Senapati Prataprao Gujar Shiskhan

Sanstha Kandewadi's

Mhaisal Mahavidyalaya, Mhaisal

Environmental Audit

Prepared by
Department of Environmental Science,
Shivaji University, Kolhapur-416004
2022-23

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Certificate

This is to certify that the Department of Environmental Science, Shivaji University, Kolhapur has conducted detailed "Environmental Audit" of "Senapati prataprao Gujar Shikshan Sanstha Kandewadis ,Mhaisal Mahavidyalaya,Mhaisal" during the academic year 2022-2023. The green audit was conducted in accordance with the applicable standards prescribed by Central Pollution Control Board, New Delhi and Ministry of Environment, Forest and Climate Change, New Delhi. The audit involves water, wastewater, energy, air, green inventory, solid waste etc and gives an 'Environmental Management Plan', which the institute can follow to minimize impact on the institutional working framework. The performance of Institute was found to have good quality with respect to sustainable Green Practices. In an opinion and to the best of our information and according to the information given to us, said green audit gives a true and fair view in conformity with environmental auditing principles accepted in India.

Jadhav

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Senapati Prataprao Gujar Shikshan Sanstha Kandewadi's

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Principal Message

Today, the universe is facing problems like global warming and deforestation. There are several aspects responsible for climate change. Safe drinking water scarcity, drought, and flood are nowadays. All these environmental issues are only discussed at the global level, but the fact is that regional and local activities are responsible for making such cases global.

In the dire need to protect our planet from environmental pollution, it is the responsibility of everyone not to contribute to activities that may harm the environment. College is where students, faculty and staff gather daily to run the teaching and learning process. This process requires infrastructure, energy, water, chemical and support facilities. The college has to look after these things' optimum and economical use. It is necessary to conserve energy from non-traditional sources. Also, it is essential to avoid the entry of monoxide and other gaseous pollutants into the environment. The scarcity of water and its pollution are the hot topics. We must save the available water and keep it free from pollution. The campus must be clean and green to have a pleasant atmosphere for the teaching-learning process. We must make maximum efforts towards carbon neutrality. In this direction, along with plantation, the origination of other nature-related activities and the creation of awareness among the people is necessary.

To be environmentally conscious, every college must undertake a green audit of the premises and facilities. I am pleased to state that the Department of Environmental Science, Shivaji University Kolhapur, is under the guidance of the green audit team, and they have conducted the green audit of our college very keenly. Their suggestions are undoubtedly helpful for us for the improvement.

Reg. No. MAH/2479

I/C PRINCIPAL
MHAISAL MAHAVIDYALAYA, MHAISAL
TAL.-MIRAJ, DIST.-SANGLI.

Chapter - I
Introduction

1.1 Environment Audit, a Tool for Environmental Protection:

The modernization and industrialization are the two important outputs of twentieth century, which have made human life more luxurious and comfortable. On the other hand, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar to the global issues like global warming, greenhouse effect, ozone depletion and climate change and so on. Now, it is considered that this is the final call by mother Earth. The time has come to wake up, unite and combat together for sustainable environment.

Environment Audit is the most efficient ecological tool to solve such environmental problems. Such audit was invented in late 1970s with the motive for inspecting the work conducted within the organization. It is systematic identification, quantification, recording, reporting and analysis of components of ecological diversity and expressing the same in financial or social terms. Through Environment Audit one gets a direction as how to improve the condition of environment.

1.2 Benefits of Environment Audit:

There are many advantages of Environment Audit if is implemented properly:

- It would help to protect the environment in and around the campus.
- Recognize the cost saving methods through waste minimization and energy conservation.
- Find out the prevailing and forthcoming complications.
- Empower the organization to frame a better environmental performance.
- It portrays good image of institution through its clean and green campus. Finally, it will help to build positive impression for the upcoming NAAC visit.

1.3 NAAC Criteria VII Environmental Consciousness:

Environment Audit is assigned to Eco-club. The criterion VII of NAAC. National Assessment and Accreditation Council that is a self-governing organization that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation of the institution. The intention of Environment Audit is to upgrade the environmental condition in and around the institution. It is performed by considering some

environmental parameters like water and wastewater management, energy conservation, waste management, air monitoring, etc. for making the institution eco-friendlier.

Students are the major strength of any academic institution. Practicing green actions in any educational institution will inculcate the good habit of caring nature in students. Many environmental activities like plantation and nurturing saplings and trees, cleanliness drives, bird watching camp, no vehicle day, rain water harvesting visits to ecologically important places through Eco clubs will make the student a good citizen of country.

Chapter II

Methodology

The College has conducted Environment Audit in the year 2022-23, on a yearly basis.

The audit was carried out in three phases.

2.1 Questionnaire survey:

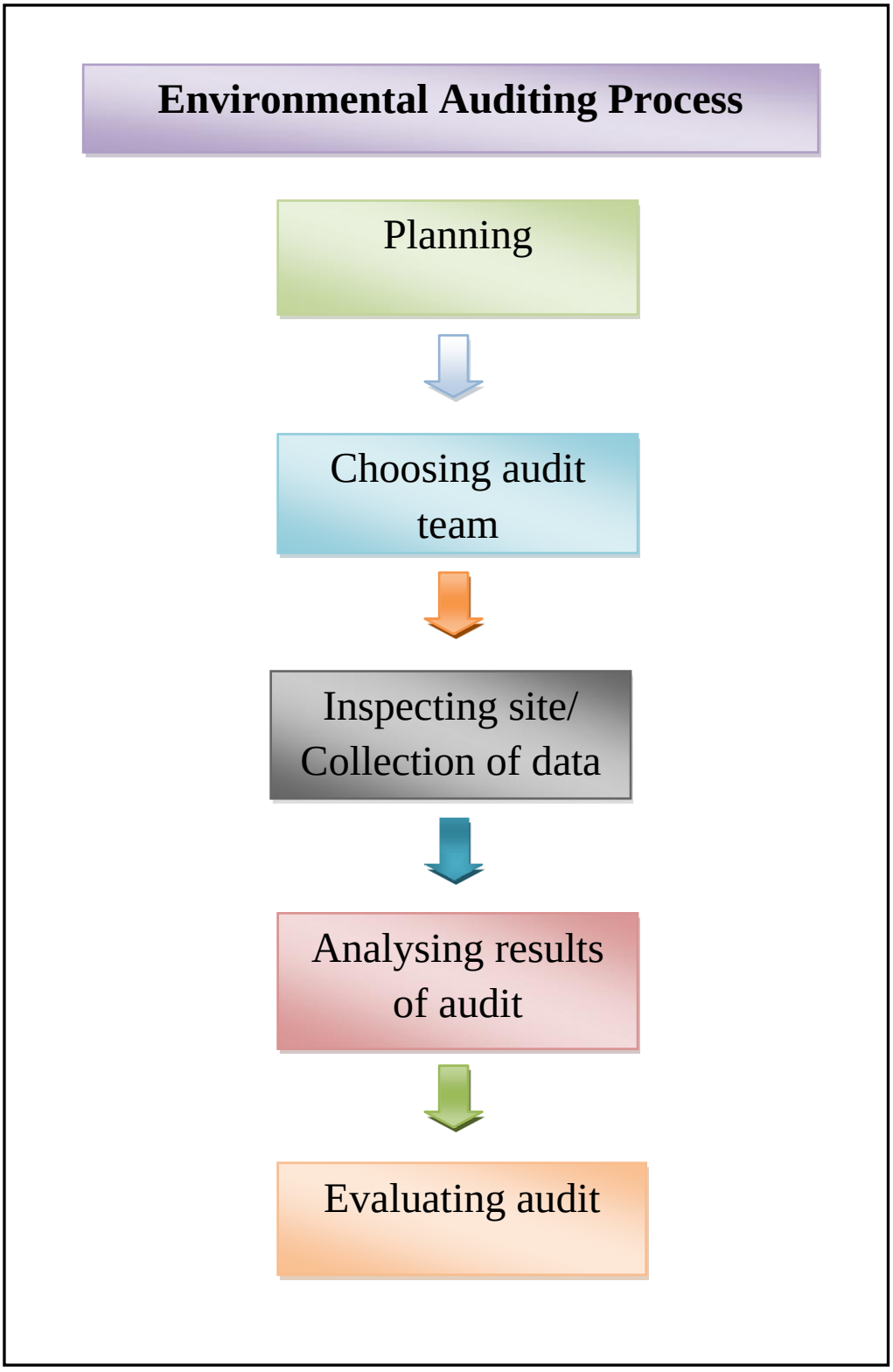
It includes administrative issues associated with the planning of audit, selecting the personnel for the audit team, preparing the audit protocol used by organization, obtaining background information, etc. The scope of the audit was defined at this step. It was decided that the information related to Water and Wastewater management, Energy conservation, Green belt, Carbon inventory, Solid waste management, Hazardous waste management, Air and noise quality status, activities of nature club, etc. should be gathered for the audit purpose. For collecting data related to these different areas, specific questionnaires were prepared.

2. 2 Onsite visit and observations:

The data related to above mentioned areas was collected by visiting each and every facility of College campus. The questionnaires were filled up according to the present situation. Photographic documentation was also done with the help of sophisticated camera.

2.3 Data analysis:

After collection of secondary data, the reviews related to each environmental factor were taken by the Environment Audit team. The data was tabulated, analyzed and graphs were prepared using computer. Depending upon the observations and data collected, interpretations were made. The lacunas and good practices were documented. The Environmental Management Plan (EMP) was prepared for the next academic year in order to have better environmental sensitization. Finally, all the information was compiled in the form of Environment Audit Report.


Environmental Auditing Process
Planning
Choosing audit team
Inspecting site/ Collection of data
Analysing results of audit
Evaluating audit

Chapter III

Overview of Environment Audit

Senapati Prataprao Gujar Shikshan Sanstha Kandewadis Mhaisal Mahavidyalaya, Mhaisal .The College has Building Block A as Administration including Principle Office Office, Library, Staff Room. Departments. Garden and sports ground. Gymkhana .

Mhaisal Mahavidyalay is situated in Sangali district Maharashtra at longitude 74°14'48.71"E and latitude 16°40'3.41"N the elevation of the institute from the sea level is 620 m. The Institute's campus is 1 acres in size.

Google Earth Image

College Profile In Brief	
Name of The College:	Mhaisal Mahavidhalaya, Mhaisal
Establishment:	2009
Pioneers:	Late Babasaheb Kupekar
No. of Students:	427
Faculty And Non-Teaching Staff:	18
Facilities:	College conducts different courses for the excellence of U.G Degree
Research And Extension Activity	The college has a good number of extension activities like plantation of trees, cleanliness drive, cleaning of public places and village, seminars, workshops, environmental awareness campaigns etc.
Area Of College:	1 acer

: .

3.2 Water and Wastewater Audit:

Water which is precious natural national resource available with fixed quantum. The availability of water is decreasing due to increasing population of nation, as per capita availability of utilizable water is going down. Due to ever-rising standard of living of people, industrialization, urbanization, demand of fresh water is increasing day by day. The unabated discharge of industrial effluent in the available water bodies is reducing the quality of these ample sources of water continuously. Hence, the National Mission on Water Conservation was declared by the then Prime Minister Hon. Dr. Manmohan Singh in 2003 and appealed to all citizens to collectively address the problem of water shortage, by conserving every drop of water and suggested for conducting water audit for all sectors of water use.

Water audit can be defined as a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses and thus enabling considerable conservation of water in irrigation sector, domestic, power and industrial as well. A water audit is a technique or method, which makes possible to identify ways of conserving water by determining any inefficiencies in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment.

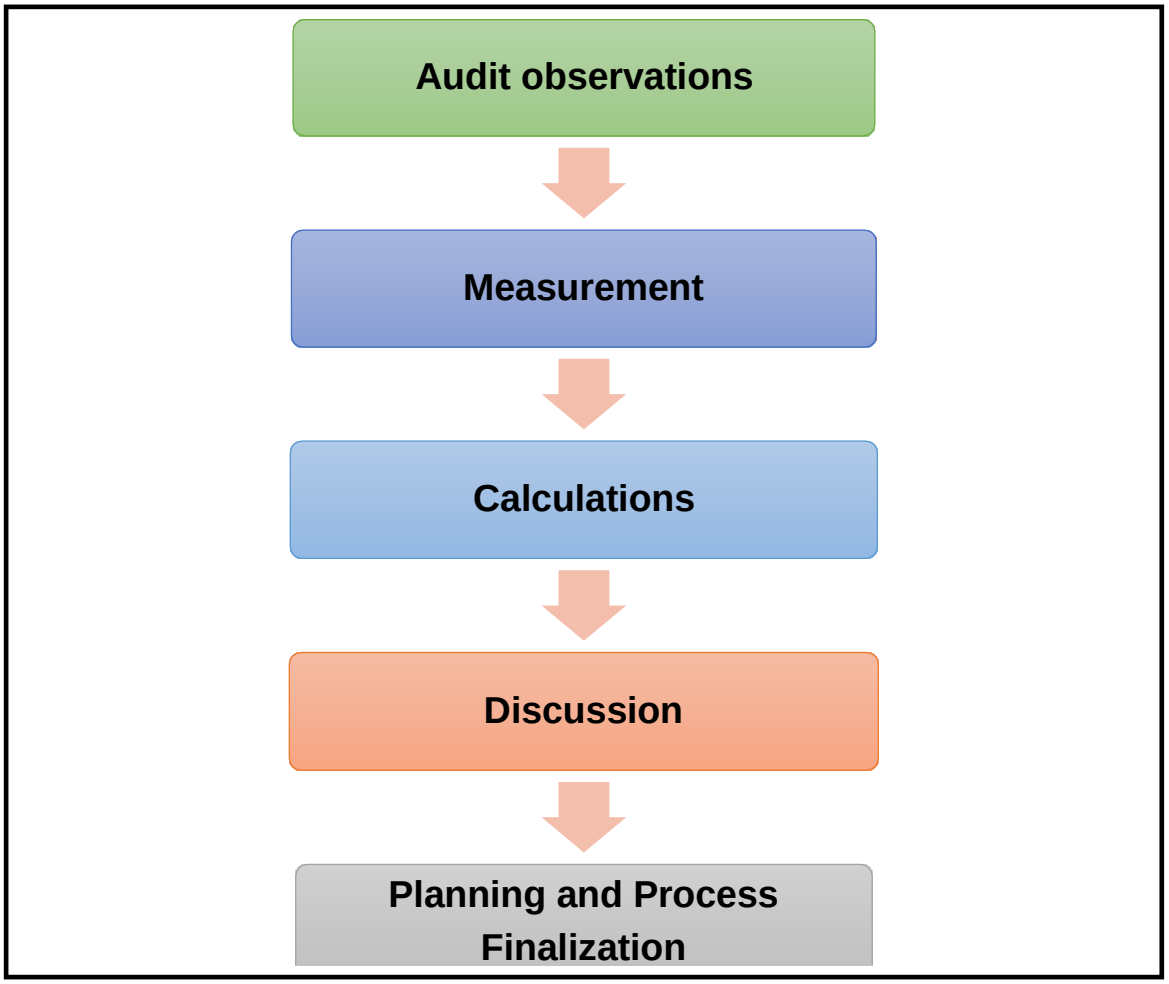
Importance of Water Audit:

It is observed that a number of factors like climate, culture, food habits, work and working conditions, level and type of development, and physiology determine the requirement of water. The community which has a population between 20, 000 to 1, 00, 000 requires 100 to 150 liters per person (capita) per day. As per the standards provided by WHO Regional office for South East Asia Schools require 2 liters per student for drinking; 10-15 liters per student if water-flushed toilets, Administration requires (Staff accommodation not included) 50 liters per person per day, Staff accommodation requires 30 liters per person per day and for sanitation purposes it depends on technology.

3.2.1 Water Audit:

Water usage can be defined as water used for all activities, which are carried out on campus from different water sources. This includes usage in all residential halls, academic buildings, on campus and on grounds. Wastewater is referred as the water, which is transported off the campus. The wastewater includes sewerage, residence, hall waters used in cooking, showering, clothes washing as well as wastewater from chemical and biological laboratories which ultimately going down in sink or drainage system.

Water Audit Process



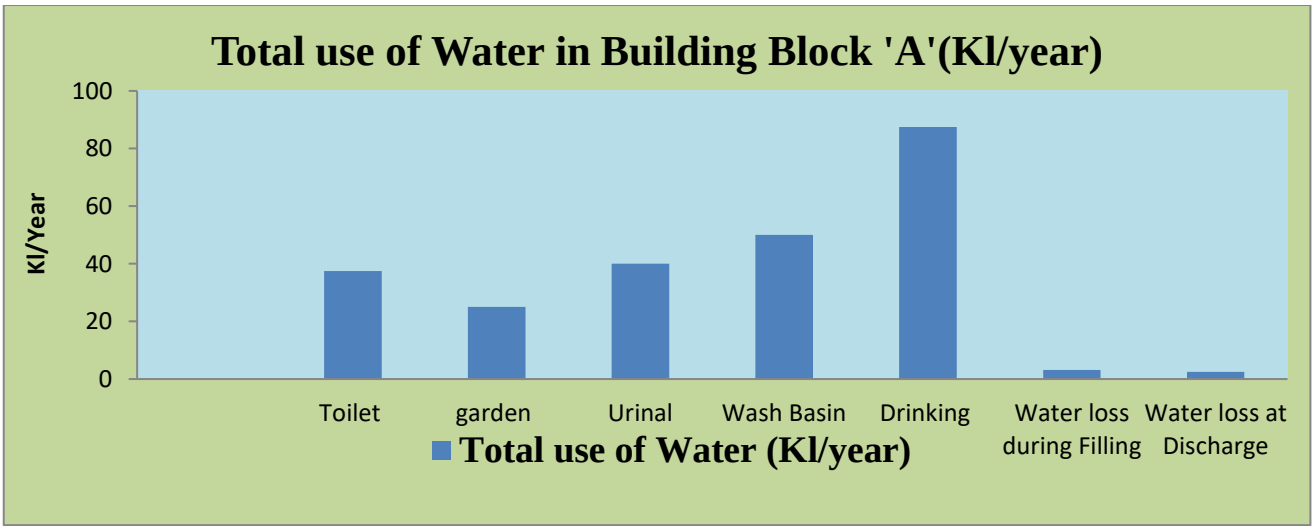
3.2.2 Water consumption in college:

From the data collected for water audit of Mhaisal Mahavidyalaya,Mhaisalthe water distribution and water consumption pattern is noticed. The Mahavidyalaya is divided in different sectors such as administration section and other departments. and support services For the water audit purpose, the college campus area categorised into one .Building Block A as Administration including Principle Office Office, Library, Staff Room. Departments. Garden and Sports Ground.,Gymkhana .

3.2.2. Water consumption at Building Block 'A':

Table No. 3.2.1: Sector wise calculated use of water in Building Block A

Sr. No.	Sector	Total daily use (Kl/day)	Total yearly use (Kl/year)	Percentage %
1	Toilet	0.300	37.50	14.67
2	Garden	0.200	026.25	9.78
3	Urinal	0.400	50.00	19.56
4	Wash Basin	0.400	50.00	19.56
5	Drinking	0.700	67.50	34.23
6	Water loss during Filling	0.025	3.12	1.22
7	Water loss at Discharge	0.020	2.15	0.98
Total		**2.045**	**255.65**	**100**

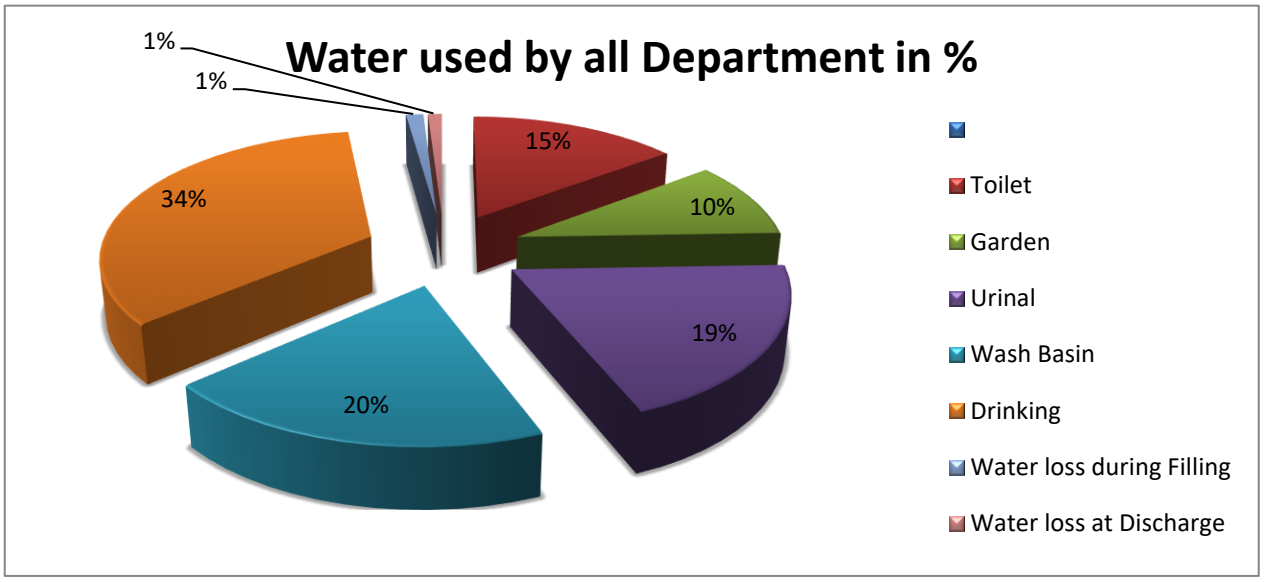


Graph No. 3.2.1 Total water consumption yearly by Building block 'A'

It is revealed from the data in Table No. 3.1 and Graph No. 3.2.1 that total 2.045 Kiloliter daily and yearly 255.60 Kiloliter water is used. In the Building block 'A' which is .Building Block A as Administration including Principle Office Office, Library, Staff Room. Departments. Garden and sports ground ,Gymkhana purpose for daily and also calculated yearly. From above data, it is observed that the maximum water consumption was for drinking which is o.700 Kilolitre/day i.e. 67.50 Kilolitre/year. Water loss during filling of water in tank was noted as 0.025 Kilolitre/day i.e. 3.12 Kilolitre/year and water losses at discharge were

found to be 0.020. Kilolitre/day i.e. 2.15 Kilolitre/year.

Average daily water consumption by Maishal Mahavidyalaya ,Maishal



Graph No. 3.2.4 Average Daily Water consumption by Maishal Mahavidyalaya ,Maishal

Graph No. 3.2.4 shows the total percent of water consumed by Maishal Mahavidyalaya ,Maishal in 2022-23. As per the graph, Drinking, Washbasins, Urinal, are the major sources of utilization comprising, 34%, 20 %, and 19% respectively. The other uses namely Garden purpose consume relatively less water with daily waterrequirement of 9.78 % in the year 2022-23.

3.2.3. Sewage Treatment Facility at Mahavidyalaya :

Maishal Mahavidyalaya ,Maishal has wastewater release into grampanchayat waste water plant. Water supply to college form Kolhapur Municipal Corporation and underground well water. Water management is very good in college .College followed 3 R principal as reduce, recycle and reuse of water.

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Key Observations:

- The calculation revealed that highest water use sector is drinkingy which consumes average 34% water and remaining 66 % water consumption further divided into other sectors in such Washbasins, Urinals, Toilet and garden etc.
- The college has done Water conservation.
- College has sustainable water practices dip irrigation for gardening , and water collection tank for different water use, which are all in working condition.

Fig no. 1 Gents Washroom

Fig No.2 Water storage

3.3.1Ambient noise monitoring status:

Ambient noise monitoring was carried out in different areas of Mahavidyalaya campus like classrooms, and outside campus. The sampling was done using calibrated Sound Level Meter (AZ 8921) by logarithmic scale in Decibels (dB). The noise readings were collected in the mahavidhalaya campus and calculated. The details of noise status in Maishal Mahavidyalaya ,Maishal are given Table No. 3.13 and Graph No. 3.12.

Table no 3.13 Ambient Noise Levels in Maishal Mahavidyalaya ,Maishal

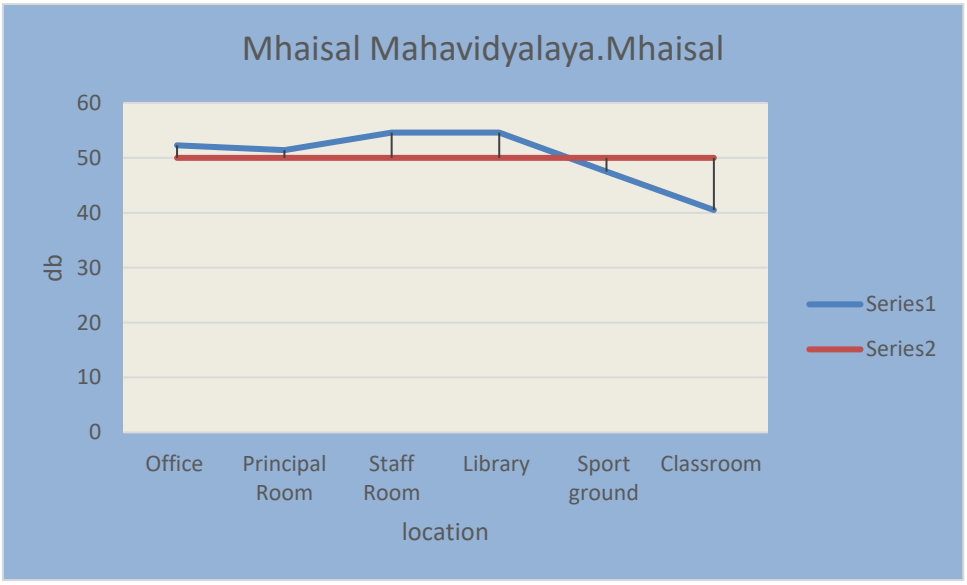
Maishal Mahavidyalaya ,Maishal			
Sr. No	**Site Name**	**dB (A)**	**Noise Std Day time**
Ground floor			
1	Office	**52.3**	50
2	Principal Room	**51.4**	50
3	Staff Room	**54.6**	50
4	Library	**54.6**	50
5	Sport ground	**47,5**	50
6	Classroom	**40.5**	50

Note: - 1. All Parameters are in dB(A) Leq.

2. All Results are day time.

3. Day time shall mean from 6.00 a.m. to 10.00 p.m.

It was observed the ambient noise levels in the Maishal Mahavidyalaya ,Maishal are on higher side as compared to the standards of Central Pollution Control Board for day time. This may be due to human communication in high sound in the Maishal Mahavidyalaya ,Maishal premises. Vehicles are generating in the high level sound .Echo generation in carridors is also a reason to monitor high levels of noise.



Graph No.3.12 Ambient Noise Levels in. Maishal Mahavidyalaya ,Maishal

The graph shows that ambient noise levels in. Ambient noise levels in Maishal Mahavidyalaya ,Maishal

Fig 3 Noise Monitoring

Fig 4 Noise Monitoring

Conclusion

- Indoor noise levels in college campus are higher than the day time noise standards of CPCB.

Chapter IV
Conclusion and Management Plan

The Department of Environmental Science, Shivaji University, Kolhapur has conducted a Environment Audit of in Mhaisal mahavidyalaya .Mhaisal the academic year 2022-23. Environment Auditing is the process of identifying and determining whether college practices are eco-friendly and sustainable. The main objective of College to carry out Environment Audit is to check green practices followed by college and to conduct a well formulated audit to understand where we stand on a scale of environmental soundness.

Conclusions:

From the Environment Audit conducted by team following are some of the conclusions, which can be taken for improvement of the college campus to become environment friendly campus:

1. Water Audit helps to quantify all forms of losses and helps in reducing the non- revenue water.
2. Mahavidyalaya can conduct more seminars, group discussions and eco-friendly activities on environmental education and awareness
3. Mahavidyalaya should maintain hygienic conditions and cleanliness in their premises
4. Air quality on the campus is good.

Recommendations:

Following are some of the key recommendation for improving campus environment.

1. Mahavidyalaya should develop its own Environmental Policy by using guidelines given in Environment Audit document.
2. The data related to all measured environmental parameters should be monitored and recorded regularly and information be made available to administration.
3. The should develop internal procedures to ensure its compliances with environmental legislation and responsibility be fixed to carry out it in practice.
4. Rainwater harvesting facility must be expanded
5. To meet EPA standards for safe drinking, water samples should be tested by a certified laboratory.

Environment Management Plan:

By understanding the dynamics of present situation of resource utilization and current practices of waste disposal, we have prepared an Environment Management Plan (EMP) for the Mhaisal Mahavidyalaya,,Mhaisal .This plan not only will provide the strengths, weaknesses and remedies for the green and clean campus but also give priority of the sector where the Mahavidyalay has to give more efforts to improve its environment.

Environment Management Plan 2022-23

Sector	Strengths	Weakness	Suggestions	Priority
Water				
Water utilization	• Mahavidyalay has drip irrigation system in garden .	• Over use of Water in urinary Overuse of water at in toilets	• Installation of automatic water pumps to avoid overflowing losses	Medium
Air and Noise				
Air and Noise	Air quality is still in good condition	Noise levels overall in college is on higher side	The plantation can be increased by vertical gardening	Medium

Visit of Shivaji University audit team to Mhaisal Mahavidyalaya ,Mhaisal

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