	3	3
2.	Laboratory	29.0°C	79.5%	3	3	3	3	3	3
3.	Ground Floor	31.0°C	81.5%	4	4	4	4	4	4
4.	2 nd Floor	-	-	-	-	-	-	-	-

Observation: Air Velocity Should be at least 0.5 m/s to produce cooling effects
Remark: Comfortable

Recommendations

Management of College may consider on top priority:-

- 1) World Environment Day to be celebrated in college premises every year on 5th June and whole college students and staff should get involved and take OATH for ENVIRONMENT CONSERVATION not only in college but also in every span of life.
- 2) Environment and green club committee should monitor the Ambient Air Quality as per the guidelines of "Air (Prevention and Control of Pollution) Act 1981, Water Quality as per IS 10500.

AUDIT PROCESS REPORT

★ ISO 14001 : 2015 certified

- 3) Parking zone of college should be neat & clean.
- 4) Use of bicycle in campus to be promoted.
- 5) Make available information about bicycle and pedestrian routes, public transport services and car share schemes to staff and students.
- 6) Promote sharing of vehicles among the students and faculty members.



Parking area of the college showing vehicle usage

NOISE QUALITY ASSESSMENT REPORT

The most crucial aspect of the noise management programme is noise quality measurement. It provides information about potential noise-generating areas in the workplace, as well as students and employees who may be affected. Noise measurements taken during peak hours provide useful data for planning, preventing, and managing noise in the workplace. If there is a noise problem in the workplace, it is useful to track noise measurements taken at several locations.

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified

Sound Meter Results

Location	Noise Level In dB
First floor	26.4dB
Open passage- First floor	33.2 dB
Ground floor	33.2 dB
Library	24.2 db
Open Ground	33.2 db
College Office	25.2 dB
Outside entry gate	29.2 dB



Entry gate of the college

Recommendations

Management of College may consider on top priority:-

- 1) Noise levels must be monitored in accordance with the "Noise Pollution (Regulation and Control) Rules 2000."

AUDIT PROCESS REPORT

- 2) According to the Central Motor Vehicle Act of 1988, vehicle exhausts must be evaluated on a regular basis in the college.
 - 1) To avoid further Higher Noise level at Main Gate–
 1. Make a Green Canopy (Dense plantation) along the side of the college border.
 2. Display **No honking** board or **Sound Limit** Board outside the gate.

WATER MANAGEMENT AND QUALITY ASSESSMENT REPORT

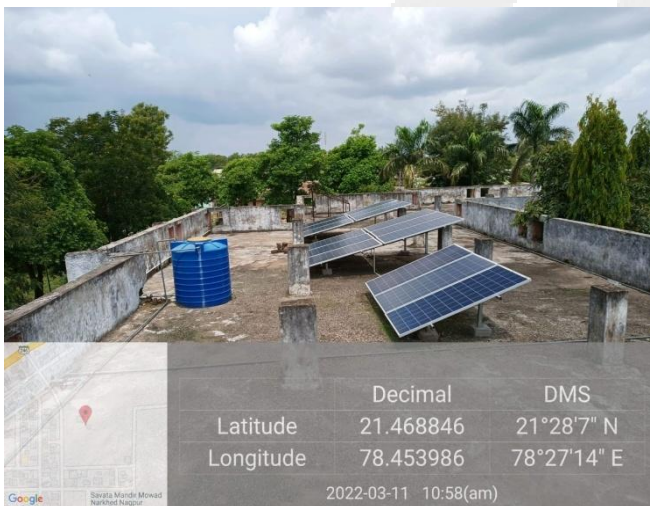
It is observed that the main source of water supply for the institute is a bore well. Water is used for drinking purpose, toilets and gardening. During the survey, no loss of water is observed, neither by any leakages, nor by over flow of water from overhead tanks. There are 5 Water Tanks, 1 Water Cooler found during the survey.

The data collected from all departments is examined and verified. On an average the total use of water in the college is 5,000 L/day. Which include 1,000 L/day for domestic purpose, 4,000 L/day for gardening. The drinking water is periodically tested by Municipal Council Mowad ensured its portability for drinking purpose. Five rain water harvesting units are also functional for storing and reuse. Gardens are watered by using drip irrigation system to save water. The rain water harvesting unit is applied throughout all 4 buildings and there are 4 exit points out of which few are in garden carry and one is near the pump. Since the black soil has seeping ability the rain water in rainy season is completely absorbed which helps to increase ground water level. The pump installed in the college along with college also supply water to the entire Mowad throughout year.

Location/ Area	Avg. total consumption of water per day (in Litres)
College	5000/L
Gardening	4000/L
Utilities/uses	1000/L
Source of Drinking Water	Bore Well, Other

**AUDIT PROCESS
 REPORT**

Source of Water that requires other than drinking	Bore Well
Hardness of Water	65mg/L(R.O.100 mg/l)
pH of Water	7.2
Quality of Water	Good



Source of Water, RO water filter, Overhead Tank and Water Sump

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified



**Rain water
seepage in
soil, Rain
water
collection
and exit
points**

Recommendations

- 1) To establish and implement the Water Conservation and Management Plan as per Environment Protection Act 1986.
- 2) The water Conservation Awareness Program to be conducted on World Water Day on 22nd March every year.
- 3) Display boards for switching off the taps to be put on at appropriate place.
- 4) To eliminate the spillage and over usage of water in washbasins, urinals and toilet push taps are highly recommended.
- 5) Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. Automatic Leak detection systems and sensors for conservation of water.
- 6) Water meters to be installed on Bore Well water -extraction system as per the guideline of Central Ground Water Authority (CGWA).
- 7) Ensure RO filtration equipment used for such usage, are regularly serviced.
- 8) Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.

SOIL QUALITY ASSESSMENT REPORT

The goal of the soil quality assessment is to protect and improve the soil on campus while also increasing its fertility for plant development. The level of organic matter in soil is the most significant factor in sustaining soil quality. Litterfall in plantation areas is more than enough to keep soil organic matter at a healthy level. The following are the results of soil samples taken from the campus area.

Observations

We observed that college has 3.79 acres of land area. In front side of the college there is land reserve for gardening purpose, and available space for parking. There is parking shed found in the college campus. At the back side of the college land is reserved for play ground. The overall area of the campus is protected with fencing in the main building. The new building is

**AUDIT PROCESS
 REPORT**

★ ISO 14001 : 2015 certified

properly protected by a compound. Inside the college building plantation is been done which include some ornamental, medicinal and aesthetic plants. To have rich green effect College has done some pot gardening.

VISUAL TEST (Main Campus Area)

Particle Type:	Black loamy soil
Water Conditions:	Seeping Water
Type of material used to make Road	Cement, Gravels
Fertility of Land	Fertile



Roads inside the college, college ground of main building and new Physical education Department

AUDIT PROCESS REPORT

Campus is located in the vicinity of approximately 26 types of plant species. Total more than 314 trees are available in the college campus. Various tree plantation programs are being organized during the month of July and August at college campus and surrounding villages through NSS unit. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes plantation of various type of indigenous species of ornamental and medicinal as well as wild plant species. To create-green cover, eco-friendly atmosphere, pure oxygen at the college campus, plantation program is organized every year involving all students, Principal, and all faculty members.

At this session Tree plantation day program was organized and about 15 avenue trees including few ornamental plants were planted in college campus. To keep the greeneries in the campus, gardens are maintained regularly, which are looked by staff under the guidance of garden committee members. Plantation of new variety of trees is preferred every year.



A) List of Tree Species in the college premises

Sr. No.	Local Name of the Plant	Botanical Name	Family	Count
1	Sheesham	<i>Dalbergia sissoo</i>	Papilionaceae	04
2	Amala	<i>Emblca officinalis</i>	Euphorbiaceae	01
3	Aam (Mango)	<i>Mangifera indica</i>	Anacardiaceae	02
4	Ashok	<i>Polyanthia longifolia</i>	Annonaceae	14
5	Karanji	<i>Pongamia pinnata</i>	Papilionaceae	01
6	Jamun	<i>Syzygium cuminii</i>	Myrtaceae	02
7	Sag	<i>Tectona grandis</i>	Verbenaceae F	03
8	Sitaphal	<i>Annona squamosa L.</i>	Annonaceae	01
9	Rui	<i>Calotropis procera</i>	Asclepiadaceae	10
10	Sadaphuli	<i>Catharanthus roseus</i>	Apocynaceae	02
11	Jaswand	<i>Hibiscus rosa- sinensis</i>	Malvaceae	02
12	Laajaalu	<i>Mimosa pudica</i>	Mimosaceae	150+
13	Tulas	<i>Ocimum sanctum</i>	Lamiaceae	30
14	Neem Trees	<i>Azadirachta Indica</i>	Meliaceae	13
15	Ber Tree	<i>Zizyphus Mauritian</i>	Rhamnaceae	04
16	Ramphal	<i>Annona reticulata.</i>	Annonaceae	01
17	Pipal	<i>Ficus religiosa</i>	Moraceae	02
18	Vidya	<i>Thuja sp.</i>	Cupressaceous	06
19	Palm	<i>Dypsis lutescens</i>	Arecaceae	20
20	Ficus	<i>Ficus benjamina</i>	Moraceae	03
21	Boganwel	<i>Bougainvillea sp.</i>	Nyctaginaceae	04
22	Babhul	<i>Acacia nilotica</i>	Fabaceae	10
23	Saptparni	<i>Alstonia scholaris</i>	Apocynaceae	37
24	Sweet Neem	<i>Murraya koenigii</i>	Rutaceae	02
25	Palas	<i>Butea monosperma</i>	Fabaceae	02
26	Almond	<i>Prunus dulcis</i>	Rosaceae	01

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified

B) List of bird species observed in the campus

S. No.	Common name	Scientific name
1	Black kite (Eagle)	<i>Milvus Migrans</i>
2	House sparrow	<i>Passer Domesticus</i>
3	Common Crow	<i>Corvus Splendens</i>
4	Kingfisher	<i>Alcedo Atthis</i>
5	common Myna	<i>Acridotheres Tristis</i>
6	Popat	<i>Psittacula Krameri</i>
7	Koel	<i>Eudynamis Scolopaccus</i>
8	Bagala	<i>Platalea Leucorodia</i>
9	Bhovari	<i>Spilopelia Senegalensis</i>
10	Sutar	<i>Upupa Epops</i>
11	Bulbul	<i>Pycnonotus Cafer</i>
12	Jungle babbler	<i>Turdoides Striata</i>

C) List of other lower order fauna observed in the campus

S. No.	Common name	Scientific name
1	Common House Fly	<i>Musca domestica</i>
2	Dragonfly	<i>Pantala sp.</i>
3	Termites	<i>Coptotermes sp.</i>
4	Mungi (Ant)	<i>Monomorium sp.</i>
5	Madhmashi	<i>Apis Indica</i>
6	Butterfly	Rhopalocera
7	Spider	<i>Araneae sp.</i>
8	Centipede	<i>Scolopendra sp.</i>
9	Mosquito	<i>Anopheles sp.</i>
10	Earthworm	<i>Lumbricina sp.</i>

**AUDIT PROCESS
 REPORT**

★ ISO 14001 : 2015 certified

GREEN CAMPUS



FF93+HGF, Mowad, Maharashtra 441303, India		
	Decimal	DMS
Latitude	21.468755	21°28'7" N
Longitude	78.453695	78°27'13" E
2022-03-11 10:50(am)		



FF93+HGF, Mowad, Maharashtra 441303, India		
	Decimal	DMS
Latitude	21.469083	21°28'8" N
Longitude	78.454037	78°27'14" E
2022-03-11 10:59(am)		



FF93+HGF, Mowad, Maharashtra 441303, India		
	Decimal	DMS
Latitude	21.468833	21°28'7" N
Longitude	78.453673	78°27'13" E
2022-03-11 10:51(am)		



FF93+HGF, Mowad, Maharashtra 441303, India		
	Decimal	DMS
Latitude	21.468834	21°28'7" N
Longitude	78.453699	78°27'13" E
2022-03-11 10:52(am)		



FF93+HGF, Mowad, Maharashtra 441303, India		
	Decimal	DMS
Latitude	21.468792	21°28'7" N
Longitude	78.453535	78°27'12" E
2022-03-11 10:49(am)		



Plantation within the college



Plantation within College

Recommendations

1. Review periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names to the trees.
2. Promote environmental awareness as a part of course work in various curricular areas, independent research projects and community service.

AUDIT PROCESS REPORT

3. Create awareness of environmental sustainability and take actions to ensure environmental sustainability.
4. Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
5. Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.
6. Celebrate every year 'Environment Day' and plant trees on this day to make the campus more Green.

WASTE GENERATION

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

E-waste disposal and management

Because of technological advancements, the use of electronic devices is increasing at a quicker rate. People are buying more advanced electronic equipment while discarding older ones, resulting in an increase in E-waste generation. E-waste contains harmful compounds such as cadmium, chromium, and PCBs, which pose a health concern. On a college campus, e-waste creation is at a minimum.



The organization is well established and equipped with the necessary and up-to-date electronic infrastructure, the e-waste generation is very minimal. The college has total of 14 computers and 4 printers in working condition. The cartridges of laser printers are refilled outside the college campus.

The E-waste generally includes the tube lights, CFL, LED are stored into the scrap yard of college and stored. This waste material is yet to be disposed. E-waste generated in the campus is very less in quantity. The E-waste and defective item from computer laboratory is being stored properly.

The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner. The audit team noted that the technical life time / service life of most of the electronic equipment's is yet to be over, thus the presently there is limited generation of E-waste.

SOLID WASTE MANAGEMENT

Solid waste is a heterogeneous material that must be disposed of in a methodical and environmentally conscious manner. The administrative office and the campus generate solid trash in college. Solid garbage generated on campus is separated and placed in green and blue collection receptacles. This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc. and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

**AUDIT PROCESS
REPORT**
Observations

College has developed Organic plantation. The total solid waste collected in the campus is 10 kg/day. Waste generated from tree droppings is a major solid waste in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Non Bio-degradable waste. Important and confidential reports/ papers are sent for recycling after completion of their preservation period to raddi center.

The institute has adopted vermicomposting method that involves biological decomposition of organic matter, under controlled conditions, with the help of earthworms in culture house on 300 sq. ft. land. The main purpose of this is to reduce disposable waste in the college campus. After complete process of composting, it is used as manure in the garden and lawns. The vermicompost produced is been sold and used for college plants and sold.



Vermicomposting Tank



Green and blue collection receptacles

Recommendations

1. The entire vermicomposting unit is suggested to make functional technically to get compost which could be used within college for the plants.
2. Develop a certificate course in vermicomposting for students and college could arrange an awareness camp for the farmers in the area and guide to establish such vermicomposting unit in their farm under extension activity.

AUDIT PROCESS REPORT

3. The vermicompost produced in the college vermicomposting unit could be sold in reasonable rates to the required farmers, nurseries or houses under ISO: 9001-2015 for self fund generation in college..
4. Reduce the absolute amount of waste that is produced from college staff offices.
5. Make full use of all recycling facilities provided by Nagar panchayat and private suppliers, including glass, cans, white coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
6. Single sided papers to be used for writing and photocopy.
7. Recycle or safely dispose of computers and electrical appliances.

ENERGY USE AND CONSERVATION

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

Aim and objective:

- 1) To save conventionally produce electric energy
- 2) Use of non- conventional source of energy
- 3) Use carbon neutral electricity
- 4) Minimization of electric expenses

Observations

Following Energy Sources are used in the college:

- Solar
- Electrical
- Petrol

ELECTRICAL POWER CONSUMPTION

Electrical power usage is linked to people's living standards, city growth, industry, and transportation sectors. Electricity is required to do normal tasks. This indicator addresses

**AUDIT PROCESS
 REPORT**

★ ISO 14001 : 2015 certified

energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. By replacing obsolete fluorescent lighting with LED bulbs and tube lights, the college is committed to reducing electricity use. Students and staff are aware of the need of conserving energy by turning off electrical equipment when they are not in use.

Total Energy consumption for last 3 years 2019-20, 20-21, 21-22.

Details	19-20	20-21	21-22
Electrical Consumption	2590 Units	1709 Units	2019 Units

Electricity Expenses for last 12 months 2021-22

Month	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22
Electrical Expenses	1060	1130	1560	1460	1530	1190	860	850	1270	900	1790	1730

List of major consuming equipments/ devices lab instrument in institute are- AC, water Cooler, Workshop machineries

- Total no. of coolers used in summer- 06 Nos.
 - No. of generator set : 00
- No. of Electrical equipment used & electrical Energy Consumed Equipment wise is not estimated.

Sr.No.	Equipment	Quantity
1	Computer	14
2	Printers	04
3	3D Printer	-
4	Xerox	02
5	Projector	04
6	Water cooler	01
7	Air Cooler	06
8	Generator	00
9	LED bulbs	44

AUDIT PROCESS REPORT

★ ISO 14001 : 2015 certified

Other than Electrical Energy consumption details

- No. of Two Wheeler Vehicle: 50
- No. of Four Wheeler: 11
- No. of Cycle: 150
- Pickup vans: 00
- Avg. Driving: Two Wheeler 4-5 Km
- Avg. Driving : Four Wheelers 9-10 Km

Observations

Mahadiscom is the major source of electricity. 15500 KWH is the requirement of the college. The fulfilled with the Mahadiscom supply to the institute. In the terms of units, institute needs 350 units per month. All the department and common facility Centre are equipped with LED lamps. 44 LED lamps are counted during survey. The Solar panel generation device generates 4 KWH per day. The college is now using 1.5 kW UPS and batteries for energy storage. This solar panel system has shared the load of 140 KWH/ month from the overall requirement of 350 units per month from the conventional source. It is found that energy source utilized by the entire college in its daily activity. Energy audit has been conducted and the recommendation has also been implemented specifically for replacement of regular tubes and bulbs with LED bulbs and tubes.



Solar Panel

**AUDIT PROCESS
REPORT**



Power backup



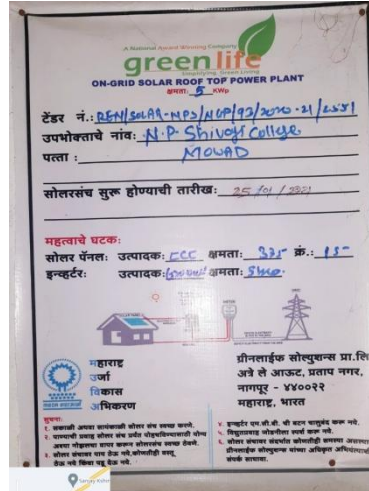
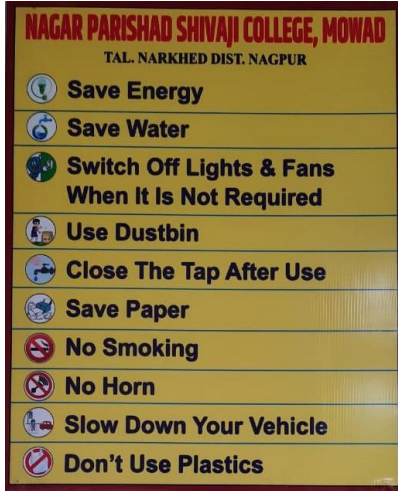
The structure for Future plan for installation of solar panels

Recommendations

1. Encourage natural ventilation and illumination by alteration in the building structures whenever going for new constructions
2. Management of College may encourage the staff and students:-
3. To use Common or public Vehicle instead individual vehicle to conserve fossil fuel.
4. Energy saving awareness should be done by displaying the boards at appropriate place
5. Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs.
6. Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction certain areas of consumption and/or in the overall consumption of energy.
7. Ensures that all electronic and electrical equipment's, such as computers, are switched off when not in use.
8. Centralized controls of lighting, Common Hall etc. to avoid any miss-use of electricity
9. Increase Installation of Solar panels for future convenience.
10. Shift to paperless regime wherever not required, example attendance muster replaced by biometrics, DG logbook replaced by computerized logbook, daily reports converted from paper to paper less, HOD meetings converted to paperless formats, and all such examples.
11. If there are equipment's running on standby mode, reduce the energy consumption on standby mode or minimize the running of equipment's on standby mode.

**AUDIT PROCESS
REPORT**

Overall Observations



Sign boards, Solar panel installation certificate, ISO 9001:2015 certificate, Plantation in college,

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified



Plantation Drive

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified



Sports Accessories



New Physical Education Department, Sports Auditorium

**AUDIT PROCESS
REPORT**

★ ISO 14001 : 2015 certified



Common hall for academic functions, Classrooms with Teaching aids, Auditing committee

OVERALL RECOMMENDATIONS

1. Awareness among students and staff about green environment to be done by using tools like display boards. Encourage the faculties and students to plant trees in the college campus.
2. Prepare one medicinal Garden and try to plant rare and endangered plant species.
3. Display of Switch off Light, Energy saving, water Saving boards in Each Classroom, Staff rooms, and computer Lab.
4. Display of Use Dustbin boards in college premises.
5. Display Parking board at proper Places.
6. Update No smoking and No tobacco boards.
7. Increase Awareness of Environmentally Sustainable Development- Use every opportunity to raise public, government, industry, foundation, and university awareness by openly addressing the urgent need to move toward an environmentally sustainable future.
8. Educate for Environmentally Responsible Citizenship- Establish programs to produce expertise in environmental management, sustainable economic development, population, and related field with help of environment science subject to ensure that all students are environmentally literate and have the awareness and understanding to be ecologically responsible citizens.
9. Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.
10. Do green audit regularly.

AUDITOR FOR THE PROCESS



Dr Nitisha Patankar
Director, ENVINZOA

About me

- Director, ENVINZOA- Providing consul
- Developed an Application for assessing an **Insect Biodiversity**
- Developed an Application to know about insects coming across our daily life. **"We are Insects"**.
- **Entomology Consultant** in ongoing project Gevra Coal mining in Korba District, Chhattisgarh in **NEERI** in which insect diversity was studied.
- Developed an Application "I am Butterfly" in collaboration with Head of the Department (2021-22) to enlighten the information of different species of the butterflies found in the campus area and for interactive handbook on same.
- Research going on **gall-inducing insects** in central India.
- Had experience working under different projects in Environment Impact & Risk Assessment Division, National Environmental Engineering Research Institute (**NEERI**), Nagpur, India from **October 2004 - September 2006**.
- Had experience of post doctoral research in the project entitled **"Network Project in Insect Biosystematics"** specifically on the Family-Curculionidae, Order- Coleoptera in the Division of Entomology, **Indian Agricultural Research Institute (IARI)**, PUSA, New Delhi, India from **September 2006 - August 2009**.
- Trained in different biological experimental techniques and methodologies like Immunohistochemistry (Single/Double), Cryomicrotomy, Electronmicroscopy (EM) of insect Brain, Scanning Electron microscopy (SEM) for insect morphological structures, Microtomy, Histological and Neuroanatomical staining techniques, Tissue Mounting techniques and methodologies, Insect collection and their preservation, Insect culture, Morphological study of Insect (Insect Taxonomy), Biological Component Studies of Environment Assessment, Zoo/Phytoplankton Analyses, Physico-Chemical Analysis of Water, etc.
- Teaching experience in Zoology in **Hislop College**, Nagpur, Biological Sciences in **Ramdeobaba College of Engineering and Technology, Bhiwapur Mahavidyalaya**, Bhiwapur, **PG Department of Zoology**, Hislop College, Nagpur, **Sanjuba High School**, **Nevjabai Hitkarini College**, Bramhapuri, **PGTD of Zoology**, Nagpur University, Nagpur.
- Had **15 National and International** publications
- Presented **17** papers in National and international conferences and participated in **2** National seminars.
- Talk/Lecture and keynote Speaker experience-
 - Delivered lecture in training program on Ecology and Biodiversity for EIA projects on the topic **"Assessment and identification of insect fauna as an ecological indicators"** in CSIR- National Environmental Engineering Research Institute, Nagpur, India under Online Training Program on "Ecology and Biodiversity" held from
 - Delivered lecture series on respective science II syllabus of 8th, 9th and 10th class in Wainganga Vidyalaya, Kolari, Mahatma Phule Sikshan Santha, Bramhapuri.
 - Delivered Lecture on the topic **"Assessment and identification of aquatic insects as an ecological indicator"** on **October 28-29, 2021** in CSIR- National Environmental Engineering Research Institute, Nagpur, India who organized CPCB sponsored online Training Program on Biological Monitoring Analysis and Testing (Microbiology, Bio-Assay and Bio-monitoring) SOPs, Data Interpretation and Quality Assurance".
 - Delivered Lecture in training Programme on **"Ecology and Biodiversity for Environmental Resource person Impact Assessment"** Projects held during **February 19-21, 2020** in CSIR- National Environmental Engineering Research Institute, Nagpur, India.