

**DOMBIVILI SHIKSHAN PRASARAK MANDAL'S
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE
AND COMMERCE (AUTONOMOUS)**

DOMBIVLI -421203



Green Audit Report 2021-22

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1. ABOUT THE COLLEGE:

Dombivli Shikshan Prasarak Mandal's K.V. Pendharkar College is one of the prestigious, oldest and premier institute of Dombivli (Maharashtra). Pendharkar College of Arts, Science and commerce (Autonomous) Dombivli (E), established on 11th July 1979, is one of the leading institutions imparting higher education in the fields of Arts, Science, Commerce, and Management. The college is managed by Dombivli Shikshan Prasarak Mandal (R), which was established in 1972. It is one of the premier colleges established to impart & provide in the field of higher education for the deserving candidates and prove to be a milestone in the part of progress. The college is affiliated with the University of Mumbai and is accredited by National Assessment and Accreditation Council (NAAC) with "A" Grade

The Mandal is and perennially will remain indebted to the support of many eminent personalities and industrialists such as Late Shri. Gajanan Rao Pendharkar, the then chairman of Vicco Laboratories who munificently gave a founding donation for the establishment of K. V. Pendharkar College. The College has been named after his father Late Shri. Keshav Vishnu Pendharkar as a gratitude for unstinting support received from Late Shri Gajanan Rao Pendharkar. The land to set up the college was allotted by MIDC in 1972. Though, the Mandal had the possession of the land, it took three years to formally start the college. In those times, establishment of a college required permission of the University of Pune and in 1977-78, Dombivli came under the jurisdiction of the University of Pune. This resulted in the delay of establishment of the college. Therefore, the Mandal decided to start Sister Nivedita School first. The school was started in the rental premises at Dombivli East and West, simultaneously. After receiving necessary approvals, the college began its operations at Bajiprabhu Chowk in Dombivli East. Later, the

management of the Mandal shifted the college to Khandelwal tin shade spread over 1000 sq. Ft. at Plot No. S. P. 4 in MIDC, Dombivli East.

The K. V. Pendharkar College started functioning from June 1979. The college was also given permanent affiliation by the University of Mumbai on 30th August 1980. Right from its inception, the college has been offering quality education to its students, in accordance with the rules laid down by the University of Mumbai, Government of Maharashtra and University Grants Commission. Of late, the institution underwent the third cycle of assessment by the NAAC (National Assessment and Accreditation Council) and is reaccredited with the coveted 'A Grade' (3.14 CGPA) by the council in 2016-17 (2(f), 12(b) of UGC). Today, the college offers Under Graduate, Post Graduate as well as Ph.D. programmes across Art, Commerce and Science streams.

2. INTRODUCTION

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyse environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings. 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 college 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. 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 institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric CO₂ from the environment. 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 global warming through carbon footprint reduction measures.

India is a rich heritage of ornamental / medicinal plants which were native's gift to man-kind. Since the human race is started on the earth, it is needs on the plants for the requirements have become essential in his life. Therefore, different plant namely *Ficus benghalensis*, *Delonix regia*, *Peltophorum pterocarpum*, *Azadirachta indica*, *Polyalthia longifolia* are present in KVP premise

3. OBJECTIVES

In recent time, the Green Audit of an institution has been becoming a paramount important for self-assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. The college has been putting efforts to keep our environment clean since its inception. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To map the Geographical Location of the college
- To document the floral and faunal diversity of the college
- To record the meteorological parameter of Dombivli where college is situated
- To document the ambient environmental condition of weather, air, water and noise of the college.
- To document the waste disposal system
- To estimate the Energy requirements of the college
- To report the expenditure on green initiatives during the 2 years

4. VISION

- To provide facilities for higher education.
- To develop the spirit of Enquiry and A scientific Interdisciplinary Approach ,
- To create sensitivity to contemporary Socio-political and National Issues.
- To promote Awareness of National Heritage.
- To Inculcate Respect for Human values.

5. OUR MISSION

- Upliftment of Rural Students through technical education.
- Respond to local societal needs by developing selected 'targeted research projects'.
- Quality training programs in need based modern technology.
- To maintain state-of-the-art infrastructure in laboratories.

6. METHODOLOGY

The purpose of the green audit of K.V. Pendharkar College Dombivli is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

Table1. List of plant or flora of Tree/shrub/herbs/ climber/ medicinal found in Pendharkar College premises.

A: Trees:

Sr.No.	Scientific name	Common name	Family	Total No.
01	<i>Polyalthia longifolia</i> Sonn.	Ashok	Annonaceae	16
02	<i>Araucaria araucana</i> Molina.	Monkey Puzzles tree	Araucariaceae	06
03	<i>Delonix regia</i> Hook	Gold mohor	Fabaceae	06
04	<i>Ficus benghalensis</i> L.	Banyan	Moraceae	01
05	<i>Leucaena Leucocephala</i> Lam.	Subabool	Mimosae	01
06	<i>Cocos nucifera</i> L.	Coconut	Plamae	33
07	<i>Bauhinia raceomose</i> Lam.	Apta	Sub.Caesalpinae	01
08	<i>Mimusops elangi</i> L.	bakkul	Sapotaceae	11
09	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	02
10	<i>Albizia lebbeck</i> (L.)Benth.	shirish	Sub-Mimosae	01
11	<i>Terminalia cattapa</i> L.	Jangali badam	Combretaceae	4
12	<i>Mangifera indica</i> L.	Mango	Anacardiaceae	3
13	<i>Neolamarckia cadamba</i> Roxb.	kadamba	Rubiacea	05
14	<i>Peltophorum pterocarpum</i> DC.	Copper tree	Sub.caesalpinae	19
15	<i>Musa paradisiac</i> L.	Keli	Musaceae	05
16	<i>Bombax malbaricum</i> DC.	Kate shevar	Bombaceae	01
17	<i>Plumaria alba</i> L.	chapha	Apocynaceae	05
18	<i>Syzygium cumini</i> (L.) Skeels	Malabar plum/jambul	Myrtaceae	01
19	<i>Thuja occidentalis</i> L.	Ornamental forest tree	Cupressaceae	06
Sr.No.	Scientific name	Common name	Family	Total No.
20.	<i>Alstonia scholaris</i> (L.)	Blackboard	Apocynaceae	01

	R.Br.	tree		
	B: Shrubs			
21	<i>Dracaena reflexa</i> Lam.	Female dragon	Liliaceae	26
22	<i>Chamaerops humilis</i> L.	Fountain fan palm		1
23	<i>Sanseveria cylindrical</i>	Snake plant	sansevieriaceae	1
24	<i>Capparis burmanica</i> Collett & Hemsl.	Ran mohari	Cppardiaceae	25
25	<i>Brassica olerasia</i>	Mohari	Cruciferae	03
26	<i>Ricinus cummunis</i>	Castor	Euphorbiaceae	03
27	<i>Lantana camera</i>	Tantani	Verbinaceae	01
	C. Medicinal plants.			
28	<i>Catharanthus roseus</i>	Sadaphuli Madagascar periwinkle	Apocynaceae	02
29	<i>Strobilanthus callosa</i>	kharvi	Acanthaceae	04
30	<i>Ocimum sanctum</i>	Tulsi	Labiatae	05
31	<i>Vetiveria zizanioides</i>	vala	Poaceae	04
32	<i>Cymbopogon citratus</i>	Lemon grass	Poaceae	08
33	<i>Aloe Vera</i>	Khorpad	Liaceae (Asphodelaceae)	05
	D. Climbers			
34.	<i>Ipomoea palmata</i>	Garvel	Convolvulaceae	05
35.	<i>Asparagus racecourses</i>	shetawari	Asparagaceae	02
36.	<i>Momordica charantia</i>	Karela	Cucurubitateae	01
37.	<i>Coccinia indica</i>	Todali	Cucurubitateae	01
.	Herbs			
38	<i>Portulaca oleretia</i>	Gholu	Portulacaceae	04
39	<i>Durenta plumeri</i>	Hedge plant	Verbinaceae	more
40	<i>Acalypha sp.</i>	Indian acalypha		04
41	<i>Tabermontena coronaries</i>	Tagar	Apocynaceae	more
			Total plants all (T,S,H,C) is about	600

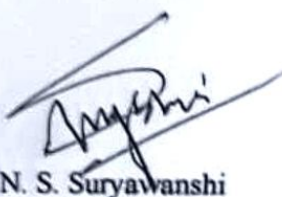
7. SUMMARY AND CONCLUSION

Green Audit is the most efficient way to identify the strength and weakness of environmental sustainable practices and to find a way to solve problem. Green Audit is one kind of professional approach towards a responsible way in utilising economic, financial, social and environmental resources. Green audits could "add value" to the management approaches being taken by the college. It is a way of identifying, evaluating and managing environmental risks (known and unknown). There is scope for further improvement, particularly in relation to waste, energy and water management. The college in recent years consider the environmental impacts of most of its actions and makes a concerted effort to act in an environmentally responsible manner. Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution. Green Audit Biodiversity showed about more than 40 families reported in this campus. Some dominant plants are present kvp campus. i.e. As a record there was variation in plants among trees, Shrubs Herbs, climbers and medicinal plants importance to reduce environment pollution. So those green and water management audits were made and reported record. Above table indicated that contain tree (*Delonix regia*, *Polyalthia longifolia*, *Cocoas nucifera*, *Ficus benghalensis* etc. Herbs : (*Portulaca oleretia*, *Durenta plumeri*, *Acalypha Tabernamontena* etc and climbers were recorded (*Ipomoea plmata*, *Asperaguss racemous*, *Momordica*, *Coccinia indica*) shrubs (*Dracaena reflexa* Lam., *Chamaerops humilis* L., *Ricinus communes* and *Lantana camera*). were reported in college promises) in Table 1.

8. RECOMMENDATIONS

- Installation Biogas plant and Compost units
- Installation of Solar panels to generate electricity.
- Installation of Incinerators to dispose sanitary napkins.
- Installation of rain water harvest methods on roof top and ground.
- Grow up flowering plants in the garden and medicinal garden and gradually develop it as a nursery.
- Name all the trees and plants with its common name and scientific name.

- Declare the campus plastic free and implement it thoroughly.
- Adopt an environment policy for the college.
- Establish an e-waste collection centre in campus.
- Ensure participation of students and teachers in local environmental issues.



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Mr. B. T. Shirsath
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Dr. S. V. Lasune
PRINCIPAL
K. V. PENDHARKAR COLLEGE OF
SCIENCE & COMMERCE, (AUTONOMOUS)
DOMBIVLI (EAST)



**Dombivli Shikshan Prasarak Mandal's
K. V. Pendharkar College of Arts, Science and
Commerce (Autonomous), Dombivli (E)
421203, Dist. Thane**

**ENVIRONMENT AUDIT REPORT
2021-22**



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1. INTRODUCTION:

The environment audit aims to analyze environmental practices within and outside the college campuses, which will have an impact on the eco-friendly atmosphere. Environment audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of the college environment. It was initiated with the motive of inspecting the effort within the institutions whose exercises can cause threat to the health of inhabitants and the environment. Through the environment audit, we can get a direction to improve the environment and its factors contributing to improve the environment audit scores.

1.1. NEED FOR ENVIRONMENT AUDITING:

Environment auditing is the process of identifying and determining whether institutions' practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources like water become habitual for everyone especially, in common areas. Now, it is necessary to check whether we are handling resources carefully. Environment audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it into a green and clean one. Environment audit provides an approach for it. It also increases overall consciousness among the people working in institutions towards an environment.

1.2. GOALS OF ENVIRONMENT AUDIT:

Institute has conducted an environment audit with specific goals as:

1. Identification and documentation of environment practices followed by college.
2. Identifying strength and weakness in environment practices.
3. Analyze and suggest solutions for problems identified.
4. Assess facility of different types of waste management.
5. Increase environmental awareness throughout campus.
6. Identify and assess environmental risk.
7. Motivates staff for optimized sustainable use of available resources.
8. The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental issues before they become a problem.

1.3. OBJECTIVES OF ENVIRONMENT AUDIT:

1. To examine the current practices, which can impact on the environment such as resource utilization, waste management etc.
2. To identify and analyze significant environmental issues.
3. Set up goals, vision, and mission for environment practices on campus.
4. Establish and implement Environment Management in various departments.
5. Continuous assessment for betterment in performance in the environment.

1.4. BENEFITS OF ENVIRONMENT AUDIT TO EDUCATIONAL INSTITUTIONS:

There are many advantages of environment 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 and energy conservation.
3. Empower the organization to frame a better environmental performance.
4. It portrays a good image of the institution through its clean and green campus.

Finally, it will help to build a positive impression through green initiatives for the upcoming NAAC visit.

2. OBJECTIVE AND SCOPE:

The broad aims/benefits of the eco-auditing system would be

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

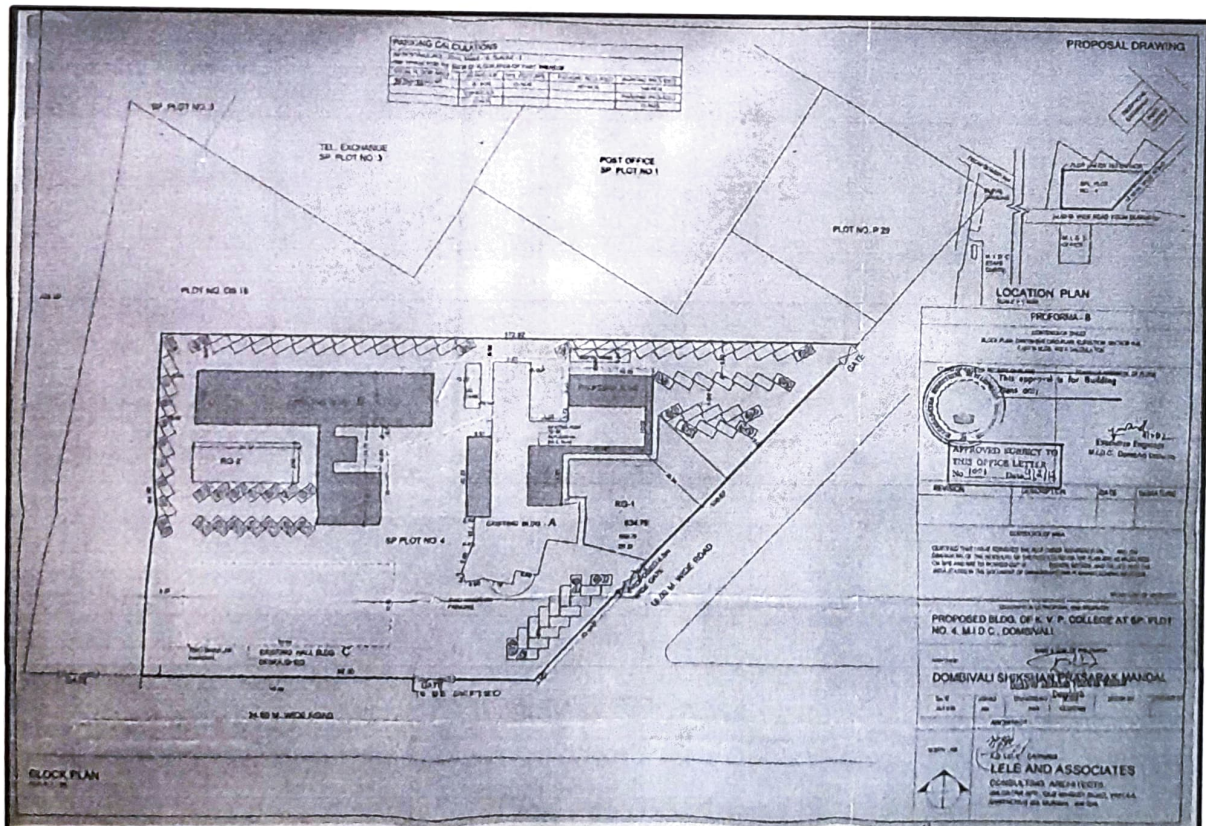
3. EXECUTIVE SUMMARY:

An environmental audit is a snapshot in time, in which one assesses campus performance in complying with applicable environmental laws and regulations. Though a helpful benchmark, the audit almost immediately becomes outdated unless there is some mechanism in place to continue the effort of monitoring environmental compliance.

This audit report contains observations and recommendations for improvement of environmental consciousness.

4. INFRASTRUCTURE OF K.V. PENDHARKAR COLLEGE OF ARTS SCIENCE AND COMMERCE (AUTONOMOUS), DOMBIVLI:

4.1 Layout plan:



4.2 HEALTH CENTER:

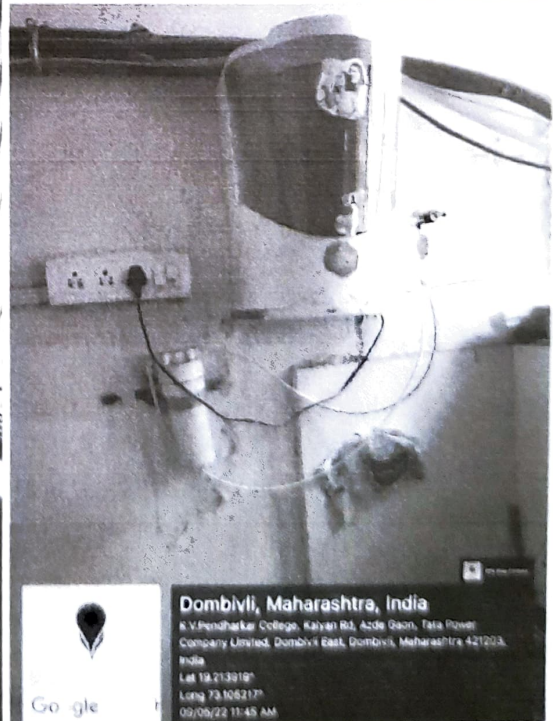
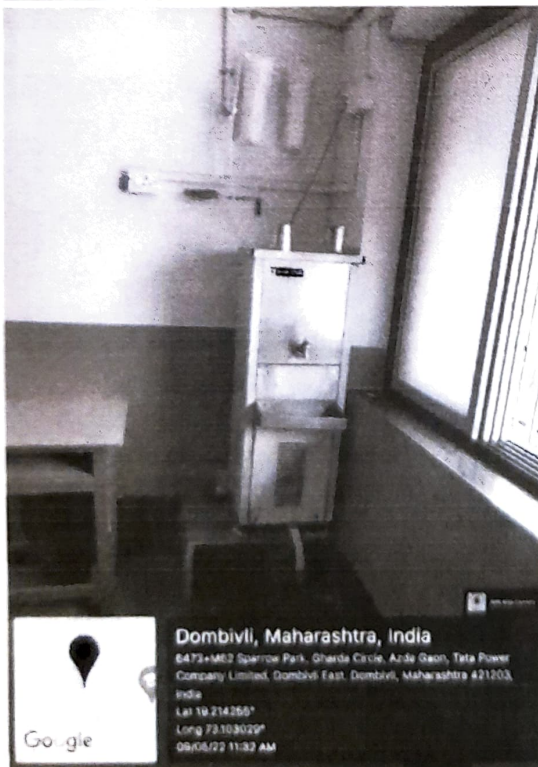
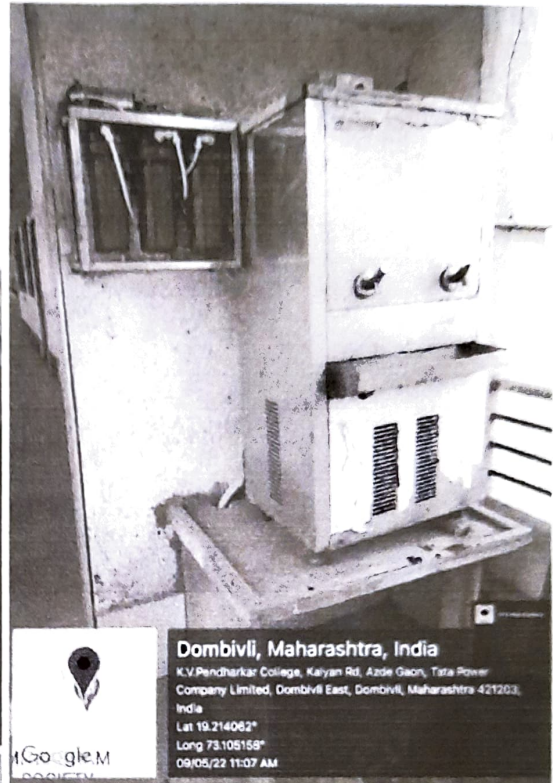
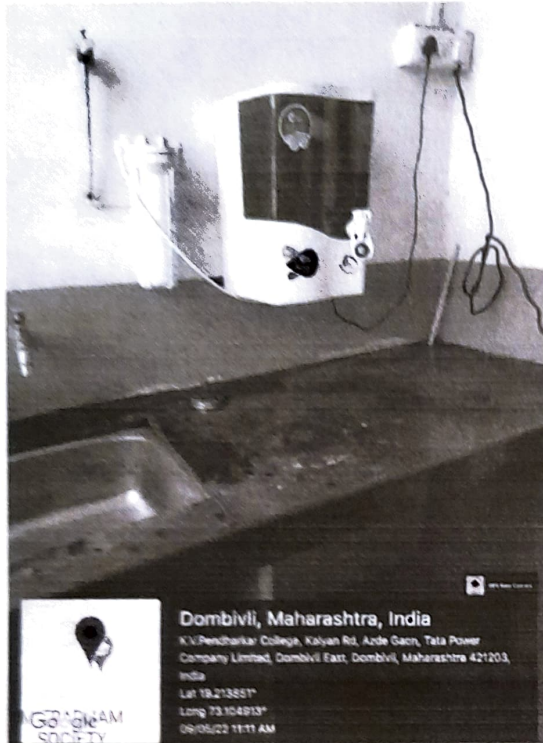
These centers often provide medical facilities on campus where students can receive emergency treatment and preventive care.

4.3 SEWAGE TREATMENT PLANT:



4.4 RO PLANT:

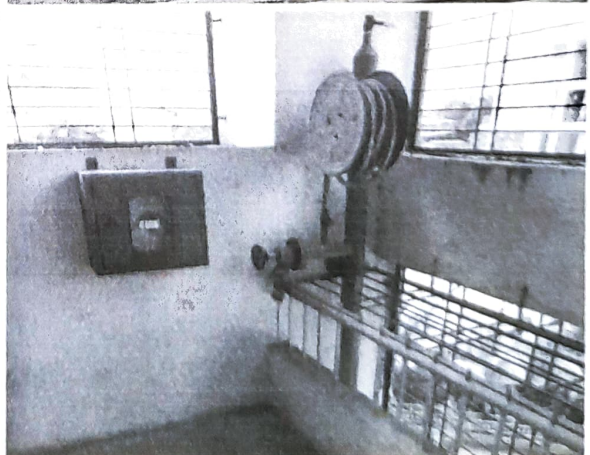
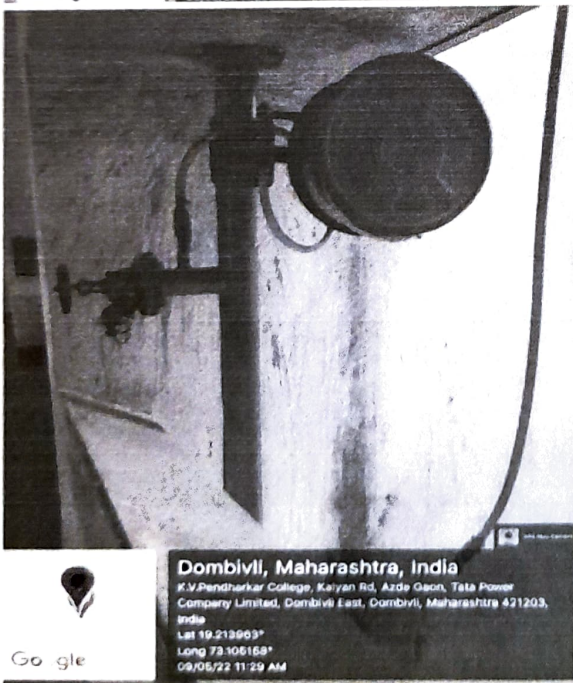
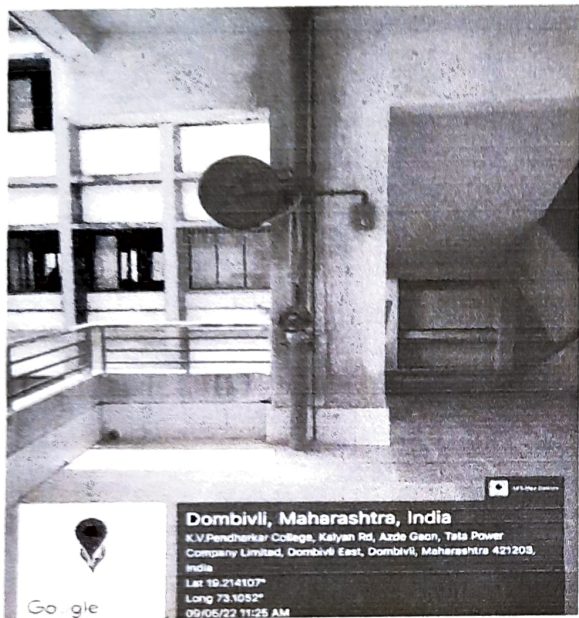
RO plant is provided inside the campus to supply water to the entire campus.



4.5 RAINWATER HARVESTING:

It is included in the future plans since it is observed that rain harvesting can be a good source of water conservation which can be used for various laboratories in the institutions as well as enhancing the ground water levels.

4.6 FIRE SAFETY PIPELINES:



4.7: VIEW OF GREENERY:



SATELLITE MAP OF THE K. V. PENDHARKAR COLLEGE, DOMBIVLI:



5. WASTE MANAGEMENT:

Waste generated by an institute can be categorized into Solid waste, Canteen waste, paper waste, plastic waste, toiletry waste, Horticulture Waste, etc.

KDMC Garbage van picks up segregated dry and wet waste everyday from the college campus.

They collect plastic waste separately which then be transported to industry for recycling.

Institute has been following eco-friendly usage of papers. Every year college sends paper waste to the industry where it is being recycled and reused for manufacturing new papers. These recycled papers are then used by the institute for various purposes. Teaching and non-teaching staff are also very much aware about reuse of papers. They usually reuse one side printed Paper for internal communication.

- **E-Waste management:**

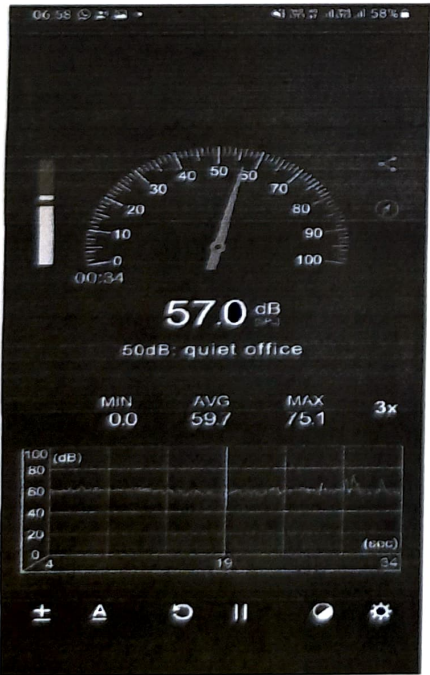
E-waste generated in the campus is disposed of in a scientific and eco-friendly manner.

6. NOISE LEVEL IN COLLEGE CAMPUS:

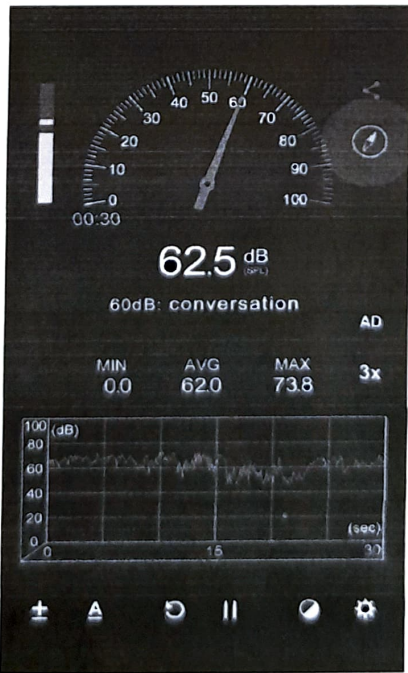
- Majority of the students come from local cities and are advised to utilize the public vehicle facilities.
- Students’ private vehicles are strictly prohibited inside the college campus.
- If students are using their own vehicles are strictly advised to minimize the speed limit and not to horn inside the campus.
- Students as well as teaching and non-teaching staff who are using their own private vehicle are strictly advised to park vehicles outside the campus.
- Also students are advised to not to use vehicles unnecessarily around the campus to minimize the air pollution.
- Even though Kalyan road runs beside the campus, no noise pollution harms the learning environment, as the positioning of classroom windows and other infrastructure of the college acts as obstacles for noise transmission.

Below given are average sound frequency readings in Decibels recorded at different time & location during the college hours by Sound meter app inside the college campus:

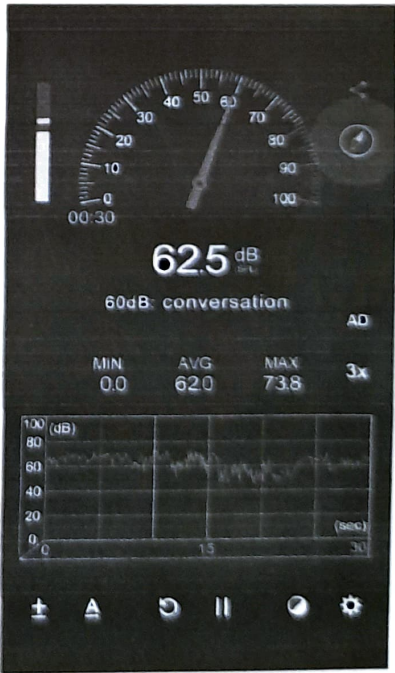
At 6.58 AM:



At 12.00 PM



At 5.30 PM



Noise Level in College Campus:

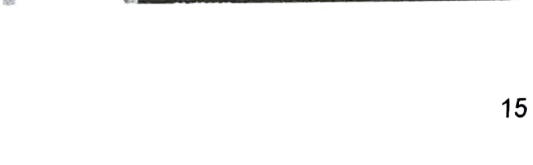
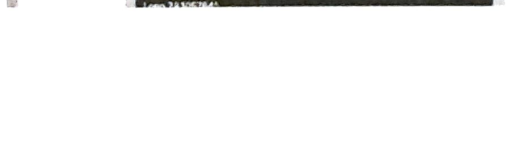
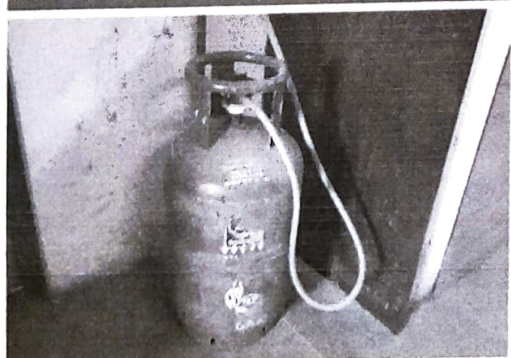
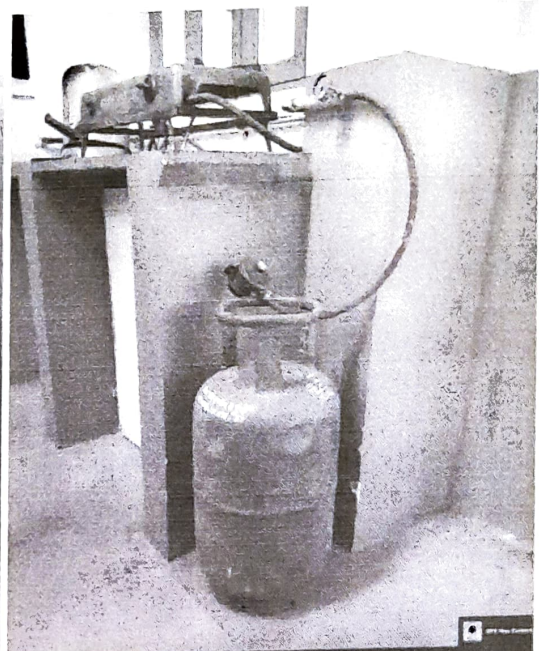
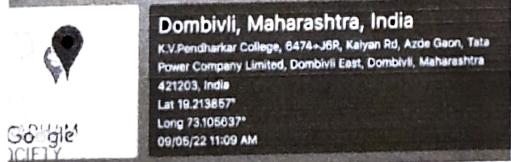
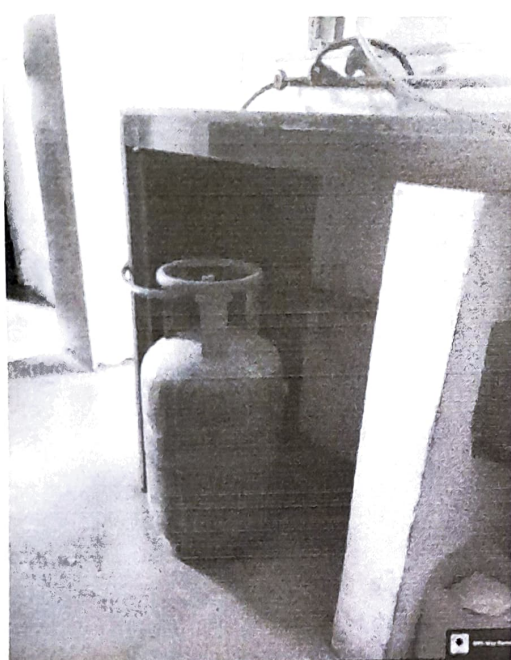
Date	Day	Morning (7:00 am)	Afternoon (12:30 pm)	Evening (5:00 pm)
06/05/2022	Friday	57.00	61.10	62.50
07/05/2022	Saturday	59.00	58.70	68.00
09/05/2022	Monday	58.40	58.00	63.00
10/05/2022	Tuesday	59.30	61.10	62.80
11/05/2022	Wednesday	68.10	58.80	56.80
12/05/2022	Thursday	61.80	63.00	64.00
13/05/2022	Friday	62.80	62.30	62.50
14/05/2022	Saturday	60.40	59.30	68.00
17/05/2022	Tuesday	59.80	57.00	63.80
18/05/2022	Wednesday	56.20	61.70	62.80
19/05/2022	Thursday	55.10	64.70	64.30
20/05/2022	Friday	56.70	60.50	64.00

7. AIR QUALITY:

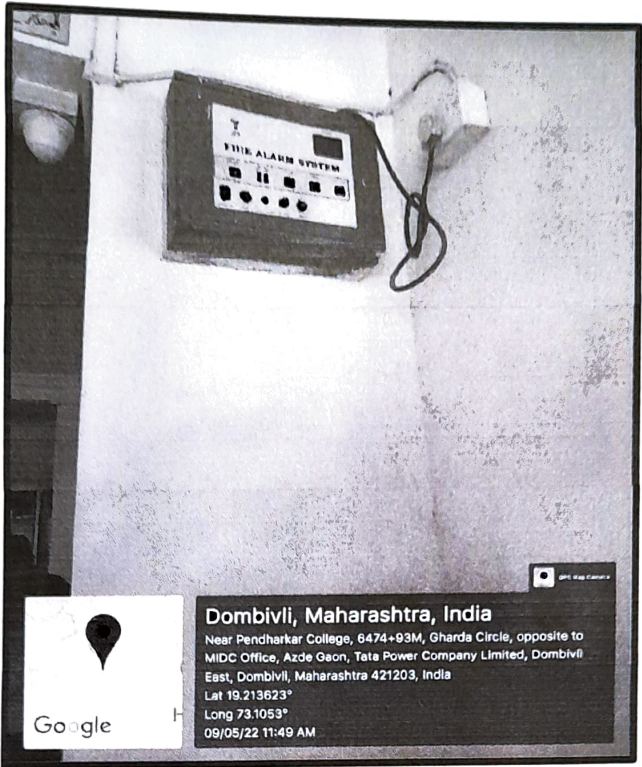
1	Are the Rooms in Campus are Well Ventilated?	Yes				
2	Window Floor ratio of the Rooms	Very Good				
3	Provide details of school-owned Motorized vehicles?	Buses	Cars	Vans	Ambulance	Total
	No. of vehicles			-	-	
	No. of vehicles more than five years old		-	-	-	
	No. of Air-conditioned vehicles	-	-	-	-	
4	PUC done					
	Specify the type of fuel used by your college's vehicles:	Total				
	Diesel					
	Petrol					
	CNG					
5	LPG					
	Electric					
5	Air Quality Monitoring Program (If Any)	Yes				
6	Students suffer from respiratory ailments? (If Any)	No				
7	Details of Power backup	Yes, about 730 kVA Generator Power backup is provided				

LPG Cylinders:

There is less emission of carbon due to the use of LPG cylinders in Canteen and Other Laboratories of the institution. The exact records of LPG Cylinders are given in table no.



8. Fire Safety Devices:



Sr. No.	Section	Location	Quantity	Remark
	LPG Cylinder	Zoology Lab	01	
		Botany Lab	03	
		Biotechnology Lab	03	
		Physics Lab	01	
		Ground Floor Canteen	01	
		Chemistry Lab	18	
	Total:		27	

Sr. No.	SECTION	LOCATION	QUANTITY	REMARKS
1.	RO Plant	Ground Floor	02	
		Canteen	01	
		Library	01	
		First floor	02	
		Third floor	02	
	Total:		08	
2.	Fire extinguisher	Ground floor	05	3 Fire Alarm System
		Library	02	
		Chemistry Lab	03	
		Junior IT Lab	01	
		First floor	02	
		Physics Lab	01	
		IT Lab	01	
		Botany Lab	02	
		Third floor	03	
	Total		19	
3.	Fire Safety Pipelines	College campus	04	

9. SUMMARY:

Environment Audit is one of the important tools to check the balance of natural resources and its judicious use.

Environment auditing is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. It is a process of regular identification, quantification, documenting, reporting and monitoring of environmentally important components in a specified area.

DSPM's K V Pendharkar College of Arts, Science and Commerce, (Autonomous), Dombivli has conducted a "Environment Audit" in the academic year 2021-2022. The main objective to carry out an environmental audit is to check the green practices followed by the college and to conduct a well-defined audit report to understand whether the college is on the track of sustainable development.

8. CONCLUSION:

From the Environment audit following are the conclusions, which could be drawn:

- 1) Overall requirements for the environment are yet to be fulfilled.
- 2) Improving campus air quality, managing spaces for fulfilling the needs of water scarcity/management, cleanliness and sanitation should be improved, available space can be managed properly for compost, landfill, learn and earn schemes vis a vis environmental strategies and management.
- 3) Food waste generated on campus is collected from dining areas. The food waste is then collected by KDMC's Garbage van in the form of wet waste. It is then disposed of in the eco-friendly manner by the municipal corporation.
- 4) E-waste generated in the campus is disposed of in a scientific and eco-friendly manner.
- 5) Use of LPGs for Cooking and Laboratory experiments reduces the carbon emission and thereby maintains the air quality.

9. Recommendations

- Formation of Environment Policy and communicated to all faculties and other staff members.
- Reduction in use of paperwork by 'go digital' system.
- A Water Meter should be installed at the college for monitoring of water consumption for landscape.
- Increase in Environmental promotional activities for spreading awareness at campus.
- We would strongly recommend Installation of Solar panels as an alternative source of energy for managing electricity bills, energy conservation and sustainable future.
- Development of Garden and greenery inside the college campus. Space should be provided in the campus for big and canopy laden trees. This will not only help in improving the air quality but also in maintaining an enthusiastic and healthy environment among the students, faculties and the institutional bodies.
- Regular air quality monitoring is strongly recommended, as we are situated in MIDC area(which is prone to have polluted air and environment)
- Construction of at least one composting pit in the college campus. This will help in proper waste management. It also provides compost for campus trees and plants.
- Installation of a proper rainwater harvesting system in the campus. This will minimize the load on water storages in the reservoir.

K. Ashtekar

Mr. Kapil Ashtekar
Chairperson, Environment Audit Committee

B.T. Shirsath

Mr. B.T. Shirsath
IQAC Coordinator

S.V. Lasune

Dr. S.V. Lasune
PRINCIPAL
K.V. PENDHARKAR COLLEGE OF
ARTS, SCIENCE & COMMERCE, (AUTONOMOUS)
DOMBIVLI (EAST)



**Dombivli Shikshan Prasarak Mandal's
K. V. Pendharkar College of Arts
Science & Commerce (Autonomous),
Dombivli (E)**

Energy Audit Report 2021-22

ACKNOWLEDGEMENT

Data collection for energy audit of the Dombivli Shikshan Prasarak Mandal's K. V. Pendharkar college of Arts, Commerce and Science College, Dombivli(E) Campus was conceded by team for the period. This audit was over sighted to inquire about convenience to progress the energy competence of the campus. To drop of energy utilization whilst cultivate or humanizing comfort, health and safety were of prime anxiety. This audit required to recognize the mainly energy proficient appliances. Besides, several each day processes concerning common appliances have been provided which facilitate sinking the energy expenditure. The energy audit survey was completed by Energy audit committee. All data collected from each classroom, laboratory, every room. The work is completed by considering, how much tubes, fan, A.C.s, P.C.s, other appliances etc., in each room. How much was participation of each component in total electricity consumption.

Team

1. Mr. Suyash Agnihotri (In-Charge)
2. Mr. Aakash Gangavane (Member)
3. Mr. Shrikant Shinde (Member)
4. Ms. Pranoti Shinde (Member)

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Introduction to Energy Audit

Availability and utilization of energy drives the growth of economy and advancement of any country and thus, the demand of energy is increasing day by day. The worldwide mounting energy crisis with galloping cost hike, concern for environmental protection and open market competitive economy possesses serious challenge to Indian College to survive and grow.

One of the easier available options for survival is 'Energy Conservation' thereby saving environment and cost reduction through strategic energy management. It also gives a positive orientation to energy cost reduction, preventive maintenance and quality control programs. This is the translation of conservation ideas into reality by blending techno economically feasible solutions within a specified time frame.

Energy conservation is a worldwide objective. The energy policy of the Government of India calls for conservation of energy. With the enactment of Energy Conservation Act 2001 amongst others has emphasized upon the power of the appropriate Govt. to enforce efficient use of energy and its conservation.

The study could identify concerned problem areas, barriers towards maintaining right use of available facilities and come out with cost effective solutions. It also recommends cost effective and fast pay back solutions for performance improvement of all the systems.

OBJECTIVES

The objective of the study is to assess overall efficiency of the various systems and defined specific energy consumption of the academic building and make recommendations about potential energy saving opportunities, based on the observation of energy audit.

Hence the detail objectives are as under,

1. To calculate the energy consumption
2. To evaluate the performance of the equipment
3. To find out the energy saving opportunities
4. To quantify the total energy savings
5. To find out the ways to achieve energy efficiency

METHODOLOGY

The audit involves visiting physical position of load and carry out inventory of load. Due measurement of electrical load of equipment and circuit is carried out. Energy bill received from MSEDCL is audited and studied for KWH requirement and how efficiently energy is used. Energy conservation and saving opportunities are identified during round and measurement for implementation.

(Important Note: MSEDCL bill units per month will not tally to monthly consumption as during online instruction period operations were not regular)

System Studied During Energy Audit:

1. MSEDCL monthly electricity is studied and audited.
2. Counting Number of Equipment
3. Study of energy utilization requirement.
4. Split air conditioner operation.
5. Energy saving opportunities is identified.

FINDINGS:

Sr. No.	Item Name	Wattage	Total No. of Item	Total Wattage (In Watt)	Daily use (In Hrs.)	Daily power consumption (Watt. Hr)
1	Fans	70	560	39200	6	235200
2	Tubes (40 Watt)	40	841	33640	6	201840
	T5 (28 Watt)	28	132	3696	6	22176
	LED Tubes	20	38	760	6	4560
3	Air Conditioner (AC)	1200	40	48000	3	144000
4	Bulbs	100	4	400	0.5	200
5	Ovens	2000	6	12000	0.5	6000
6	Printers	30	36	1080	0.5	540
7	Computers (Desktop)	90	208	18720	4	74880
8	Server	650	1	650	24	15600
9	Water Coolers	150	6	900	4	3600
10	Copier	450	2	900	0.5	450
11	Xerox Machine	250	2	500	0.5	250
12	ID Printers	80	2	160	0.5	80
13	Projectors	250	12	3000	0.5	1500
14	Scanners	10	6	60	0.5	30
15	Barcode Reader	10	3	30	0.5	15
16	Refrigerators	200	2	400	24	9600
17	Deep Freezer	500	1	500	24	12000
Daily power consumption (Watt-hr)						732521

Daily power consumption (Kilowatt-hr)

732.52

Monthly power consumption (In Kilowatt-hr)

18313.025

Sr. No.	Item Name	Wattage	Total No. of Item	Total Wattage (In Watt)	Daily use (In Hrs.)	Daily power consumption (Watt. Hr)
1	Fans	70	560	39200	6	235200
2	LED Tubes	20	1011	16820	6	100920
3	Air Conditioner (AC)	1200	40	48000	3	144000
4	Bulbs	100	4	400	0.5	200
5	Ovens	2000	6	12000	0.5	6000
6	Printers	30	36	1080	0.5	540
7	Computers (Desktop)	90	208	18720	4	74880
8	Server	650	1	650	24	15600
9	Water Coolers	150	6	900	4	3600
10	Copier	450	2	900	0.5	450
11	Xerox Machine	250	2	500	0.5	250
12	ID Printers	80	2	160	0.5	80
13	Projectors	250	12	3000	0.5	1500
14	Scanners	10	6	60	0.5	30
15	Barcode Reader	10	3	30	0.5	15
16	Refrigerators	200	2	400	24	9600
17	Deep Freezer	500	1	500	24	12000
Daily power consumption (Watt-hr)						625265

Daily power consumption (Kwatt-hr)

625.27

Monthly power consumption (In Kwatt-hr)

15631.625

Reduction in Average Monthly Power Consumption by replacing 40-watt tube lights and 28 watts T5 tube lights with LED tube lights will be $(18313 - 15631 = 2682 \text{ Kwatt-hr})$

CONCLUSION & RECOMMENDATIONS

- Air conditioner shall be operated between temperature range of 23-25°C to maintain lower cooling load on compressor to save energy.
- Energy audit to be carried out by professional agency as many real time observations can be done with sophisticated instruments so that approximation can be reduced, and accuracy can be increased.
- 40-watt tube lights and 28-watt T5 tube lights can be replaced by LED tube lights of 20-watts for reducing consumption.
- Checking of feasibility of Solar Panel System for generation of Energy will be stepping stone in the energy independency of the institute.
- Importance of Energy saving should be encouraged through various means regularly.

Energy audit is an effective tool in identifying and perusing a comprehensive energy management program. A careful audit of any type will give the organization a plan with which it can effectively manage the organization energy system at minimum energy cost. In this paper a detailed study has been made to reduce the electrical energy consumption in the campus of Dombivli Shikshan Prasarak Mandal's K.V. Pendharkar college of Arts, Commerce and Science College, Dombivli (E). It highlights the amount of energy savings, thereby reducing the energy crisis considerably.



Mr. Suyash Agnihotri

Chairperson, Energy Audit Committee



Mr. B.T. Shirsath

IQAC Coordinator



Dr. S.V. Lasune

PRINCIPAL

K.V. PENDHARKAR COLLEGE
ARTS, SCIENCE & COMMERCE, (AUTONOMOUS)
DOMBIVLI (EAST)







DOMBIVLI SHIKSHAN PRASARAK MANDAL's
K.V.PENDHARKAR COLLEGE OF ARTS SCIENCE AND
COMMERCE

(AUTONOMOUS DEGREE)

NCC GIRLS AND BOYS UNIT

DATE: 19/04/20

NCC NOTICE

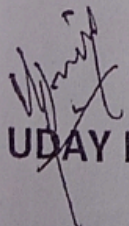
NCC cadets are hereby informed that on **22/04/2022** we are celebrating **EARTH'S Day**. On account of this occasion we are conducting creek cleaning activity under "**PUNEET SAGAR MISSION**". All Cadets are informed to give your 100% attendance for this activity. All cadets should come in NCC Uniform compulsory and carry your own posters on Earth Day.

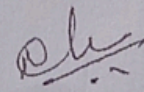
-: **Schedule** :-

- ✦ 09.00 am to 11.00 am – Creek cleaning activity
- 11.30 am to 12.00 pm – Poster making activity
- 12.00 pm to 01.00 pm – Awareness lecture by Prof. Kapil Ashtekar (Dept of Geography)
- 01.00 pm to 01.10 am – Departure of cadets

-: **Venue for Creek Cleaning Activity** :-

GANESH GHAT KUMBHARKAN PADA DOMBIVLI (WEST)


Lt. UDAY NAIK


ANO. Lt. Dr. VARSHA NARWADE



GPS Map Camera



Dombivli, Maharashtra, India

63PV+49X, Navapada, Trimurti Society, Dombivli,
Maharashtra 421301, India

Lat 19.23564°

Long 73.09317°

22/04/22 09:48 AM



GPS Map Camera



Dombivli, Maharashtra, India

63PV+49X, Navapada, Trimurti Society, Dombivli,

Maharashtra 421301, India

Lat 19.235551°

Long 73.093189°

22/04/22 09:57 AM



GPS Map Camera



Dombivli, Maharashtra, India

63PV+49X, Navapada, Trimurti Society, Dombivli,
Maharashtra 421301, India

Lat 19.235816°

Long 73.092914°

22/04/22 09:55 AM