



VIDYA BHARATI MAHAVIDYALAYA AMRAVATI

Re-accredited "A" Grade by NAAC with CGPA 3.26

College with Potential for Excellence (CPE) Status by UGC

Star College Status by Department of Biotechnology, New Delhi

Affiliated to Sant Gadge Baba Amravati University, Amravati



GREEN & ENVIRONMENT AUDIT REPORT 2014-2015



Prepared by

Mountain Watercare Technologies, Pune



MOUNTAIN WATERCARE TECHNOLOGIES

Assuring Quality Water

Registration No. Pimpri/II/53363

Date, 25/04/2015

To,
Principal,
Vidya Bharati Mahavidyalaya,
Camp, Amravati

It is to certify that we Mountain Watercare Technologies Consultancy, Pune conducted "Green & Environment Audit" of the campus of Vidya Bharati Mahavidyalaya, Amravati for the Academic Year 2014-2015.



Kishan M. Jagtap
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I. Introduction

There are no doubts that issues related to the environment problems have a global impact and became one of the top subjects for scientific, economic, ethical and political discussions all around the world. As a result we are able to talk about environment education that becomes an integral part of modern human being. In order to solve the environmental issues, investigate the causes of the changes that occur in the environment, prevent them and find out what role humankind plays in it scientists in various spheres and from all corners of the planet unite their forces and develop environment science – the multidisciplinary academic study that use the investigations of physical, biological and information sciences to study the environment and the solutions to the environment issues.

Surely our planet is our home, but people aren't the only inhabitants, unfortunately we quite often forget about this point. In most cases the environmental issues are caused by harmful human activities; progress and rapid development of industry only increase their number. In general all environmental issues may be divided into several big groups that touch different areas of the environment. The most "famous" issues about which people hear almost every day are climate changes, human overpopulation, pollution (air, soil, and water) and resource depletion, also there are equally important points such as environmental health, environmental issues with energy and war, genetic engineering, toxicants and waste.

Finding solutions to all these problems requires a collective work of experts in various fields of science, because only interdisciplinary research can provide us with up-to-datedata and help to see the real situation. Physics, biology, chemistry, geology, zoology, geodesy, geography, ecology, climatology, mathematical modelling and statistics – understanding of all these sciences and many others is necessary for successful work on the understanding of the natural processes, finding alternative energy systems and natural resource management, pollution control and alleviation.

The term 'Green' means eco-friendly or not damaging the environment. This can acronymically is called as "Global Readiness in Ensuring Ecological Neutrality" (GREEN). An environmental audit as defined in ISO 14000 is a systematic, documented verification process of objectively obtaining and evaluating audit evidence to determine whether specified environmental activities, events, conditions, management systems, or information about these matters conform with audit criteria, and communicating the results of this process. "Green Auditing", an umbrella term, is known by another name 'Environment Auditing'. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college 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. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of different environmental issues.

II. About College

Vidya Bharati Mahavidyalaya one of the foremost educational institutions of Vidarbha, was established in 1972 first as a Science College at the graduate and Junior College levels. Later it blossomed into a multi-faculty institution with Arts, Commerce, Management and Cosmetic Technology. The College offers courses from the Junior College level, through Graduation and Post-graduation to Research for PhD in all the faculties.

The institution has well-equipped laboratories, ample computer and internet facilities, an excellent library, an immense playground with a Sports Complex, a well-equipped Gymnasium, a state-of-the-art AV Theatre, an Astronomy Club and two Girls' Hostel in the campus itself. These facilities along with exemplary teaching staff have taken the results of the college to greater heights of glory with each passing year. Student achievers in the fields of Academics and Sports and Cultural activities are felicitated every year by the College with prizes, certificates, mementoes and track suits.

On 5th January 2013, the College was re-accredited by NAAC, Bangalore with Grade 'A' and a CGPA of 3.26, the highest till date among all the colleges in the four Universities of Vidarbha. The College was also awarded the Star College status by the Department of Biotechnology, New Delhi. It was also accorded College with Potential for Excellence (CPE) status by the UGC, New Delhi for the second time. The College has significant representation of teachers in the University, with 02 members as Deans of the Faculties of Science and Commerce and 12 members on the different Boards of Studies. Researches being a major activity, the faculty members have 05 Major and 30 Minor UGC-approved Projects to their credit.

Mission

Committed to the creation of a self-reliant centre of excellence that imparts knowledge and develops the right values, attitudes and skill stressing quality consciousness, to produce ideal citizens who can contribute their mite to nation-building.

Vision

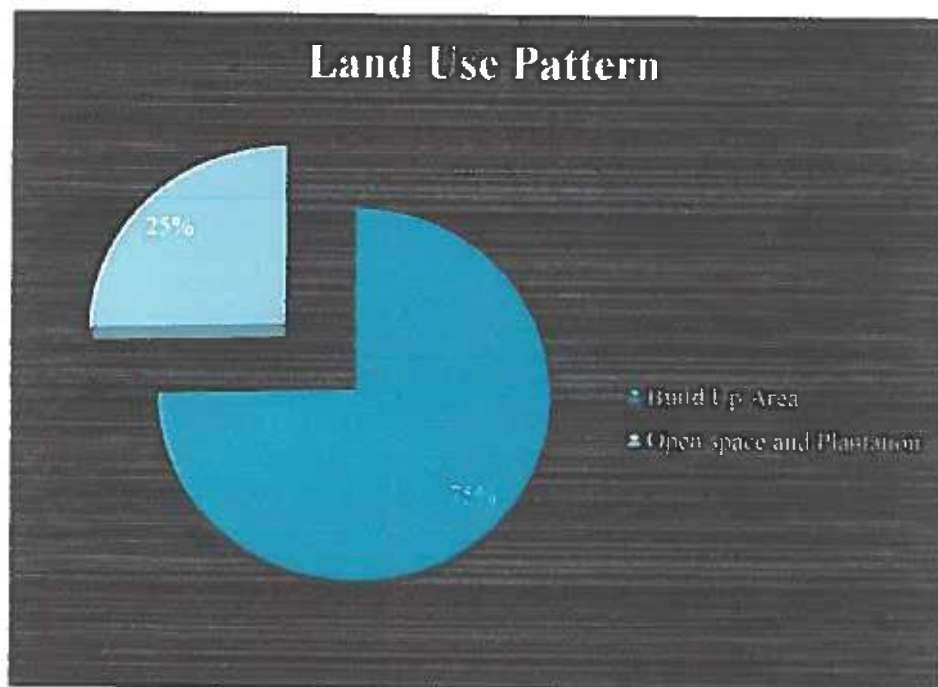
Holistic development of the students into a responsible, morally upright citizen capable of thinking, learning and striving for national development.

Land Use Data

Vidya Bharati Mahavidyalaya is within the geo-position between latitude 20°56' N and longitude 77°46' E in Amravati, Maharashtra, India. It encompasses an area of about 28881.16 sqmeter. The college has following land use pattern:

Categories of Land Use	Area in sqm
Build Up Area	21542.09
Open space and Plantation	7339.07
Total Area	28881.16

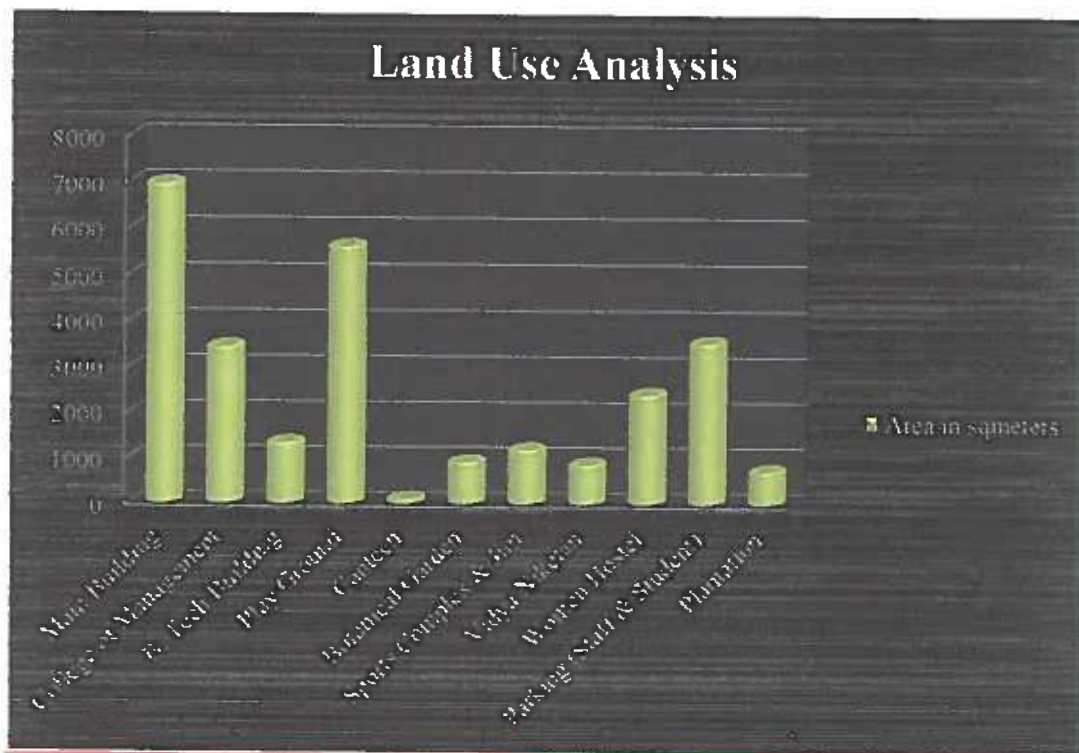
The total area of Vidya Bharati Mahavidyalaya is 28881.16 sqm out of which the build up area 74.58 % (i.e. 21542.09 sqm) and open space and plantation area is 25.41% (i.e. 7339.07 sqm).



Land Use Analysis

Following are the land use analysis of Vidya Bharati Mahavidyalaya:

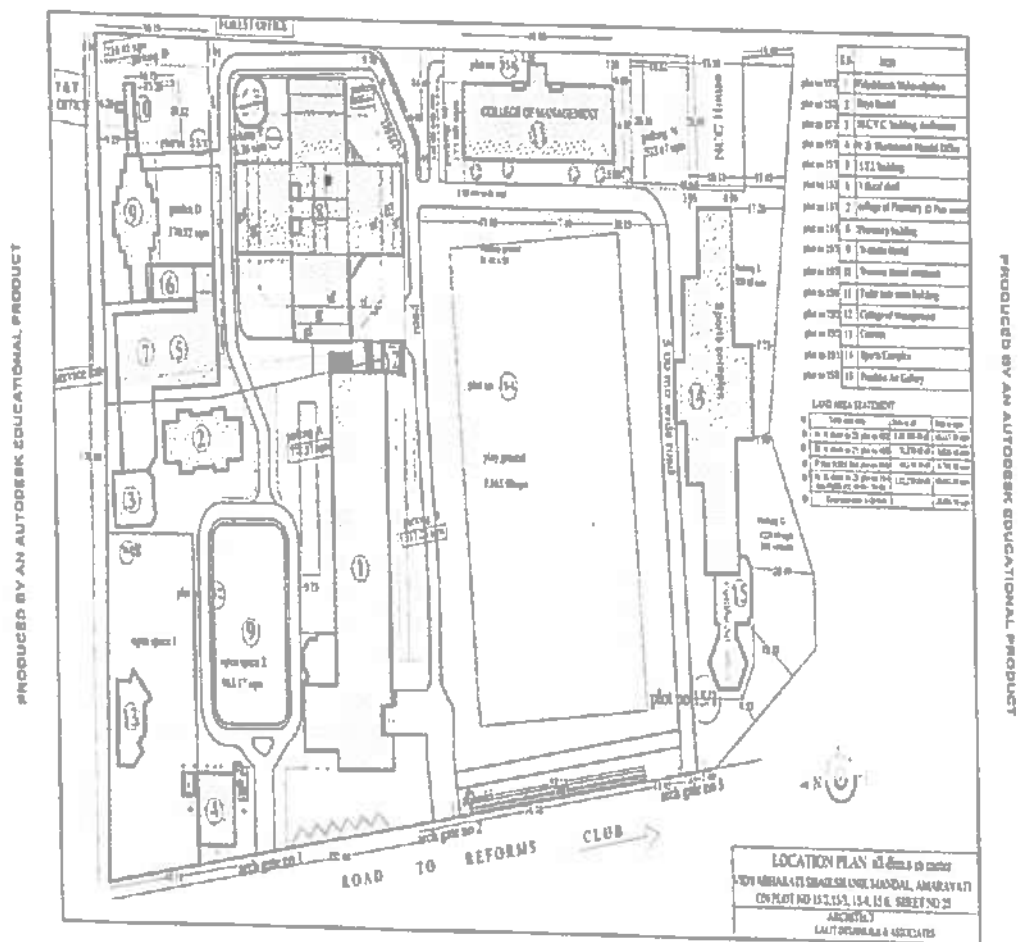
Category of Land Use	Area in sqmeters
Main Building	7007
College of Management (propose)	3472
B. Tech Building	1370
Play Ground	5665
Botanical Garden	963.17
Sports Complex & Jim	1234
Vidya Niketan	911
Women Hostel	2457
Parking (Staff & Student)	3579.62
Plantation	777.57



The total build up area of college is 211542.09 sqm and open space area is 7339 sqm. For performing green audit college campus is divided in to following pattern i.e. Main Building, Vidya Niketan, Sports Complex, B. Tech. Building, Girls Hostel, Botanical Garden, play Ground, Canteen area, Parking etc. All the building and class room are equipped with standard furniture and fixtures and have all adequate basic facilities on each floor including toilet and drinking water. The specious classrooms, administrative office, well equipped and specious laboratories, parking facilities are the main features of this campus.

Collage Layout Plan

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

Photographs of VBMV:

Building



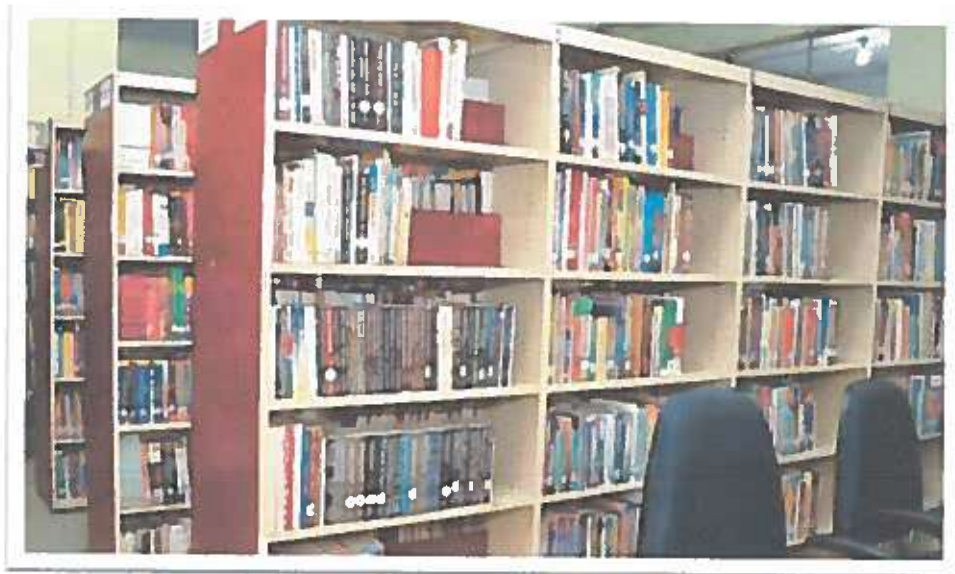
Play Ground



Sports Complex



Library



Gymnasium



III. Objective of Study

The main objective of the green audit is to promote the environment conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment protection in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- I. To make the baseline survey to know the reality of green practices in the college campus.
- II. To identify and analyze significant environmental issues in campus.
- III. To collect the base information over the current green practices can impact on environment.
- IV. To find out significant environmental issues in college campus and surrounding area.
- V. Setup goal, vision and mission for environmental conservation and sustainable practices in campus.
- VI. To collect information about solid waste generation in campus.
- VII. To introduce and aware students to real concerns of environment and its sustainability.
- VIII. To secure the environment and cut down the threats by analysing the pattern and extent of resource use of the campus.
- IX. To identify gaps and suggest recommendations to improve the Green Campus status of the institution.
- X. To analyze and suggest solution for problems identified from Audit Report.

IV. Methodology

The purpose of the green audit of Vidya Bharati Mahavidyalaya is to ensure that the practices followed and conducted in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. Some data have also been taken from the students volunteer by various departments of the college. College green audit divided in two parts first Green Audit and second Environment Audit. Green Audit includes issues like solid waste, green area, green practices, and energy audit. Environment Audit includes the audit of air, noise and water quality.

V. Green Audit

Observations and Recommendations

Solid Waste Audit

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 average total solid waste collected in the campus is 11 Kg/day including all categories. Waste generation from tree droppings and garden management and paper waste is a major solid waste generated in the campus. Single sided used papers reused for writing and printing in all departments and office work. Followed by paper plastic is secondary contributing solid waste generated in some quantity in the campus. Very less quantity of E-waste generated in the campus. College administration conducts the proper management and disposal facility in order to disposal and handling of solid waste.

Recommendations

- Reduce the absolute amount of waste that is produced from college staff offices.
- Important and confidential papers after their validity to be sent for pulping.
- Sufficient big waste bins are placed where essential (in classroom, near office etc) and monitored periodically.
- Segregate solid waste in to wet, dry, glass and constructional at source and biodegradable is sent for composting, while other sold waste are send to recycle or proper disposal.
- Install Vermicomposting and Pit Composting unit for proper management of biodegradable solid waste.
- Training in bag making from polyester, and cotton materials for students.
- Use reusable resources and containers and avoid unnecessary packaging where possible.

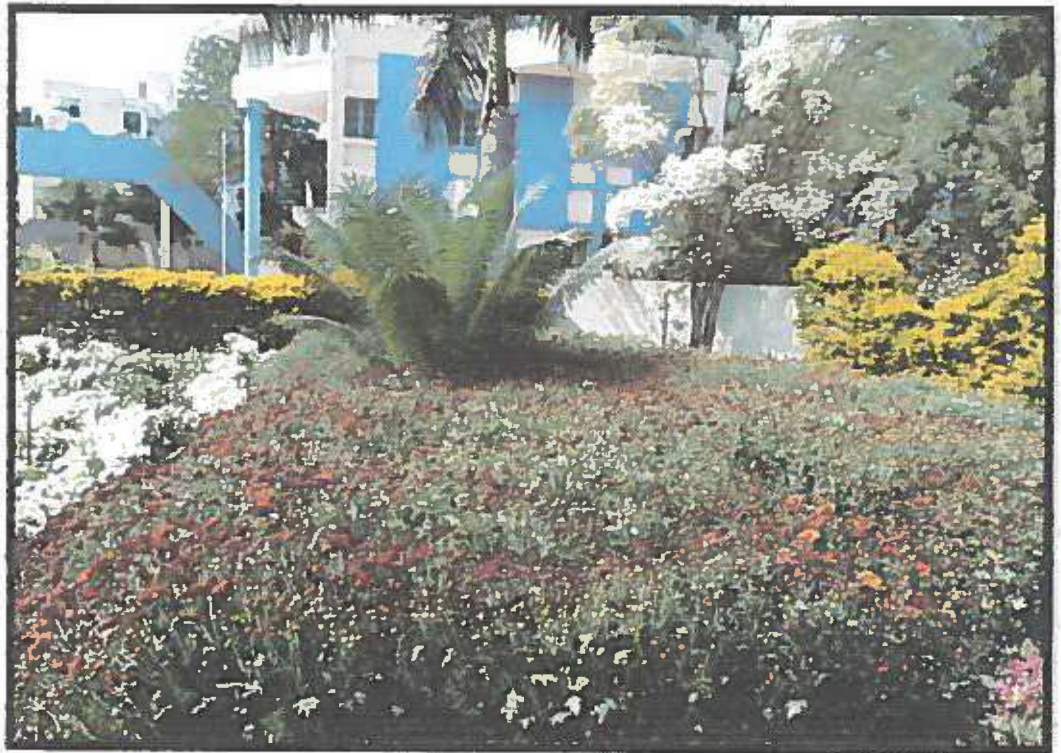
Green Area Audit

The Vidya Bharati Mhavidyalaya area is immensely diverse with a variety of tree species performing a variety of functions. To create- green cover, eco-friendly atmosphere, pure oxygen at the college campus, plantation program is organized every year with involving all students, principal, and all departments faculty members. Various tree plantation programs are being organized at college campus and surrounding villages through NSS (National Service Scheme) unit. The trees of the college have increased the quality of life, not only the college fraternity but also the people around of the college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil. Leaves absorb and filter the sun's radiant energy, keeping things cool in summer. Many animals are dependent on these trees mainly for food and shelter. Flowers and fruits are eaten by monkeys, and nectar is a favourite of birds and many insects. Leaf covered branches keep many animals, such as birds and squirrels, out of reach of predators. A total 115 plants present in the college campus including trees, shrubs and herbs during the academic session 2014-2015.

Recommendations

- Done the time to time listing of flora present in campus and display the botanical name on flora
- Create awareness about conservation and role of tree in environment.
- Establish a college level committee regarding tree plantation, protection and
- Celebrate every year 5th June as 'Environment Day' and plant trees on this day to make the campus more Green.
- Indoor plantation to inculcate interest in students, Bonsai can planted in corridor to bond a relation with nature.





Energy Audit

The total energy utilization of the college for different purposes is approximately 11500 kwh/month. Major energy consumption equipments are the high wattage electrical appliances such as electrical motors for pumping the water, air conditioners etc were noted during the survey and on site visit. The college keep on replacing the old filament bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and bulky high power consuming fans by energy efficient fans in order to keep the electricity consumption of the college as low as possible. All the computers have LED screens; Computers are always kept on standby mode with power saving screensavers. Non-teaching staff switches on all lights & fans in morning and shut down directly in evening.

Recommendation

- Awareness programmes for the staff and student to save energy may also increase sustainability in the utilization of various energy sources.
- The College should improve its monitoring and reporting of electricity usage.
- Conduct switch off drills at regular intervals and fix its responsibility on teaching / non teaching staff.
- It is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.
- Save electricity by proper maintenance of the wiring and electrical equipment, maintenance of electrical appliance and fitting is essential.
- Adopt solar power to light up the roads, exterior site of campus section.
- Cleaning of tube-lights/bulbs to be done periodically, to remove dust over it.

VI. Environment Audit

Observations and Recommendations

Water Audit

Water audit includes the onsite assessment of source, water requirement, water storage and water losses through leakage in college campus. For water audit necessary data is generated through the on site visit, survey by questioner and interviews etc methods applied by consulting agency. Water is used for main building, ground, Canteen, urinal, garden etc for daily routine activity. During the survey no loss of water is observed neither by any leakages nor by over flow of water from overhead tanks in all over the college campus. The data collected from all the campus is examined and verified. College also build up rain water harvesting unit for collection and recharge of ground water.

On an average the total use of water in the Vidya Bharati Mahavidyalaya campus is 36000 L/Day, which include 11500 L/Day for Girls Hostel, 2000 L/Day for Garden purposes, 1500 L/Day in Main Building for drinking, laboratory, toilet etc.

The source and per day average water consumption in Vidya Bharati Mahavidyalaya is given below:

Following are the sources of water in college campus

Sources of Water

Sources	Well	Corporation	Bore Well
Total No.	01	01	03

Recommendation

- Responsibility of monitoring the overflows of water tank is fixed on peons/ non - teaching staff in the concerned section.
- Pipes, overhead tanks and plumbing system should be maintained properly to reduce leakages and wastages.
- Gardens should be watered by using drip/sprinkler irrigation system to minimise water use.
- Conduct awareness program for efficient use of water.

Noise Audit

The noise levels / Sound pressure level (SPL) measurements were carried out using precision sound level meter or dB meter. The noise level measurement was periodically carried out at six locations, at outside as well inside the college campus. The major source of noise identified in the college campus has been predominantly the external and the transportation activities.

Average Noise Monitoring Results

Sr. No.	Location	Average Reading dB (A) Leq (Day Time)	Ambient Noise Standard dB (A) Leq (Day Time)
1	Near Main gate	72	50
2	Boys Parking	52	50
3	Near College of Management	56	50
4	Near Main Building	56	50
5	Near B. Tech Building	65	50

Recommendation

- College take steps to reduce the outdoor noise.
- Undertake awareness programme regarding noise pollution there effect.
- Measure the intensity of noise with regular interval.

Air Audit

Air quality is an important aspect of environmental audit. Air quality parameter was measure with the help of different instrument by following standard procedure. During the visit and observation major source for the air quality is vehicles and transportation system. The air pollutants monitored on regular basis are Sulphur dioxide (SO₂), Oxides of Nitrogen as NO₂ and Carbon Monoxide (CO). All air parameter study in campus is within the standard limit given by CPCB and other agency.

Recommendation

- Conduct various programme regarding air pollution and their effect on environment.
- Promote vehicle pooling concept in student.
- Promote use of bicycle among the staff and students.

Carbon Neutrality Efforts of College

- Student projects are oriented in eco consciousness and sustainability mode.
- Promote use of public transport among the staff and student.
- Motivate staff and student for vehicle sharing.
- Tree plantation programme conducted every year and avoid the unnecessary cutting of tree.
- Use electricity effectively.
- Replace traditional bulb by CFL and LED bulbs.
- Reuse, recycle, reduce the different solid waste generated in college campus.
- Ban single use of plastic etc.

VII. Conclusion

Green Audit and Environment Audit Vidya Bharati Mahavidyalaya is conducted by Mountain Watercare Technologies Consultancy, Pune for the academic session 2014-2015. The findings of this report show that the college performs fairly well on sustainability issues. All the green practices adapted by college are eco-friendly and achieve the objective of green audit and environmental audit. The campus of college fulfils all the requirements of educational institute, like infrastructural facilities, adequate space in between buildings, plantation, gardens etc. The college campus is fully green with various trees, shrubs, herbs, climbers, garden plants, ornamental plants. Besides, Environmental Awareness Programmes initiated by the administration shows how the campus is going green. Use of smart electrical appliance is necessary to save electrical energy, for this LED bulbs/tubes etc are used in college campus, is a green practice of college.